PLANT-BASED TANNINS AS ANTIOXIDANTS

IN PRE-COOKED GROUND BEEF PATTIES

A Thesis

by

SHANNON MICHELLE CRUZEN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

August 2010

Major Subject: Animal Science

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Approved by:

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ABSTRACT

Plant-Based Tannins as Antioxidants in Pre-Cooked Ground Beef Patties.

(August 2010)

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Chair of Advisory Committee: Dr. Rhonda K. Miller

Meat lipid oxidation causes negative quality effects, especially in further processed products. Butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), and rosemary extract (RM) are common antioxidants, but plant-based tannin compounds have been shown to be effective antioxidants. The objective was to evaluate antioxidant effectiveness, pH, color, and sensory effects of several tannin sources.

In study 1, 19% fat ground beef was mixed with no treatment (control), BHA/BHT (0.02%), RM (0.2%), or 0.25% or 0.5% powders of Chardonnay grapeseed (CG), Norton grapeseed (NG), CitruSmart™ (CS), or dried cherry (CP). Raw and cooked patties were aerobically stored for 0 to 5 days at 4ºC. Cooked patties were analyzed using the TBARS (thiobarbituric acid reactive substances) method. Raw patties were analyzed for pH, instrumental color, subjective color, and ingredient specks. Study 2 was similar, except the treatments were 0.25% and 0.5% powders of CG, chestnut (CN), mimosa (M), and quebracho (Q) tannins, as well as 0.5% NG, 0.02% BHA/BHT, 0.2% RM, and a control.

In study 1, only the NG and CG pre-cooked patties had similar or lower TBARS values compared to RM and BHA/BHT patties. All tannin treatments, except 0.25% CG and 0.25% CS, lowered pH compared to the control. Patties with NG and 0.5% CG were darker, and tannin-treated patties were not redder than the control. Patties with CG and 0.5% NG were less yellow. Subjectively, tannin-treated patties did not have less discoloration during storage, and the CG and NG patties had numerous visible ingredient specks.

In study 2, CN, M, Q, and 0.5% CG treated patties had low TBARS during storage. pH was slightly lower in CG and CN patties than the control. All tannin-treated patties were darker than the control patties, except patties containing 0.25% CG and Q, and control patties had the highest red values. Tannin-treatments patties, except CN and Q patties, were less yellow. Subjectively, only 0.25% M patties had less discoloration than control patties, while 0.5% CN patties were more discolored.

Norton and Chardonnay grapeseed flour and chesnut, mimosa, and quebracho powders would be recommended for pre-cooked ground beef patties based on their antioxidant effectiveness in these studies.

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NOMENCLATURE

BHA	Butylated hydroxyanisole
BHT	Butylated hydroxytoluene
CP	Dried Balaton cherry powder
CG	Viniferox™ Chardonnay grapeseed flour
CN	Chestnut tannin
CS	CitruSmart™
M	Mimosa tannin
NG	Viniferox™ Norton grapeseed flour
Q	Quebracho tannin
RM	Herbalox® rosemary extract
TBARS	Thiobarbituric acid reactive substances

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INTRODUCTION

In today's time-pressed society, consumers are looking for quick food options that are also healthy and inexpensive. Furthermore, they are increasingly aware and conscientious of what is going into their food products and are demanding higher quality and food safety than ever before. An added complication is a lack of consumer trust in the food industry (Grunert, 2002). One result of this is a push for more natural based non-meat ingredients. As the food industry strives to meet these demands, it becomes necessary to find new technologies that can improve the quality and convenience of our food without sacrificing cost, while trying to meet the need for a more natural label.

Lipid oxidation is a major cause for concern in the meat industry due to its negative effects on color, flavor, and nutritional value, and the subsequent effects on consumer acceptance. Oxidation is caused by free radicals, which can be defined as any chemical species which have one or more unpaired electrons (Hamilton, Kalu, Prisk, Padley, & Pierce, 1997). These free radicals are highly unstable and react with polyunsaturated fatty acids (PUFAs), as well as amino acids, heme groups in pigments, and vitamins with conjugated double bonds, forming more free radicals as well as other undesirable compounds (McMillin, 1996). Meat products most susceptible to lipid oxidation include processed meat products and those with higher fat levels, such as precooked meats, ground product, sausages, and bacon.

This thesis follows the style and format of *Meat Science.*

Antioxidants are available for these products to reduce or eliminate the effects of lipid oxidation. Synthetic butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT) have been used for years, but have recently come under fire for possibly having links to cancer (Greene, 1969; Branen, 1975). In addition, with today's consumers often looking for a more "natural" product, it is necessary to find alternative sources of antioxidants (Grunert, Bredahl, & Brunsø, 2003; Haworth, 2003). Phenolic compounds from plant sources such as rosemary have been found to have antioxidant properties while meeting the "natural" requirement (Haworth, 2003). Polyphenolic compounds, such as condensed and hydrolysable tannins, seem to be especially effective (Chimi, Cillard, Cillard, & Rahmani, 1991).

The objective of this research was to evaluate the antioxidative effectiveness of tannin-containing ingredients from several plant sources in pre-cooked ground beef patties. The tannin sources included Chardonnay grape seed flour, Norton grape seed flour, cherry seed flour, CitruSmart™, chestnut wood, mimosa bark, and quebracho wood. Treated patties were compared to control (no antioxidant added) patties, and patties containing BHA/BHT or rosemary extract. Comparative determinations were made based on cooked patty oxidative rancidity, as well as raw pH and color stability.

LITERATURE REVIEW

Mechanism of Lipid Oxidation

Autoxidation is the primary form of lipid oxidation in muscle meats. The three stages of autoxidation are initiation, propagation, and termination, as well as a possible branching stage. In the initiation step, an initiator, such as light, metal, heat, or oxygen causes a hydrogen atom to be removed from the unsaturated lipid, forming alkyl free radicals (R·) and peroxy radicals (RO_2·).

$$RH + O_2 \rightarrow R\cdot + RO_2\cdot + OH\cdot + H_2O$$

The products of this step then go on to produce more free radicals during the propagation stage. Alkyl radicals react with oxygen to form peroxy radicals, and peroxy radicals steal hydrogen atoms from the unsaturated lipid to form an alkyl radical and fatty acid hydroperoxide.

$$R\cdot + O_2 \rightarrow RO_2\cdot$$

$$RO_2\cdot + RH \rightarrow R\cdot + ROOH$$

At this point, branching of the hydroperoxide may occur. If this happens the hydroperoxide will break down to form an alkoxyl and a hydroxyl free radical or a peroxy free radical, an alkoxyl free radical, and water. Because this step converts a non-free radical into two radicals, it is the mechanism by which lipid oxidation is considered self-catalytic.

$$ROOH \rightarrow RO\cdot + OH\cdot$$

$$2ROOH \rightarrow RO_2\cdot + RO\cdot + H_20$$

Finally, the oxidation process goes through the termination stage by combination of free radicals to create non-radical compounds.

$2R\cdot \rightarrow R\cdot R$

$R\cdot + RO_2\cdot \rightarrow ROOH$

$RO_2\cdot + RO_2\cdot \rightarrow ROOH + O_2$

(Hamilton et al., 1997)

Because free radicals attack double bonds of fatty acids to steal hydrogen, unsaturated fatty acids are most susceptible to oxidation. More double bonds are available in polyunsaturated fatty acids (PUFAs), which make them more prone to oxidative processes than monounsaturated fatty acids (MUFAs). Also, fatty acids in the *cis* arrangement generally oxidize more quickly than those in the *trans* arrangement. Phospholipids within muscle cells have been shown to contain about 15 times more PUFAs than triacylglycerides in muscle tissue, and are therefore more readily oxidized (Allen & Foegeding, 1981; Pearson, Love, & Shorland, 1977). Based on degree of PUFAs, oxidation occurs most easily in fish, followed by poultry, pork, beef, and lamb.

One of the simplest ways to limit autoxidation is to remove oxygen. Nolan, Bowers, & Kropf (1989) demonstrated that vacuum-packaging precooked pork and turkey resulted in lower TBARS and better sensory scores than similar samples stored in air permeable packaging. Hsieh and Baldwin (1984) found similar results with precooked vacuum-packaged beef versus similar beef stored in a casserole dish covered with a tight fitting lid. Ahn, Wolfe, Sim, and Kim (1992) similarly found that

immediately vacuum-packaging turkey patties resulting in TBARS values 30 to 50 percent lower than patties that were chilled for 3 hr before vacuum-packaging.

There are several catalysts in addition to the singlet oxygen initiator which may assist in the beginning of the autoxidation process. These include metals, heat, pigments, light, and salt. Iron and copper are especially reactive with hydroperoxides to form alkoxyl and peroxyl free radicals. These ions are often exposed to the unsaturated lipids through tissue damage postmortem and subsequent release (Morrissey, Sheehy, & Buckley, 1998). Processing of meat products, particularly grinding, causes increased oxidation through damage of muscle tissue, resulting in increased exposure to oxygen and other initiators of oxidation (Ladikos & Lougovois, 1990). Kanner, Shegalovich, Harel, and Hazan (1988) proved that metal ions were important catalysts by showing that oxidation could be prevented by a combination of a vacuum and EDTA, a known metal chelator. It has been shown that exposure to heme-containing muscle pigments, such as metmyoglobin, increases oxidation rates. Processed meat products can also come into contact with these metals through processing equipment, water, and spices.

Heat is an important catalyst of oxidation. High temperature causes the activation energy required for oxidation to decrease. Heating is also suspected to cause damage and denaturation, resulting in a release of molecular iron, inactivation of enzymes, and release of oxygen from oxymyoglobin, thereby increasing oxidation rates (Chen, Pearson, Gray, Fooladi, & Ku, 1984; Kanner, 1994). Free iron is easily converted into its oxidized form, initiating free radical reactions with PUFAs (Love, 1988). Chen et al. (1984) also observed that slow heat caused the release of more heme

iron than fast, high heating. It has been recognized that cooking to high temperatures can protect against lipid oxidation by producing Maillard reaction products (Pearson et al., 1977; Bailey, 1988).

Sodium chloride (NaCl), a common ingredient in most processed meat products, has long been shown to accelerate lipid oxidation (Chen et al, 1984; Farouk, Price, & Salih, 1991; Ahn, Wolfe, & Sim, 1994). Kanner, Harel, and Jaffe (1991) proposed that the prooxidant effect of NaCl on minced turkey meat is due to the ability of NaCl to enhance the activity of iron ions in lipid oxidation. It could also be possible that NaCl damages cell membranes, further exposing membrane lipids to oxidation. In addition, Lee, Mei, & Decker (1997) have shown that NaCl may reduce the activity of antioxidant enzymes normally present in meat.

Exposure to light enhances oxidation, with ultraviolet light being the most damaging followed by fluorescent lighting, and incandescent lighting producing the least damage. Light is considered a factor in assisting singlet oxygen to induce oxidation (Whang & Peng, 1988; Djenane, Sánchez-Escalante, Beltrán, & Roncalés, 2001). This becomes very important because products can be stored under light in the retail case for days. Djenane et al. (2001) showed that shelf life of fresh meat could be extended from 12 to 22 or 28 d by using a low UV lamp or a fluorescent lamp with a UV filter versus standard supermarket fluorescent lighting.

Effects on Quality

Lipid oxidation has numerous effects on the quality characteristics of meat, including flavor, color, and odor. The most common term for oxidative flavor is

"warmed over flavor" (WOF), which was first introduced by Tims and Watts (1958). The term describes the flavor of refrigerated cooked meat which has undergone oxidation. Uncooked meats can develop warmed over flavor, as well. Other flavors associated with lipid oxidation are stale, cardboard, oxidized, rancid, and painty (Love, 1988). Younathan and Watts (1958) showed that these flavors were directly correlated with TBARS values. An important note is that the compounds which cause these flavors have very low flavor thresholds; very little is required to detect a significant difference in flavor (Gray et al, 1996).

Color degradation, generally due to myoglobin oxidation, is highly correlated with lipid oxidation (Hutchins, Liu, & Watts, 1967). This has real implications since consumers use color (and sometimes only color) to make purchasing decisions about freshness and quality. The primary pigment in muscle is myoglobin. Oxygenated myoglobin is called oxymyoglobin and is a bright cherry red color. Deoxymyoglobin is the deoxygenated form and is a purplish color. When muscle pigments undergo oxidation, the myoglobin is transformed into oxidized metmyoglobin, which is a brown color (MacDougall, 1982). This is due to the loss of an oxygen atom and an electron from the ferrous ion (Kanner, 1994). Metmyoglobin formation can be affected by temperature, pH, oxygen partial pressure, the reducing activity of the meat, and microbial growth. Metmyoglobin can only be converted back to deoxymyoglobin under reducing conditions (Mancini & Hunt, 2005).

Lipid oxidation can cause a decrease in nutritive value and even create toxins which could be detrimental to health. Co-oxidation of cholesterol can produce a class of

compounds which induce atherogenicity, formation of plaques on the interior of the arteries. Pure cholesterol is not atherogenic (Kanner, 1994). In addition, some toxic products of lipid oxidation are believed to lead to deteriorative processes in humans, including aging. One such product, malonaldehyde, has been linked to mutagenesis, as well as the formation of N-nitrosamines, which are carcinogenic (Ladikos and Lougovois, 1990).

Antioxidant Application

The negative effects of lipid oxidation can be delayed or slowed down through the use of antioxidants. There are two basic types of antioxidants: those that terminate free radicals (primary antioxidants), and those that prevent them (secondary antioxidants). Free radical terminators (A·) stop the oxidation chain reaction by donating a hydrogen atom to the free radical, thus inactivating it. The antioxidant free radical can then react directly with other free radicals to form a stable compound.

$$R\cdot + R\cdot + AH \rightarrow RH + R\cdot + A\cdot \rightarrow RH + RA$$

$$RO\cdot + RO\cdot + AH \rightarrow ROH + RO\cdot + A\cdot \rightarrow ROH + ROA$$

$$ROO\cdot + ROO\cdot + AH \rightarrow ROOH + ROO\cdot + A\cdot \rightarrow ROOH + ROOA$$

(Pearson et al., 1977)

These primary antioxidants include synthetic phenolic compounds such as BHT, BHA, propyl gallate (PG), tertbutyl hydroquinone (TBHQ). Greene (1969) showed that BHA and PG substantially inhibited lipid oxidation and protected meat color pigments. These synthetic compounds are more effective, however, when a secondary antioxidant is used. Free radical preventers, or secondary antioxidants, trap radicals, chelate metal

ions, regenerate primary antioxidants, or act as emulsifying agents. These include ethylenediamine tetraacetic acid (EDTA), citric acid, and phosphates (Haworth, 2003). Timms and Watts (1958) showed that phosphates were able to suppress lipid oxidation through metal chelation. When used in combination, chelating agents such as phosphates or EDTA and ascorbic acid have a synergistic effect in preventing oxidation, although ascorbic acid alone can be a prooxidant (Lehmann & Watts, 1951; Benedict, Strange, & Swift, 1975). Low levels of ascorbic acid seem to accelerate the lipid oxidation reaction, while high levels act as an antioxidant, possibly because ascorbic acid keeps a portion of iron in the ferrous state and higher levels upset the balance between ferrous and ferric iron (Sato & Hegarty, 1971).

Numerous studies have shown that nitrite used to cure meats also has an antioxidant effect (Gray & Pearson, 1984; Sato & Hegarty, 1971; Fooladi, Pearson, Coleman, & Merkel, 1977). Morrissey and Tichivangana (1985) proposed several mechanisms for this: the formation of nitric oxide myoglobin which has antioxidant properties; a nitrosylhemochrome complex is formed upon heating, which blocks the catalytic activity of heme iron and prevents the release of non-heme iron; and nitrite forms a complex with non-heme iron, inhibiting its catalytic activity.

Many countries do not allow some of the chemically derived antioxidants mentioned above, and in addition, today's consumers are increasingly looking for more "natural" labels. Therefore, many of the previously named antioxidants are not practical, and many producers using them are looking for a more natural alternative for a more appealing label. Natural phenolic compounds include tocopherols, of which vitamin E is

most notable (Ladikos and Lougovois, 1990). Vitamin E supplementation to the live animal has long been shown to result in high α-tocopherol presence in post-mortem muscle tissue. This antioxidant effect gives an extra 1.6 to 5 days of shelf life to product (Faustman, Cassens, Schaefer, Buege, Williams, & Scheller, 1989; Phillips, Faustman, Lynch, Govoni, Hoagland, & Zinn, 2001).

The oleoresins of rosemary, sage, and oregano have generally recognized as safe (GRAS) status, and are commonly used as antioxidants. Their antioxidant activity has often been shown to be comparable or greater than BHA or BHT due to phenolic compounds that are present (Sebranek, Sewalt, Robbins, & Houser, 2005). Rosemary in particular has been used for centuries to prevent rancidity, but its potency is notoriously variable. Beltran, Pla, Yust and Mor-Mur (2004) found that while rosemary extract was an effective antioxidant in raw pressure-treated samples, it had little effect on cooked samples. Much of the variability in results is due to inconsistent levels of the phenolic compounds responsible for rosemary's antioxidant activity, which can be variable based on growing conditions. In recent years rosemary extract producers have tried to control these variables and now certify their products based on activity basis (Haworth, 2003).

Tannins

Tannins are generally polyphenolic compounds of high molecular weight (M_r > 500) capable of forming cross-linkages with proteins and other macromolecules. Tannins are found naturally in many plant sources, including grains, legumes, fruits, and herbs. It is estimated that humans consume an average of 1g/day of tannins. Tannins can be divided into three groups: condensed, hydrolyzable, and phlorotannins

(Hagerman, Riedl, Jones, Sovik, Ritchard, Hartzfeld, & Riechel, 1998). Condensed tannins, or proanthocyanidins, are flavanol oligomers linked together by carbon bonds. Common sources include tea, grape seeds and skin, and cocoa. Hydrolyzable tannins principally have a glucose core and hydroxyl groups which are esterified by gallic acid (gallotannins) or hexahydroxydiphenic acid (ellagitannins). Hydrolyzable tannins are usually found in wood or bark tissue (Bors, Foo, Hertkorn, Michel, & Stettmaier, 2001). Phlorotannins are only found in marine brown algae.

As phenolic compounds, tannins have antioxidant properties. Flavonoids have long been shown to be free radical scavengers (Husain, Cillard, & Cillard, 1987). Chimi et al. (1991) showed that phenolic compounds worked as primary antioxidants by trapping intermediate peroxyl radicals and that adding phenolic compounds to linoleic acid could dramatically reduce lipid oxidation. It was found, however, that some phenolic compounds are better antioxidants than others, while some showed almost no antioxidant activity. It was noted that the antioxidant phenols were diphenols, while the phenol that showed no effect was a monophenol. These results were further elucidated by Hagerman et al. (1998). It has been shown that polyphenols have greater antioxidant activity than di- or monophenols, as the number of phenolic rings plays a part in radical scavenging activity. In addition, polyphenolic compounds have some metal chelating activity (Husain, et al.,1987).

While tannins are an excellent antioxidant, they pose some problems in digestion, which is believed to be due to their protein binding and metal chelating activity. Hydrolyzable tannins are potentially toxic to ruminants (Dollahite et al., 1962; Holliman,

1985; Shi, 1988). Cattle fed diets high in high-tannin sorghum often have reduced feed efficiency and growth rate and decreased protein and amino acid digestibility (Maxson, Shirley, Bertrand, & Palmer, 1973; Larraín, Schaefer, Arp, Claus, & Reed, 2009). Protein complexes are believed to form between the phenolic hydroxyl groups of tannins and the carbonyl groups within peptide linkages of proteins via a combination of hydrogen and hydrophobic bonds, resulting in lower digestion of these proteins (Hoon, Hoff, & Haff, 1985; Frazier, Deaville, Green, Stringano, Willoughby, Plant, & Mueller-Harvey, 2010). The problems that can occur in some forages containing tannins is that they are non-specific to which proteins they bind to, including enzymes essential in digestion. Hagerman and Butler (1980) showed that tannins have a particular affinity for proteins containing large amounts of proline. In comparison with their antioxidant activity, it appears that the protein binding ability of various tannins is directly related with their molecular weight (Frazier et al., 2010). Jimenez-Ramsey, Rogler, Housley, Butler, and Elkin (1994) observed that chickens fed high-tannin sorghum did not digest the high molecular weight tannin portion, but did absorb non-tannin phenolic compounds present in the sorghum.

Barry et al. (2001) reported, however, that while condensed tannins bind to proteins in the near neutral pH of the rumen, they dissociate in the lower pH of the abomasums, allowing proteins to be digested. Some studies have been able to effectively use these properties to inhibit microbial fermentation, methane emissions, and bloat in ruminants by reducing the availability of nutrients to microbes (Puchala et al., 2005; Min et al., 2006).

The results are mixed as to the positive or negative effect of tannins on human health, although most of the research is based on animal studies. Many report tannins to have an anticarcinogenic effect, while others have found links to esophageal cancer, among other cancers. Tannins reduce the bioavailability of iron and vitamin B_{12} and could possibly inhibit many digestive enzymes, including pectinase, amylase, lipases, and proteolytic enzymes (Goldstein & Swain, 1965). The most important inhibitory effect on digestion, however, is the tannin-protein complex, which could prevent absorption of essential amino acids. For the most part, these digestive effects are limited to those who do not consume ample amounts of animal proteins and cereals. High levels of tannins can cause gastroenteritis and intestinal problems. Tannins have been implicated in human cheek, esophageal, stomach, liver, and kidney cancers. However, these results are epidemiological and not conclusive. For example, in many cases where tea consumption has been linked to cancer, some have concluded that the cancer was related to the temperature of the tea and not the tea itself, suggesting that the cancer may be due to irritation and cellular damage rather than mutagenesis (Victoria, Muñoz, Day, Barcelos, Peccin, & Braga, 1987). In contrast, many others have shown an inverse relationship between tannin consumption and various cancers, including colon, esophageal, liver, lung, tongue, and skin cancer (Chung, Wong, Wei, Huang, & Lin, 1998; Nagle, Ferraira, & Zhou, 2006). There is evidence of an antimutagenic effect of tannins, as well as anti-tumor promotion and chemoprevention of cancer (Okuda, 2005). Further research is necessary, but in the interim one should balance the benefits and possible risks of ingesting high levels of tannins.

Numerous studies have been conducted to evaluate the efficacy of various tannin-containing ingredients in meat systems. Several of these studies have involved varieties of grape seed. In a study conducted by Lau and King (2003), grape seed extract added at levels of 1.0% significantly reduced TBARS values in dark meat turkey patties. This effect was present whether the patties were heated or unheated as well as salted or unsalted. Sáyago-Ayerdi, Brenes, and Goñi (2009) found similar results when adding grape antioxidant dietary fiber from Cencibel (or Tempranillo) grapes at levels of 1 and 2% to raw and cooked chicken hamburgers, although the results were not as dramatic. In pork, Carpenter, O'Grady, O'Callaghan, O'Brien, and Kerry (2007) used varying levels of grape seed extract in minced pork patties. In raw patties, oxidation was improved from the control in levels as low as 0.005% over 12 days of storage. Lipid stability increased with increasing concentration, up to 0.1%. In cooked patties treated with 0.04% and 0.1% grape seed extract, TBARS values showed an 8 and 9-fold decrease, respectively, compared to the control. Finally, in beef, Ahn, Grün, and Fernando (2002) demonstrated TBARS values half that of the control using 0.02% grape seed extract in cooked ground beef patties.

Many other tannin sources have been used in meat systems, although not as extensively. High-tannin sorghum bran has been shown to be an effective antioxidant in both raw (Jenschke, 2004; Hemphill, 2006) and cooked ground beef patties (Shin, 2006). Green tea extract powder, as well as tea catechins, also have demonstrated efficacy in beef, chicken, and pork (Jo, Son, Son, & Byun, 2003; Mitsumuto, O'Grady, Kerry, & Buckley, 2005). Other natural polyphenolic sources that have demonstrated antioxidant

capapbilities in meat systems include pomegranate rind, plum powder, cherry tissue, and pine extract (Naveena, Sen, Vaithiyanathan, Babji, & Kondaiah, 2008; Nuñez de Gonzalez, Hafley, Boleman, Miller, Rhee, & Keeton, 2008; Britt, Gomaa, Gray, & Booren, 1998; Ahn et al., 2002). There is still a great opportunity for exploring new tannin sources for their antioxidative properties in meat systems.

MATERIALS AND METHODS

Study 1. Cherry, CitruSmart™, and Grapeseed Tannins

Sample Preparation

Over three batches, fine ground beef with a fat content of 19% was purchased from a wholesale meat supplier (Ruffino's, Bryan, TX). Within a treatment, CitruSmart™ (CS) (Natural Citrus Products Corp., La Belle, FL), dried Balaton cherry powder (CP) (Cerise Nutraceuticals LC., Traverse City, MI), ViniferOX™ Chardonnay grape seed flour (CG) (Botanic Oil Innovations Inc., Spooner, WI), or ViniferOX™ Norton grape seed flour (NG) (Botanic Oil Innovations Inc., Spooner, WI) were added at levels of 0.5% or 0.25%. Rosemary extract (Herbalox® Type HT-25, Kalsec Inc., Kalamazoo, MI) was added at 0.2%. Food-grade butylated hydroxyanisole (BHA) (Sigma-Aldrich, W218208) and butylated hydroxytoluene (BHT) (Sigma-Aldrich, W218405) were added together at 0.01% each. All treatments, including a control (no added ingredients), were mixed for 1.5 min using a Hobart mixer (A-200 T, Troy, OH).

Patties (200 g), 14 per treatment, were formed using a standard patty mold (Tupperware™ Hamburger Press). Two raw patties per treatment were randomly assigned to storage days 1, 3, and 5, given 3 digit random numbers and packaged (Heat Sealing Equip. Co., Cleveland, OH) on foam trays (Pactive Advanced Packaging Solutions, Lake Forest, IL) with PVC film (Stretchable Meat Film 55003815, Prime Source, St Louis, MO). Eight patties per treatment were cooked at 180ºC in a convection oven (Model DN097, Hobart Co., Troy, OH) to an internal temperature of

73ºC. Internal temperatures were monitored using a copper-constantan thermocouple (Omega Engineering, Stamford, CT) inserted into the geometric center of each patty and connected to a handheld thermometer (T-Type, Omega Engineering, Inc., Stamford, CT). After cooking, patties were weighed, two patties per treatment were randomly assigned to storage day 0, 1, 3, or 5, and packaged as defined for raw patties. Within a storage day and treatment, 2 raw patties were used for pH, instrumental color, and subjective color, and 2 cooked patties were used to determine thiobarbituric acid reactive substances (TBARS). All patties were stored under fluorescent lighting (Lithonia Lighting, Aculty Lighting Group, Inc., Conyers, GA, 1614 lux) at 4ºC. Patty location was randomized by day and treatment to avoid positional effects. These storage conditions were designed to mimic common retail storage, while inducing high levels of lipid oxidation in control samples.

Instrumental Measurements

Objective color was determined using a colorimeter (Minolta Chroma Meter CR-400, Minolta Co. Ltd., Ramsey, NJ) whose port was covered with PVC film and calibrated daily using a white tile (Y = 94.3, x = 0.3130, y = 0.3199). Three separate readings were obtained in random locations on the exterior surface of each raw patty within the package. CIE L*, a*, and b* color space values (lightness, redness, and yellowness, respectively) were recorded, and the average for the three locations within color space values were reported.

The ultimate pH of raw patties was determined using a pH meter (Model IQ 150, IQ Scientific Instruments, Carlsbad, CA), which was calibrated daily using standard pH

7.0 and pH 4.0 buffer solutions. Three separate readings were obtained by placing the probe into the center of each patty in random locations and reading the pH after the values had stabilized. The pH was reported as the average of the three values.

Cook loss was expressed as a percentage of raw beef patty weight by weighing each patty before and after cooking.

Cook loss % = [1-(weight of cooked patty/weight of raw patty)] x 100

Level of lipid oxidation of the cooked patties was determined using the TBARS method developed by Tarladgis et al. (1960) and modified by Rhee (1978). Each patty was homogenized using a food processor (CuisineArt Pro Classic, Model DLC-10S TX Type 25, CuisineArt, East Windsor, NJ). Duplicate 30 g samples were blended (Waring™ commercial blender, New Hartford, CT) with 15 ml of a 0.5% propyl gallate (PG) and 0.5% ethylenediame tetraacetic acid (EDTA) solution and 45 ml 50ºC double distilled deionized water (ddH_2O) for 2 min. Thirty grams of slurry were transferred to a 500 ml Kjeldahl flask, and 77.5 ml 50ºC ddH_2O was added. Silicone spray (Molykote® 316 Silicone Release Fluid, DOW Corning Corp., Midland, MI) was used to reduce boil-over from foaming. Five to six boiling chips and 2.5 ml 4N HCl were added to the flask. Flasks were brought to a boil on a distillation unit and removed when 50 ml of distillate were collected. Five ml of distillate and 5 ml 0.02M TBA reagent were vortexed in duplicate screw cap test tubes. A blank with 5 ml ddH_2O and 5 ml TBA reagent was also made. Test tubes were heated with boiling water for 35 min to develop color and then placed in cool water for 10 min. The blank was placed in a cuvette (VWR Cuvettes PMMA Semi-Micro, VWR, West Chester, PA) and read on a spectrophotometer (Cary

300 Bio UV-Visible Spectrophotometer, Varian Instruments, Walnut Creek, CA) at 530 nm. The absorbance of the blank was then set at 0 and the remaining samples were read. TBARS values, expressed as mg malonaldehyde/kg ground beef, were calculated as follows:

mg malonaldehyde/kg sample = absorbance x 7.8(conversion factor)

Subjective Measurements

Panelists for subjective color measurement were trained as defined by AMSA (1991,1995). Panelists attended a training session to become familiar with the color scale. Two raw patties per treatment and storage day were used for subjective color measurements. To reduce bias, each patty was assigned a random three digit code. At storage day 0, 1, 3, and 5, three panelists determined lean color (1 = grayish pink, 5 = cherry red, 8 = brick red), percent discoloration (to the nearest 10%), percent brown discoloration (to the nearest 10%), percent green discoloration (to the nearest 10%), color of brown discoloration (1 = light grayish brown, 5 = dark brown), and color of green discoloration (1 = light grayish green, 5 = olive green). A 7.62 cm^2 clear plexiglass template was divided into nine 2.54 cm^2 grid areas and placed over the patty; panelists counted the number of visible specks due to ingredients in one randomly determined grid area.

Study 2. Chestnut, Mimosa, Quebracho, and Grapeseed Tannins

Sample Preparation

Fine ground beef with a fat content of 19% was purchased from a wholesale meat supplier (Ruffino's, Bryan, TX). Within a treatment, ViniferOX™ Chardonnay grape

seed flour (CG) (Botanic Oil Innovations Inc., Spooner, WI), Chestnut (CN, *Castanea sative* mill, approximately 74-78% hydrolysable tannins, Chemtan® Chestnut Powder KPN, Chemtan Co., Exeter, NH), Mimosa (M, *Acacia mearnsii* black wattle, approximately 70% condensed tannins, Chemtan® Mimosa ME, Chemtan Co., Exeter, NH), or Quebracho (Q, *Schinopsis*, approximately 72% condensed tannins, Chemtan® Co., Exeter, NH) tannins were added at levels of 0.5% or 0.25%. The ViniferOX™ Norton grape seed flour (Botanic Oil Innovations Inc., Spooner, WI) treatment was added at a level of 0.5% only. Rosemary extract (Herbalox® Type HT-25, Kalsec Inc., Kalamazoo, Michigan) was added at 0.2%. Food-grade butylated hydroxyanisole (BHA) (Sigma-Aldrich, W218208) and butylated hydroxytoluene (BHT) (Sigma-Aldrich, W218405) were added together at 0.01% each. All treatments, including a control (no added ingredients), were mixed for 1.5 minutes using a Hobart mixer (A-200 T, Troy, OH). Samples were prepared and analyzed as previously discussed.

Statistical Analysis

Data were analyzed by analysis of variance using the Proc GLM procedure of SAS (v 9.2, Cary, NC) at an $\alpha<0.05$ as a factorial arrangement. For each study, batch, treatment, and storage day were included as main effects. Two-way interactions were also defined in the initial model. If two-way interactions were not significant ($p>0.05$), they were eliminated from the model and pooled into the error term. Least squares means were calculated for main effects and significant ($P<0.05$) interactions. Differences in main effect and significant interaction least squares means were

determined using the pdiff function of SAS at $P<0.05$. Subjective color data were averaged across panelists and analyzed as previously discussed.

RESULTS AND DISCUSSION

Study 1. Cherry, CitruSmart™, and Grapeseed Tannins

TBARS Values

The TBARS (thiobarbituric reactive substances) procedure, first used by Tarladgis et al. (1960) and modified by Rhee (1978) was used to measure lipid oxidation. Thiobarbituric acid (TBA) is known to react with three-carbon compounds derived from lipid oxidation, primarily malonaldehyde. The reaction of one malonaldehyde with two molecules of TBA forms a red pigment that increases in intensity with increased concentration of malonaldehyde. TBARS values (mg malonaldehyde/kg sample) were used to measure the effects of treatment addition and storage time on lipid oxidation levels in the cooked ground beef patties (Table 1).

Treatment, storage day, and their two way interaction affected TBARS values (Table 1, Figure 1). Control patty TBARS values increased at a rapid rate over the 5 d storage period. These results were similar to those obtained by Shin (2006). In this study, as well as that of Shin (2006), patties were exposed to conditions that were favorable for lipid oxidation, including cooking, aerobic packaging, fluorescent lighting, and length of storage. Control patties had higher oxidation levels over the five day storage period than all treated patties except those with 0.25% CS, indicating that the remaining treatments suppressed oxidation over time. Treatments of 0.5% CS, 0.25% CP, and 0.5% CP significantly decreased lipid oxidation in pre-cooked ground beef patties compared to the control, but reductions in TBARS values compared to control

Table 1. Study 1 least squares means for cooked TBARS values, raw pH, cook yield, and raw external color attributes.

Effect	TBARS	pH	Cook Yield %	CIE Color Space Values L*	a*	b*
RMSE	0.542	0.112	3.057	1.148	1.289	0.791
Treatment[a]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Control	5.22^{g}	5.54^{e}	67.99^{bc}	55.46^{def}	16.58^{d}	13.10^{def}
0.02% BHA/BHT	1.64^{c}	5.50^{cde}	68.14^{bc}	54.87^{de}	18.06^{f}	13.25^{ef}
0.20% Rosemary Extract	2.72^{d}	5.56^{e}	67.06^{b}	55.14^{def}	17.52^{ef}	13.26^{ef}
0.25% Dried Cherry Powder	4.04^{f}	5.47^{c}	69.62^{cd}	54.70^{cd}	17.03^{de}	13.47^{f}
0.5% Dried Cherry Powder	3.58^{e}	5.38^{b}	67.17^{b}	54.74^{d}	15.72^{bc}	12.93^{cde}
0.25% Chardonnay Grapeseed	1.38^{c}	5.50^{cde}	67.52^{b}	55.08^{de}	16.79^{de}	12.55^{bc}
0.5% Chardonnay Grapeseed	0.79^{b}	5.46^{c}	68.68^{bcd}	53.93^{bc}	16.97^{de}	12.58^{bc}
0.25% CitruSmart™	4.91^{g}	5.54^{de}	70.40^{de}	55.87^{f}	16.88^{de}	13.20^{ef}
0.5% CitruSmart™	4.04^{f}	5.45^{c}	72.11^{e}	55.55^{ef}	16.49^{cd}	13.06^{def}
0.25% Norton Grapeseed	2.57^{d}	5.45^{c}	68.25^{bc}	53.75^{b}	16.76^{de}	12.72^{bcd}
0.5% Norton Grapeseed	1.33^{c}	5.47^{c}	68.53^{bcd}	53.55^{b}	15.55^{b}	12.47^{b}
Storage Day[a]	<0.0001	<0.0001	0.3259	<0.0001	<0.0001	<0.0001
0	1.11^{b}	5.51^{c}	68.48^{b}	56.66^{d}	23.66^{d}	14.85^{e}
1	2.20^{c}	5.56^{d}	68.16^{b}	54.28^{c}	19.85^{d}	13.55^{d}
3	3.80^{d}	5.47^{c}	68.88^{b}	53.66^{b}	14.19^{c}	11.99^{c}
5	4.60^{e}	5.39^{b}	69.19^{b}	54.54^{c}	9.35^{b}	11.46^{b}

[a]*P*-value from analysis of variance tables.
[bcdef]Mean values within a column and followed by the same letter are not significantly different ($P > 0.05$).

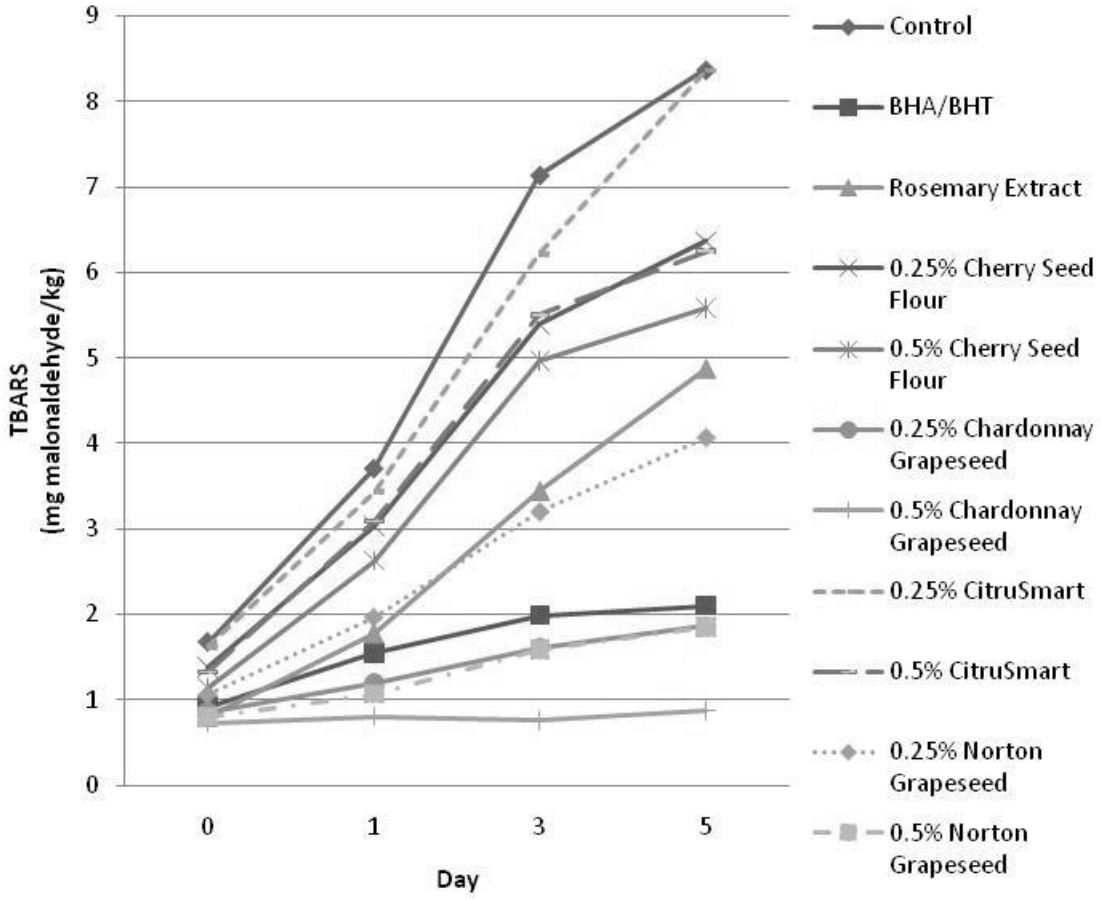


Figure 1 - Study 1 least squares means for treatment by storage day interaction for TBARS values (mg malonaldehyde/kg) of pre-cooked ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.542

patties were not as great as TBARS values in patties containing RM and 0.25% NG treatments. These results indicate that CS and CP were not as effective antioxidants as RM. While these ingredients had some antioxidant effect and may be effective at higher levels, it is not recommended to consider these ingredients for use as natural antioxidants at these levels in pre-cooked ground beef products. Britt et al. (1998) found that flaked tart cherry tissue significantly decreased lipid oxidation levels in cooked ground beef patties, but the cherry tissues were not dried and were added at a level of 11.5%. Taking into account that tart cherries contain about 80% water (Wang, Nair, Strasburg, Booren, & Gray, 1999), the levels used in this study were about 10-30% of those used by Britt et al. (1998). Fernández-López, Fernández-Ginés, Aleson-Carbonell, Sendra, Sayas-Barberá, and Pérez-Alvarez (2004) and Fernández-López, Zhi, Aleson-Carbonell, Pérez-Alvarez, and Kuri (2005) showed that dried citrus by-products added at a level of 2% to bologna sausage and meatballs, respectively, only slightly decreased TBARS values compared to control samples at 6d of storage.

Patties containing RM and 0.25% NG had similar TBARS values throughout the study. This indicates that NG can be used similarly as RM when applied at 0.25%. However, when NG was added at 0.5%, TBARS values were similar to values for BHA/BHT treated patties at 0d, but with subsequent storage, TBARS values were slightly lower for 0.5% NG treated patties. These results indicate that NG added at 0.5% of patty weight would have similar antioxidant properties as BHA/BHT addition. When 0.5% CG was added to cooked ground beef patties, TBARS values were lowest throughout storage. In fact, TBARS values did not change with storage, indicating that

0.5% CG was the most effective antioxidant in the study. This shows that these grapeseed flours are probably somewhere between whole grape dried pomace and grapeseed extract in their antioxidant abilities. Red grape dried pomace has been shown to retard lipid oxidation in cooked chicken hamburger patties over 5d of refrigerated storage, but TBARS levels showed that the pomace at levels of 2.0% did not retard oxidation as extensively as the flours used in this study, compared to control patties (Sáyago-Ayerdi et al., 2009). In contrast, several studies using grapeseed extracts have shown high antioxidant effectiveness using levels ranging from 0.02% to 0.1% in raw and cooked ground pork, beef, or poultry patties (Sasse, Colindres, & Brewer, 2009; Ahn et al., 2002; Bañon, Díaz, Rodríguez, Garrido, & Price, 2007; Lau & King, 2003). It is reasonable to conclude, therefore, that seed flour is a better antioxidant than whole grapes, and extracting the volatile compounds from that seed flour produces an even more advantageous antioxidant.

Batch was significant ($P<0.0001$) for TBARS values. Batches 1 and 3 were similar, but batch 2 had higher TBARS values. TBARS values for batch 2 were higher for every day of storage, especially d3 (Figure 2). Batch by treatment interactions generally followed the same pattern with batch 2 values being higher and batches 1 and 3 being similar (Figure 3). A few deviations from the pattern, however, were that control patties and patties treated with 0.25% CS had the lowest TBARS values in batch 2. Control patties had higher values in batch 3. In addition, 0.25% CS and 0.5% CS treated patties had much higher TBARS values in batch 1 than in batch 3. Variation between batches was expected due to inherent differences in meat batches purchased

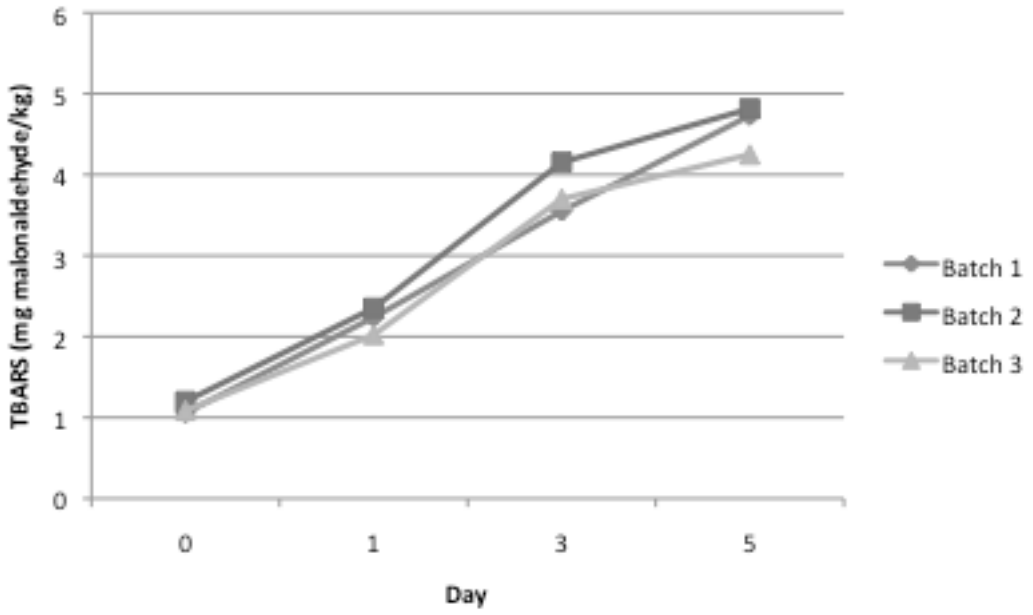


Figure 2. Study 1 least squares means for batch by storage day interaction for TBARS values (mg malonaldehyde/kg) of pre-cooked ground beef patties.

P-value = 0.0447 from Analysis of Variance Table
Root Mean Square Error = 0.542

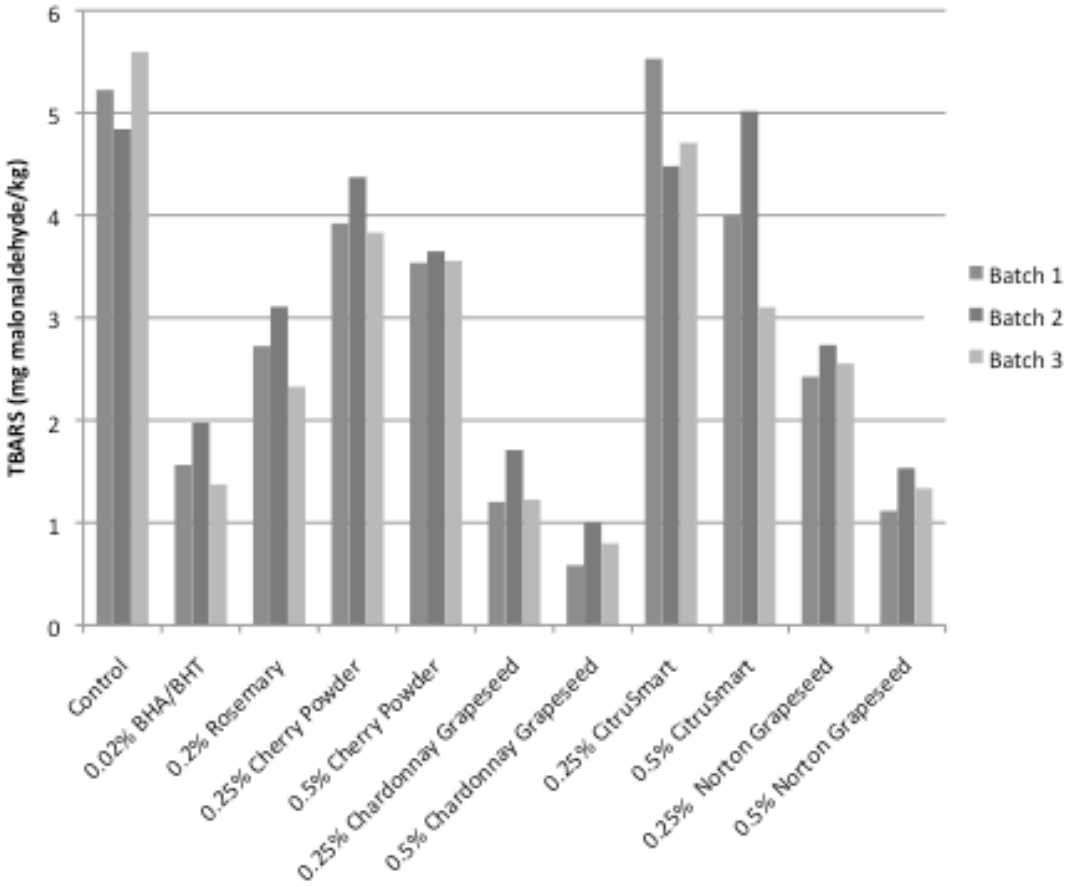


Figure 3. Study 1 least squares means for batch by treatment interaction for TBARS values (mg malonaldehyde/kg) of pre-cooked ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.542

at different times from the wholesale supplier.

pH Values

pH measurements, as well as all other analyses, were conducted on raw patties stored over 5 days. Batch was a significant ($P<0.0001$) effect for pH, with batch 2 having much lower values than batches 1 and 3. While batch by treatment effect was not significant ($P=0.0547$), several extremely low values were found in batch 2 for raw patties treated with 0.5% CP (Figure 4). These values were under 5.0l. When these values were obtained, the pH meter was recalibrated and checked for calibration in control samples to make sure it was operating properly, and abnormalities in the readings were not detected. While malfunction of the pH meter cannot be fully ruled out, there may have been inconsistent pH within the raw material. Since batch 2 was also lower in pH in general, this seems to be the most logical explanation.

Treatment, storage day, and their two-way interaction were significant for pH. Over time, pH values slightly increased at d1 and decreased steadily during d3 and d5 (Table 1). Overall, control patties and patties treated with BHA/BHT, RM, 0.25% CG, and 0.25% CS had the highest pH values at 5.5 to 5.6. The remaining treatments, except for 0.5% CP, were similar with a pH between 5.45 and 5.47. Patties containing BHA/BHT and 0.25% CG had similar pH to this middle group. The 0.5% CP treated patties had the lowest pH.

Day by treatment effects for pH are presented in Figure 5. At d0, 0.5% CG and 0.5% CP treated patties had the lowest pH. All other treated patties had pH values similar to the control. Over time, control patties and raw patties treated with 0.2% RM

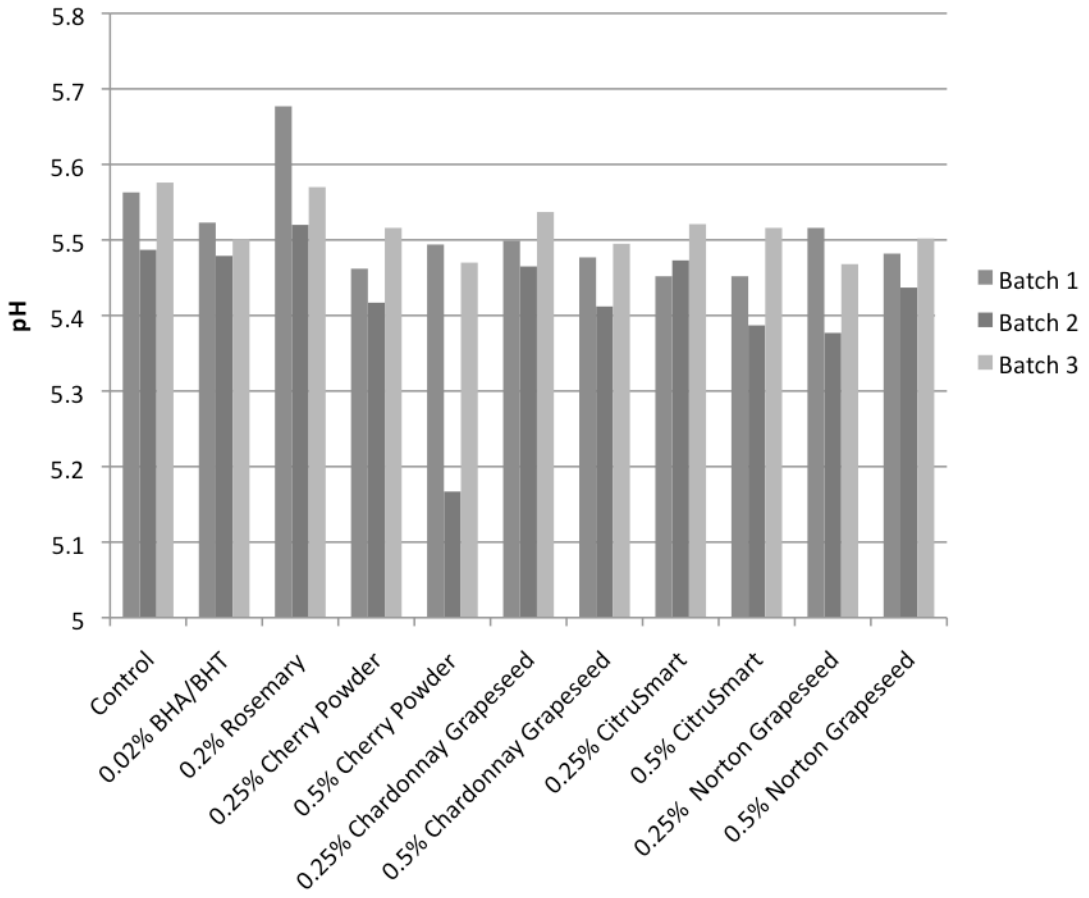


Figure 4 – Study 1 least squares means for batch by treatment interaction for pH of raw ground beef patties.

P-value = 0.0547 from Analysis of Variance Table
Root Mean Square Error = 0.112

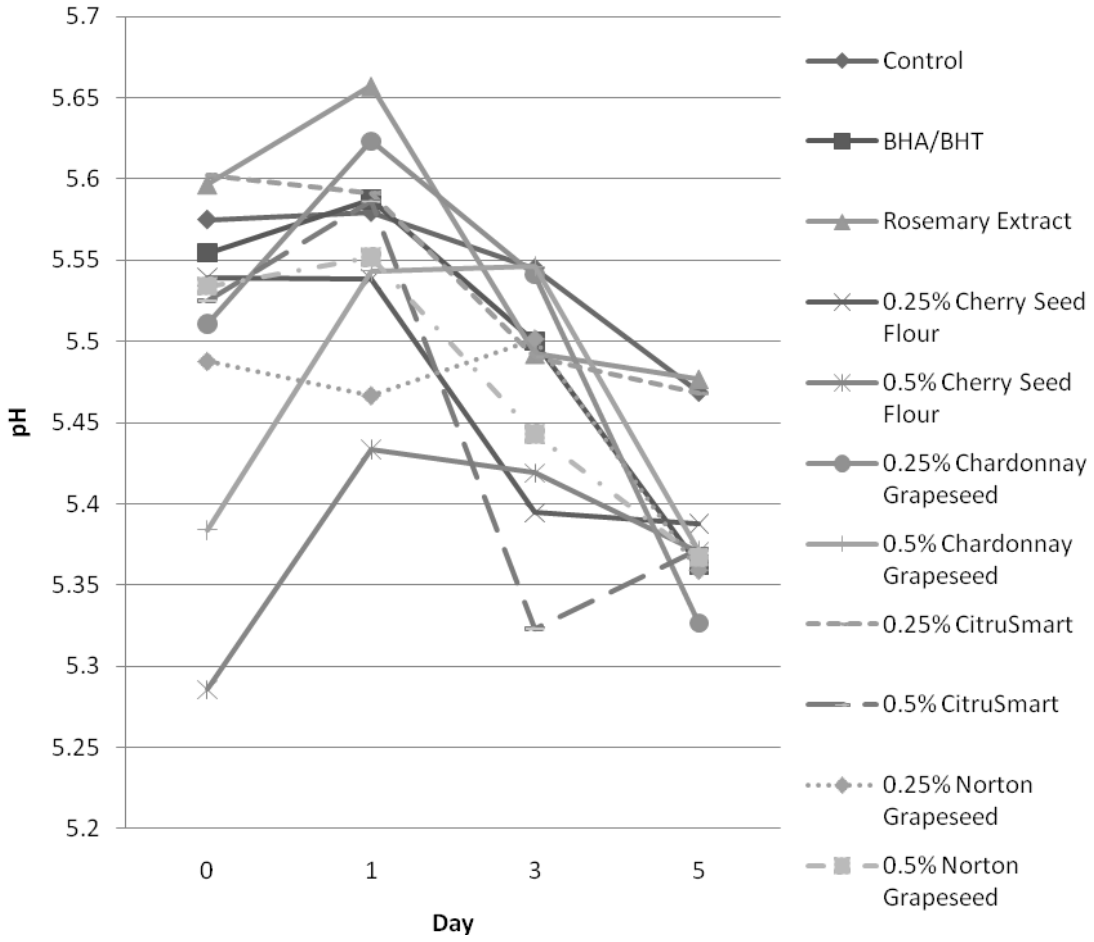


Figure 5 – Study 1 least squares means for treatment by storage day interaction for pH of raw ground beef patties.

P-value = 0.0459 from Analysis of Variance Table
Root Mean Square Error = 0.112

did not change ($p>0.05$) in pH. Patties treated with 0.02% BHA/BHT were consistent in pH at days 0, 1, and 3 and decreased at d5. Patties treated with 0.5% CP or 0.5% CG increased in pH from d0 to d1 and decreased in pH on d5 to values similar to d0. The remaining treatments caused a decrease in pH over time. This trend is inconsistent with those reported by Hemphill (2006) and Jenschke (2004), who reported a steady increase in pH over time. They hypothesized that aerobic bacterial growth and ingredient solubilization may have contributed to decreases in pH over storage. Growth of aerobic bacteria, such as *Pseudomonas*, tends to cause an increase in pH due to release of ammonia as amino acids, peptides, and amines that are deaminated during metabolism (Kakouri & Nychas, 2004). In addition, Hemphill (2006) and Jensche (2004) hypothesized that the sorghum bran used in raw ground beef worked to increase the pH as the ingredients solubilized over time. In contrast, the pH in this study decreased over time. This could be simply the opposite effect; as the ingredients used in this study solubilized, they lowered pH. Due to the pH of these treatments when measured at 50g powder to 100ml ddH_2O, this is possible. All treatments had a pH below 5.0. CP had the lowest pH (3.40) and CS had the next lowest pH (3.94).

Cook Yield

Batch, treatment, and their two-way interaction were significant ($P<0.0001$) for cook yield, with batch 1 having the lowest cook yield and batch 3 the highest (Table 1, Figure 6). Treatment effects for cook yield were also significant (Table 1). Cook yields generally ranged from 67 to 73%. No treatments decreased cook yield compared to the control, but 0.25% CP, 0.25% CS, and 0.5% CS treated patties had higher cook yield by

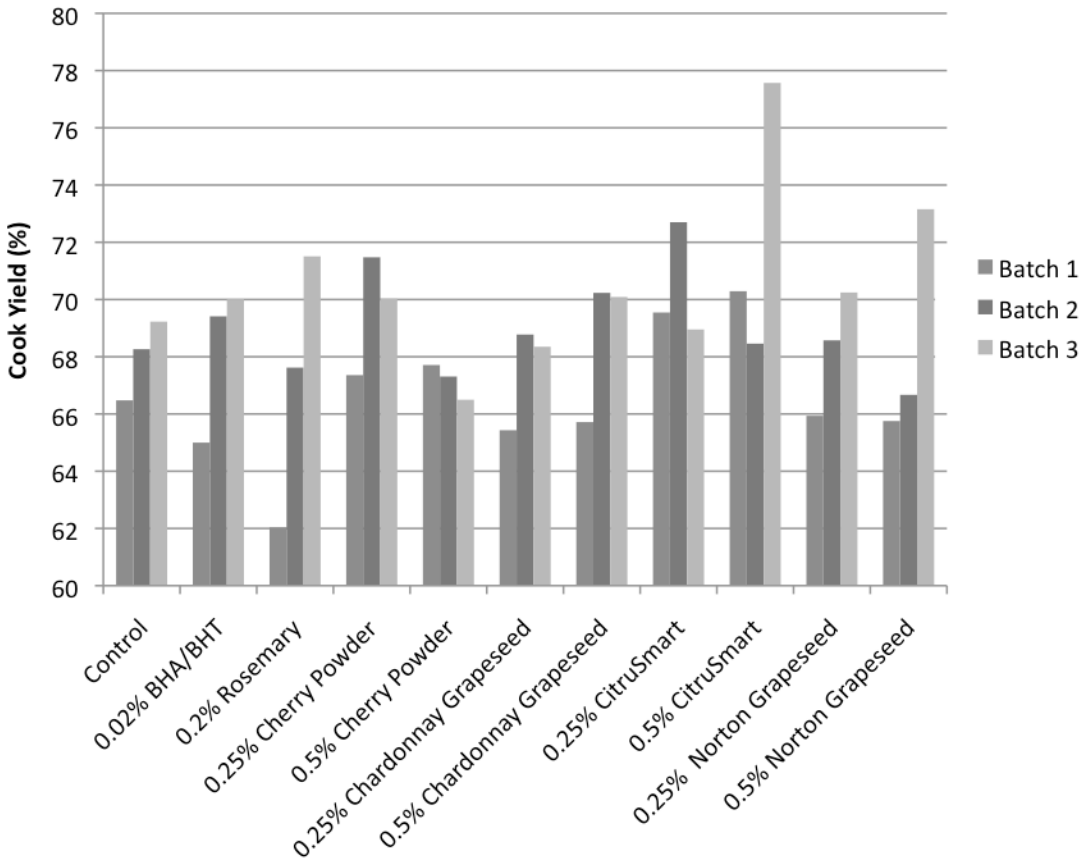


Figure 6 – Study 1 least squares means for batch by treatment interaction for cook yield (%).

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 3.057

1.63%, 2.41%, and 4.12%, respectively, compared to control patty cook yield. Because the cherry powder is extensively dried (Wang et al., 1999), it may be able to reabsorb lost moisture from the ground beef during cooking. CitruSmart™ and dried cherry powder may have worked to absorb free water during cooking. According to the Alarma Corporation (La Belle, FL), albedo, which is the inner part of the rind of citrus fruit, has a water binding capacity of 10 to 20g of water per 1g of albedo. The albedo is a primary component of CitruSmart™. Albedo is high in pectin, which is commonly used as a gelling agent, thickening agent, and stabilizer in foods. However, batch by treatment interaction showed values for 0.5% CS treated patties for batch 2, as well as values for 0.25% CS treated patties for batch 3, that were not consistent with the overall means. More research may be needed to confirm these results before CitruSmart™ could be used to increase cook yields. Day and day by treatment effects for cook yield were not significant, as expected, as all patties within a treatment were cooked in the same batch.

CIE Color Space Values and Subjective Color Evaluation

CIE color space values (L*, a*, and b*) were used to measure lightness, red versus green, and yellow versus blue color in raw ground beef patties. Over time, raw patties decreased in a* (negative = more green, positive = more red) and b* (negative = more blue, positive = more yellow) color space values (Table 1). This is consistent with results obtained by Hemphill (2006) and Jenschke (2004). As myoglobin pigments oxidize to form metmyoglobin, the pigments turn brown, and redness and yellowness decrease (McMillin, 1996). Ahn and Nam (2004) and Luchsinger, Kropf, García Zepeda, Hunt, Stroda, Marsden, and Kastner (1997) found that over 7d of aerobic

storage, ground beef patties decreased in a* color space values. In addition, Luchsinger et al. (1997) found that b* values also decreased over 7d aerobic storage. Lightness (L* color space values) decreased on d1 and d3, and increased on d5. This contrasts with results obtained by Ahn and Nam (2004) and Luchsinger et al. (1997), who found that L* color space values increased over 7d storage. Hemphill (2006), however, found that L* values decreased on d1 and increased thereafter through d5. This initial decrease could be brought about by solubilization of ingredient pigments, followed by normal lightening of the raw ground beef patties.

Storage day affected subjective raw ground beef patty color (Table 2), and for subjective brown color there was a storage day by treatment interaction (P=0.0076; Figure 7). Raw patty lean color increased from 0d and 1d of storage to 3d. After 3d of storage, patty lean color decreased. Percentage discoloration, brown discoloration (%), brown color, and green color increased with storage. Brown discoloration mainly contributed to changes in discoloration with storage, although green discoloration also increased at small percentages. Specks decreased with storage, most likely due to increased brown color, which may have masked visibility of specks. At d0, patties had no brown color, regardless of treatment. With increased storage, brown color increased; however, patties containing 0.5% NG or 0.5% CP tended to have higher levels of brown color.

Treatment was significant for raw CIE color space values. Patties treated with NG or 0.5% CG had lower L* color space values than control patties. Most likely the darkness of these ingredients themselves affected the darkness of the patties. Patties

Table 2. Study 1 least squares means for raw lean color, percent discoloration, percent brown discoloration, brown color, percent green discoloration, green color, and specks.

Effect	Lean Color[a]	Discolor %	Brown Discolor %	Green Discolor %	Brown Color[b]	Green Color[c]	Specks[d]
RMSE	0.885	11.744	11.522	8.923	0.590	0.388	2.318
Treatment[e]	0.3449	0.0021	0.0002	0.0837	<0.0001	0.0440	<0.0001
Control	3.07^{f}	35.83^{fgh}	23.40^{f}	12.43^{h}	1.94^{fgh}	0.63^{h}	0.14^{f}
0.02% BHA/BHT	3.42^{fg}	28.75^{f}	23.96^{f}	4.79^{fg}	1.74^{fg}	0.38^{fgh}	0.17^{f}
0.20% Rosemary Extract	3.22^{fg}	30.97^{fg}	26.67^{f}	4.31^{fg}	1.58^{f}	0.29^{fg}	0.14^{f}
0.25% Dried Cherry Flour	3.42^{fg}	39.86^{hi}	35.76^{gh}	4.10^{fg}	2.22^{hi}	0.29^{fg}	0.64^{f}
0.5% Dried Cherry Flour	3.31^{fg}	45.56^{i}	42.78^{h}	2.78^{f}	2.46^{i}	0.25^{f}	1.25^{f}
0.25% Chardonnay Grapeseed	3.32^{fg}	31.39^{fg}	24.17^{f}	7.22^{fgh}	2.06^{gh}	0.33^{fg}	8.76^{g}
0.5% Chardonnay Grapeseed	3.39^{fg}	32.50^{fgh}	28.06^{fg}	4.44^{fg}	2.22^{hi}	0.24^{f}	15.25^{h}
0.25% CitruSmart™	3.44^{fg}	32.78^{fgh}	25.21^{f}	7.57^{fgh}	1.77^{fg}	0.29^{fg}	0.60^{f}
0.5% CitruSmart™	3.08^{f}	39.17^{ghi}	27.57^{fg}	11.60^{h}	1.89^{fgh}	0.53^{gh}	0.17^{f}
0.25% Norton Grapeseed	3.76^{g}	33.19^{fgh}	26.11^{f}	7.08^{fgh}	2.15^{hi}	0.18^{f}	17.69^{i}
0.5% Norton Grapeseed	3.65^{g}	40.69^{hi}	31.04^{fg}	9.65^{gh}	2.51^{i}	0.38^{fgh}	30.85^{j}
Storage Day[e]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0254
0	3.63^{g}	0.00^{f}	0.00^{f}	0.00^{f}	0.00^{f}	0.00^{f}	7.63^{g}
1	3.67^{g}	10.45^{g}	10.45^{g}	0.00^{f}	1.84^{g}	0.00^{f}	6.90^{fg}
3	4.06^{h}	43.48^{h}	38.46^{h}	5.03^{g}	3.01^{h}	0.26^{g}	6.48^{f}
5	2.13^{f}	88.13^{i}	65.53^{i}	22.60^{h}	3.35^{i}	1.11^{h}	6.50^{f}

[a]Subjective Lean Color: 1=Grayish pink, 5=Cherry red, 8=Brick red.
[b]Subjective Brown Color: 1=Light grayish brown, 5=Dark brown.
[c]Subjective Green Color: 1= Light grayish green, 5=Olive green.
[d]Number of ingredient specks measured in a random 2.54cm^2 area on patty.
[e]*P*-value from analysis of variance tables.
[fghij]Mean values within a column and followed by the same letter are not significantly different ($P > 0.05$).

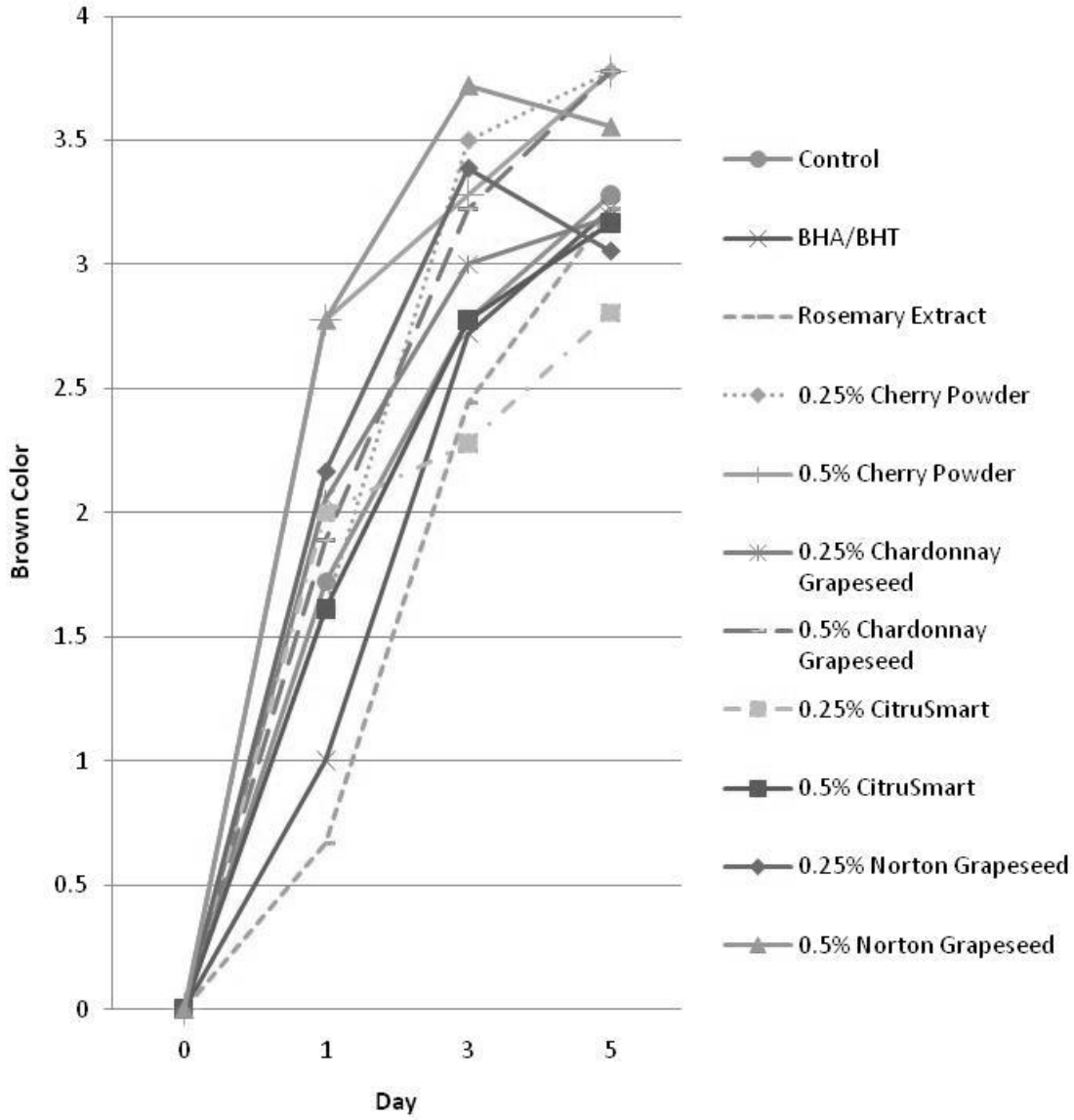


Figure 7 – Study 1 least squares means for treatment by storage day interaction for subjective brown color in raw ground beef patties (0=no color, 1=light grayish brown, 5=dark brown).

P-value = 0.0076 from Analysis of Variance Table
Root Mean Square Error = 0.590

treated with 0.5% NG and 0.5% CP had lower a* color space values than control patties. The RM and BHA/BHT treated patties were redder than control patties. Patties treated with CG or 0.5% NG had lower b* color space values than control patties. No patties were lighter or more yellow than control patties. Day by treatment interaction was not significant for CIE color space values, showing that differences were most likely due to the ingredients themselves, and not how they interacted with the patties over time. The NG ingredient was very dark and, when added at a level of 0.5%, most likely overpowered the lean color space values. CG treated patties were similar in the way that their specks may have influenced overall color of the patties.

The addition of treatments did not affect raw patty subjective lean color scores (Table 2). However, the percentage of discoloration was affected by treatment ($P=0.0021$), as was percentage brown discoloration ($P=0.0002$), brown color ($P<0.0001$), green color ($P=0.044$) and specks ($P<0.0001$). Lean color was a measurement of the redness of the raw patties. The other color measures were used to describe discoloration and specks that may have been due to either metmyoglobin formation for the brown color attributes or color changes due to microbiological growth (green color attributes). The specks attribute was included to assess visible small discoloration due to ingredient addition. Therefore, treatment addition, while not affecting the redness of raw patties, did affect the discoloration of patties. The addition of CP, 0.5% CS, and 0.5% NG increased the percentage of raw color discoloration compared to other treatments. The CP treatments had higher discoloration that was attributed to higher percentage of brown color. This color effect was most likely due to

ingredient addition. Dried cherry powder is dark in color and low in pH, which can negatively affect color. As pH decreases, metmyoglobin formation increases. Denaturation of muscle proteins due to low pH results in higher exposure to oxidation components (McMillin, 1996). The higher percentage of discoloration and percentage of brown discoloration for raw patties treated with 0.5% CS was also most likely due to low pH. The predominant discoloration was due to brown color, which suggests discoloration in these patties was related to metmyoglobin formation. While green discoloration was present, these values were low. Specks were reported for CG and NG treatments, with lower specks reported for lower addition levels. These results indicate that specks were due to ingredient addition. This effect might be eliminated by reducing particle size of the ingredients or using an extracted form.

Batch was a significant effect for all objective and subjective color measurements ($P<0.0001$ for all except brown percent and green percent discoloration, which had $P=0.0015$ and $P=0.0145$, respectively. Batch 2 ground beef patties had the highest L* and lowest a* color space values. Patties in batch 2 increased in L* color space value between d3 and d5 more than other batches (Figure 8). All treated patties were higher in L* color space values in batch 2 except RM and 0.5% CS (Figure 9). Batch 2 patties were lowest in a* color space value throughout all days of storage (Figure 10), and all treated patties were lowest in a* color space values in batch 2 except those with CG (Figure 11). These values support the pH effects earlier discussed. Lean color scores of the patties were the lowest in batch 2. In addition, raw patties in batch 2 had the most total and green discoloration. Batch 2 patties had the highest percent green discoloration

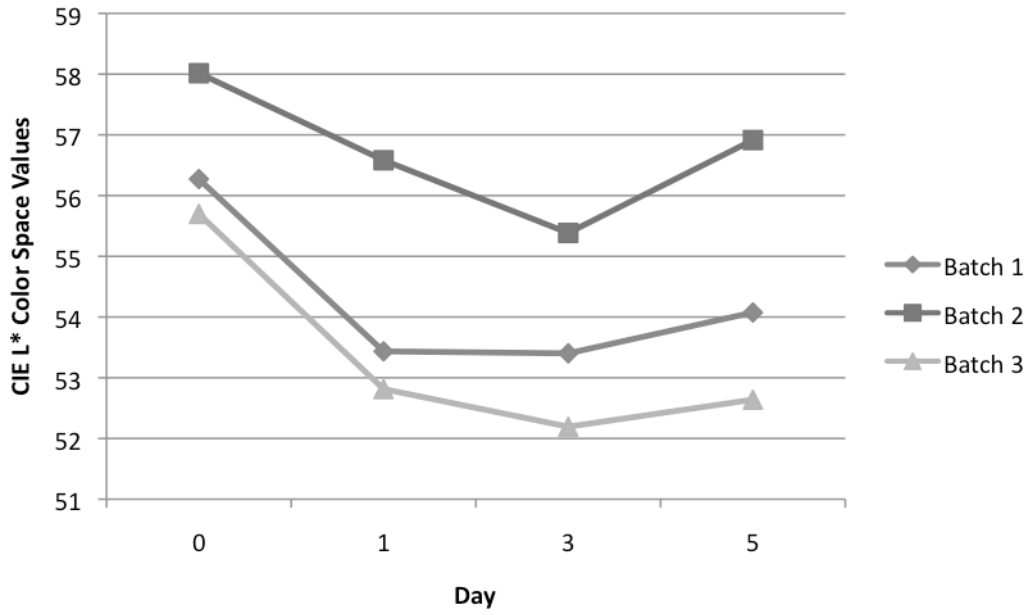


Figure 8 – Study 1 least squares means for batch by day interaction for CIE L* values of raw ground beef patties.

P-value = 0.0039 from Analysis of Variance Table
Root Mean Square Error = 1.148

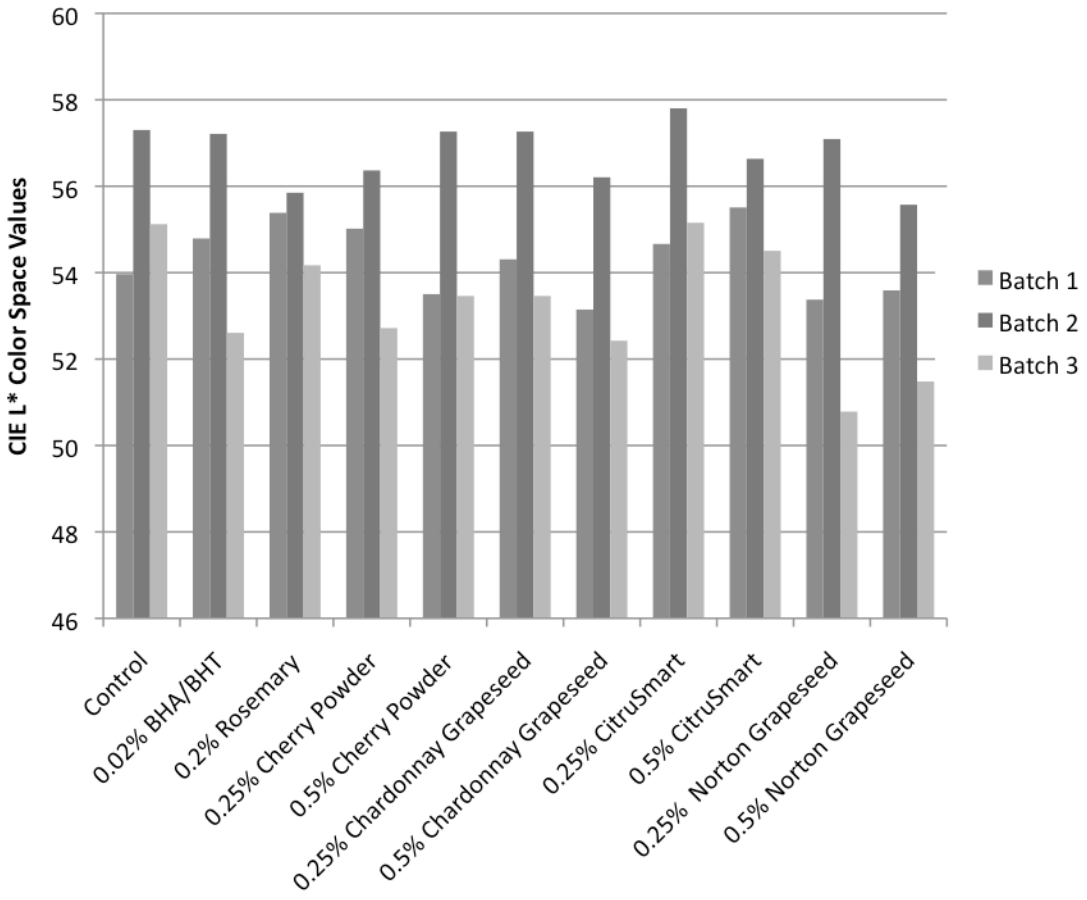


Figure 9 – Study 1 least squares means for batch by treatment interaction for CIE L* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Tables
Root Mean Square Error = 1.148

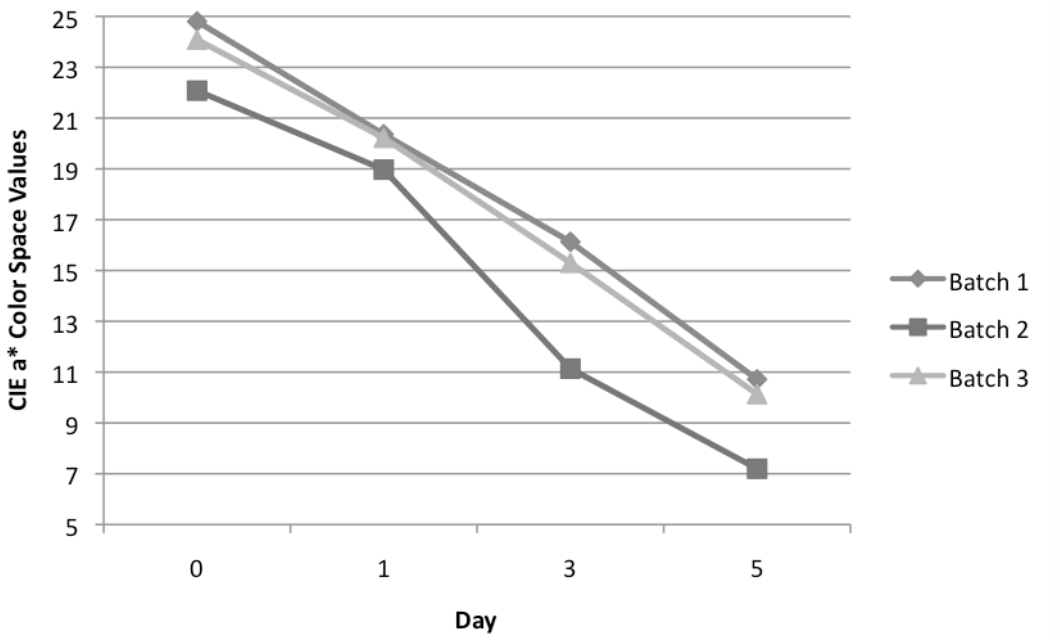


Figure 10 – Study 1 least squares means for batch by day interaction for CIE a* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Tables
Root Mean Square Error = 1.289

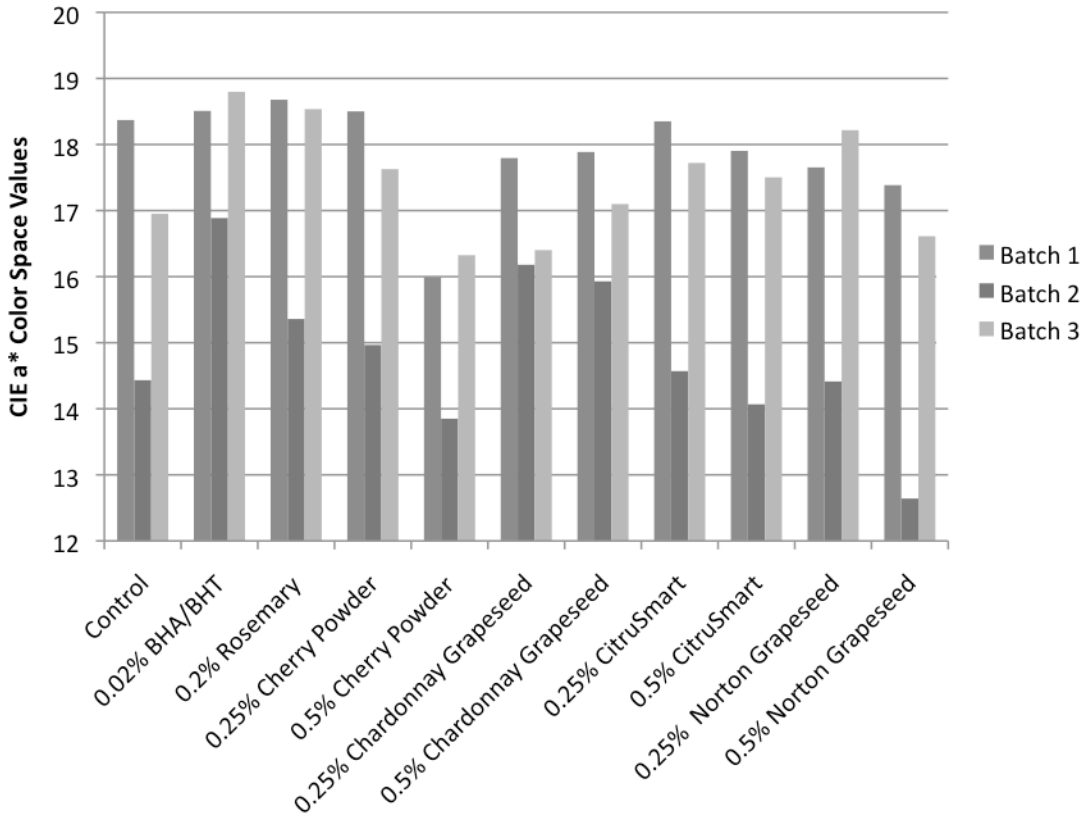


Figure 11 – Study 1 least squares means for batch by treatment interaction for CIE a* color space values of raw ground beef patties.

P-value = 0.0094 from Analysis of Variance Tables
Root Mean Square Error = 1.289

over all treatments, and green color scores for raw patties were also three times higher than those in other batches. Batch 2 was also the only batch where green discoloration began by d3 (Figures 12 & 13). This indicates that the batch of meat may have had higher microbial levels than in other batches. Batch by treatment interaction for percent discoloration is shown in Figure 14. Batch 1 patties had the lowest percent discoloration and the highest a* and b* color space values throughout the storage period (Figures 10 & 15), although a* color space values were only slightly higher than those in batch 3. Batch 3 patties had the lowest L* color space values, but differences between treated patties were greater (Figure 8). Subjective lean color scores were highest in batch 3, due to patties becoming darker in lean color score between d1 and d3 (Figure 16); brown color scores for batch 3 were also higher than in other batches. Batch 3 had patties with the highest lean and brown color scores for all treatments except 0.25% CG and RM, respectively (Figures 17 & 18). Brown color scores were highest throughout the storage period for batch 3 patties (Figure 19). Batch by treatment interaction for specks is shown in Figure 20.

While batch influenced color due to variation in raw material, the effect of treatments on raw patty color was consistent. Patties treated with CP or NG consistently had color attributes that were much less desirable than control patties or patties containing other treatments.

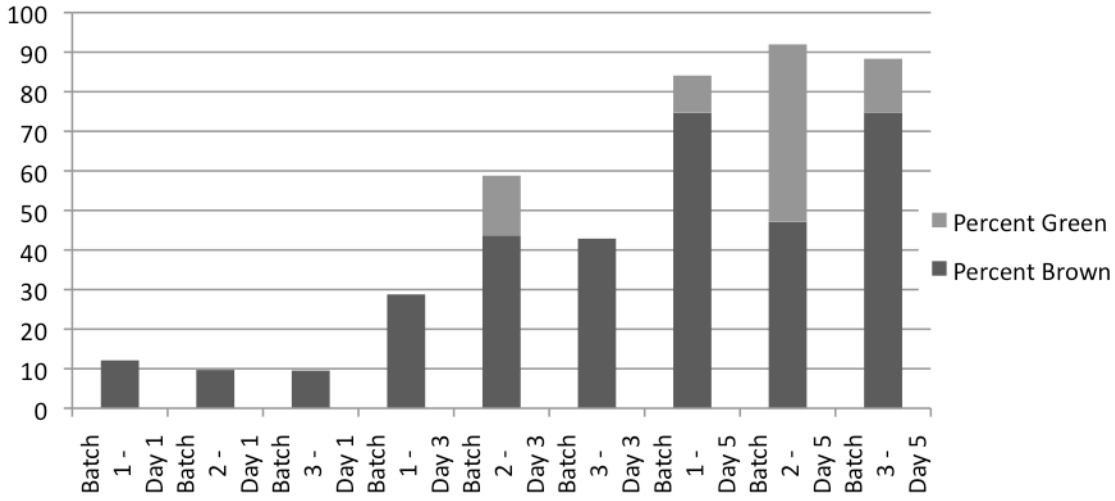


Figure 12 – Study 1 least squares means for batch by day interaction for total, brown, and green percent discoloration

Total percent discoloration P-value = <0.0001
Root Mean Square Error = 11.744
Brown percent discoloration P-value = <0.0001
Root Mean Square Error = 11.522
Green percent discoloration P-value = <0.0001
Root Mean Square Error = 8.923
From Analysis of Variance Table

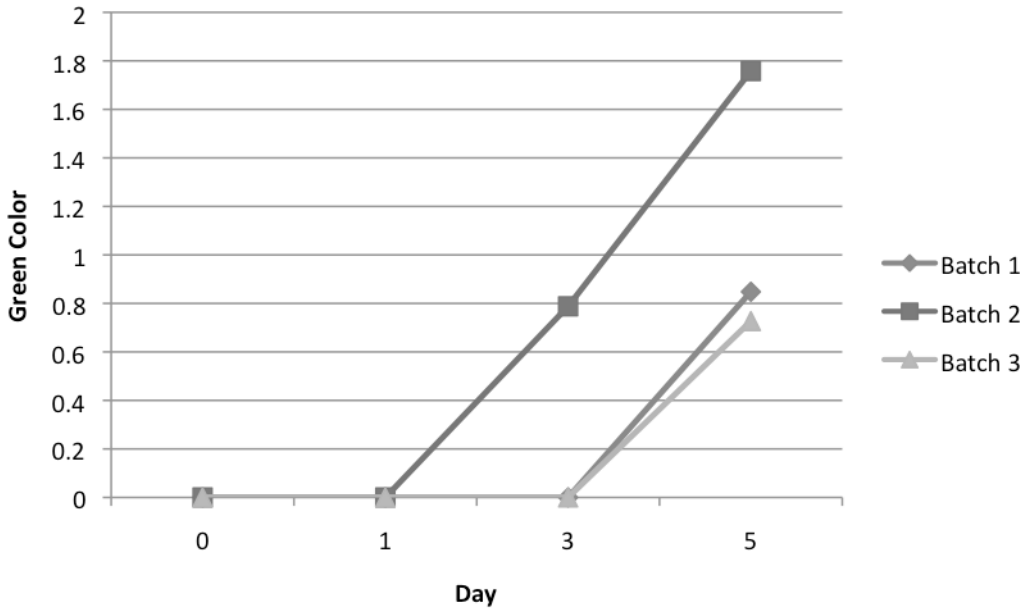
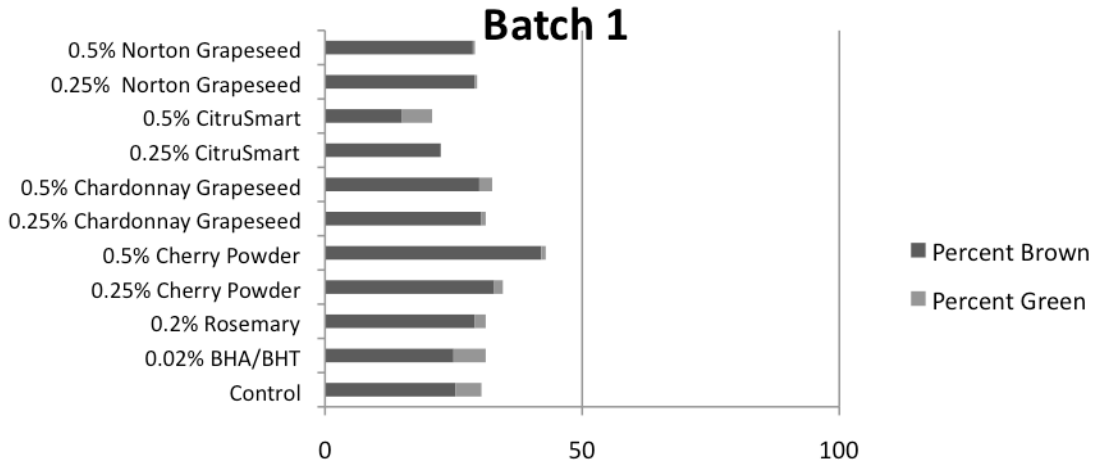


Figure 13 – Study 1 least squares means for batch by day interaction for green color of raw ground beef patties. (0=no color, 1=light grayish green, 5=olive green)

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.388

a)



b)

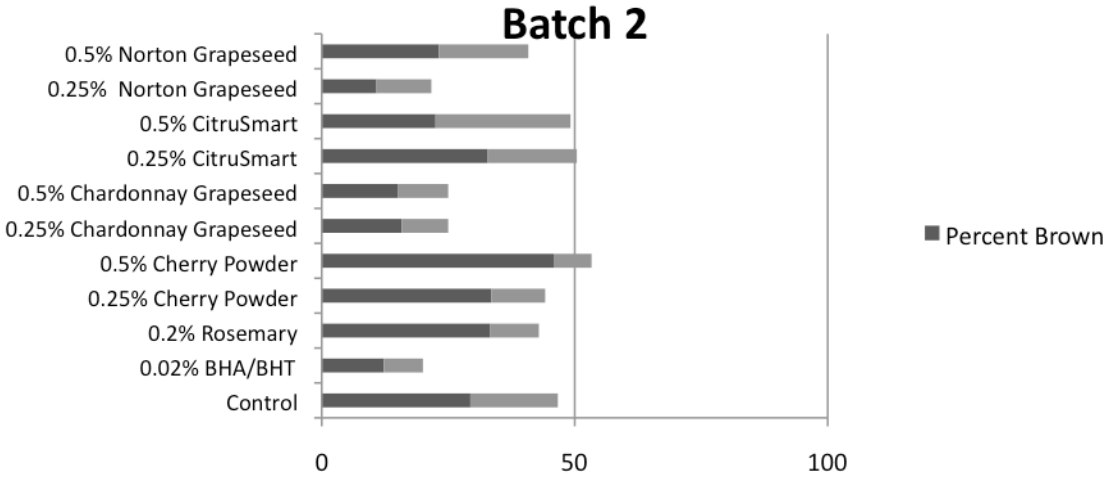


Figure 14 – Study 1 least squares means for batch by treatment interaction for total, brown, and green discoloration of raw ground beef patties.

Total percent discoloration P-value = <0.0001
Root Mean Square Error = 11.744
Brown percent discoloration P-value = <0.0001
Root Mean Square Error = 11.522
Green percent discoloration P-value = 0.0007
Root Mean Square Error = 8.923
From Analysis of Variance Table

c)

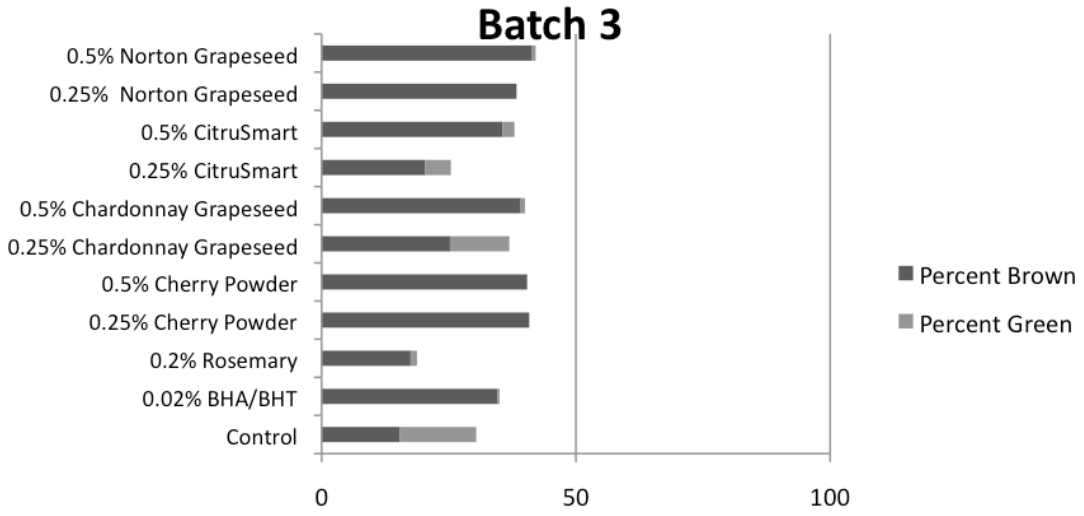


Figure 14 continued.

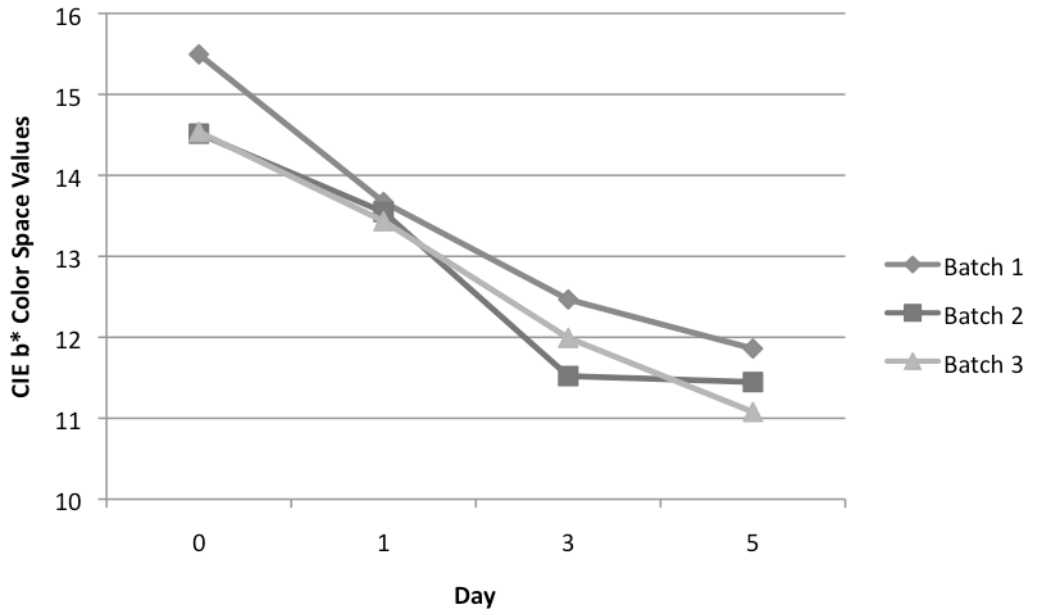


Figure 15 – Study 1 least squares means for batch by day interaction for CIE b* color space values of raw ground beef patties.

P-value = 0.0458 from Analysis of Variance Table.
Root Mean Square Error = 0.791

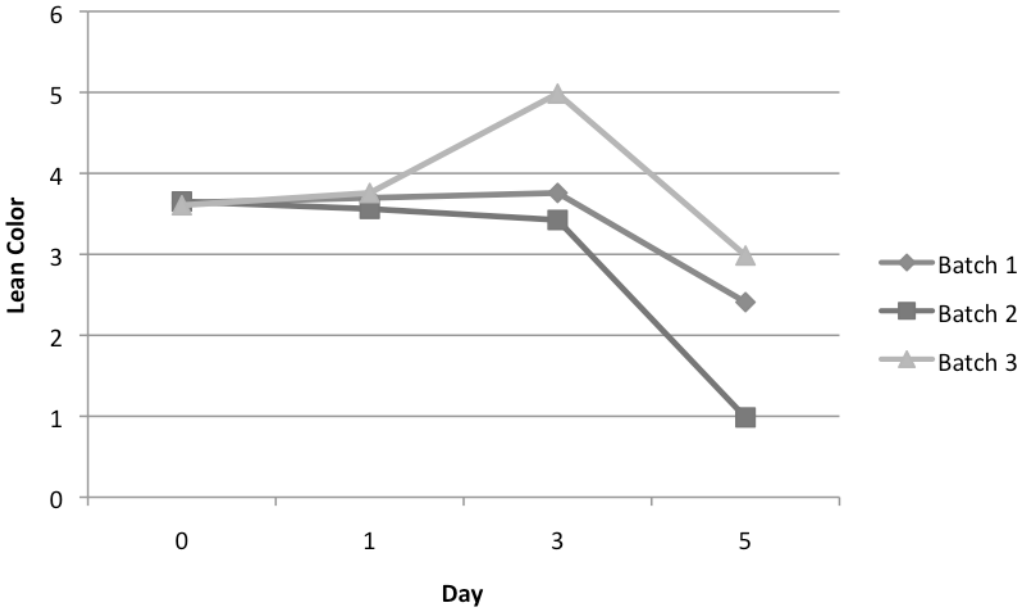


Figure 16 – Study 1 least squares means for batch by day interaction for lean color of raw ground beef patties. (0=no color, 1=grayish pink, 5=cherry red, 8=brick red)

P-value <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.885

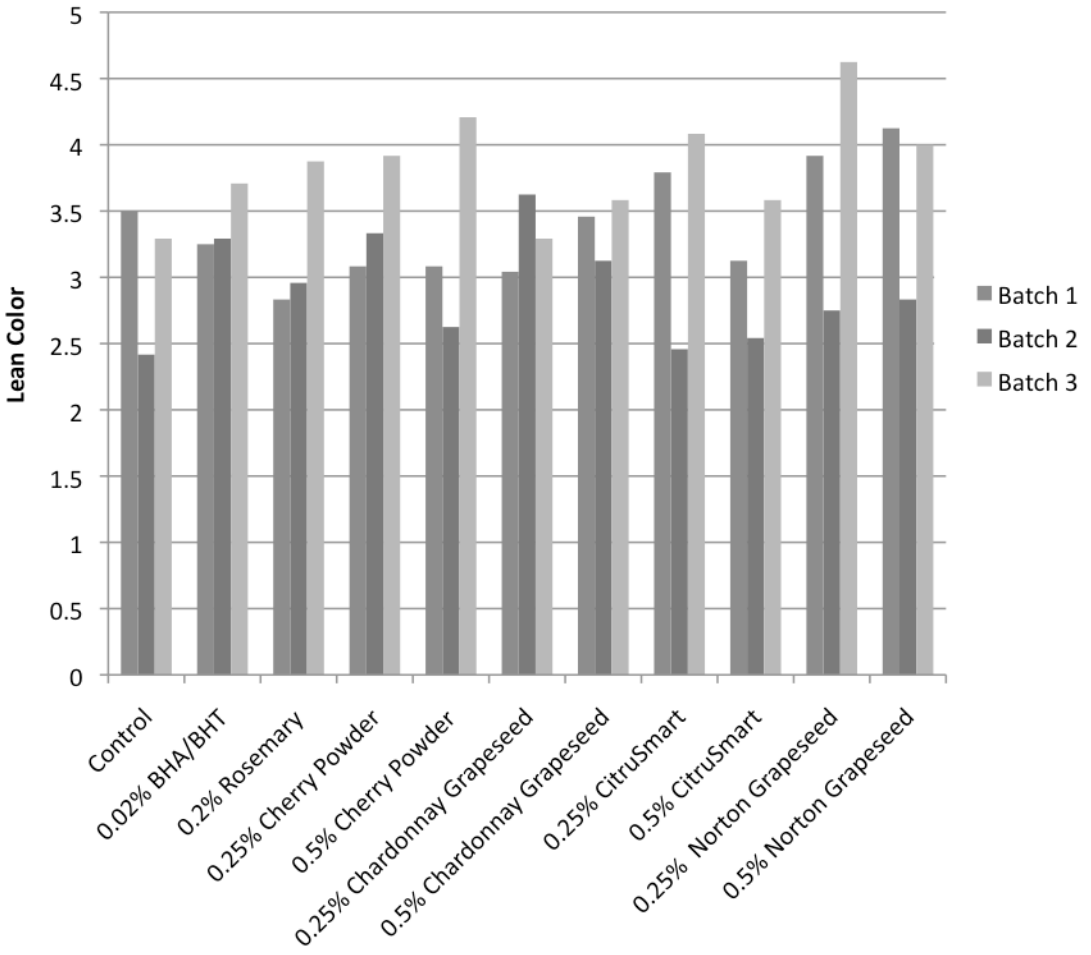


Figure 17 – Study 1 least squares means for batch by treatment interaction for lean color of raw ground beef patties. (0=no color, 1=grayish pink, 5=cherry red, 8=brick red)

P-value = 0.0141 from Analysis of Variance Table
Root Mean Square Error = 0.885

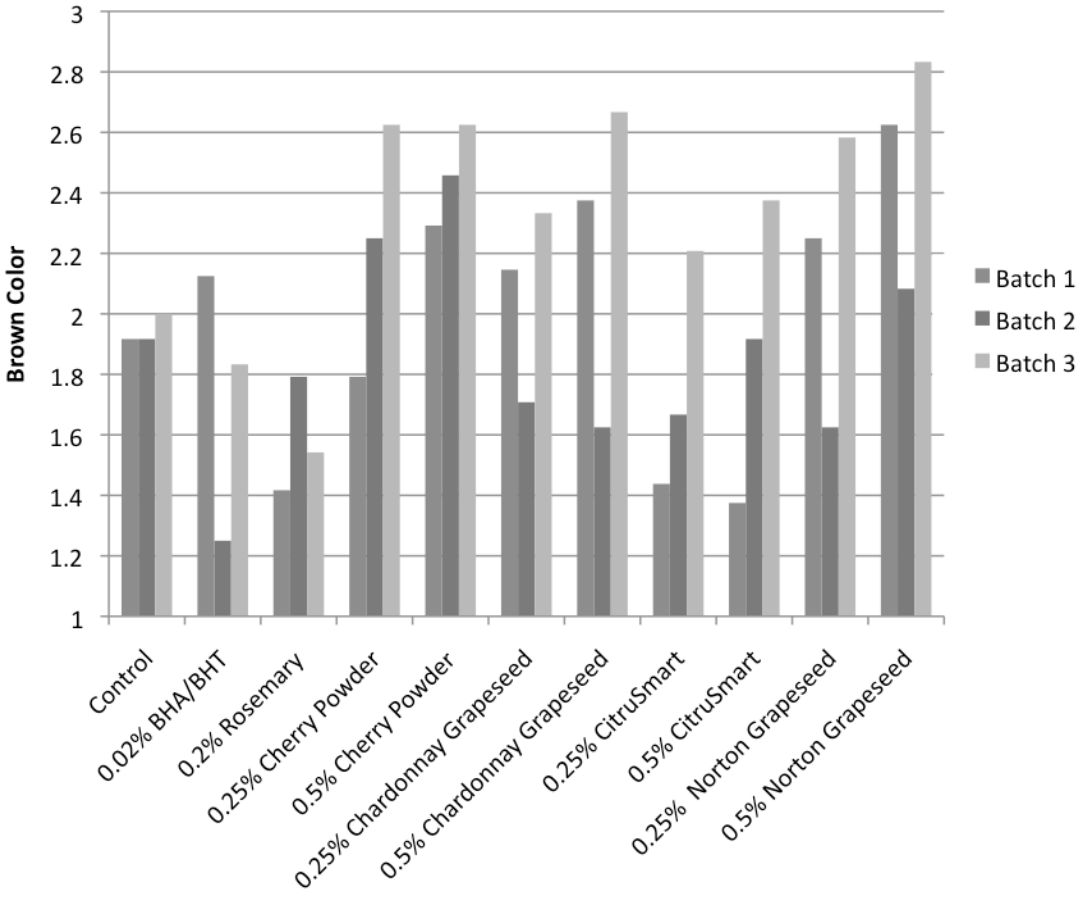


Figure 18 – Study 1 least squares means for batch by treatment interaction for brown color of raw ground beef patties. (0=no color, 1=light grayish brown, 5=dark brown)

P-value = 0.0043 from Analysis of Variance Table
Root Mean Square Error = 0.590

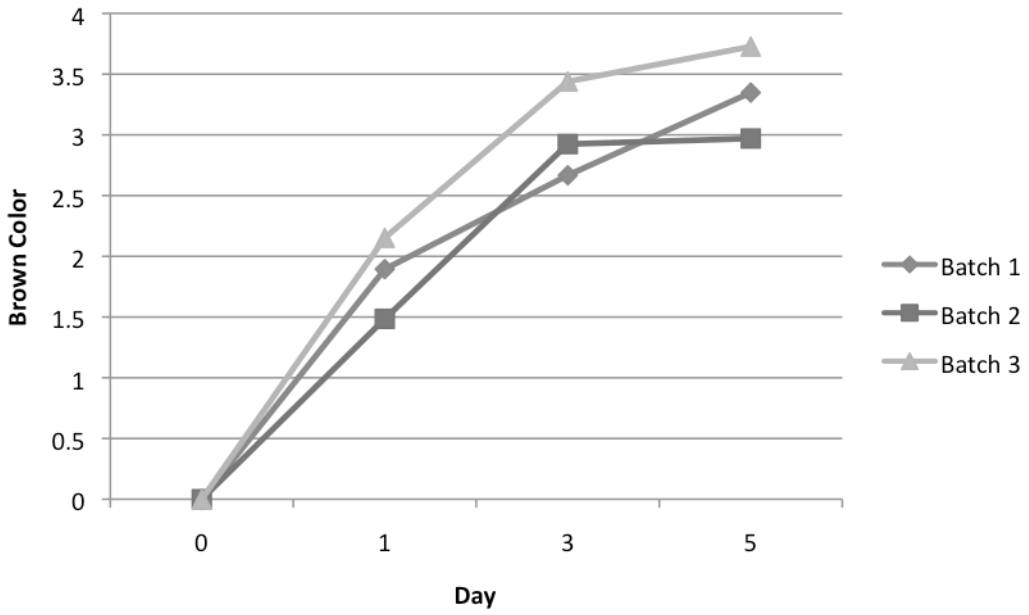


Figure 19 – Study 1 least squares means for batch by day interaction for brown color of raw ground beef patties. (0=no color, 1=light grayish brown, 5=dark brown)

P-value = 0.0035 from Analysis of Variance Table
Root Mean Square Error = 0.590

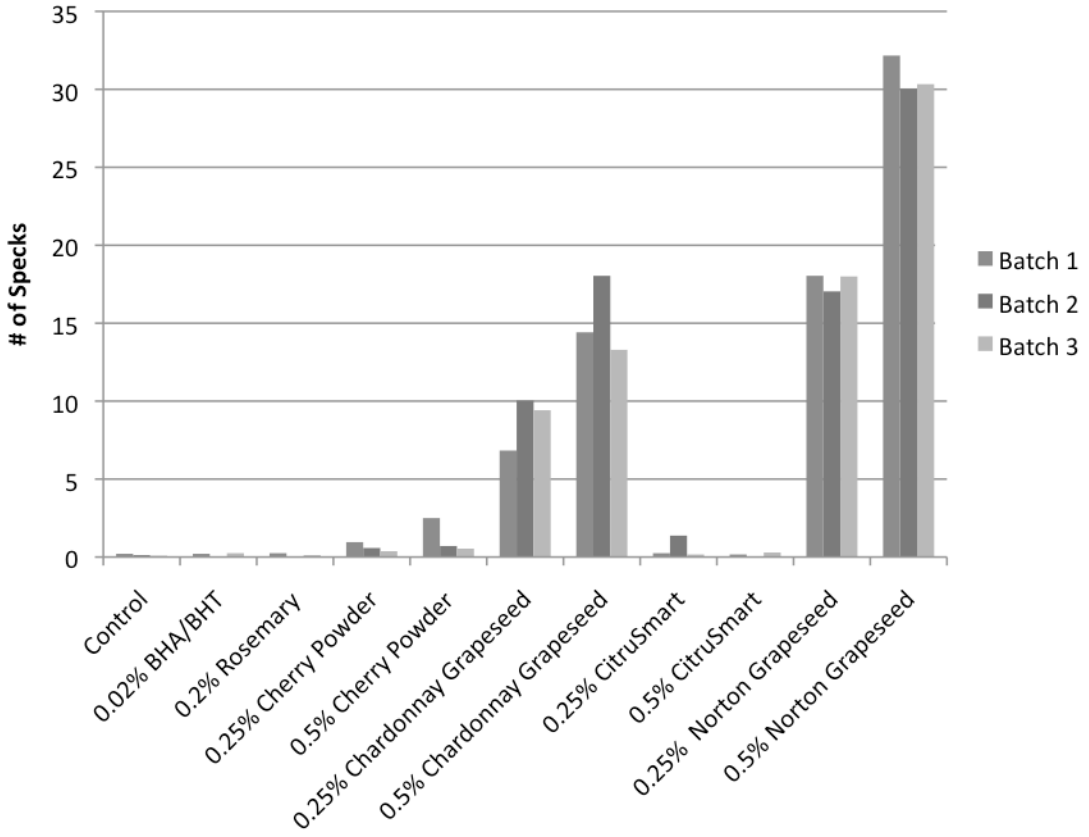


Figure 20 – Study 1 least squares means for batch by treatment interaction for number of ingredient specks in random 1^2 in area of raw patty.

P-value = <0.0412 from Analysis of Variance Table
Root Mean Square Error = 2.318

Study 2. Chestnut, Mimosa, Quebraco, and Grapeseed Tannins

TBARS Values

TBARS values (mg malonaldehyde/kg sample) were used to measure the effects of treatment addition and storage time on lipid oxidation levels in the cooked ground beef patties (Table 3). Overall, the TBARS values were lower than those for the first study, which was primarily because more of the treatments inhibited oxidation in pre-cooked patties. Treatment, storage day, and their two way interaction affected TBARS values. All treated patties had significantly lower ($P<0.0001$) TBARS values than control patties, as well as patties treated with 0.2% RM, and 0.02% BHA/BHT. The 0.5% NG, 0.25% CG, and 0.5% CG treated patties had similar TBARS values to those reported in the first study. Patties containing CN, M, or Q were similar to the 0.5% CG treated patties, with TBARS values remaining below 1 mg malonaldehyde/kg sample throughout the storage period (Figure 21). There were no differences in TBARS values with increasing concentrations of CN, M, or Q in patties. This indicates that 0.25% levels of these ingredients are equally as effective as levels of 0.5%. It is possible, therefore, that lower addition levels of these ingredients could be used without causing any change in antioxidant ability. No previous research has been done on the effects of chestnut, mimosa, and quebracho tannins' direct addition to meat systems. However, it is known that dietary supplementation of these tannins can affect meat quality. In a study conducted by Liu, Gai, Gasco, Bugiapaglia, Lussiana, Guo, Tong, and Zoccarato (2009), rabbits fed a diet supplemented with 0.5% chestnut tannins had meat with decreased TBARS values compared to meat from rabbits fed a control diet; however,

Table 3. Least squares means for cooked TBARS values, raw pH, cook yield, and raw external color attributes.

Effect	TBARS	pH	Cook Yield %	CIE Color Space Values L*	a*	b*
RMSE	0.273	0.045	3.541	1.157	1.162	0.782
Treatment[a]	<0.0001	<0.0001	0.0012	<0.0001	<0.0001	<0.0001
Control	4.21^{f}	5.57^{efg}	72.04^{bcd}	56.18^{h}	16.97^{ef}	13.13^{fg}
0.02% BHA/BHT	1.30^{d}	5.57^{cdefg}	71.40^{bc}	56.09^{h}	17.51^{f}	12.95^{efg}
0.20% Rosemary Extract	2.04^{e}	5.55^{cdef}	71.04^{b}	55.90^{gh}	17.55^{f}	13.36^{g}
0.25% Chardonnay Grapeseed	1.02^{c}	5.54^{bc}	73.03^{bcde}	55.66^{fgh}	16.90^{ef}	12.56^{cde}
0.5% Chardonnay Grapeseed	0.65^{b}	5.54^{bcd}	72.02^{bcd}	54.82^{cde}	16.48^{de}	12.54^{cde}
0.5% Norton Grapeseed	1.07^{c}	5.54^{bcde}	74.18^{de}	54.22^{bc}	15.42^{c}	11.76^{b}
0.25% Chestnut	0.55^{b}	5.54^{bc}	71.18^{bc}	54.42^{bcd}	15.84^{cd}	12.67^{def}
0.5% Chestnut	0.66^{b}	5.51^{b}	72.39^{bcde}	53.68^{b}	13.67^{b}	12.80^{def}
0.25% Mimosa	0.61^{b}	5.59^{g}	75.43^{e}	54.77^{cde}	16.84^{ef}	12.39^{cd}
0.5% Mimosa	0.62^{b}	5.55^{cdef}	73.21^{cde}	55.33^{efg}	15.40^{c}	12.18^{bc}
0.25% Quebracho	0.60^{b}	5.57^{defg}	72.10^{bcde}	55.46^{efgh}	16.66^{e}	12.97^{efg}
0.5% Quebracho	0.62^{b}	5.58^{fg}	73.85^{de}	55.04^{def}	16.91^{ef}	13.42^{g}
Storage Day[a]	<0.0001	<0.0001	0.5325	<0.0001	<0.0001	<0.0001
0	0.74^{b}	5.59^{cd}	72.63^{b}	56.48^{d}	21.40^{e}	14.06^{e}
1	0.91^{c}	5.59^{c}	72.50^{b}	54.45^{b}	18.67^{d}	13.30^{d}
3	1.36^{d}	5.61^{d}	73.19^{b}	54.41^{b}	15.22^{c}	12.04^{c}
5	1.64^{e}	5.43^{b}	72.29^{b}	55.18^{c}	10.06^{b}	11.51^{b}

[a]*P*-value from analysis of variance tables.
^{bcdefgh}Mean values within a column and followed by the same letter are not significantly different ($P > 0.05$).

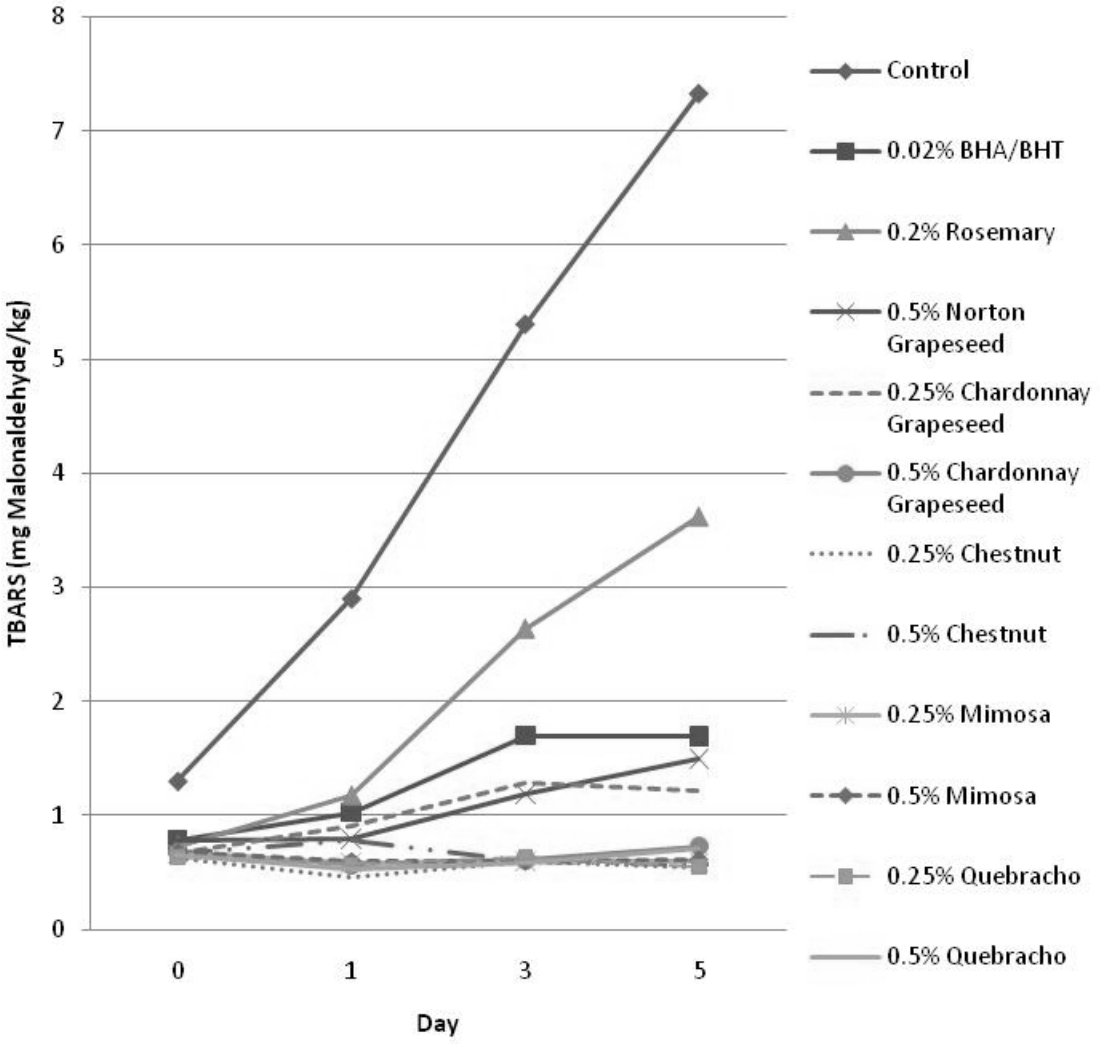


Figure 21 - Study 2 least squares means for treatment by storage day interaction for TBARS values (mg malonaldehyde/kg) of pre-cooked ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.273

when fed a diet supplemented with 1.0% chestnut tannins, the TBARS values were similar to that of meat from rabbits fed the control diet. This was likely due to the tannins being bound to higher iron content that was associated with the higher tannin supplementation. With more iron available, the tannins were likely bound to the iron and not as effective. Du, Cherian, Stitt, and Ahn (2002) found that a diet supplemented with high tannin sorghum in broiler chicks resulted in thigh meat with slightly lower TBARS values than the thigh meat from broiler chicks fed a normal diet. Breast meat from the same animals, however, was not significantly different in TBARS levels. Lambs fed a diet supplemented with 8.9% quebracho tannins, however, had meat with no significant difference in lipid oxidation (Luciano, Monahan, Vasta, Biondi, Lanza, & Priolo, 2009). It may be that ruminants process these tannins differently than nonruminants, which would indicate that direct addition of tannins to ground beef systems may be more effective at reducing lipid oxidation than dietary supplementation.

Batch, batch by day, and batch by treatment interactions were significant for TBARS values. Batches 2 and 3 were similar, and batch 1 produced TBARS values that were slightly higher ($P<0.0001$). Batch 1 had the highest d0 TBARS values (Figure 22), but values for batch 1 did not increase at d1 and were similar to those of batches 2 and 3. By d5, however, batch 1 and 2 TBARS values were highest, with batch 3 values being significantly lower. For batch by treatment interaction (Figure 23), control patties and patties treated with RM or BHA had lower TBARS values in the third batch compared to other treated patties, which showed no difference in TBARS values over the 3 batches.

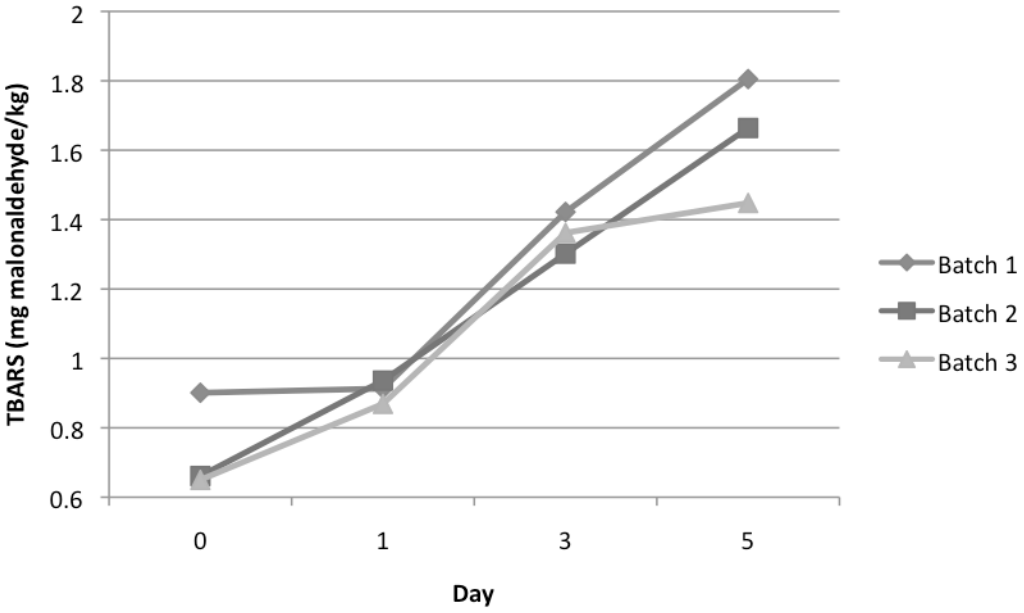


Figure 22 – Study 2 least squares means for batch by day for TBARS values (mg malonaldehyde/kg) of pre-cooked ground beef patties.

P-value =0.0187 from Analysis of Variance Table
Root Mean Square Error = 0.273

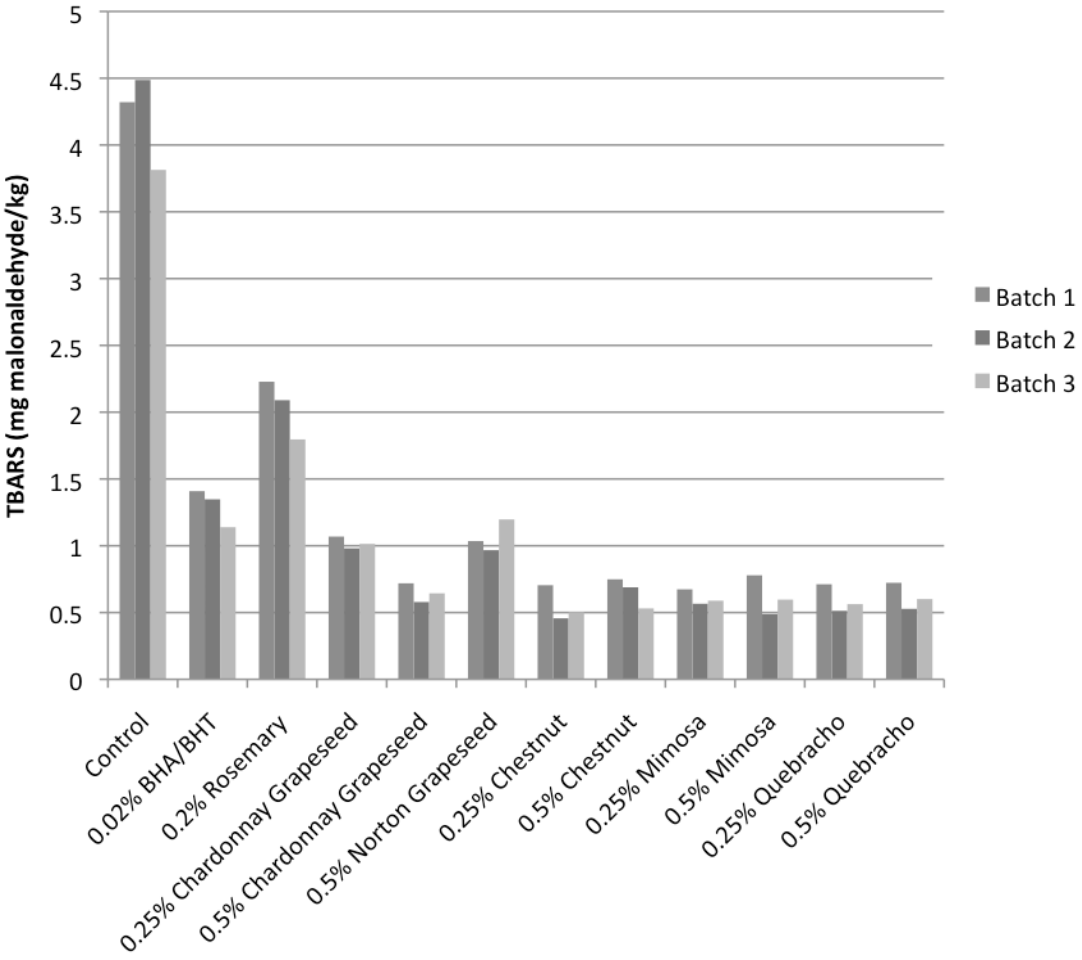


Figure 23 – Study 2 least squares means for batch by treatment interaction for TBARS values (mg malonaldehyde/kg) of pre-cooked ground beef patties.

P-value = 0.0149 from Analysis of Variance Table
Root Mean Square Error = 0.273

pH Values

pH measurements, as well as all other analyses, were conducted on raw patties stored over 5 days. Treatment and storage day affected pH (Table 3). pH of raw patties increased slightly at d3, but decreased on d5. Again, this is probably because the ingredients solubilized within the patties over time. Due to the pH of these treatments when measured at a ratio of 50g powder to 100ml ddH_2O, this is likely. All treatments had a pH below 5.0. CN had the lowest pH of 4.13. Overall, all treated patties were similar in pH to the control except those with CG or CN treatments, which were lower in pH. The practical significance of these values is debatable, however, as the difference between the lowest pH value and that of the control patties was only 0.06 units. Every treatment that was used in both studies had higher values in the second study. The most likely cause of this is variations in the meat batch, similar to batch effects.

Batch, batch by day, and batch by treatment interactions were significant. Batch 2 had the highest raw pH values and batch 1 had the lowest ($P<0.0001$). For batch by storage day (Figure 24), batch 2 patties began with a much higher pH than that of 1 and 3. After d0, however, batch 2 patties were similar to those in the third batch. All treatments had their highest values in batch 2 and lowest values in batch 1 (Figure 25).

Cook Yield

Batch effects for cook yield were significant ($P<0.0001$). Batch 1 had the lowest cook yield, while batches 2 and 3 had similar values (74.40% and 74.89%, respectively). For batches 2 and 3, cook yields were much higher than in the first study. This could be attributed to differences in the quality and composition of the meat. Cook yield was

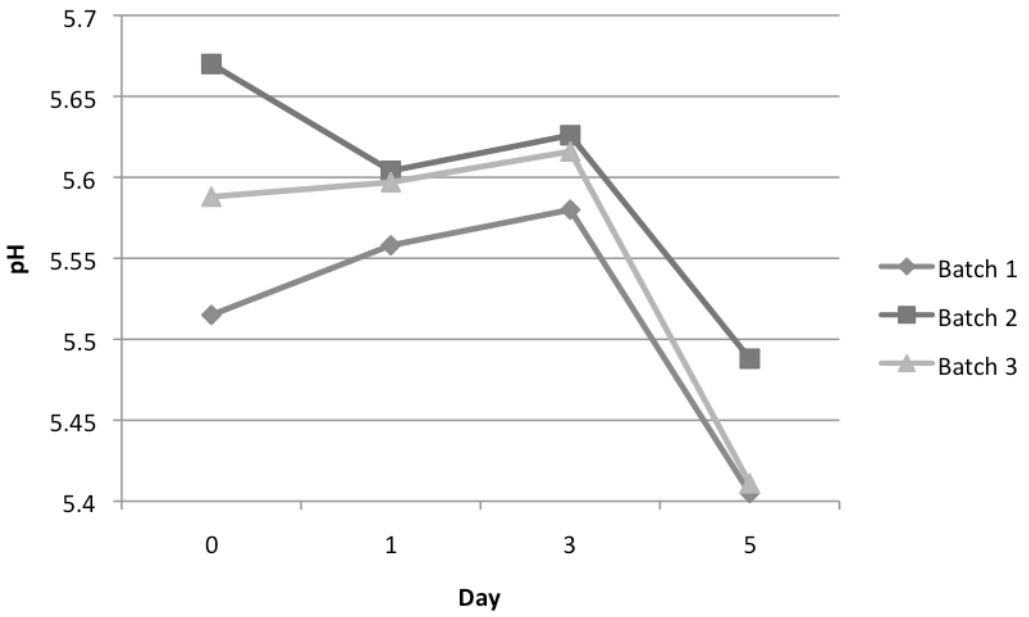


Figure 24 – Study 2 least squares means for batch by day interaction for pH of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Tables
Root Mean Square Error = 0.045

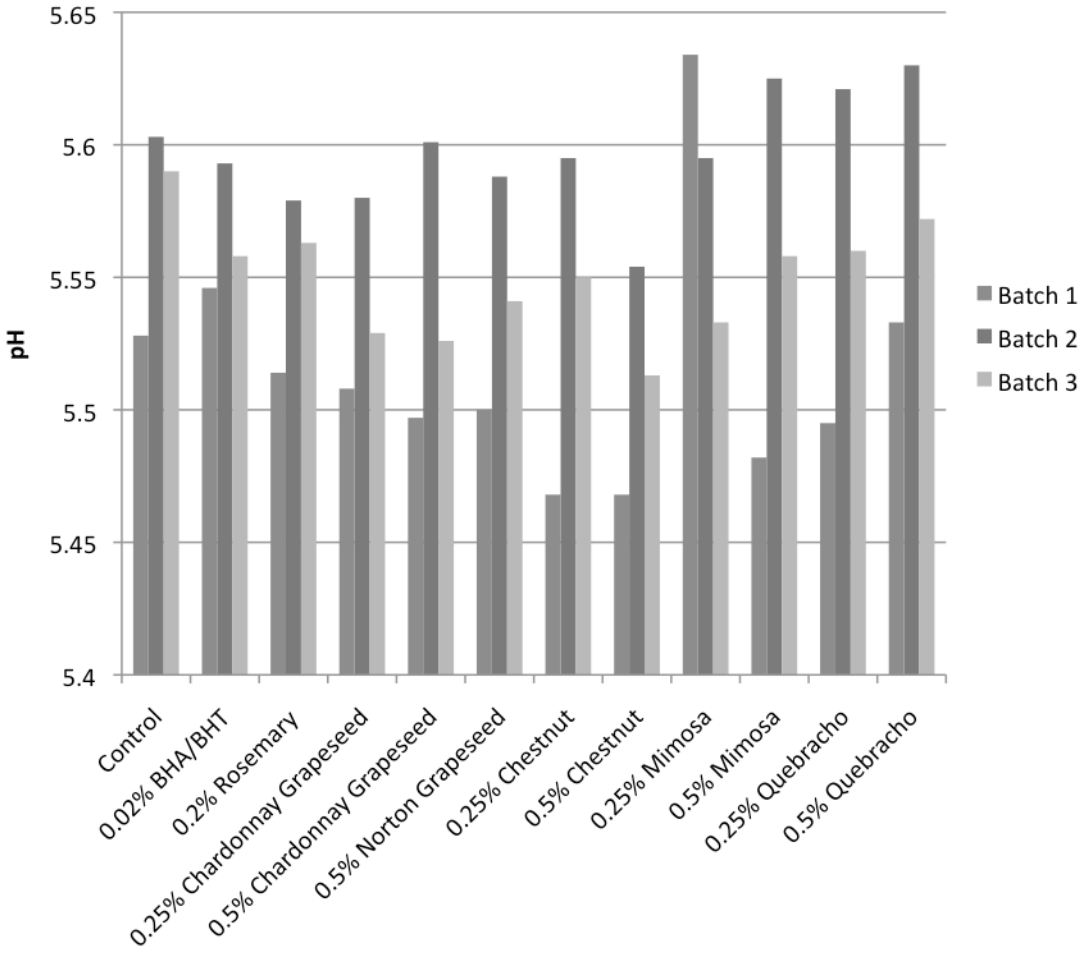


Figure 25 – Study 2 least squares means for batch by treatment interaction for pH of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.045

significant for treatment (Table 3). Similarly to the first study, no treatments had a negative effect on cook yield compared to control patties. The only treatment which produced a significantly higher cook yield than control patties was 0.25% M, which produced a cook yield 3.41% higher than control patties. However, when looking at the batch by treatment interaction (Figure 26), 0.5% NG and 0.5% Q treated patties had cook yields in the second batch that approached 80%, and patties with 0.5% M had cook yields near 77%, much higher than the other treatments in that batch. As expected, day and day by treatment effects were not significant for cook yield, as all patties within a treatment were cooked in the same batch.

CIE Color Space and Subjective Color

CIE color space values (L*, a*, and b*) were used to measure lightness, red versus green, and yellow versus blue color in raw ground beef patties. Over time, raw patties decreased in a* (negative = more green, positive = more red) and b* (negative = more blue, positive = more yellow) color space values (Table 3). This was consistent with the first study. As myoglobin pigments oxidize to form metmyoglobin, the pigments turn brown, and redness and yellowness decreases (McMillin, 1996). Ahn and Nam (2004) and Luchsinger, Kropf, García Zepeda, Hunt, Stroda, Marsden, and Kastner (1997) found that over 7d of aerobic storage, ground beef patties decreased in a* color space values. In addition, Luchsinger et al. (1997) found that b* values also decreased over 7d aerobic storage. Lightness (L* color space values) decreased on d1 and increased on subsequent storage days, although d5 L* color space values for raw patties were still less than that of d0. This contrasts with results obtained by Ahn and Nam

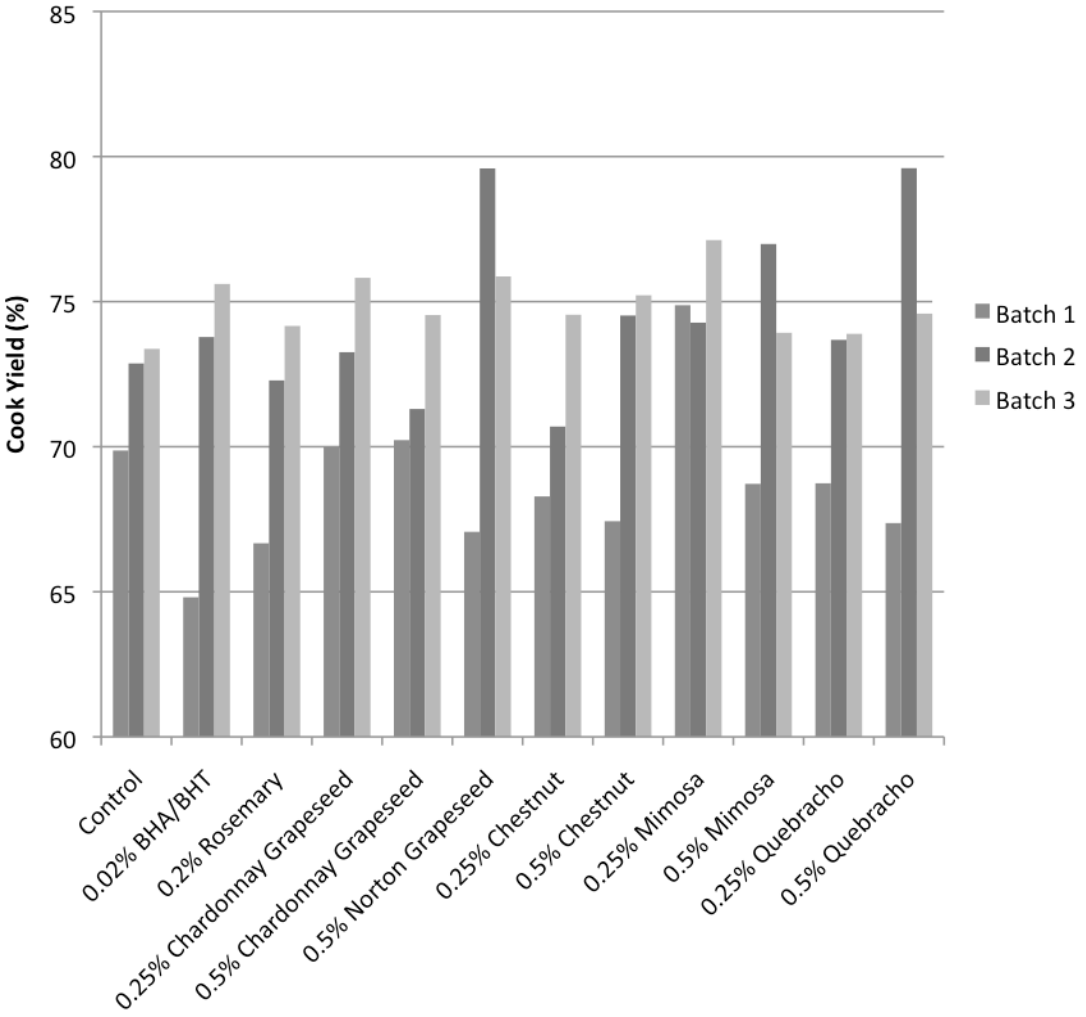


Figure 26 – Study 2 least squares means for batch by treatment interaction for cook yield (%).

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 3.541

(2004) and Luchsinger et al. (1997), who found that L* color space values increased over 7d storage. Hemphill (2006), however, also found that L* values decreased on d1 and increased thereafter through d5. This initial decrease could be brought about by metmyoglobin formation, followed by lightening of the raw ground beef patties resulting from the decrease in pH.

Storage day affected subjective raw ground beef patty color (Table 4). Raw patty lean color decreased slightly from 0d to 3d of storage. After 3d of storage, patty lean color decreased. Percentage discoloration, brown discoloration (%), brown color, and green color increased with storage. Brown discoloration mainly contributed to changes in discoloration with storage, although green discoloration and green color increased on d5. Specks decreased with storage, most likely due to increased brown color, which may have masked visibility of specks.

Treatment was significant for raw CIE color space values. All patties had lower L* color space values than control patties, except for those treated with BHA/BHT, RM, 0.25% CG or 0.25% Q, which were similar to control patties. The darkest patties contained CN or 0.5% NG. Most likely the darkness of these ingredients themselves affected the darkness of the patties, but the effect of CN could be due to pH influences. Patties treated with CN, 0.5% M, or 0.5% NG had lower a* color space values than control patties. In addition, patties treated with 0.5% CN were less red than all other patties. Patties treated with M, CG, or 0.5% NG had lower b* color space values than control patties. No patties were lighter or more red or yellow than control patties. Luciano et al. (2009) found that when quebracho tannins were fed to lambs at levels of

Table 4. Study 2 least squares means for raw lean color, percent discoloration, percent brown discoloration, brown color, percent green discoloration, green color, and visible ingredient specks in raw ground beef patties.

Effect	Lean Color[a]	Discolor %	Brown Discolor %	Green Discolor %	Brown Color[b]	Green Color[c]	Specks[d]
RMSE	0.660	11.724	11.488	8.045	0.499	0.355	1.742
Treatment[e]	0.0062	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Control	3.11^{g}	24.72^{fg}	11.94^{f}	13.19^{i}	1.24^{f}	0.51^{i}	0.04^{f}
0.02% BHA/BHT	3.17^{g}	17.64^{f}	13.61^{fg}	3.89^{fgh}	1.39^{fg}	0.23^{gh}	0.06^{f}
0.20% Rosemary Extract	3.31^{gh}	17.92^{f}	11.81^{f}	6.11^{h}	1.47^{fg}	0.48^{i}	0.13^{f}
0.25% Chardonnay Grapeseed	3.19^{gh}	21.25^{fg}	16.67^{fgh}	4.58^{fgh}	1.67^{gh}	0.31^{hi}	9.68^{g}
0.5% Chardonnay Grapeseed	3.24^{gh}	25.56^{fg}	19.72^{ghi}	5.83^{h}	1.96^{hij}	0.26^{gh}	16.29^{h}
0.5% Norton Grapeseed	3.18^{g}	28.47^{g}	23.47^{hij}	5.00^{gh}	2.21^{j}	0.24^{gh}	29.26^{i}
0.25% Chestnut	3.19^{gh}	28.89^{g}	28.47^{j}	0.42^{fg}	2.10^{ij}	0.14^{fgh}	0.14^{f}
0.5% Chestnut	2.61^{f}	49.44^{h}	49.03^{k}	0.42^{fg}	2.83^{k}	0.07^{fg}	0.07^{f}
0.25% Mimosa	3.58^{h}	18.61^{f}	18.61^{fgh}	0.00^{f}	1.90^{hi}	0.00^{f}	0.21^{f}
0.5% Mimosa	3.06^{g}	27.36^{g}	26.53^{ij}	0.83^{fg}	1.94^{hij}	0.11^{fgh}	0.13^{f}
0.25% Quebracho	3.21^{gh}	21.94^{fg}	17.36^{fgh}	4.58^{fgh}	1.81^{hi}	0.24^{gh}	0.11^{f}
0.5% Quebracho	3.25^{gh}	23.89^{fg}	23.47^{hij}	0.42^{fg}	2.03^{ij}	0.07^{fg}	0.06^{f}
Storage Day[e]	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0	3.78^{h}	0.00^{f}	0.00^{f}	0.00^{f}	0.00^{f}	0.00^{f}	5.79^{h}
1	3.58^{gh}	10.19^{g}	10.19^{g}	0.00^{f}	1.54^{g}	0.00^{f}	4.67^{g}
3	3.46^{g}	26.39^{h}	26.25^{h}	0.14^{f}	2.84^{h}	0.03^{f}	4.52^{g}
5	1.87^{f}	65.32^{i}	50.46^{i}	14.95^{g}	3.13^{i}	0.85^{g}	3.74^{f}

[a]Subjective Lean Color: 1=Grayish pink, 5=Cherry red, 8=Brick red.
[b]Subjective Brown Color: 1=Light grayish brown, 5=Dark brown.
[c]Subjective Green Color: 1= Light grayish green, 5=Olive green.
[d]Number of ingredient specks measured in a random 2.54cm^2 area on patty.
[e]*P*-value from analysis of variance tables.
[fghijk]Mean values within a column and followed by the same letter are not significantly different ($P > 0.05$).

8.9%, *semimembranosus* muscle had lower L* color space values, higher a* color space values, and lower b* color space values after 14d of storage. Therefore, dietary tannins appeared to delay meat color deterioration to a greater extent compared to the direct addition of some of the treatments in this study, such as CN, M, and NG.

The addition of treatments affected all subjective color determinations (Table 4). Lean color was a measurement of the redness of the raw patties and was affected by 0.25% M, which resulted in higher lean color scores, and 0.5% CN, which produced lower lean color scores than control patties. The other color measures were used to describe discoloration and specks that may have been due to either metmyoglobin formation for the brown color attributes or color changes due to microbiological growth (green color attributes). The addition of 0.5% CN increased the percentage of raw color discoloration, primarily attributed to brown discoloration, compared to other treatments. This color effect was most likely due to ingredient addition. Chestnut tannins are dark in color and low in pH, which can negatively affect color. As pH decreases, metmyoglobin formation increases. Denaturation of muscle proteins because of low pH results in higher exposure to oxidation components (McMillin, 1996). Of the discoloration in the patties, the predominant discoloration was due to brown color, which suggests discoloration in these patties was related to metmyoglobin formation or ingredient color. While green discoloration was present, these values were low, except in control patties. This is probably an indication that all treatments had an antimicrobial effect, although further research would be necessary to prove this hypothesis. The specks attribute was included to assess visible small discoloration due to ingredient addition. Specks were reported for

CG and NG treatments, with lower specks reported for lower addition levels. These results indicate that specks were due to ingredient addition. This effect might be eliminated by reducing particle size of the ingredients or using an extracted form.

Day by treatment interactions were significant for a* (Figure 27) and b* (Figure 28) color space values. At d0 all treatment additions resulted in patties that were less red and yellow than control patties, except 0.25% Q, BHA/BHT, and RM. Patties treated with 0.5% Q were also similar in b* color space values to control patties. This effect was likely due to ingredient color. As control patties became less red over the 5d storage period, many treated patties had higher a* color space values than control patties, including those treated with BHA/BHT, RM, 0.25% CG, 0.25% M, and Q. As control patties became less yellow over the storage period, treated patties became more similar. By d5 only 0.5% CG treated patties had lower b* values than control patties, and patties treated with 0.5% Q and 0.5% CN were more yellow. These results indicate that while the ingredients themselves initially caused discoloration in raw ground beef patties, many inhibited metmyoglobin formation over the storage period compared to control patties.

Day by treatment interaction was significant for all subjective color determinations. While raw patties treated with 0.5% CN initially had some of the highest lean color scores, lean color deteriorated in these patties by d3 (Figure 29). Brown color scores for 0.5% CN treated patties rose quickly through d3 and then remained steady (Figure 30). These patties had the most total and brown percent discoloration by d5 of the study (Figure 31). Patties treated with 0.25% M had lean color scores that were relatively high throughout the course of storage and had the least percent discoloration at

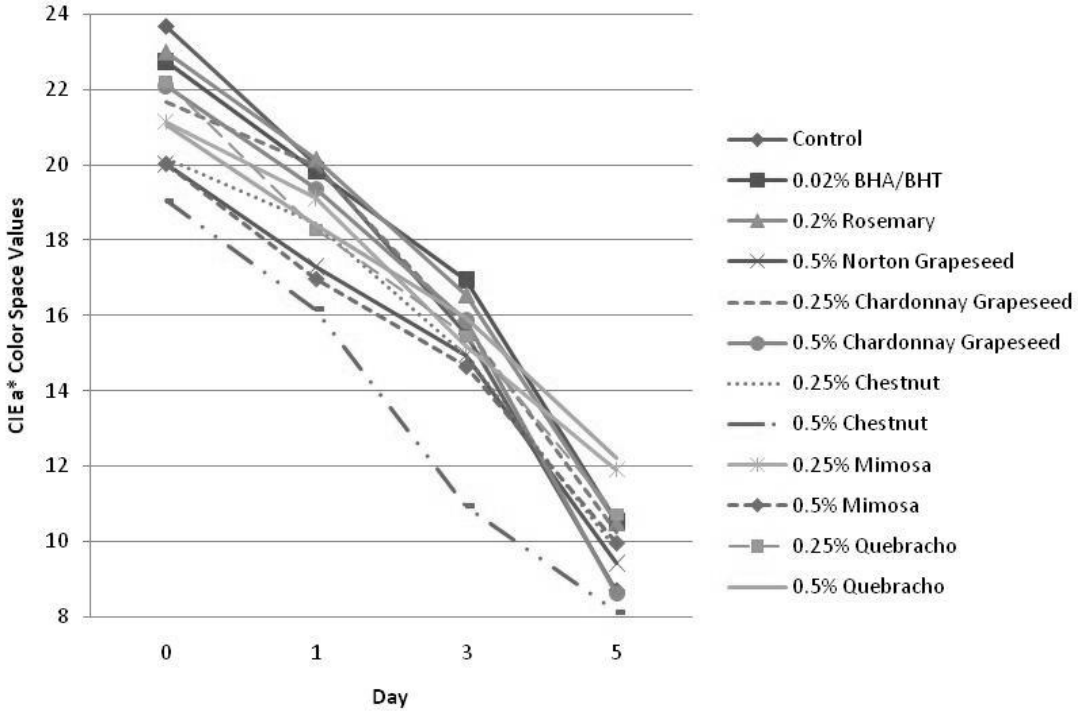


Figure 27 - Study 2 least squares means for treatment by storage day interaction for CIE a* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 1.162

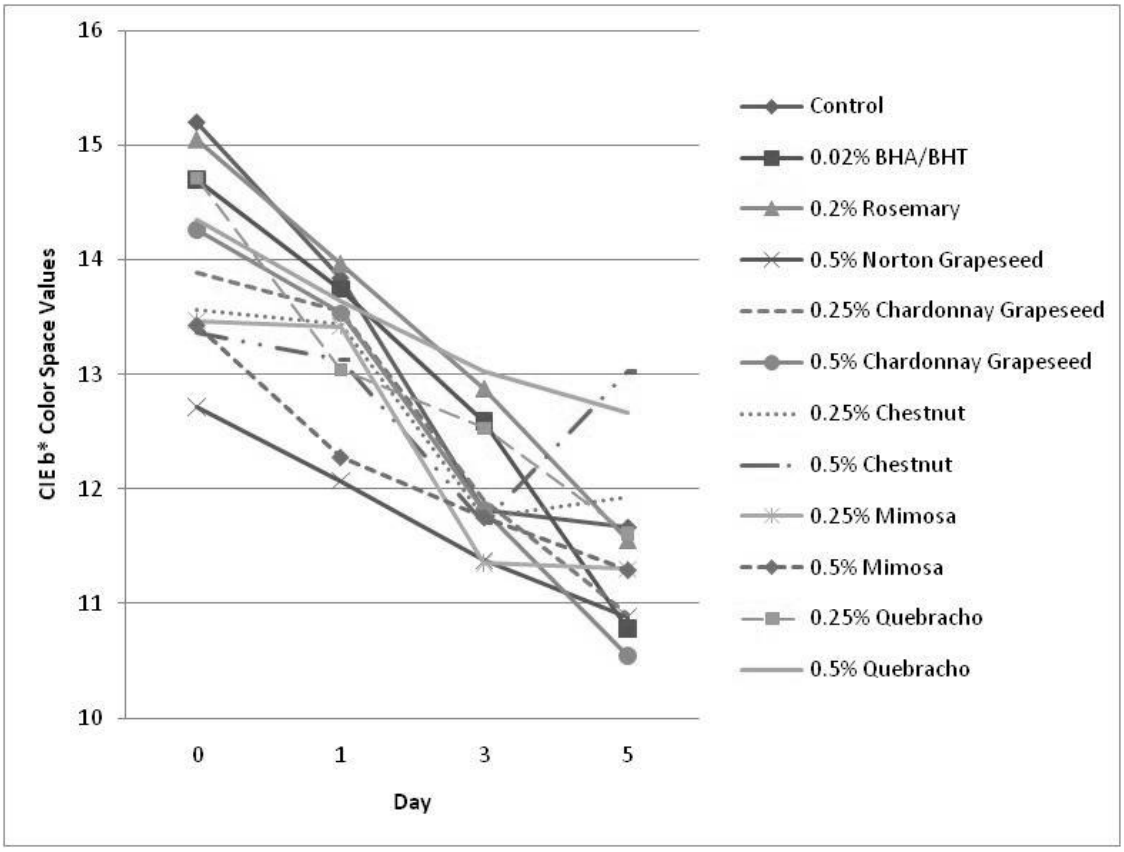


Figure 28 - Study 2 least squares means for treatment by storage day interaction for CIE b* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.782

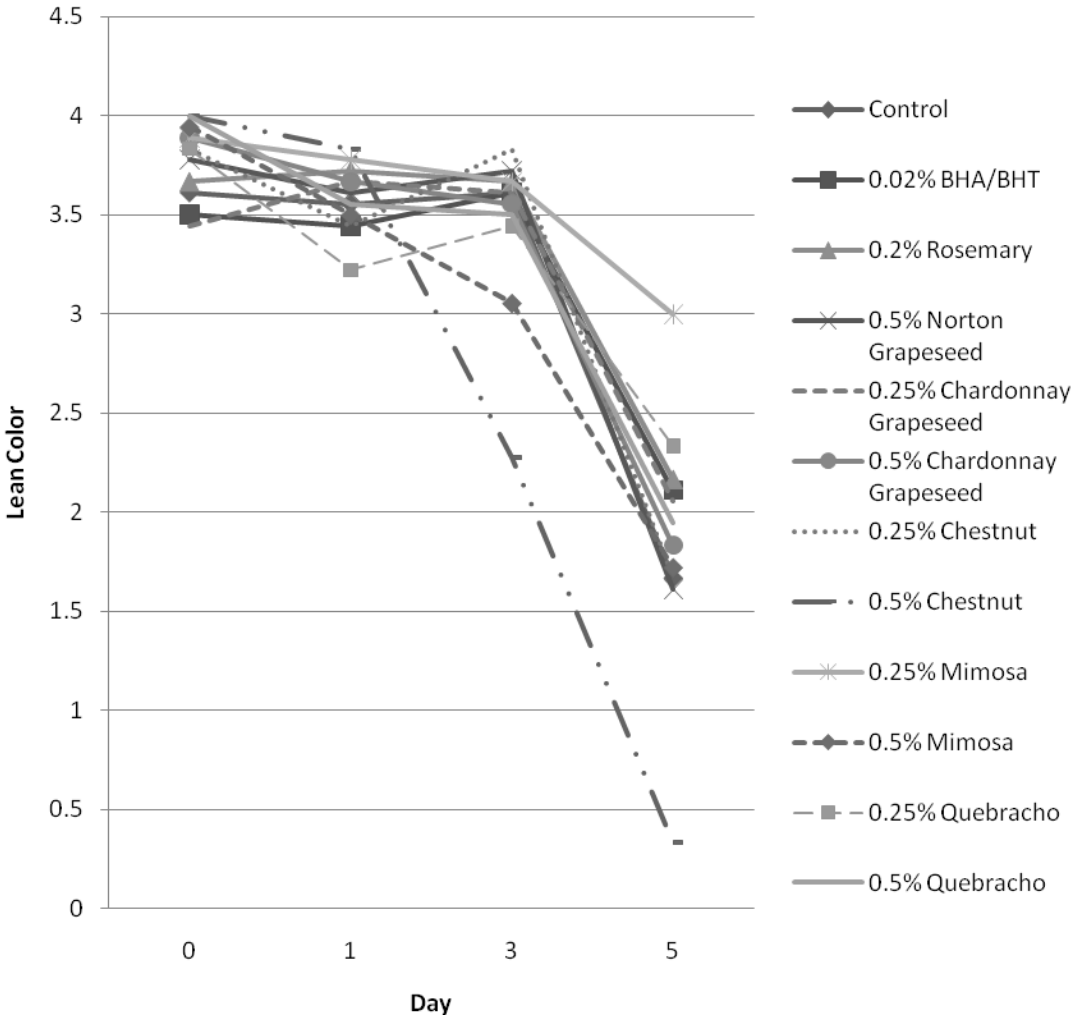


Figure 29 - Study 2 least squares means for treatment by storage day interaction for subjective lean color of raw ground beef patties. (0=No color, 1=Grayish pink, 5=Cherry red, 8=Brick red)

P-value = 0.0059 from Analysis of Variance Table
Root Mean Square Error = 0.660

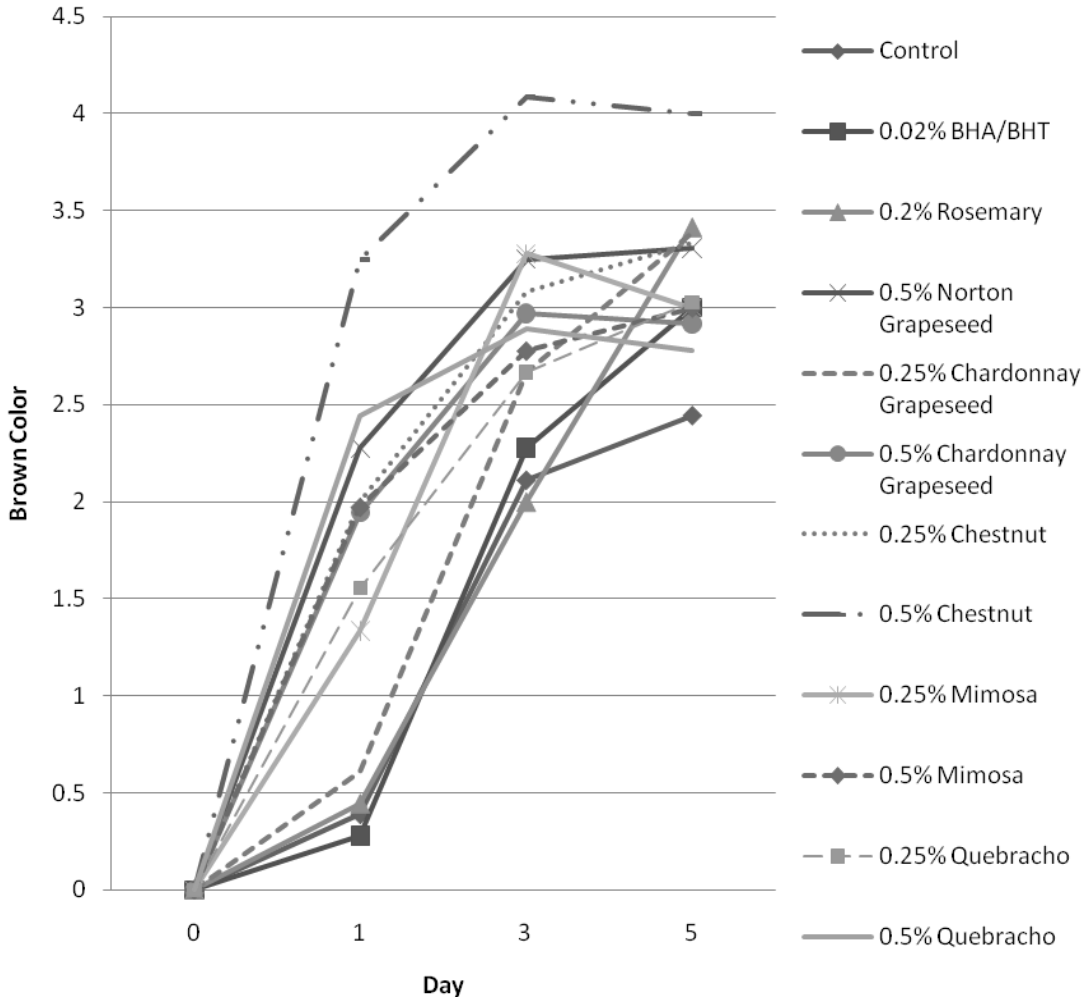
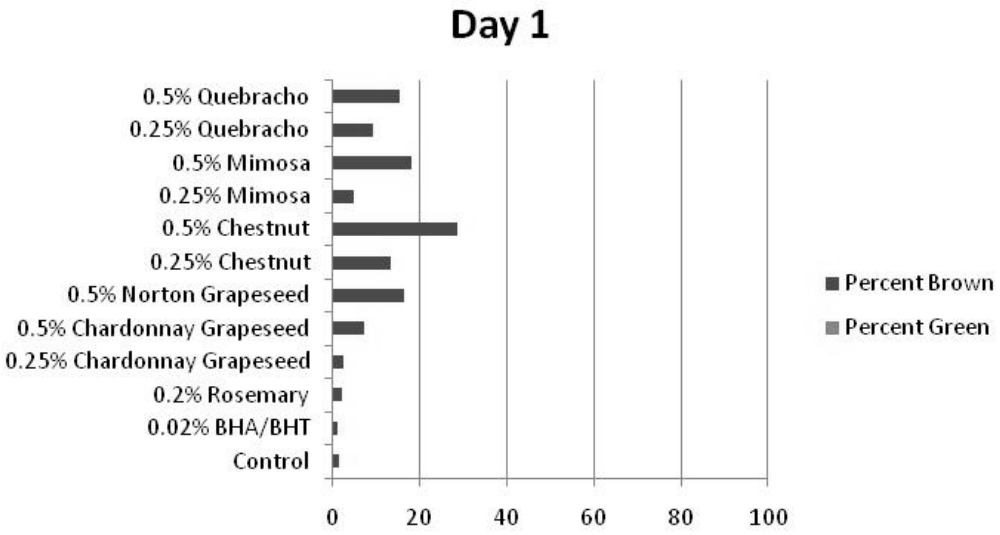


Figure 30 - Study 2 least squares means for treatment by storage day interaction for brown color of raw ground beef patties. (0=no color, 1= light grayish brown, 5= dark brown)

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.499

a)



b)

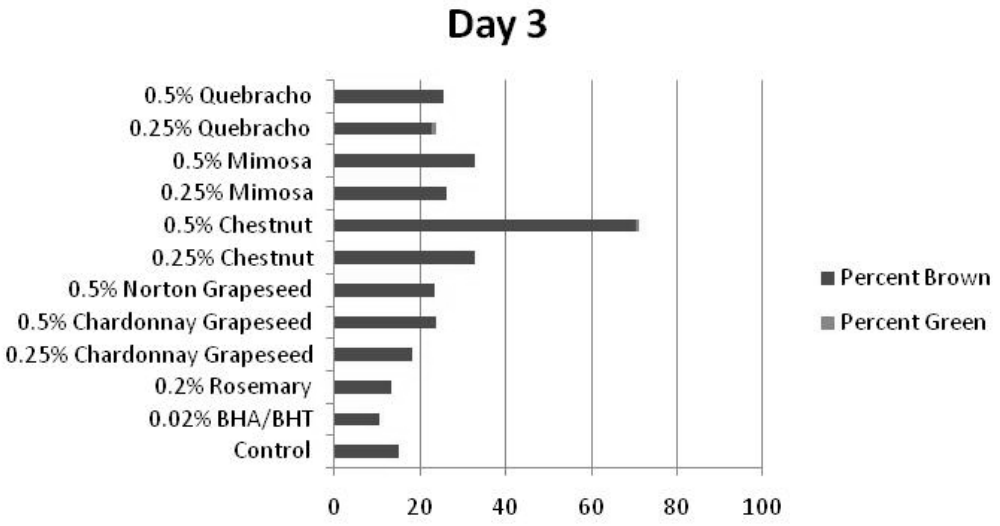


Figure 31 – Study 2 least squares means for treatment by storage day interaction for percent total, brown, and green discoloration in raw ground beef patties on storage day 1, 3, and 5.
Percent total discoloration P=0.0002
Percent brown discoloration P<0.0001
Percent green discoloration P<0.0001
From Analysis of Variance Table
Root Mean Square Errors = 11.724, 11.488, and 8.045, respectively

c)

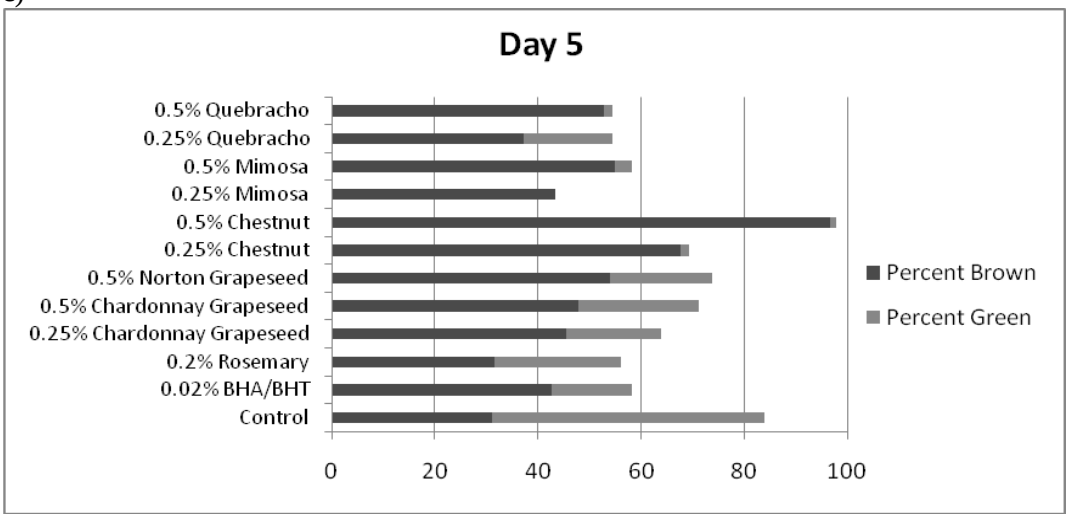


Figure 31 continued.

d5. Patties treated with 0.5% M had some of the lowest lean color scores, but still had less percent discoloration than control patties at the end of storage. No significant green color was present in patties until d5, at which time green discoloration was very high in control patties and patties treated with RM (Figure 32). At d5 BHA/BHT, RM, 0.25% CG, 0.5% M, and Q treated patties had less total discoloration than control patties. Patties treated with NG had more specks than patties with similar levels of CG (Figure 33), but the levels in both sets of treated patties decreased over time, likely due to the masking effect of discoloration

Batch was a significant effect for all objective ($P<0.0001$) and subjective color measurements ($P<0.05$). Batch 2 ground beef patties had the lowest L* color space values, highest lean color scores, and lowest percent discoloration, brown, and green color. In batch 2, raw patties dropped in L* color space values and remained steady throughout the rest of storage (Figure 34). In contrast, patties in batch 1 had higher L* color space values on d5. All treatments produced the darkest patties in batch 2 except 0.5% M (Figure 35). Lean color scores in batch 2 were higher than patties in other batches on d3 and d5 (Figure 36). Patties in batch 3 had the highest a* and b* color space values. Batch by day interaction for a* color space values is presented in Figure 37. Patties treated with 0.5% CN were the least red and had the most discoloration in all batches (Figures 38 and 39). These values support the pH values earlier discussed, as meat with low pH is typically lighter and less red in color. Batch 3 had the highest b* color space values on d0 through d3, but was similar to batch 1 on d5 (Figure 40).

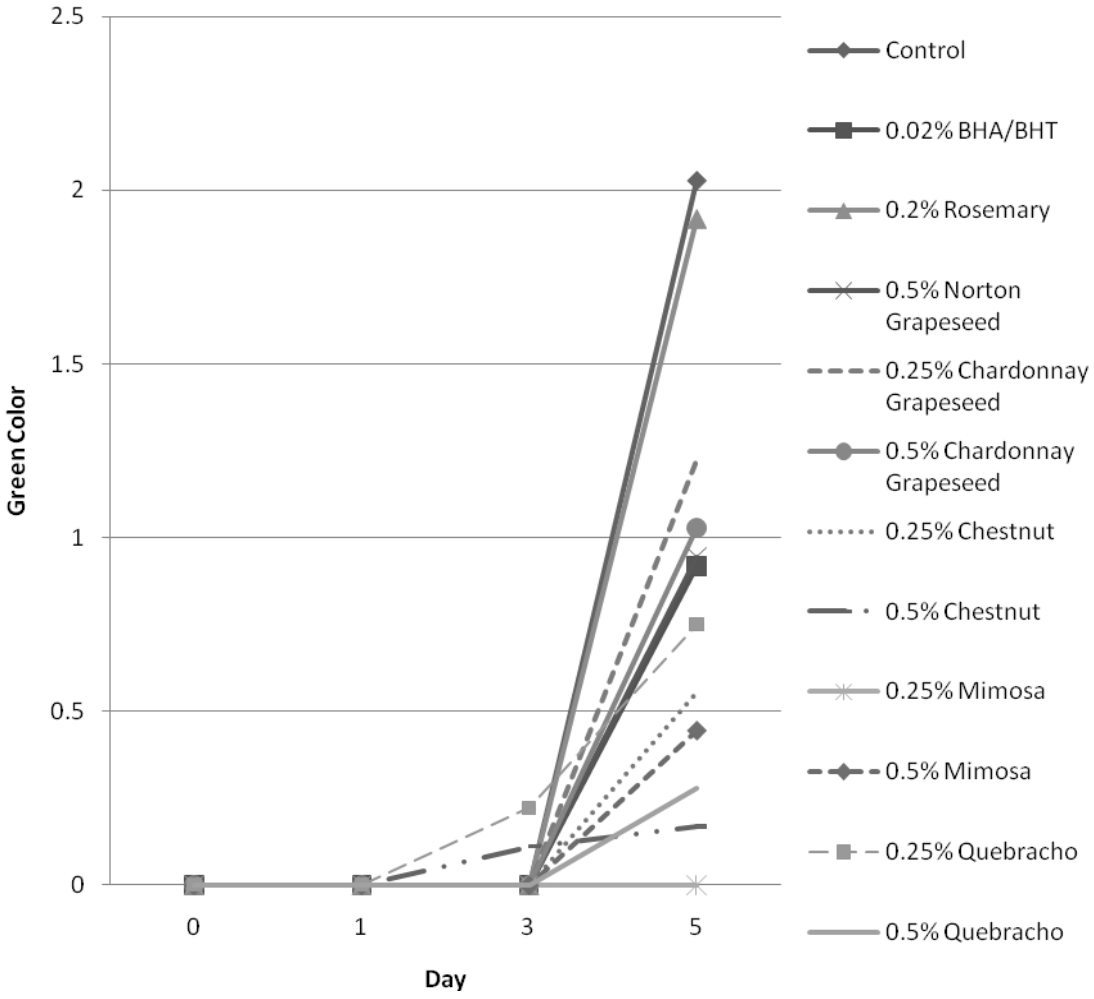


Figure 32 - Study 2 least squares means for treatment by storage day interaction for green color in raw ground beef patties. (0=no color, 1= light grayish green, 5= olive green)

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.355

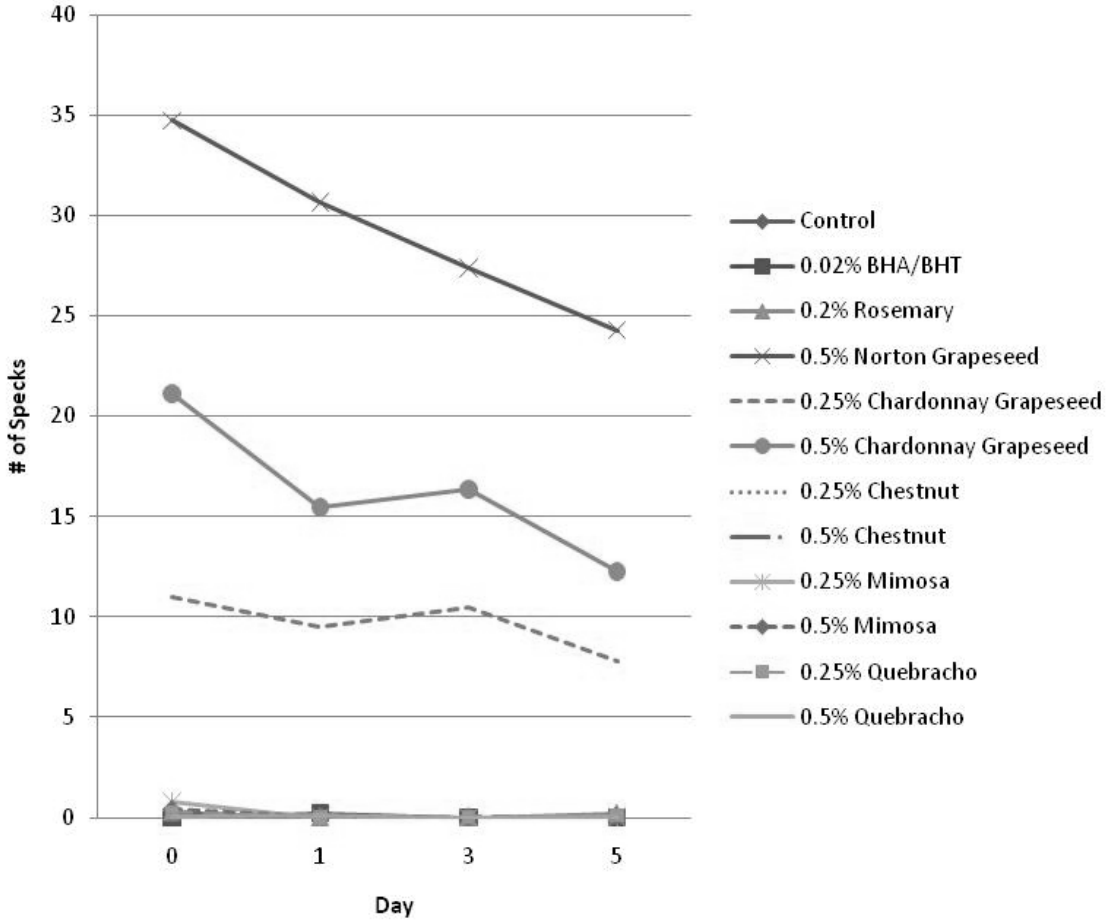


Figure 33 - Study 2 least squares means for treatment by storage day interaction for number of ingredient specks in random 2.54cm^2 area of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 1.7421

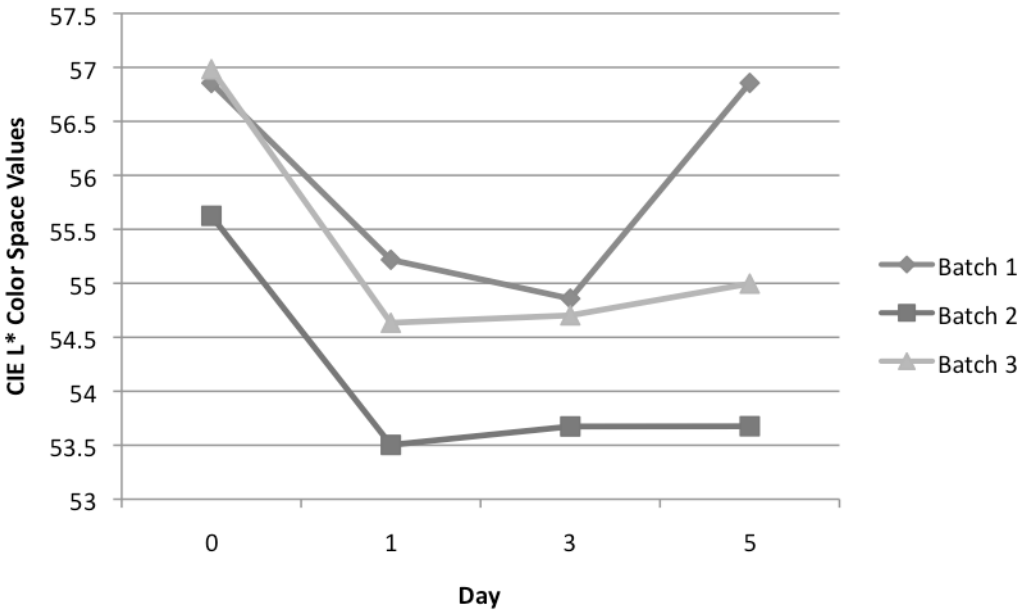


Figure 34 – Study 2 least squares means for batch by day interaction for CIE L* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 1.157

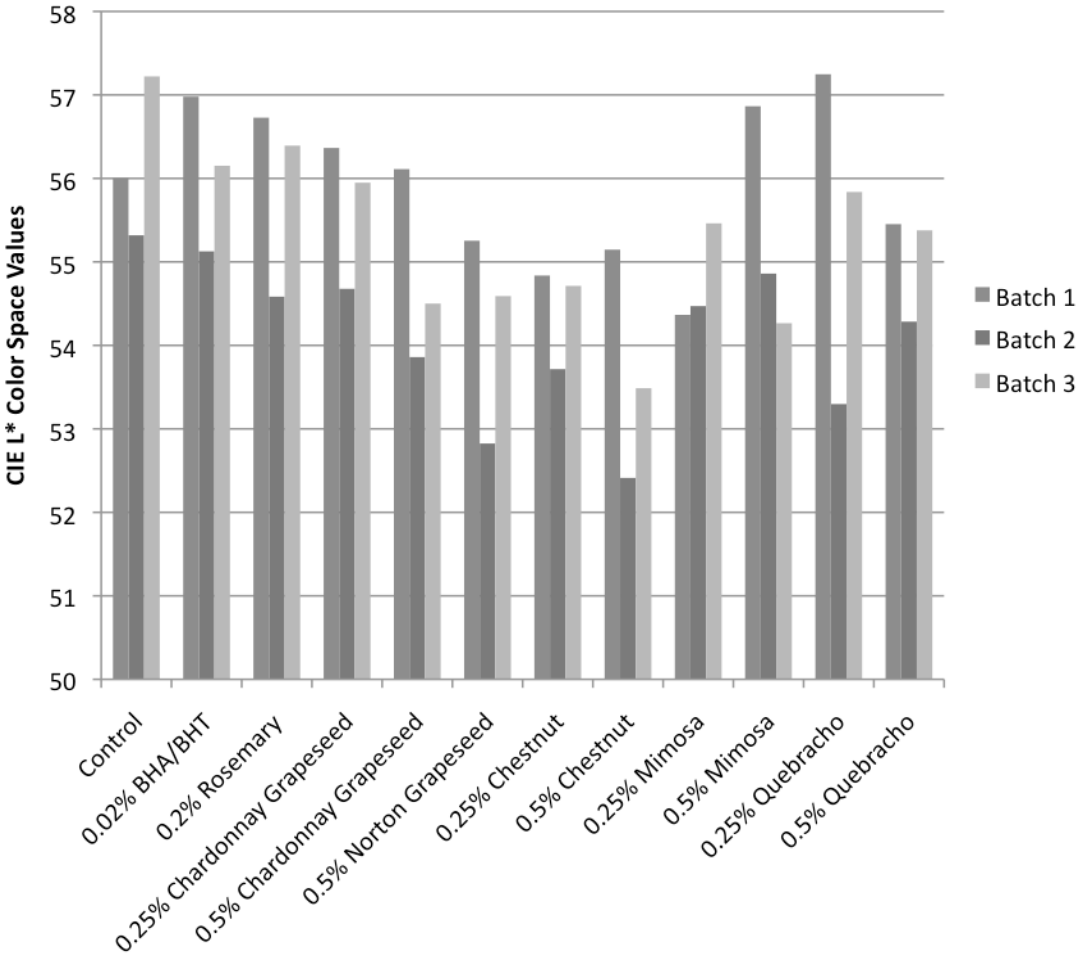


Figure 35 – Study 2 least squares means for batch by treatment interaction for CIE L* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Tables
Root Mean Square Error = 1.157

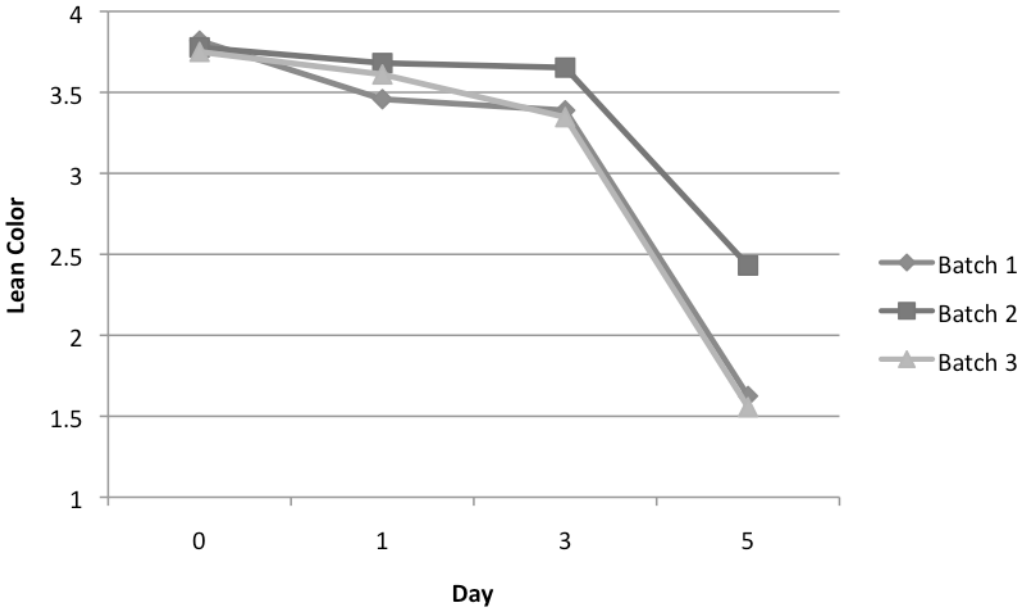


Figure 36 – Study 2 least squares means for batch by day interaction for lean color of raw ground beef patties. (0=No color,1=Grayish pink, 5=Cherry red, 8=Brick red)

P-value = 0.0203 from Analysis of Variance Table
Root Mean Square Error = 0.660

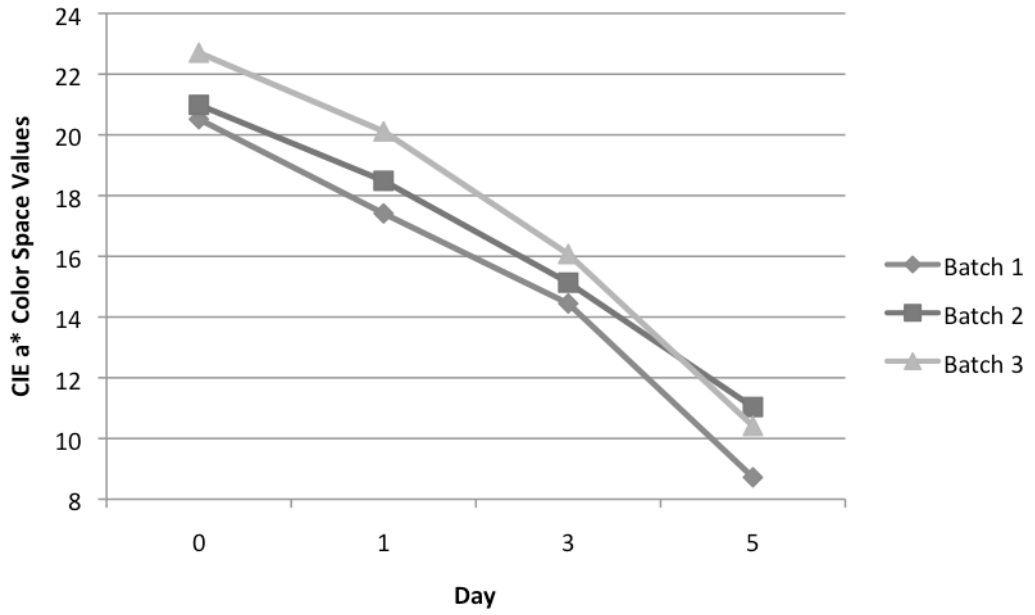


Figure 37 – Study 2 least squares means for batch by day interaction for CIE a* color space values of raw ground beef patties.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 1.162

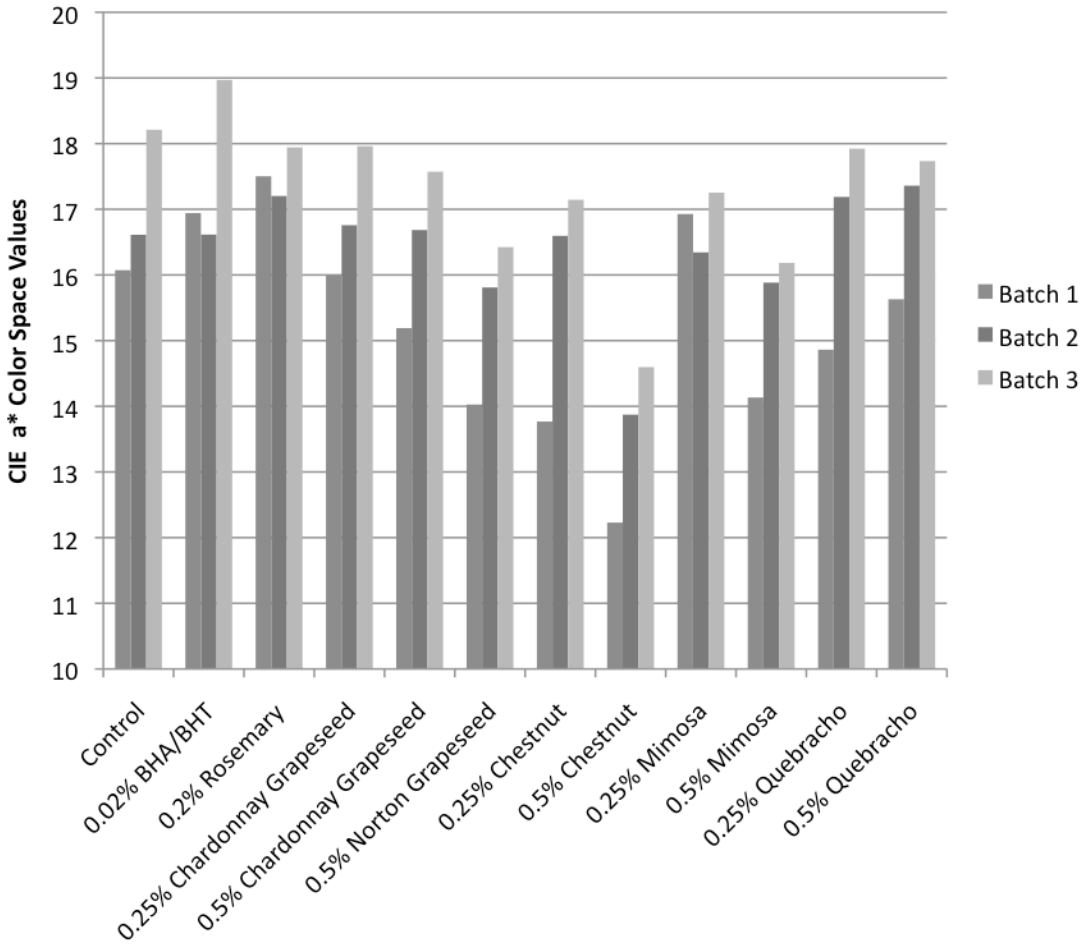
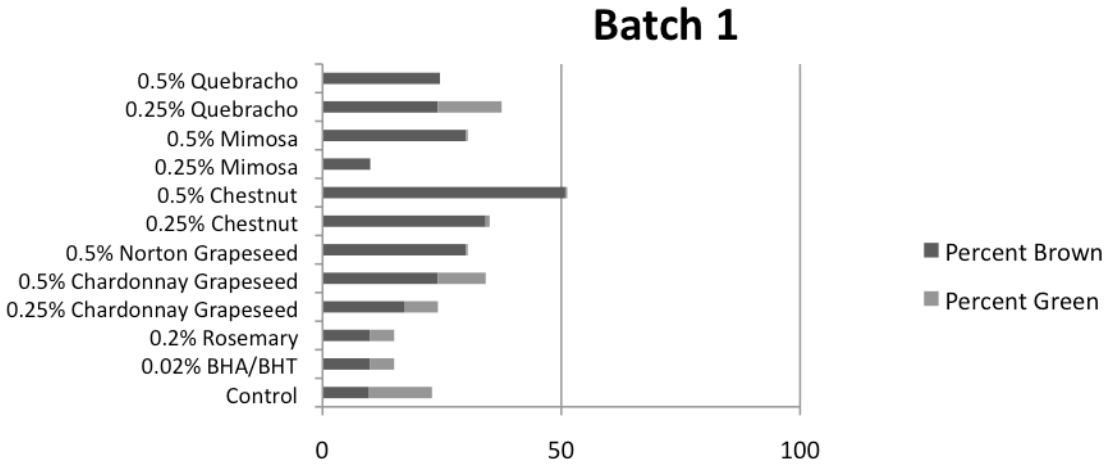


Figure 38 – Study 2 least squares means for batch by treatment interaction for CIE a* color space values of raw ground beef patties.

P-value = 0.0012 from Analysis of Variance Table
Root Mean Square Error = 1.162

a)



b)

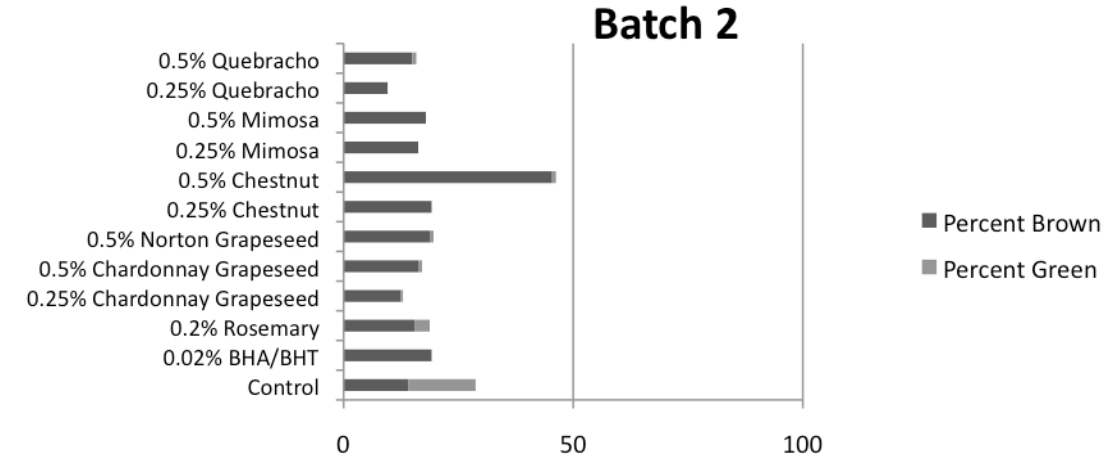


Figure 39 – Study 2 least squares means for batch by treatment effects for total, brown, and green percent discoloration in raw ground beef patties.

P-values = 0.0009, 0.0109, 0.0479, respectively
Root Mean Square Errors = 11.724, 11.488, and 8.045, respectively

c)

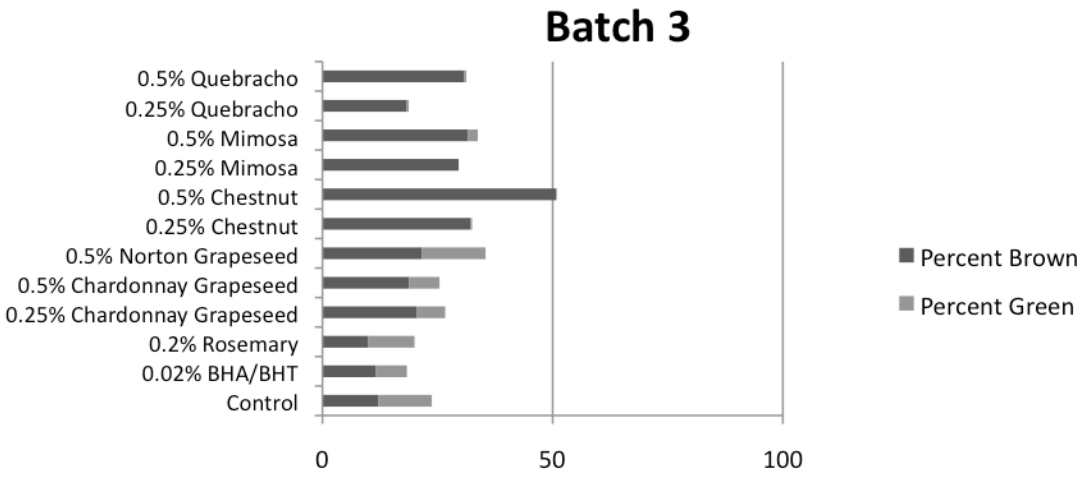


Figure 39 continued.

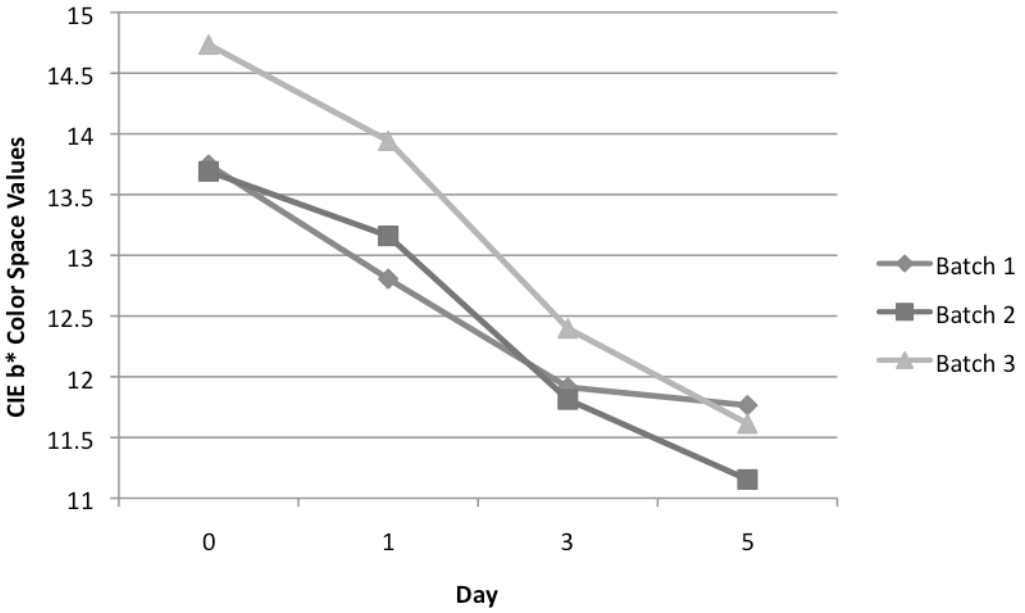


Figure 40 – Study 2 least squares means for batch by day interaction for CIE b* color space values.

P-value = .0025 from Analysis of Variance Table
Root Mean Square Error = 0.78

Discoloration was similar between batches through d3, but on d5, batch 2 had much lower percent discoloration of all types (Figure 41). Similarly, brown and green color was highest for other batches on d5, but for batch 2, raw patties actually decreased in brown color scores on d5 (Figure 42) and were much lower than patties in other batches for green color scores (Figure 43). Many treated patties were high in green color in some batches and low in others, including 0.25% Q, 0.25% CG, and 0.5% NG (Figure 44). Interactions for batch by day and treatment for specks are shown in Figures 45 and 46.

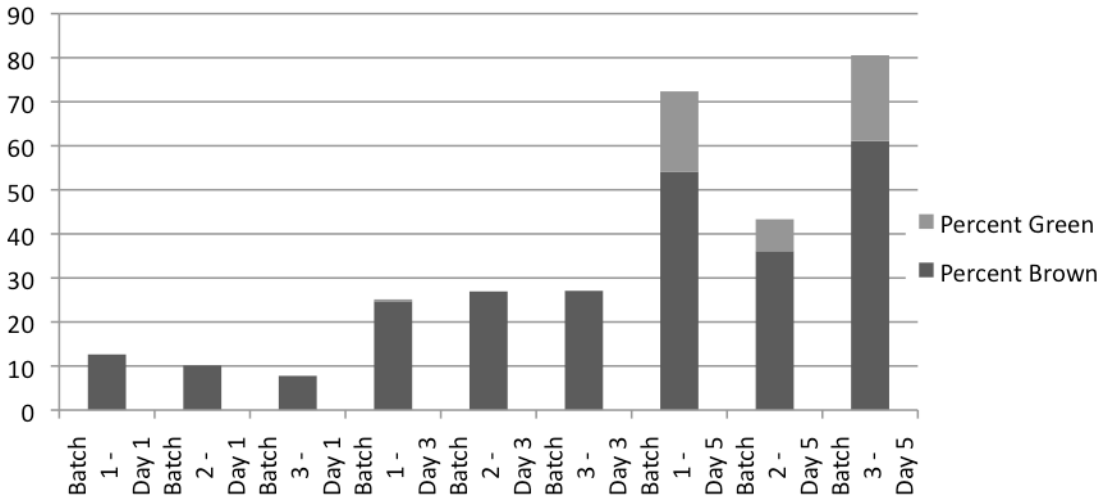


Figure 41 – Study 2 least squares means for batch by day interaction for percent total, brown, and green discoloration in raw ground beef patties.

P-values = <0.0001, <0.0001, 0.0006, respectively
Root Mean Square Errors = 11.724, 11.488, and 8.045, respectively

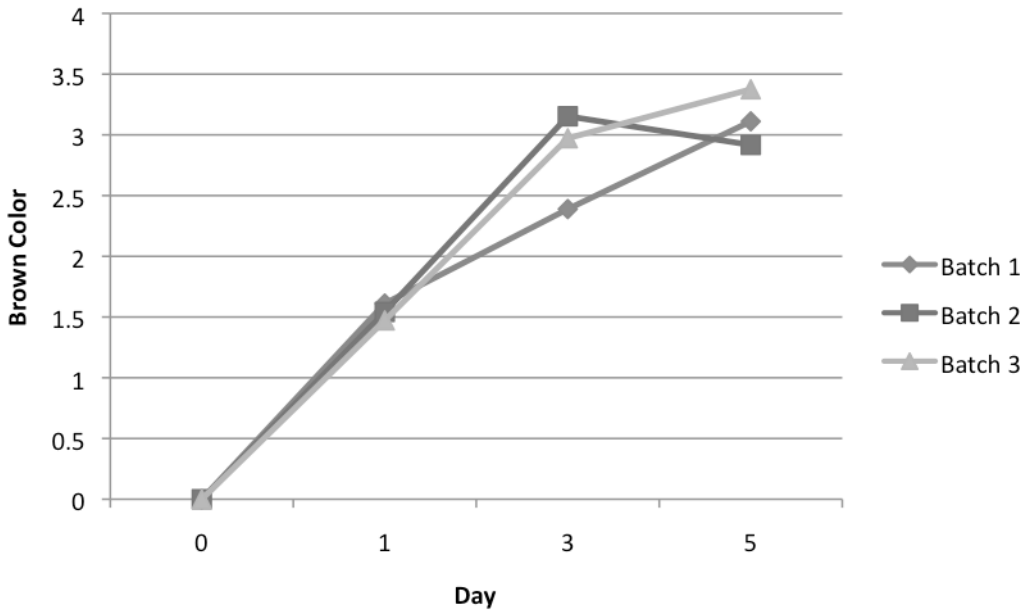


Figure 42 – Study 2 least squares means for batch by day interaction for brown color in raw ground beef patties. (0=no color, 1= light grayish brown, 5= dark brown)

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 0.499

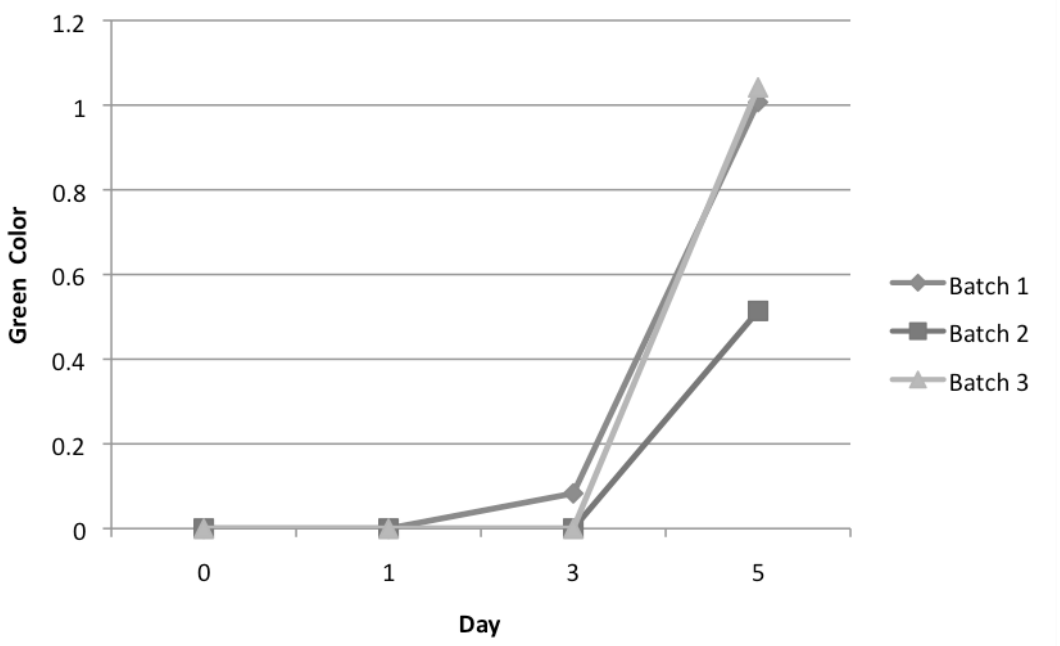


Figure 43 – Study 2 least squares means for batch by day interaction for green color in raw ground beef patties. (0=no color, 1= light grayish green, 5= olive green)

P-value = 0.0007 from Analysis of Variance Table
Root Mean Square Error = 0.355

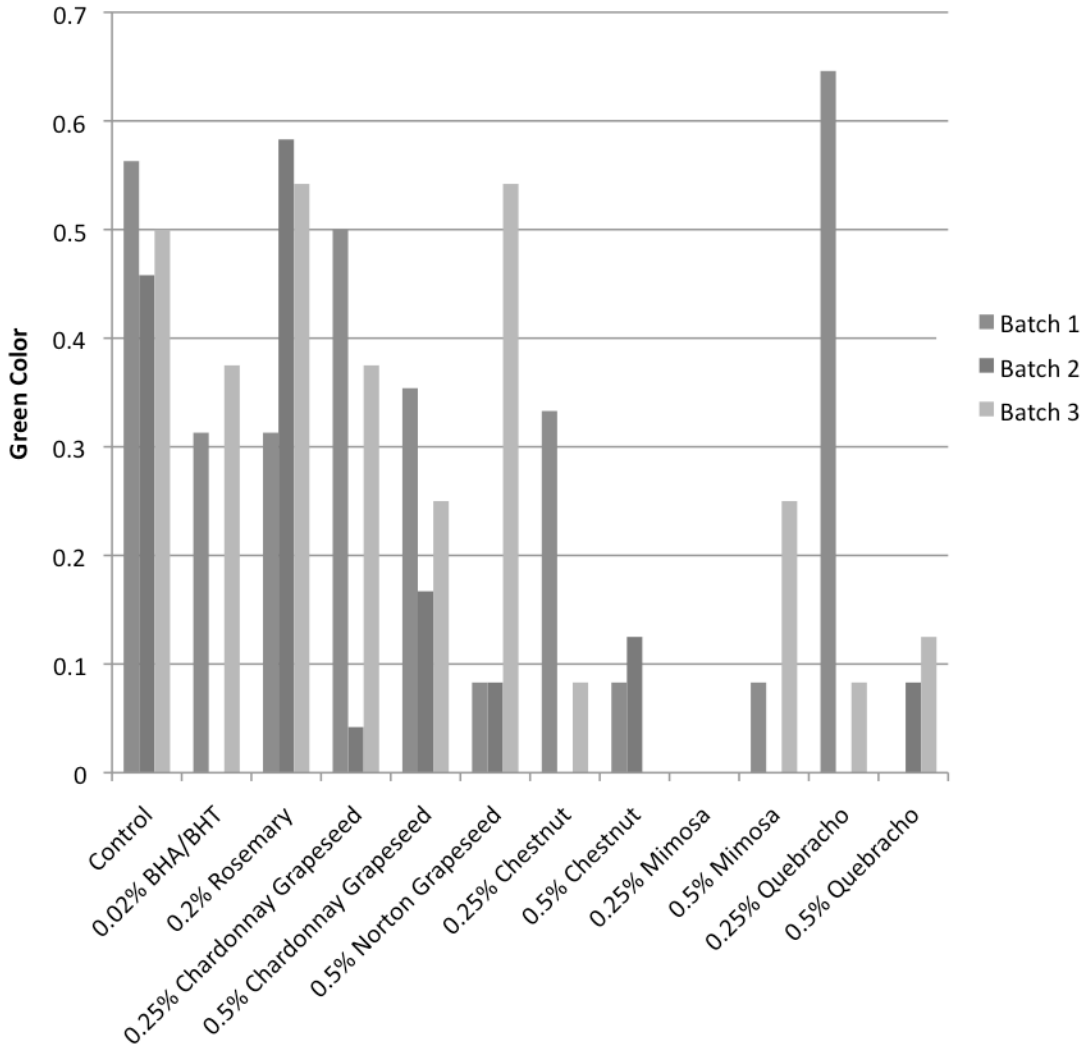


Figure 44 – Study 2 least squares means for batch by treatment interaction for green color in raw ground beef patties. (0=no color, 1= light grayish green, 5= olive green)

P-value = 0.0254 from Analysis of Variance Tables
Root Mean Square Error = 0.355

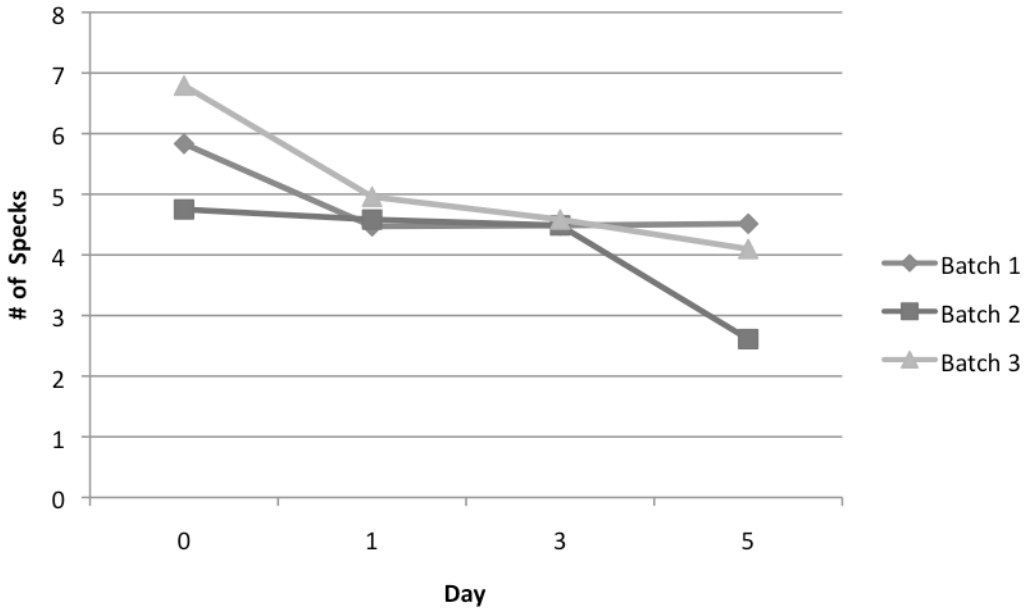


Figure 45 – Study 2 least squares means for batch by day interaction for number of ingredient specks in random 2.54cm^2 area of raw patty.

P-value = 0.0132 from Analysis of Variance Table
Root Mean Square Error = 1.742

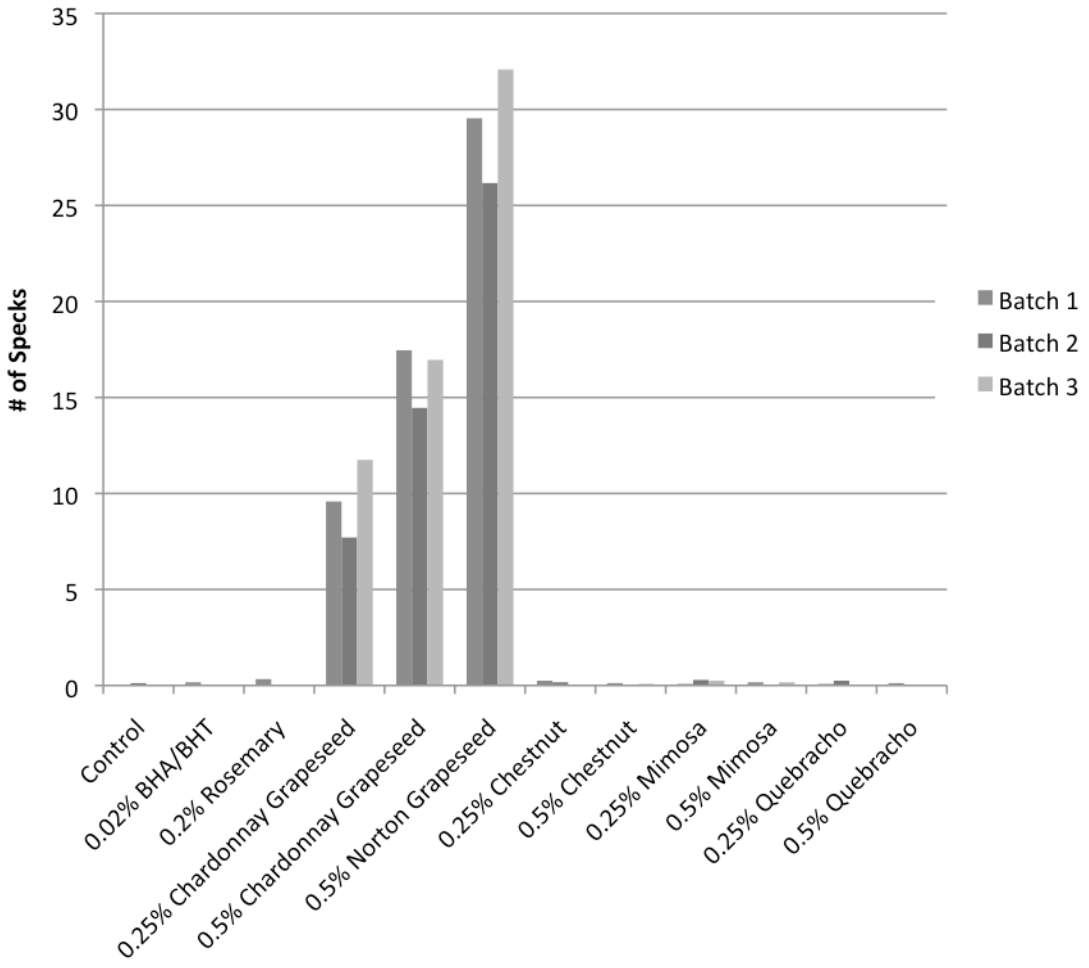


Figure 46 – Study 2 least squares means for batch by day interaction for number of ingredient specks in random 2.54cm^2 area of raw patty.

P-value = <0.0001 from Analysis of Variance Table
Root Mean Square Error = 1.742

SUMMARY

Study 1. Cherry, CitruSmart™, and Grapeseed Tannins

Results from study 1 showed that pre-cooked ground beef patties containing dried cherry powder, Norton grapeseed flour, Chardonnay grapeseed flour or 0.5% CitruSmart™ had lower TBARS values after 0, 1, 3, and 5 days of aerobic storage when compared to control patties. In addition, patties containing 0.25% Norton grapeseed flour had TBARS values that were similar to patties treated with rosemary extract. Patties treated with 0.5% Norton grapeseed flour or 0.25% Chardonnay grapeseed flour had TBARS values that were comparable to patties containing 0.02% BHA/BHT and the addition of 0.5% Chardonnay grapeseed flour resulted in patties that had lower levels of lipid oxidation than those treated with BHA/BHT. Patties containing 0.5% Chardonnay grapeseed flour had no increase in TBARS values over the five day storage period, indicating that it was the most effective antioxidant used in this study. The addition of these tannin powders tended to cause a drop in raw pH in all patties except those treated with 0.25% Chardonnay grapeseed flour or 0.25% CitruSmart™. This pH drop may be attributed to the solubilization of the ingredients within the patties over the storage period, as the tannin powders themselves had low pH.

Increased storage resulted in raw patties becoming darker, less red, and less yellow. Norton and Chardonnay grapeseed flour addition caused patties to be darker and less yellow than control patties. In addition, Norton grapeseed flour and dried cherry powder addition resulted in less red patties. The trained color panel found that patties

containing Norton grapeseed flour had darker lean color and higher discoloration than other treatments. Dried cherry powder addition also resulted in more discoloration than control patties. Raw patties containing Chardonnay and Norton grapeseed flours had numerous visible ingredient specks.

Study 2. Chestnut, Mimosa, Quebracho, and Grapeseed Tannins

Data from study 2 showed that pre-cooked ground beef patties containing chestnut, mimosa, or quebracho powders had lower TBARS values after 0, 1, 3, and 5 days of aerobic storage when compared to control patties. Patties containing Chardonnay or Norton grapeseed flour responded similarly as reported in study 1 for TBARS and color attributes. Cooked patties containing 0.5% Norton grapeseed flour or 0.25% Chardonnay grapeseed flour had TBARS values slightly lower than patties containing 0.02% BHA/BHT. Patties containing 0.5% Chardonnay grapeseed flour or chestnut, mimosa, or quebracho powders had no increase in TBARS values over the five day storage period, indicating that these ingredients were highly effective antioxidants in this study, and no oxidation was occurring over the storage period. The addition of chestnut or Chardonnay tannin powders resulted in lower raw pH, which could likely be attributed to the low pH of the powders and their solubilization within the patties over time.

Increased storage days resulted in raw patties becoming darker, less red, and less yellow. Chestnut, mimosa, and 0.5% quebracho powder addition resulted in patties that were darker than control patties. Patties with Norton grapeseed flour, chestnut powder, and 0.5% mimosa powder were less red than control patties, and patties containing

Chardonnay and Norton grapeseed flour, and mimosa powder were less yellow than control patties. Trained color panel scores showed that patties with chestnut powder had lower lean color scores and more discoloration than other treated patties. Other treated patties were similar in total discoloration to control patties, but patties containing 0.5% Norton grapeseed flour, Chardonnay grapeseed flour, mimosa powder, and quebracho powder, as well as 0.25% chestnut powder, had more brown discoloration. No treated patties had as much green discoloration as control patties. Raw patties containing Chardonnay and Norton grapeseed flours had numerous visible ingredient specks.

CONCLUSIONS

Data from this study indicate that the addition of Chardonnay grapeseed flour at high levels or chestnut, mimosa, or quebracho tannin powders at low or high levels in pre-cooked ground beef patties had antioxidant properties where oxidation virtually ceased over a 5 day storage period. Because no change in antioxidant effectiveness was seen between low and high levels of chestnut, mimosa, or quebracho tannin powders, it is likely that even lower levels could be effective in reducing lipid oxidation. In addition, Norton grapeseed flour and low levels of Chardonnay grapeseed have antioxidant properties comparable to the commonly used food antioxidants BHA/BHT and rosemary extract.

The addition of Norton grapeseed flour, Chardonnay grapeseed flour, dried cherry powder, and chestnut powder had the most negative effects on raw color attributes compared to control patties. Higher levels of mimosa and quebracho powders also resulted in negative color attributes. These powders resulted in lower color scores and higher levels of discoloration than control patties. Raw patties containing Chardonnay and Norton grapeseed flours also had high levels of visible ingredient specks. These negative effects could possibly be reduced by reducing mill size, reducing level of addition, or isolating extracts of these compounds to contain antioxidant properties. The negative color effects could also be avoided by using the ingredients in pre-cooked systems, although further research is necessary to determine the sensory characteristics of pre-cooked ground beef patties with these treatments.

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APPENDIX A

ANOVA TABLES

STUDY 1. GRAPESEED, CHERRY, AND CITRUSMART™ TANNINS

Table A-1. Study 1 ANOVA table for TBARS values, mg malonaldehyde/g.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent Variable: TBARS

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	1291.151064	18.185226	61.99	<.0001
Error	192	56.324279	0.293356		
Corrected Total	263	1347.475343			

R-Square	Coeff Var	Root MSE	TBARS Mean
0.958200	18.49132	0.541623	2.929066

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	6.0384902	3.0192451	10.29	<.0001
Batch*Day	6	3.8715598	0.6452600	2.20	0.0447
Batch*Trt	20	24.2314146	1.2115707	4.13	<.0001
Day	3	485.8041200	161.9347067	552.01	<.0001
Trt	10	561.8943055	56.1894305	191.54	<.0001
Day*Trt	30	209.3111736	6.9770391	23.78	<.0001

Table A-2. Study 1 ANOVA table for pH values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: pH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	3.30228708	0.04651109	3.69	<.0001
Error	192	2.42197854	0.01261447		
Corrected Total	263	5.72426561			

R-Square	Coeff Var	Root MSE	pH Mean
0.576893	2.048202	0.112314	5.483548

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	0.53180968	0.26590484	21.08	<.0001
Batch*Day	6	0.14101961	0.02350327	1.86	0.0891
Batch*Trt	20	0.40479773	0.02023989	1.60	0.0547
Day	3	0.96824390	0.32274797	25.59	<.0001
Trt	10	0.63265960	0.06326596	5.02	<.0001
Day*Trt	30	0.62375657	0.02079189	1.65	0.0243

Table A-3. Study 1 ANOVA table for L* color space values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: L* Color Space Value

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	1241.922847	17.491871	13.27	<.0001
Error	192	253.082163	1.318136		
Corrected Total	263	1495.005009			

R-Square	Coeff Var	Root MSE	L Mean
0.830715	2.095627	1.148101	54.78557

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	536.4758996	268.2379498	203.50	<.0001
Batch*Day	6	29.4703165	4.9117194	3.73	0.0016
Batch*Trt	20	123.1100355	6.1555018	4.67	<.0001
Day	3	336.8298443	112.2766148	85.18	<.0001
Trt	10	139.0246980	13.9024698	10.55	<.0001
Day*Trt	30	77.0120527	2.5670684	1.95	0.0039

Table A-4. Study 1 ANOVA table for a* color space values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: a* Color Space Value

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	8696.711568	122.488895	73.66	<.0001
Error	192	319.257728	1.662801		
Corrected Total	263	9015.969296			

R-Square	Coeff Var	Root MSE	a Mean
0.964590	7.693392	1.289496	16.76109

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	498.670904	249.335452	149.95	<.0001
Batch*Day	6	86.507642	14.417940	8.67	<.0001
Batch*Trt	20	72.038849	3.601942	2.17	0.0039
Day	3	7831.990967	2610.663656	1570.04	<.0001
Trt	10	121.721283	12.172128	7.32	<.0001
Day*Trt	30	85.781923	2.859397	1.72	0.0160

Table A-5. Study 1 ANOVA table for b* color space values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: b* Color Space Value

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	572.6736079	8.0658255	12.89	<.0001
Error	192	120.1878501	0.6259784		
Corrected Total	263	692.8614579			

R-Square	Coeff Var	Root MSE	b Mean
0.826534	6.103195	0.791188	12.96350

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	22.1073143	11.0536571	17.66	<.0001
Batch*Day	6	8.8375189	1.4729198	2.35	0.0324
Batch*Trt	20	16.5663576	0.8283179	1.32	0.1681
Day	3	468.1734648	156.0578216	249.30	<.0001
Trt	10	27.2493940	2.7249394	4.35	<.0001
Day*Trt	30	29.7395582	0.9913186	1.58	0.0350

Table A-6. Study 1 ANOVA table for cook yield values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Cook Yield

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	2364.684181	33.305411	3.56	<.0001
Error	192	1794.050600	9.344014		
Corrected Total	263	4158.734781			

R-Square	Coeff Var	Root MSE	CookYield Mean
0.568607	4.450852	3.056798	68.67894

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	733.6749503	366.8374751	39.26	<.0001
Batch*Day	6	18.9080088	3.1513348	0.34	0.9166
Batch*Trt	20	786.7051645	39.3352582	4.21	<.0001
Day	3	39.7967388	13.2655796	1.42	0.2383
Trt	10	547.3869057	54.7386906	5.86	<.0001
Day*Trt	30	238.2124124	7.9404137	0.85	0.6933

Table A-7. Study 1 ANOVA table for lean color scores.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Lean Color

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	278.2878788	3.9195476	5.00	<.0001
Error	192	150.4444444	0.7835648		
Corrected Total	263	428.7323232			

R-Square	Coeff Var	Root MSE	LeanColor Mean
0.649095	26.25738	0.885192	3.371212

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	37.8964646	18.9482323	24.18	<.0001
Batch*Day	6	38.9351852	6.4891975	8.28	<.0001
Batch*Trt	20	28.7609428	1.4380471	1.84	0.0194
Day	3	143.6279461	47.8759820	61.10	<.0001
Trt	10	10.7138047	1.0713805	1.37	0.1980
Day*Trt	30	18.3535354	0.6117845	0.78	0.7865

Table A-8. Study 1 ANOVA table for percent discoloration values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Percent Discoloration

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	349980.6818	4929.3054	35.74	<.0001
Error	192	26481.9024	137.9266		
Corrected Total	263	376462.5842			

R-Square	Coeff Var	Root MSE	Pdis Mean
0.929656	33.06583	11.74421	35.51768

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	3471.0438	1735.5219	12.58	<.0001
Batch*Day	6	7217.1717	1202.8620	8.72	<.0001
Batch*Trt	20	12068.7710	603.4386	4.38	<.0001
Day	3	311608.2071	103869.4024	753.08	<.0001
Trt	10	6368.6027	636.8603	4.62	<.0001
Day*Trt	30	9246.8855	308.2295	2.23	0.0006

Table A-9. Study 1 ANOVA table for percent brown discoloration values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Percent Brown Discoloration

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	214288.9941	3018.1548	22.73	<.0001
Error	192	25490.6355	132.7637		
Corrected Total	263	239779.6296			

R-Square	Coeff Var	Root MSE	PBr Mean
0.893691	40.27217	11.52231	28.61111

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	1966.6877	983.3439	7.41	0.0008
Batch*Day	6	12403.3460	2067.2243	15.57	<.0001
Batch*Trt	20	11659.7012	582.9851	4.39	<.0001
Day	3	172146.2121	57382.0707	432.21	<.0001
Trt	10	8383.1019	838.3102	6.31	<.0001
Day*Trt	30	7729.9453	257.6648	1.94	0.0041

Table A-10. Study 1 ANOVA table for percent green discoloration values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Percent Green Discoloration

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	54875.77862	772.89829	9.71	<.0001
Error	192	15286.80556	79.61878		
Corrected Total	263	70162.58418			

R-Square	Coeff Var	Root MSE	PGr Mean
0.782123	129.1950	8.922936	6.906566

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	8653.80892	4326.90446	54.35	<.0001
Batch*Day	6	11203.93519	1867.32253	23.45	<.0001
Batch*Trt	20	4585.07997	229.25400	2.88	<.0001
Day	3	22786.91077	7595.63692	95.40	<.0001
Trt	10	2468.83418	246.88342	3.10	0.0011
Day*Trt	30	5177.20960	172.57365	2.17	0.0009

Table A-11. Study 1 ANOVA table for brown color scores.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Brown Color

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	733.6749503	366.8374751	39.26	<.0001
Batch*Day	6	18.9080088	3.1513348	0.34	0.9166
Batch*Trt	20	786.7051645	39.3352582	4.21	<.0001
Day	3	39.7967388	13.2655796	1.42	0.2383
Trt	10	547.3869057	54.7386906	5.86	<.0001
Day*Trt	30	238.2124124	7.9404137	0.85	0.6933

R-Square	Coeff Var	Root MSE	BrDis Mean
0.887730	28.78595	0.590257	2.050505

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	11.0513468	5.5256734	15.86	<.0001
Batch*Day	6	7.0462963	1.1743827	3.37	0.0035
Batch*Trt	20	14.9440236	0.7472012	2.14	0.0043
Day	3	452.2996633	150.7665544	432.74	<.0001
Trt	10	21.1992845	2.1199285	6.08	<.0001
Day*Trt	30	22.3924663	0.7464155	2.14	0.0011

Table A-12. Study 1 ANOVA table for green color scores.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Green Color

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	94.3947811	1.3295040	8.83	<.0001
Error	192	28.9116162	0.1505813		
Corrected Total	263	123.3063973			

R-Square	Coeff Var	Root MSE	GrDis Mean
0.765530	112.9905	0.388048	0.343434

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	11.36700337	5.68350168	37.74	<.0001
Batch*Day	6	11.69023569	1.94837262	12.94	<.0001
Batch*Trt	20	5.21632997	0.26081650	1.73	0.0312
Day	3	54.89562290	18.29854097	121.52	<.0001
Trt	10	4.08417508	0.40841751	2.71	0.0039
Day*Trt	30	7.14141414	0.23804714	1.58	0.0356

Table A-13. Study 1 ANOVA table for specks values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	11	0 1 2 3 4 5 6 7 8 9 10
Patty	2	A B

Number of observations in data set = 264

Dependent variable: Specks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	71	25885.93729	364.59067	67.86	<.0001
Error	192	1031.49158	5.37235		
Corrected Total	263	26917.42887			

R-Square	Coeff Var	Root MSE	Specks Mean
0.961679	33.70156	2.317833	6.877525

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	9.99579	4.99790	0.93	0.3962
Batch*Day	6	48.05471	8.00912	1.49	0.1832
Batch*Trt	20	189.45791	9.47290	1.76	0.0271
Day	3	57.37837	19.12612	3.56	0.0153
Trt	10	25347.12795	2534.71279	471.81	<.0001
Day*Trt	30	233.92256	7.79742	1.45	0.0713

APPENDIX B

ANOVA TABLES

STUDY 2. CHESTNUT, MIMOSA, QUEBRACHO, AND GRAPESEED TANNINS

Table B-1. Study 2 ANOVA table for TBARS values, mg malonaldehyde/g.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: TBARS

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	465.3817410	6.0439187	81.10	<.0001
Error	210	15.6499944	0.0745238		
Corrected Total	287	481.0317354			

R-Square	Coeff Var	Root MSE	TBARS Mean
0.967466	23.51021	0.272990	1.161157

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	1.5783375	0.7891687	10.59	<.0001
Batch*Day	6	1.1642848	0.1940475	2.60	0.0187
Batch*Trt	22	3.0212528	0.1373297	1.84	0.0149
Day	3	36.9479352	12.3159784	165.26	<.0001
Trt	11	292.6123534	26.6011230	356.95	<.0001
Day*Trt	33	130.0575774	3.9411387	52.88	<.0001

Table B-2. Study 2 ANOVA table for pH values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: pH

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	2.24556434	0.02916317	14.53	<.0001
Error	210	0.42158353	0.00200754		
Corrected Total	287	2.66714787			

R-Square	Coeff Var	Root MSE	pH Mean
0.841935	0.806633	0.044806	5.554646

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	0.32835318	0.16417659	81.78	<.0001
Batch*Day	6	0.12184298	0.02030716	10.12	<.0001
Batch*Trt	22	0.15542734	0.00706488	3.52	<.0001
Day	3	1.40293899	0.46764633	232.94	<.0001
Trt	11	0.12100941	0.01100086	5.48	<.0001
Day*Trt	33	0.11599243	0.00351492	1.75	0.0102

Table B-3. Study 2 ANOVA table for L* color space values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: L* Color Space Value

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	704.9433876	9.1551089	6.84	<.0001
Error	210	280.9144768	1.3376880		
Corrected Total	287	985.8578644			

R-Square	Coeff Var	Root MSE	L Mean
0.715056	2.097851	1.156585	55.13188

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	165.8198170	82.9099085	61.98	<.0001
Batch*Day	6	39.9913900	6.6652317	4.98	<.0001
Batch*Trt	22	86.1021690	3.9137350	2.93	<.0001
Day	3	203.1462873	67.7154291	50.62	<.0001
Trt	11	160.9113072	14.6283007	10.94	<.0001
Day*Trt	33	48.9724172	1.4840126	1.11	0.3227

Table B-4. Study 2 ANOVA table for a* color space values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: a* Color Space Value

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	5989.552028	77.786390	57.64	<.0001
Error	210	283.394427	1.349497		
Corrected Total	287	6272.946455			

R-Square	Coeff Var	Root MSE	a Mean
0.954823	7.110753	1.161679	16.33693

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	203.145212	101.572606	75.27	<.0001
Batch*Day	6	50.515498	8.419250	6.24	<.0001
Batch*Trt	22	68.773177	3.126054	2.32	0.0012
Day	3	5170.292395	1723.430798	1277.09	<.0001
Trt	11	333.830008	30.348183	22.49	<.0001
Day*Trt	33	162.995737	4.939265	3.66	<.0001

Table B-5. Study 2 ANOVA table for b* color space values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: b* Color Space Value

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	475.2229314	6.1717264	10.10	<.0001
Error	210	128.2980710	0.6109432		
Corrected Total	287	603.5210024			

R-Square	Coeff Var	Root MSE	b Mean
0.787417	6.140947	0.781629	12.72814

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	28.9403802	14.4701901	23.69	<.0001
Batch*Day	6	13.4300212	2.2383369	3.66	0.0018
Batch*Trt	22	20.5461618	0.9339164	1.53	0.0670
Day	3	291.5586733	97.1862244	159.08	<.0001
Trt	11	62.0117609	5.6374328	9.23	<.0001
Day*Trt	33	58.7359339	1.7798768	2.91	<.0001

Table B-6. Study 2 ANOVA table for cook yield values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Cook Yield

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	4099.904811	53.245517	4.25	<.0001
Error	210	2632.964661	12.537927		
Corrected Total	287	6732.869472			

R-Square	Coeff Var	Root MSE	CookYield Mean
0.608939	4.873575	3.540894	72.65494

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	2294.986012	1147.493006	91.52	<.0001
Batch*Day	6	105.168082	17.528014	1.40	0.2168
Batch*Trt	22	931.642411	42.347382	3.38	<.0001
Day	3	32.018007	10.672669	0.85	0.4673
Trt	11	465.314777	42.301343	3.37	0.0003
Day*Trt	33	270.775522	8.205319	0.65	0.9267

Table B-7. Study 2 ANOVA table for lean color scores.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Lean Color

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	235.2928241	3.0557510	7.02	<.0001
Error	210	91.3549383	0.4350235		
Corrected Total	287	326.6477623			

R-Square	Coeff Var	Root MSE	LeanColor Mean
0.720326	20.77516	0.659563	3.174769

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	6.3919753	3.1959877	7.35	0.0008
Batch*Day	6	6.9598765	1.1599794	2.67	0.0163
Batch*Trt	22	13.7932099	0.6269641	1.44	0.0980
Day	3	167.0875772	55.6958591	128.03	<.0001
Trt	11	12.7542438	1.1594767	2.67	0.0032
Day*Trt	33	28.3059414	0.8577558	1.97	0.0023

Table B-8. Study 2 ANOVA table for percent discoloration values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Percent Discoloration

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	239603.7423	3111.7369	22.64	<.0001
Error	210	28864.7377	137.4511		
Corrected Total	287	268468.4799			

R-Square	Coeff Var	Root MSE	Pdis Mean
0.892484	46.02225	11.72396	25.47454

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	4394.9846	2197.4923	15.99	<.0001
Batch*Day	6	14799.1512	2466.5252	17.94	<.0001
Batch*Trt	22	7139.2747	324.5125	2.36	0.0009
Day	3	177950.7330	59316.9110	431.55	<.0001
Trt	11	19146.7207	1740.6110	12.66	<.0001
Day*Trt	33	16172.8781	490.0872	3.57	<.0001

Table B-9. Study 2 ANOVA table for percent brown discoloration values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Percent Brown Discoloration

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	160397.4923	2083.0843	15.79	<.0001
Error	210	27712.6543	131.9650		
Corrected Total	287	188110.1466			

R-Square	Coeff Var	Root MSE	PBr Mean
0.852679	52.87847	11.48760	21.72454

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	1749.3827	874.6914	6.63	0.0016
Batch*Day	6	6612.3457	1102.0576	8.35	<.0001
Batch*Trt	22	5527.4691	251.2486	1.90	0.0109
Day	3	104507.2145	34835.7382	263.98	<.0001
Trt	11	27320.7948	2483.7086	18.82	<.0001
Day*Trt	33	14680.2855	444.8571	3.37	<.0001

Table B-10. Study 2 ANOVA table for percent green discoloration values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Percent Green Discoloration

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	31685.03086	411.49391	6.36	<.0001
Error	210	13592.59259	64.72663		
Corrected Total	287	45277.62346			

R-Square	Coeff Var	Root MSE	PGr Mean
0.699794	213.2248	8.045286	3.773148

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	559.56790	279.78395	4.32	0.0145
Batch*Day	6	1613.88889	268.98148	4.16	0.0006
Batch*Trt	22	2282.09877	103.73176	1.60	0.0479
Day	3	12001.38889	4000.46296	61.81	<.0001
Trt	11	3791.51235	344.68294	5.33	<.0001
Day*Trt	33	11436.57407	346.56285	5.35	<.0001

Table B-11. Study 2 ANOVA table for brown color scores.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Brown Color

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	550.3846451	7.1478525	28.67	<.0001
Error	210	52.3618827	0.2493423		
Corrected Total	287	602.7465278			

R-Square	Coeff Var	Root MSE	BrDis Mean
0.913128	26.58234	0.499342	1.878472

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	1.5902778	0.7951389	3.19	0.0432
Batch*Day	6	8.8325617	1.4720936	5.90	<.0001
Batch*Trt	22	6.9837963	0.3174453	1.27	0.1922
Day	3	442.0597994	147.3532665	590.97	<.0001
Trt	11	47.4363426	4.3123948	17.30	<.0001
Day*Trt	33	43.4818673	1.3176323	5.28	<.0001

Table B-12. Study 2 ANOVA table for green color scores.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Green Color

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	74.9210069	0.9730001	7.73	<.0001
Error	210	26.4392361	0.1259011		
Corrected Total	287	101.3602431			

R-Square	Coeff Var	Root MSE	GrDis Mean
0.739156	160.9287	0.354825	0.220486

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	1.22627315	0.61313657	4.87	0.0086
Batch*Day	6	3.06770833	0.51128472	4.06	0.0007
Batch*Trt	22	4.80844907	0.21856587	1.74	0.0254
Day	3	38.58593750	12.86197917	102.16	<.0001
Trt	11	6.50954861	0.59177715	4.70	<.0001
Day*Trt	33	20.72309028	0.62797243	4.99	<.0001

Table B-13. Study 2 ANOVA table for specks values.

Class	Levels	Values
Batch	3	1 2 3
Day	4	0 1 3 5
Trt	12	0 1 2 3 4 5 6 7 8 9 10 11
Patty	2	A B

Number of observations in data set = 288

Dependent variable: Specks

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	77	23807.71528	309.19111	101.88	<.0001
Error	210	637.34028	3.03495		
Corrected Total	287	24445.05556			

R-Square	Coeff Var	Root MSE	Specks Mean
0.973928	37.22019	1.742112	4.680556

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Batch	2	51.06250	25.53125	8.41	0.0003
Batch*Day	6	50.30787	8.38465	2.76	0.0132
Batch*Trt	22	198.36343	9.01652	2.97	<.0001
Day	3	154.37963	51.45988	16.96	<.0001
Trt	11	22865.62963	2078.69360	684.92	<.0001
Day*Trt	33	487.97222	14.78704	4.87	<.0001

APPENDIX C

RAW DATA

STUDY 1. CHERRY, CITRUSMART™, AND GRAPESEED TANNINS

TREATMENT CODES

0=Control
1=0.02% combined BHA/BHT
2=0.2% Rosemary
3=0.25% Dried Cherry Flour
4=0.5% Dried Cherry Flour
5=0.25% Chardonnay Grapeseed
6=0.5% Chardonnay Grapeseed
7=0.25% CitruSmart
8=0.5% CitruSmart
9=0.25% Norton Grapeseed
10=0.5% Norton Grapeseed

TBARS

Date	Batch	Day	Order	Trt	Ptty	SampleA	SlurryA	SampleB	SlurryB	AbsA1	AbsA2	AbsB1	AbsB2
5/14/2009	1	0	12	0	B	30.02	30	29.99	30.01	0.2098	0.1947	0.1994	0.1984
5/14/2009	1	0	13	0	A	30.02	29.99	30.02	29.98	0.1779	0.1687	0.1728	0.1761
5/15/2009	1	1	6	0	B	29.98	29.99	30.02	29.96	0.473	0.4762	0.4336	0.4385
5/15/2009	1	1	17	0	A	29.96	30.01	30.03	30.03	0.4926	0.5048	0.5017	0.545
5/17/2009	1	3	12	0	B	30.02	30	29.99	30.01	0.9654	0.9165	0.8609	0.8543
5/17/2009	1	3	19	0	A	30.02	30.01	30.02	29.99	0.893	0.9463	1.0675	1.0512
5/19/2009	1	5	5	0	B	29.98	30.01	30	29.98	1.0107	0.9903	0.9968	0.982
5/19/2009	1	5	7	0	A	30.03	30.03	30	29.99	1.2237	1.232	1.0528	1.0288
5/14/2009	1	0	3	1	B	30.01	29.98	30	30.05	0.0877	0.0936	0.0999	0.0967
5/14/2009	1	0	15	1	A	29.99	30	30.02	30.01	0.1185	0.1125	0.1285	0.1154
5/15/2009	1	1	7	1	A	30.02	29.98	30.02	30.02	0.239	0.2414	0.2417	0.2447
5/15/2009	1	1	16	1	B	30.02	29.99	30.02	29.96	0.1774	0.1682	0.1365	0.1437
5/17/2009	1	3	1	1	B	29.97	29.99	30.03	29.99	0.2683	0.2647	0.2541	0.2545
5/17/2009	1	3	8	1	A	30.01	29.99	30	29.98	0.2372	0.2492	0.2321	0.2331
5/19/2009	1	5	4	1	A	30.03	30.01	30	30.01	0.2746	0.2676	0.2906	0.2625
5/19/2009	1	5	10	1	B	30.03	29.96	30.01	29.99	0.2166	0.2171	0.227	0.2198
5/14/2009	1	0	2	2	B	29.96	30	30.01	30.01	0.0844	0.0891	0.0953	0.0861
5/14/2009	1	0	7	2	A	30	30.02	29.98	30.01	0.0916	0.0904	0.0703	0.071
5/15/2009	1	1	15	2	B	30	30.02	30.02	30.03	0.2048	0.2262	0.2063	0.2009
5/15/2009	1	1	21	2	A	30.04	30.01	30.01	29.98	0.1902	0.1879	0.2261	0.2468
5/17/2009	1	3	2	2	B	30.02	30.01	29.97	30.02	0.3441	0.3442	0.3493	0.3463
5/17/2009	1	3	15	2	A	29.98	29.99	30.01	29.99	0.3881	0.3874	0.4406	0.4339
5/19/2009	1	5	6	2	A	.	30.01	.	30.03	0.7991	0.7868	0.8277	0.8056
5/19/2009	1	5	9	2	B	29.96	30.03	29.99	30.02	0.67	0.6559	0.6173	0.6136
5/14/2009	1	0	17	3	B	30	30.01	30	29.98	0.1485	0.1501	0.148	0.1525
5/14/2009	1	0	22	3	A	29.99	30.02	30.02	29.99	0.191	0.1922	0.1837	0.245
5/15/2009	1	1	20	3	A	29.99	30.02	29.95	30.02	0.3899	0.4112	0.4317	0.4232
5/15/2009	1	1	22	3	B	29.99	30.01	30.02	29.99	0.3513	0.3476	0.3576	0.3514
5/17/2009	1	3	5	3	B	29.98	29.98	29.98	30.03	0.6845	0.6898	0.7775	0.7608
5/17/2009	1	3	20	3	A	30.01	30.01	29.99	30.01	0.5379	0.5453	0.4958	0.4388
5/19/2009	1	5	17	3	B	30.03	30.03	30.03	29.96	1.0028	0.9742	0.891	0.9295
5/19/2009	1	5	19	3	A	30	30.02	30.04	29.99	0.7169	0.7164	0.7263	0.7291
5/14/2009	1	0	11	4	B	30	29.99	30	30.01	0.156	0.1599	0.1814	0.1736
5/14/2009	1	0	19	4	A	30.02	30	29.99	30	0.1704	0.176	0.2207	0.2317

5/15/2009	1	1	2	4	A	30	30.01	29.99	30.01	0.364	0.345	0.3138	0.3036
5/15/2009	1	1	12	4	B	29.99	29.95	29.99	30	0.3514	0.3516	0.3174	0.3211
5/17/2009	1	3	14	4	A	30.03	30.01	30	29.98	0.656	0.6582	0.5527	0.5494
5/17/2009	1	3	17	4	B	29.99	29.98	30	29.99	0.5946	0.587	0.5682	0.5689
5/19/2009	1	5	18	4	B	30	30.01	30.03	29.99	0.6746	0.6724	0.7233	0.7277
5/19/2009	1	5	20	4	A	29.97	29.99	30.02	30	0.7442	0.7411	0.6836	0.6715
5/14/2009	1	0	14	5	A	29.98	30	29.98	30	0.1007	0.1081	0.1038	0.098
5/14/2009	1	0	20	5	B	30.01	30	30.02	29.99	0.1226	0.1249	0.0782	0.0863
5/15/2009	1	1	4	5	A	30	30.02	30.01	30	0.1316	0.1291	0.14	0.1426
5/15/2009	1	1	14	5	B	29.99	29.99	30.02	30	0.1602	0.1498	0.1642	0.162
5/17/2009	1	3	4	5	B	30	29.99	29.99	30.02	0.1826	0.1821	0.157	0.1546
5/17/2009	1	3	10	5	A	29.98	30.02	29.97	30.02	0.1355	0.1367	0.1352	0.1324
5/19/2009	1	5	1	5	A	30	29.99	29.98	30.03	0.2395	0.2357	0.2254	0.2228
5/19/2009	1	5	3	5	B	29.95	29.99	30.03	29.99	0.2086	0.1984	0.1879	0.1956
5/14/2009	1	0	8	6	A	30.05	30	30.05	29.99	0.0708	0.0689	0.0651	0.0802
5/14/2009	1	0	10	6	B	30.05	30	29.99	29.99	0.0656	0.0679	0.0594	0.0575
5/15/2009	1	1	10	6	A	30.03	29.98	30.02	30	0.0823	0.084	0.0897	0.0892
5/15/2009	1	1	11	6	B	29.95	30.03	30.02	30.01	0.0934	0.0904	0.0957	0.0933
5/17/2009	1	3	13	6	B	30	30	30	30	0.048	0.0461	0.0457	0.0423
5/17/2009	1	3	22	6	A	30	30	29.98	29.98	0.0614	0.0603	0.0492	0.0552
5/19/2009	1	5	2	6	B	30	29.99	30.02	29.98	0.1116	0.108	0.1011	0.0965
5/19/2009	1	5	21	6	A	30	29.98	30.02	30.03	0.0793	0.0873	0.0804	0.0716
5/14/2009	1	0	16	7	A	30	30	30.01	29.98	0.22	0.2207	0.2363	0.2384
5/14/2009	1	0	18	7	B	29.98	30	30.01	30	0.252	0.2608	0.2671	0.2719
5/15/2009	1	1	18	7	A	30	29.98	30.03	29.99	0.4755	0.5184	0.472	0.4955
5/15/2009	1	1	19	7	B	30.03	29.96	29.98	30	0.5835	0.5889	0.5815	0.5349
5/17/2009	1	3	16	7	B	30	30	29.99	30.02	0.9875	0.988	0.8755	0.8922
5/17/2009	1	3	21	7	A	30.01	30	30.02	30.01	0.8828	0.8361	0.6822	0.6872
5/19/2009	1	5	11	7	A	29.98	29.99	29.98	29.97	1.303	1.2969	1.356	1.3819
5/19/2009	1	5	13	7	B	30.02	30.04	30.03	30.04	1.1886	1.1522	0.9529	1.004
5/14/2009	1	0	1	8	A	29.98	30	29.96	29.96	0.0897	0.0894	0.0951	0.0838
5/14/2009	1	0	21	8	B	30.02	30	29.99	29.98	0.2253	0.2322	0.2472	0.1903
5/15/2009	1	1	1	8	B	29.97	30	30.03	30	0.3473	0.3288	0.3545	0.3558
5/15/2009	1	1	8	8	A	29.97	29.98	30.02	29.98	0.5168	0.5177	0.4493	0.4443
5/17/2009	1	3	3	8	A	29.97	30.02	29.99	29.99	0.7057	0.7038	0.5945	0.5925
5/17/2009	1	3	7	8	B	29.99	29.99	29.99	30.02	0.6089	0.5971	0.6203	0.6158
5/19/2009	1	5	15	8	B	29.99	29.99	30.04	30.04	0.863	0.8708	0.9166	0.8967
5/19/2009	1	5	22	8	A	30.01	30.03	29.97	30.02	0.8385	0.9069	0.7652	0.738

5/14/2009	1	0	4	9	B	29.99	30	30.01	30.04	0.1058	0.1029	0.1002	0.1024
5/14/2009	1	0	5	9	A	29.99	30.01	30.03	29.96	0.1078	0.0931	0.1035	0.1208
5/15/2009	1	1	5	9	A	29.98	30	29.99	29.99	0.2761	0.2649	0.2615	0.2643
5/15/2009	1	1	9	9	B	30.02	30	29.98	29.99	0.2788	0.2702	0.2016	0.2048
5/17/2009	1	3	11	9	A	29.98	29.99	30	30.02	0.3606	0.3654	0.3618	0.3617
5/17/2009	1	3	18	9	B	30.01	29.99	30.01	30.02	0.3811	0.3539	0.4024	0.3983
5/19/2009	1	5	8	9	B	29.96	29.99	29.98	30.01	0.5459	0.5078	0.5858	0.5675
5/19/2009	1	5	14	9	A	30.02	30.03	30	29.97	0.5526	0.5473	0.3981	0.4043
5/14/2009	1	0	6	10	B	29.96	30	30.02	29.98	0.0795	0.0625	0.073	0.0678
5/14/2009	1	0	9	10	A	30.04	30	30.01	30	0.0887	0.075	0.0781	0.0929
5/15/2009	1	1	3	10	A	29.99	29.99	30.01	30.02	0.0999	0.1133	0.1228	0.123
5/15/2009	1	1	13	10	B	30.04	29.99	30.02	29.96	0.1112	0.1088	0.0952	0.0959
5/17/2009	1	3	6	10	B	30.01	29.99	30.02	30	0.1498	0.1503	0.1609	0.1591
5/17/2009	1	3	9	10	A	30	30.01	30.01	30.01	0.1654	0.1644	0.1865	0.1843
5/19/2009	1	5	12	10	A	30	30.01	29.97	30.05	0.2155	0.213	0.2226	0.2235
5/19/2009	1	5	16	10	B	29.99	29.97	30.03	29.99	0.2356	0.2206	0.2189	0.2182
5/20/2009	2	0	1	0	B	29.96	29.98	30.03	29.97	0.1676	0.1628	0.1801	0.1834
5/20/2009	2	0	15	0	A	29.99	30.02	29.99	29.99	0.2453	0.2408	0.2444	0.2357
5/21/2009	2	1	4	0	B	30.02	29.99	30.02	29.99	0.4663	0.4698	0.4691	0.4571
5/21/2009	2	1	9	0	A	30.02	29.97	30.04	30.01	0.4947	0.4794	0.4323	0.4239
5/23/2009	2	3	3	0	B	29.97	30.01	30.03	30	0.8035	0.8247	0.8468	0.8391
5/23/2009	2	3	9	0	A	29.99	30.03	30	30	0.7747	0.8256	0.8633	0.8743
5/25/2009	2	5	5	0	A	30.01	29.95	30.03	30.01	1.1939	1.2288	0.9527	0.9372
5/25/2009	2	5	11	0	B	30.01	30.04	30.01	29.98	0.9849	1.0067	0.7697	0.7841
5/20/2009	2	0	12	1	B	30.01	30	30	29.99	0.1179	0.1182	0.114	0.1126
5/20/2009	2	0	18	1	B	30.02	30	30	30.01	0.1276	0.1225	0.1253	0.1373
5/21/2009	2	1	1	1	A	29.99	30	30.03	30	0.204	0.2028	0.2232	0.2128
5/21/2009	2	1	20	1	B	29.95	29.96	30.04	29.97	0.2547	0.2477	0.2201	0.2263
5/23/2009	2	3	5	1	A	29.97	29.99	30.01	30.01	0.3077	0.3036	0.3183	0.3146
5/23/2009	2	3	21	1	B	29.99	30	30.01	29.99	0.3435	0.3315	0.3197	0.2896
5/25/2009	2	5	10	1	A	30.02	30.03	29.99	29.98	0.3724	0.3856	0.407	0.3969
5/25/2009	2	5	21	1	B	30	29.99	30.01	30	0.3673	0.3638	0.2623	0.2552
5/20/2009	2	0	19	2	A	30.02	30.01	30.01	29.98	0.1276	0.1358	0.1237	0.1198
5/20/2009	2	0	20	2	B	30.01	30.02	30.01	30	0.1573	0.1283	0.1304	0.1322
5/21/2009	2	1	11	2	A	29.98	30.01	30.04	29.99	0.2768	0.2592	0.2463	0.2419
5/21/2009	2	1	12	2	B	30.01	30.04	30.01	30.04	0.2927	0.2911	0.3045	0.3002
5/23/2009	2	3	8	2	A	30	29.99	29.99	30.02	0.4895	0.4913	0.5385	0.5278
5/23/2009	2	3	13	2	B	29.99	30.02	30	30	0.4886	0.4906	0.6184	0.6181

5/25/2009	2	5	1	2	A	30.03	30.05	30.03	30.01	0.7287	0.7109	0.6892	0.6878
5/25/2009	2	5	4	2	B	29.98	30	30.01	29.98	0.5828	0.6989	0.563	0.5624
5/20/2009	2	0	21	3	A	30	30.02	30.02	30	0.2024	0.2087	0.2004	0.2033
5/20/2009	2	0	22	3	B	29.99	30	30	30	0.2064	0.2065	0.2407	0.2346
5/21/2009	2	1	8	3	A	30.02	30.04	29.98	29.98	0.3875	0.3811	0.3481	0.352
5/21/2009	2	1	22	3	B	29.99	30.02	30.02	30.02	0.4004	0.3596	0.4165	0.4671
5/23/2009	2	3	2	3	B	30.03	29.98	29.99	30.03	0.7552	0.7615	0.8485	0.8435
5/23/2009	2	3	11	3	A	29.98	29.99	30.01	30.03	0.693	0.6836	0.7713	0.7736
5/25/2009	2	5	8	3	B	30.01	29.99	30.03	30.01	0.8174	0.7886	1.1192	0.9524
5/25/2009	2	5	15	3	A	29.96	30.01	30.03	30.02	0.8049	0.8756	0.87	0.7665
5/20/2009	2	0	11	4	B	30.01	29.98	30.01	29.98	0.1469	0.1419	0.1581	0.1597
5/20/2009	2	0	17	4	A	30.01	30	29.98	30.01	0.1892	0.1879	0.1618	0.1693
5/21/2009	2	1	3	4	A	30.02	30.05	30.02	30	0.349	0.3468	0.376	0.3677
5/21/2009	2	1	13	4	B	30.02	30.01	29.99	29.99	0.3314	0.3248	0.3357	0.3374
5/23/2009	2	3	4	4	B	29.95	29.99	30.05	29.99	0.6046	0.6059	0.6201	0.6081
5/23/2009	2	3	15	4	A	29.98	30	30.02	30	0.6235	0.6265	0.6001	0.6031
5/25/2009	2	5	13	4	B	30	29.99	30	29.99	0.7004	0.6374	0.531	0.4729
5/25/2009	2	5	22	4	A	29.99	29.99	30	30.03	0.9041	0.912	0.9746	0.865
5/20/2009	2	0	2	5	A	29.98	29.98	29.97	30	0.129	0.1271	0.1213	0.1191
5/20/2009	2	0	3	5	B	29.99	29.97	29.99	30.03	0.1216	0.1251	0.1315	0.1227
5/21/2009	2	1	16	5	A	30.04	30.02	29.98	30.01	0.2013	0.188	0.1939	0.1943
5/21/2009	2	1	17	5	B	29.99	30	29.99	30.03	0.1999	0.1996	0.2218	0.2174
5/23/2009	2	3	16	5	A	30.01	29.99	29.99	30.01	0.2517	0.2652	0.2299	0.2459
5/23/2009	2	3	19	5	B	30.01	30	30.01	29.98	0.2462	0.2701	0.2571	0.2635
5/25/2009	2	5	3	5	A	29.95	29.99	29.98	30.04	0.3032	0.2745	0.3164	0.2892
5/25/2009	2	5	20	5	B	29.99	29.99	30.03	30	0.2962	0.2841	0.2984	0.3048
5/20/2009	2	0	4	6	A	30	29.99	30	29.99	0.1158	0.1009	0.1248	0.1225
5/20/2009	2	0	10	6	B	29.99	29.98	30.02	29.98	0.0962	0.0977	0.0891	0.0954
5/21/2009	2	1	2	6	A	29.99	29.98	29.98	30	0.1294	0.127	0.1059	0.117
5/21/2009	2	1	6	6	B	30.02	29.96	30	29.96	0.1252	0.1249	0.1314	0.1223
5/23/2009	2	3	1	6	B	30.03	29.99	29.96	30.02	0.1614	0.1493	0.1192	0.1188
5/23/2009	2	3	7	6	A	29.99	30.03	30.02	30.01	0.1513	0.1455	0.1404	0.1438
5/25/2009	2	5	9	6	B	30.02	29.96	30.02	30.04	0.1326	0.1456	0.1366	0.1611
5/25/2009	2	5	18	6	A	30.03	30.04	29.96	29.98	0.1346	0.1488	0.1483	0.1537
5/20/2009	2	0	8	7	B	30.02	30.01	30	30.01	0.1737	0.1716	0.1628	0.1642
5/20/2009	2	0	14	7	A	29.98	29.98	30.02	30	0.2163	0.2297	0.2274	0.2319
5/21/2009	2	1	7	7	B	30.04	30	30.04	29.98	0.41	0.3921	0.3433	0.3408
5/21/2009	2	1	10	7	A	30.02	30	29.95	29.97	0.415	0.4069	0.3834	0.3944

5/23/2009	2	3	10	7	A	30.01	29.99	30	29.98	0.7321	0.7519	0.7918	0.8008
5/23/2009	2	3	14	7	B	30	30	30.01	30.03	0.695	0.6972	0.8214	0.7983
5/25/2009	2	5	14	7	A	29.99	29.98	29.95	30.01	1.2665	1.224	1.0836	1.0589
5/25/2009	2	5	19	7	B	30.02	30.03	29.99	30.02	0.6559	0.6467	0.8355	0.8577
5/20/2009	2	0	5	8	A	30	29.97	30.03	30.02	0.1952	0.1861	0.1632	0.1626
5/20/2009	2	0	6	8	B	30.04	29.96	29.96	30.02	0.1994	0.1878	0.1774	0.1774
5/21/2009	2	1	14	8	A	30	30.03	29.97	29.98	0.4933	0.4958	0.4476	0.4056
5/21/2009	2	1	15	8	B	30.03	30	30.03	30	0.4375	0.4359	0.524	0.5314
5/23/2009	2	3	20	8	A	30	30.01	30	30	1.005	0.9431	0.9759	1.0482
5/23/2009	2	3	22	8	B	30.01	30.02	30.01	30.03	0.998	0.96	0.8544	0.8425
5/25/2009	2	5	6	8	B	30.01	29.98	29.96	29.98	0.6728	0.6908	1.0473	1.0625
5/25/2009	2	5	7	8	A	29.98	29.99	29.98	29.96	1.0615	1.0915	0.9446	1.1608
5/20/2009	2	0	7	9	B	30.04	29.99	29.98	30	0.1186	0.1161	0.134	0.1313
5/20/2009	2	0	9	9	B	29.99	30.02	30.02	30	0.1316	0.13	0.1406	0.1372
5/21/2009	2	1	5	9	B	30.03	30.03	30.02	30.01	0.3126	0.3105	0.2284	0.2198
5/21/2009	2	1	19	9	A	30.03	30.01	29.98	30	0.2659	0.263	0.2916	0.2833
5/23/2009	2	3	12	9	A	30.01	30.02	29.99	30	0.4747	0.4736	0.4566	0.4529
5/23/2009	2	3	17	9	B	29.99	30	30	30	0.4355	0.4507	0.4454	0.4537
5/25/2009	2	5	2	9	B	30.02	30	30	29.98	0.5408	0.5563	0.4951	0.4389
5/25/2009	2	5	12	9	A	30	30.04	29.99	30	0.5779	0.5935	0.5849	0.5724
5/20/2009	2	0	13	10	B	30.01	30	30.01	30.02	0.1045	0.1064	0.1073	0.1077
5/20/2009	2	0	16	10	A	29.99	29.98	30	30.01	0.1243	0.1194	0.126	0.1186
5/21/2009	2	1	18	10	A	29.99	29.97	30	29.97	0.1469	0.148	0.1619	0.1673
5/21/2009	2	1	21	10	B	30.03	30	30.01	30	0.176	0.1863	0.1773	0.161
5/23/2009	2	3	6	10	B	29.98	30.02	30	30.01	0.2173	0.2209	0.2244	0.2257
5/23/2009	2	3	18	10	A	30.02	29.99	30	30	0.24	0.2379	0.2565	0.2486
5/25/2009	2	5	16	10	A	30.04	30	29.97	30.03	0.2791	0.2958	0.262	0.2586
5/25/2009	2	5	17	10	B	29.98	30	30.03	30.03	0.2514	0.2599	0.3019	0.2713
6/7/2009	3	0	17	0	B	30	30.02	30.01	30.01	0.2049	0.202	0.2844	0.2878
6/7/2009	3	0	21	0	A	30.01	30.01	30.01	29.97	0.2385	0.2366	0.2507	0.2704
6/8/2009	3	1	14	0	B	30.02	30.02	29.98	29.99	0.462	0.4538	0.4272	0.4151
6/8/2009	3	1	20	0	A	30	30	29.98	30	0.5097	0.5199	0.5165	0.5293
6/10/2009	3	3	17	0	B	29.98	30	29.99	29.99	0.7386	0.8793	0.8894	0.8562
6/10/2009	3	3	21	0	A	30.01	30.01	29.98	29.98	1.1013	1.0732	1.0388	1.1815
6/12/2009	3	5	8	0	A	29.99	30.04	29.99	30.01	1.0061	1.1169	1.1106	1.3499
6/12/2009	3	5	21	0	B	29.97	30	30.01	30	1.2888	1.2073	1.1951	1.1124
6/7/2009	3	0	8	1	A	30	30.01	30.02	30.03	0.1219	0.121	0.1229	0.1259
6/7/2009	3	0	10	1	B	30.01	30	30.01	29.97	0.1243	0.1174	0.1202	0.1211

6/8/2009	3	1	5	1	A	29.97	30.01	29.98	30.02	0.1817	0.1796	0.1583	0.1554
6/8/2009	3	1	12	1	B	30	30	29.99	30	0.1707	0.1713	0.1837	0.1809
6/10/2009	3	3	5	1	B	29.98	30.01	30.03	30	0.1683	0.1526	0.1952	0.1894
6/10/2009	3	3	12	1	A	29.99	30.01	30	29.97	0.2178	0.2085	0.2288	0.2392
6/12/2009	3	5	13	1	A	29.99	30	30.02	29.97	0.2111	0.1958	0.219	0.2271
6/12/2009	3	5	16	1	B	30.01	30.03	30	30.02	0.191	0.243	0.1913	0.2013
6/7/2009	3	0	6	2	A	29.99	30	29.99	30.04	0.086	0.0888	0.0812	0.0922
6/7/2009	3	0	12	2	B	30.01	30.03	29.99	29.98	0.0855	0.0959	0.0879	0.089
6/8/2009	3	1	7	2	A	29.96	30.01	29.99	29.98	0.2065	0.2049	0.1734	0.1716
6/8/2009	3	1	13	2	B	30	29.98	30	29.99	0.2359	0.2322	0.1624	0.1757
6/10/2009	3	3	3	2	A	30	30	30	30.02	0.4933	0.4641	0.4374	0.4199
6/10/2009	3	3	7	2	B	30	30.03	30.01	30.04	0.359	0.3577	0.3877	0.3709
6/12/2009	3	5	2	2	B	30	29.99	30.01	30	0.3588	0.3387	0.3603	0.3439
6/12/2009	3	5	11	2	A	29.98	30.02	30	30.04	0.6834	0.6938	0.6177	0.5925
6/7/2009	3	0	4	3	B	30.03	29.97	29.97	29.99	0.1213	0.1501	0.1268	0.1244
6/7/2009	3	0	22	3	A	29.99	29.99	30.02	29.98	0.1537	0.1502	0.1491	0.1551
6/8/2009	3	1	1	3	A	29.98	30	30.03	29.98	0.3622	0.3658	0.3989	0.4004
6/8/2009	3	1	15	3	B	29.97	29.96	30.03	30	0.397	0.3849	0.431	0.4262
6/10/2009	3	3	4	3	A	30.02	29.98	29.99	30.01	0.6244	0.6064	0.6389	0.6062
6/10/2009	3	3	9	3	B	30.02	30.03	30.02	30	0.7089	0.6996	0.8177	0.8203
6/12/2009	3	5	4	3	B	30	30.01	29.99	30.02	0.7009	0.6974	0.7752	0.7486
6/12/2009	3	5	5	3	A	30.03	29.98	29.97	30.02	0.6492	0.698	0.8141	0.8168
6/7/2009	3	0	3	4	B	30.01	30.02	29.98	30.02	0.1073	0.105	0.096	0.0921
6/7/2009	3	0	14	4	A	30.03	30.02	30	29.97	0.0867	0.0884	0.083	0.0789
6/8/2009	3	1	2	4	A	30.04	30.01	29.98	29.99	0.3623	0.3609	0.3325	0.332
6/8/2009	3	1	8	4	B	30	29.98	30.01	30.01	0.3298	0.3341	0.2984	0.2966
6/10/2009	3	3	1	4	B	30	30	29.99	29.99	0.9138	0.7614	0.829	0.7277
6/10/2009	3	3	18	4	A	30.03	29.97	30	29.97	0.6053	0.5705	0.6428	0.5935
6/12/2009	3	5	1	4	B	30.01	30.01	30.01	29.99	0.7813	0.8697	0.7575	0.8411
6/12/2009	3	5	18	4	A	29.99	30.03	29.99	30.03	0.5466	0.5361	0.6101	0.6171
6/7/2009	3	0	2	5	A	29.96	30.01	29.98	30.01	0.101	0.1151	0.1252	0.1097
6/7/2009	3	0	16	5	B	30	30.02	30.01	29.99	0.0751	0.1017	0.0904	0.0812
6/8/2009	3	1	11	5	A	30.04	30.04	29.97	29.98	0.1188	0.1193	0.1246	0.1258
6/8/2009	3	1	17	5	B	29.99	29.99	30.02	30.02	0.0826	0.0804	0.1063	0.1033
6/10/2009	3	3	8	5	A	30.01	29.99	30.02	29.99	0.1566	0.1655	0.1967	0.2118
6/10/2009	3	3	22	5	B	30.01	30.03	29.98	29.99	0.2682	0.2735	0.2316	0.215
6/12/2009	3	5	6	5	A	30.02	30.01	30.01	30	0.1819	0.2451	0.2006	0.2571
6/12/2009	3	5	19	5	B	29.98	29.99	30	30	0.1821	0.1362	0.236	0.2083

6/7/2009	3	0	5	6	A	29.97	30.02	29.98	30.01	0.1051	0.1147	0.1067	0.1117
6/7/2009	3	0	18	6	B	30.01	29.99	30.01	30.01	0.1014	0.103	0.1043	0.1199
6/8/2009	3	1	10	6	B	30	30.02	30.01	30.03	0.0755	0.0791	0.0932	0.0934
6/8/2009	3	1	21	6	A	30	30	29.98	30.01	0.0771	0.0861	0.0969	0.1808
6/10/2009	3	3	11	6	B	30.01	30	30	30.01	0.1111	0.1125	0.1039	0.0991
6/10/2009	3	3	16	6	A	30.01	30	29.98	30.03	0.1178	0.1157	0.0663	0.0926
6/12/2009	3	5	9	6	A	30	30.01	30.02	30.02	0.0992	0.1	0.1067	0.111
6/12/2009	3	5	10	6	B	30.03	29.98	29.98	29.98	0.0962	0.0905	0.0971	0.102
6/7/2009	3	0	1	7	B	30	30.02	30.02	30.01	0.1582	0.1318	0.1379	0.1392
6/7/2009	3	0	7	7	A	30.02	30.04	30	30.04	0.1932	0.199	0.2295	0.235
6/8/2009	3	1	16	7	A	30	30.02	30.02	29.99	0.408	0.4141	0.3645	0.3825
6/8/2009	3	1	18	7	B	29.98	30	29.99	30.02	0.428	0.459	0.3715	0.4041
6/10/2009	3	3	13	7	B	30	29.99	30	30	0.9219	0.9787	0.5228	0.5206
6/10/2009	3	3	20	7	A	29.98	30	29.97	30	0.8094	0.7971	0.8111	0.8388
6/12/2009	3	5	7	7	B	30.03	29.99	29.98	30	1.2921	1.3235	1.2656	1.2678
6/12/2009	3	5	17	7	A	30.02	29.97	29.98	30.01	0.843	0.8591	0.7706	0.8346
6/7/2009	3	0	13	8	B	30.01	30.02	30.01	29.98	0.1945	0.2035	0.2065	0.2052
6/7/2009	3	0	15	8	A	30.03	30	30.01	30	0.1325	0.1205	0.1617	0.1299
6/8/2009	3	1	6	8	A	30.03	29.97	30.03	29.96	0.3386	0.3364	0.3263	0.3311
6/8/2009	3	1	19	8	B	30.02	30	30.02	30.01	0.2593	0.2704	0.2717	0.2794
6/10/2009	3	3	6	8	B	30.02	29.98	30	30.02	0.5639	0.573	0.5426	0.5196
6/10/2009	3	3	14	8	A	30	30.02	30.02	29.97	0.4956	0.4811	0.6036	0.4836
6/12/2009	3	5	3	8	A	29.99	29.97	30.03	30.01	0.7079	0.6332	0.6469	0.7251
6/12/2009	3	5	20	8	B	30.03	30	30.02	30.02	0.5488	0.5099	0.4896	0.4361
6/7/2009	3	0	9	9	B	30.03	30	29.98	30	0.1552	0.1547	0.1516	0.1525
6/7/2009	3	0	19	9	A	30	29.99	30.03	30.02	0.1758	0.1686	0.1974	0.2069
6/8/2009	3	1	3	9	A	30.01	30	30.02	30.03	0.2441	0.2408	0.2323	0.2313
6/8/2009	3	1	4	9	B	29.97	30.02	30	30	0.2152	0.2193	0.2296	0.225
6/10/2009	3	3	10	9	B	30.01	30.01	30.03	30.02	0.431	0.4096	0.3293	0.3378
6/10/2009	3	3	19	9	A	30	30.03	29.98	30	0.4764	0.5021	0.3795	0.3542
6/12/2009	3	5	12	9	B	29.98	29.99	30.01	30.01	0.4875	0.4973	0.4465	0.3905
6/12/2009	3	5	22	9	A	29.99	29.99	29.98	29.97	0.6145	0.5605	0.5303	0.5323
6/7/2009	3	0	11	10	A	30.03	30	30.01	30.02	0.1173	0.1192	0.1223	0.1162
6/7/2009	3	0	20	10	B	30.02	29.98	30	29.99	0.1196	0.1281	0.098	0.1077
6/8/2009	3	1	9	10	A	29.97	29.99	29.97	29.99	0.1201	0.1217	0.1227	0.1242
6/8/2009	3	1	22	10	B	29.99	30.01	29.99	30.02	0.1477	0.1335	0.1432	0.1828
6/10/2009	3	3	2	10	A	30.02	29.98	29.98	29.99	0.2529	0.2365	0.2341	0.1873
6/10/2009	3	3	15	10	B	29.99	30.01	30	29.96	0.2107	0.2017	0.1856	0.1982

6/12/2009	3	5	14	10	A	30	30.01	29.99	30.01	0.2377	0.2328	0.2244	0.2273
6/12/2009	3	5	15	10	B	29.97	29.98	30.01	29.98	0.2005	0.1975	0.23	0.2019

pH

Date	Batch	Day	Order	ID	Trt	Ptty	pH1	pH2	pH3
5/14/2009	1	0	13	742	0	A	5.69	5.72	5.6
5/14/2009	1	0	14	742	0	B	5.25	5.59	5.78
5/15/2009	1	1	1	743	0	A	5.33	5.57	5.7
5/15/2009	1	1	7	334	0	B	5.49	5.76	5.63
5/17/2009	1	3	10	833	0	B	5.03	5.53	5.68
5/17/2009	1	3	22	100	0	A	5.74	5.69	5.69
5/19/2009	1	5	12	626	0	B	5.63	5.6	5.57
5/19/2009	1	5	16	673	0	A	5.52	5.36	5.37
5/14/2009	1	0	5	108	1	A	5.68	5.71	5.8
5/14/2009	1	0	6	108	1	B	5.67	5.12	5.35
5/15/2009	1	1	17	700	1	B	5.64	5.77	5.77
5/15/2009	1	1	20	432	1	A	5.74	5.75	5.59
5/17/2009	1	3	4	659	1	A	4.67	5.71	5.69
5/17/2009	1	3	20	425	1	B	5.64	5.65	5.56
5/19/2009	1	5	2	916	1	A	5.51	4.99	5.54
5/19/2009	1	5	19	292	1	B	4.88	5.52	5.61
5/14/2009	1	0	15	156	2	A	5.64	5.62	5.59
5/14/2009	1	0	16	156	2	B	5.73	5.7	5.35
5/15/2009	1	1	6	492	2	B	5.68	5.71	5.69
5/15/2009	1	1	19	561	2	A	5.75	5.73	5.71
5/17/2009	1	3	2	317	2	A	5.47	5.45	5.68
5/17/2009	1	3	7	974	2	B	5.71	5.71	4.87
5/19/2009	1	5	5	885	2	B	5.74	4.87	5.61
5/19/2009	1	5	14	647	2	A	5.67	5.66	5.5
5/14/2009	1	0	17	596	3	A	5.65	4.99	5.61
5/14/2009	1	0	18	596	3	B	5.71	5.69	5.75
5/15/2009	1	1	8	808	3	B	5.34	5.69	5.58
5/15/2009	1	1	18	905	3	A	5.66	5.36	5.65
5/17/2009	1	3	17	529	3	A	5.62	5.51	4.62
5/17/2009	1	3	18	507	3	B	5.03	5.69	5.55
5/19/2009	1	5	1	635	3	A	5.72	5.36	5.58
5/19/2009	1	5	4	313	3	B	5.48	4.9	5.35
5/14/2009	1	0	1	638	4	A	6.35	5.33	5.53
5/14/2009	1	0	2	638	4	B	5.06	5.63	4.97
5/15/2009	1	1	13	327	4	B	5.23	5.63	5.64
5/15/2009	1	1	16	105	4	A	5.66	5.23	5.65
5/17/2009	1	3	1	557	4	A	5.59	5.24	5.27
5/17/2009	1	3	19	426	4	B	5.6	5.64	5.61
5/19/2009	1	5	8	308	4	B	5.58	5.55	5.24
5/19/2009	1	5	22	235	4	A	5.57	5.48	5.57
5/14/2009	1	0	7	517	5	A	5.65	5.53	5.58
5/14/2009	1	0	8	517	5	B	5.36	5.7	5.65
5/15/2009	1	1	4	426	5	B	5.73	5.34	5.49
5/15/2009	1	1	22	139	5	A	5.57	5.67	5.72

5/17/2009	1	3	11	501	5	A	5.57	5.71	5.27
5/17/2009	1	3	15	111	5	B	5.34	5.69	5.72
5/19/2009	1	5	6	551	5	B	4.94	5.06	5.49
5/19/2009	1	5	18	915	5	A	5.37	5.28	5.54
5/14/2009	1	0	11	642	6	A	5.86	4.84	5.74
5/14/2009	1	0	12	642	6	B	5.77	5.18	4.8
5/15/2009	1	1	10	745	6	B	5.71	5.75	5.71
5/15/2009	1	1	12	154	6	A	5.02	5	5.5
5/17/2009	1	3	5	322	6	B	5.59	5.72	5.68
5/17/2009	1	3	13	350	6	A	5.64	5.58	5.7
5/19/2009	1	5	10	800	6	B	5.35	5.43	5.42
5/19/2009	1	5	13	558	6	A	5.57	5.47	5.41
5/14/2009	1	0	3	679	7	A	5.86	5.76	5.64
5/14/2009	1	0	4	679	7	B	5.51	5.27	5.78
5/15/2009	1	1	2	534	7	A	5.74	5.73	5.76
5/15/2009	1	1	14	628	7	B	5.67	5.74	5.69
5/17/2009	1	3	12	342	7	B	5.42	5.71	5.7
5/17/2009	1	3	14	641	7	A	5.48	5.7	5.63
5/19/2009	1	5	9	786	7	B	5.66	5.46	5.5
5/19/2009	1	5	15	403	7	A	5.51	5.32	5.64
5/14/2009	1	0	21	416	8	A	5.68	5.55	5.47
5/14/2009	1	0	22	416	8	B	5.59	5.42	5.35
5/15/2009	1	1	9	781	8	A	5.57	5.66	5.71
5/15/2009	1	1	11	541	8	B	5.65	5.56	5.69
5/17/2009	1	3	8	764	8	A	5.25	5.64	5.18
5/17/2009	1	3	16	250	8	B	5.65	4.81	5.08
5/19/2009	1	5	7	232	8	B	5.49	5.49	5.52
5/19/2009	1	5	20	603	8	A	5.51	4.94	5.38
5/14/2009	1	0	9	927	9	A	5.46	5.76	5.07
5/14/2009	1	0	10	927	9	B	5.74	5.64	5.73
5/15/2009	1	1	15	712	9	A	5.67	5.69	5.53
5/15/2009	1	1	21	631	9	B	5.56	5.69	5.74
5/17/2009	1	3	9	628	9	B	5.53	5.31	5.29
5/17/2009	1	3	21	860	9	A	5.59	5.39	5.71
5/19/2009	1	5	3	970	9	B	4.97	5.57	5.45
5/19/2009	1	5	11	806	9	A	5.41	5.6	5.29
5/14/2009	1	0	19	173	10	A	5.4	5.7	5.37
5/14/2009	1	0	20	173	10	B	5.14	5.6	5.43
5/15/2009	1	1	3	273	10	B	5.52	5.7	5.73
5/15/2009	1	1	5	550	10	A	5.37	5.65	5.73
5/17/2009	1	3	3	452	10	B	5.5	5.28	5.42
5/17/2009	1	3	6	687	10	A	5.37	5.7	5.68
5/19/2009	1	5	17	549	10	B	5.31	5.02	5.47
5/19/2009	1	5	21	630	10	A	5.46	5.49	5.53
5/20/2009	2	0	11	946A	0	A	5.28	5.66	5.44
5/20/2009	2	0	12	946B	0	B	5.67	5.67	5.42
5/21/2009	2	1	15	622	0	B	5.26	5.62	5.59
5/21/2009	2	1	17	30	0	A	5.67	5.58	5.6

5/23/2009	2	3	19	289	0	A	5.49	5.46	5.48
5/23/2009	2	3	22	974	0	B	5.46	5.5	5.44
5/25/2009	2	5	7	422	0	B	5.57	5.4	5.16
5/25/2009	2	5	15	332	0	A	5.37	5.49	5.41
5/20/2009	2	0	19	59A	1	A	5.7	5.65	5.22
5/20/2009	2	0	20	59B	1	B	5.63	5.64	5.59
5/21/2009	2	1	2	686	1	B	5.19	4.87	5.63
5/21/2009	2	1	21	505	1	A	5.69	5.57	5.64
5/23/2009	2	3	9	800	1	B	5.39	5.65	5.69
5/23/2009	2	3	12	372	1	A	5.62	5.49	5.56
5/25/2009	2	5	4	281	1	B	5.56	5.4	5.45
5/25/2009	2	5	10	313	1	A	5.42	5.01	5.23
5/20/2009	2	0	9	251A	2	A	5.33	5.44	5.69
5/20/2009	2	0	10	251B	2	B	5.29	5.69	5.68
5/21/2009	2	1	6	266	2	A	5.72	5.61	5.71
5/21/2009	2	1	7	998	2	B	5.62	5.7	5.82
5/23/2009	2	3	18	247	2	A	5.5	5.5	5.33
5/23/2009	2	3	20	292	2	B	5.31	5.51	5.53
5/25/2009	2	5	1	535	2	A	5.4	5.4	5.5
5/25/2009	2	5	16	591	2	B	5.45	5.35	5.41
5/20/2009	2	0	5	722A	3	A	5.59	5.62	5.41
5/20/2009	2	0	6	722B	3	B	5.36	5.64	5.31
5/21/2009	2	1	4	431	3	B	5.42	5.55	5.63
5/21/2009	2	1	19	168	3	A	5.41	5.29	5.59
5/23/2009	2	3	7	923	3	B	5.51	5.2	5.51
5/23/2009	2	3	10	641	3	A	5.36	5.4	5.51
5/25/2009	2	5	11	184	3	B	5.42	5.47	5.25
5/25/2009	2	5	14	170	3	A	5.2	5.19	5.17
5/20/2009	2	0	1	771A	4	A	4.51	4.81	5.53
5/20/2009	2	0	2	771B	4	B	4.8	5.04	4.49
5/21/2009	2	1	5	426	4	B	4.95	5.12	5.42
5/21/2009	2	1	22	119	4	A	5.55	5.27	5.47
5/23/2009	2	3	5	547	4	A	5.13	5.29	5.25
5/23/2009	2	3	13	256	4	B	5.37	5.23	5.38
5/25/2009	2	5	2	286	4	B	5.27	5.23	5.23
5/25/2009	2	5	3	43	4	A	5.24	5.23	5.2
5/20/2009	2	0	17	814A	5	A	5.3	5.03	5.34
5/20/2009	2	0	18	814B	5	B	5.55	5.29	5.31
5/21/2009	2	1	8	724	5	A	5.72	5.63	5.69
5/21/2009	2	1	11	245	5	B	5.69	5.62	5.57
5/23/2009	2	3	1	251	5	B	5.64	5.67	5.58
5/23/2009	2	3	3	927	5	A	5.65	5.42	5.67
5/25/2009	2	5	8	257	5	B	5.01	5.1	5.4
5/25/2009	2	5	21	168	5	A	5.39	5.44	5.46
5/20/2009	2	0	13	763A	6	A	5.32	5.44	5.21
5/20/2009	2	0	14	763B	6	B	4.89	5.59	5.5
5/21/2009	2	1	10	331	6	B	5.72	5.37	5.71
5/21/2009	2	1	14	706	6	A	5.68	5.62	5.35

5/23/2009	2	3	11	763	6	B	5.66	5.63	5.12
5/23/2009	2	3	15	915	6	A	5.66	5.33	5.5
5/25/2009	2	5	5	840	6	A	5.41	5.37	5.47
5/25/2009	2	5	19	395	6	B	5.03	5.05	5.26
5/20/2009	2	0	3	785A	7	A	5.24	5.64	5.5
5/20/2009	2	0	4	785B	7	B	5.53	5.66	5.62
5/21/2009	2	1	12	457	7	A	5.43	5.55	5.55
5/21/2009	2	1	13	924	7	B	5.62	5.54	5.36
5/23/2009	2	3	8	49	7	B	5.38	5.42	5.43
5/23/2009	2	3	14	137	7	A	5.55	5.42	5.45
5/25/2009	2	5	13	788	7	A	5.59	5.33	5.37
5/25/2009	2	5	18	109	7	B	5.33	5.41	5.42
5/20/2009	2	0	7	381A	8	A	5.49	5.07	5.16
5/20/2009	2	0	8	381B	8	B	5.7	5.52	5.7
5/21/2009	2	1	16	958	8	B	5.48	5.5	5.59
5/21/2009	2	1	18	534	8	A	5.6	5.31	5.56
5/23/2009	2	3	4	313	8	B	5.11	5.39	5.07
5/23/2009	2	3	17	851	8	A	5.39	5.42	5.28
5/25/2009	2	5	6	20	8	A	5.42	5.41	5.35
5/25/2009	2	5	17	638	8	B	5.02	5.39	5.35
5/20/2009	2	0	15	755A	9	A	5.6	5.59	5.62
5/20/2009	2	0	16	755B	9	B	5.28	5.38	4.75
5/21/2009	2	1	1	705	9	B	5.17	5.61	5.08
5/21/2009	2	1	9	270	9	A	4.95	5.32	5.68
5/23/2009	2	3	6	976	9	A	5.66	5.61	5.6
5/23/2009	2	3	21	579	9	B	5.56	5.5	5.63
5/25/2009	2	5	9	787	9	B	5.28	5.38	5.19
5/25/2009	2	5	12	41	9	A	4.92	5.32	5.36
5/20/2009	2	0	21	667A	10	A	5.63	5.68	5.54
5/20/2009	2	0	22	667B	10	B	5.67	5.46	5.54
5/21/2009	2	1	3	956	10	A	5.69	5.55	5.65
5/21/2009	2	1	20	762	10	B	5.6	5.22	5.26
5/23/2009	2	3	2	9	10	A	5.33	5.46	5.42
5/23/2009	2	3	16	665	10	B	5.34	5.4	5.3
5/25/2009	2	5	20	119	10	A	5.3	5.31	5
5/25/2009	2	5	22	480	10	B	5.39	5.4	5.35
6/7/2009	3	0	13	331	0	A	5.61	5.62	5.41
6/7/2009	3	0	14	331	0	B	5.67	5.66	5.61
6/8/2009	3	1	8	712	0	B	5.46	5.66	5.66
6/8/2009	3	1	16	152	0	A	5.63	5.59	5.63
6/10/2009	3	3	11	183	0	A	5.63	5.58	5.62
6/10/2009	3	3	15	367	0	B	5.57	5.61	5.61
6/12/2009	3	5	9	390	0	A	5.56	5.49	5.35
6/12/2009	3	5	17	54	0	B	5.63	5.49	5.47
6/7/2009	3	0	21	26	1	A	5.14	5.62	5.63
6/7/2009	3	0	22	26	1	B	5.63	5.59	5.61
6/8/2009	3	1	9	732	1	A	5.51	5.58	5.67
6/8/2009	3	1	17	32	1	B	5.63	5.65	5.68

6/10/2009	3	3	5	99	1	A	5.5	5.34	5.53
6/10/2009	3	3	7	73	1	B	5.53	5.33	5.45
6/12/2009	3	5	6	467	1	A	5.38	5	5.49
6/12/2009	3	5	10	482	1	B	5.61	5.49	5.43
6/7/2009	3	0	11	478	2	A	5.61	5.63	5.69
6/7/2009	3	0	12	478	2	B	5.7	5.7	5.66
6/8/2009	3	1	1	980	2	A	5.27	5.63	5.62
6/8/2009	3	1	19	823	2	B	5.67	5.53	5.66
6/10/2009	3	3	9	890	2	A	5.54	5.48	5.58
6/10/2009	3	3	20	478	2	B	5.54	5.6	5.55
6/12/2009	3	5	1	636	2	A	5.45	5.67	5.38
6/12/2009	3	5	13	320	2	B	5.45	5.52	5.55
6/7/2009	3	0	7	726	3	A	5.57	5.56	5.53
6/7/2009	3	0	8	726	3	B	5.62	5.57	5.53
6/8/2009	3	1	18	674	3	B	5.59	5.63	5.5
6/8/2009	3	1	22	278	3	A	5.64	5.6	5.56
6/10/2009	3	3	6	496	3	B	5.27	5.5	5.51
6/10/2009	3	3	16	857	3	A	5.42	5.45	5.44
6/12/2009	3	5	12	277	3	A	5.83	5.46	5.39
6/12/2009	3	5	21	672	3	B	5.4	5.43	5.38
6/7/2009	3	0	9	743	4	A	5.52	5.52	5.51
6/7/2009	3	0	10	743	4	B	5.5	5.51	5.53
6/8/2009	3	1	12	999	4	A	5.57	5.17	5.59
6/8/2009	3	1	14	34	4	B	5.55	5.51	5.59
6/10/2009	3	3	2	387	4	B	5.6	5.52	5.54
6/10/2009	3	3	4	813	4	A	5.53	5.29	5.46
6/12/2009	3	5	4	251	4	B	5.46	5.05	5.49
6/12/2009	3	5	19	139	4	A	5.54	5.34	5.4
6/7/2009	3	0	1	74	5	A	5.62	5.73	5.71
6/7/2009	3	0	2	74	5	B	5.37	5.75	5.72
6/8/2009	3	1	4	110	5	B	5.72	5.62	5.34
6/8/2009	3	1	21	274	5	A	5.69	5.74	5.67
6/10/2009	3	3	10	421	5	B	5.58	5.27	5.45
6/10/2009	3	3	18	642	5	A	5.51	5.49	5.51
6/12/2009	3	5	3	72	5	B	5.55	5.04	5.48
6/12/2009	3	5	18	442	5	A	5.43	5.51	5.39
6/7/2009	3	0	17	212	6	A	5.06	5.6	5.59
6/7/2009	3	0	18	212	6	B	5.24	5.65	5.63
6/8/2009	3	1	5	396	6	B	5.51	5.63	5.68
6/8/2009	3	1	11	726	6	A	5.62	5.63	5.57
6/10/2009	3	3	8	142	6	A	5.54	5.51	5.58
6/10/2009	3	3	12	110	6	B	5.48	5.47	5.44
6/12/2009	3	5	5	43	6	B	5.54	5.42	5.38
6/12/2009	3	5	15	239	6	A	5.34	5.31	5.45
6/7/2009	3	0	15	627	7	A	5.69	5.65	5.63
6/7/2009	3	0	16	627	7	B	5.65	5.63	5.58
6/8/2009	3	1	7	956	7	A	5.54	5.42	5.42
6/8/2009	3	1	20	942	7	B	5.67	5.6	5.61

6/10/2009	3	3	14	339	7	A	5.14	5.47	5.3
6/10/2009	3	3	17	254	7	B	5.57	5.54	5.51
6/12/2009	3	5	14	372	7	B	5.49	5.53	5.52
6/12/2009	3	5	16	480	7	A	5.53	5.32	5.49
6/7/2009	3	0	3	397	8	A	5.67	5.64	5.56
6/7/2009	3	0	4	397	8	B	5.58	5.66	5.64
6/8/2009	3	1	6	586	8	A	5.67	5.62	5.64
6/8/2009	3	1	13	974	8	B	5.44	5.67	5.63
6/10/2009	3	3	3	203	8	A	5.14	5.5	5.54
6/10/2009	3	3	13	703	8	B	5.32	5.41	5.63
6/12/2009	3	5	11	917	8	B	5.42	5.41	5.41
6/12/2009	3	5	22	53	8	A	5.39	5.39	5.4
6/7/2009	3	0	19	967	9	A	5.62	5.63	5.09
6/7/2009	3	0	20	967	9	B	5.56	5.64	5.62
6/8/2009	3	1	2	324	9	A	5.66	5.02	5.65
6/8/2009	3	1	10	743	9	B	5.62	5.63	5.13
6/10/2009	3	3	1	870	9	B	5.36	5.52	5.31
6/10/2009	3	3	19	311	9	A	5.45	5.47	5.54
6/12/2009	3	5	7	858	9	B	5.53	5.4	5.48
6/12/2009	3	5	8	197	9	A	5.43	5.4	5.48
6/7/2009	3	0	5	261	10	A	5.65	5.41	5.56
6/7/2009	3	0	6	261	10	B	5.63	5.55	5.65
6/8/2009	3	1	3	885	10	B	5.46	5.51	5.5
6/8/2009	3	1	15	968	10	A	5.57	5.6	5.62
6/10/2009	3	3	21	555	10	A	5.52	5.44	5.46
6/10/2009	3	3	22	716	10	B	5.44	5.45	5.46
6/12/2009	3	5	2	639	10	A	5.44	5.54	5.43
6/12/2009	3	5	20	208	10	B	5.4	5.35	5.41

MINOLTA

Date	Batch	Day	Order	ID	Trt	Ptty	L1	L2	L3	a1	a2	a3	b1	b2	b3
5/14/2009	1	0	1	638	4	A	55.857	56.486	54.749	25.62	23.086	25.982	16.932	14.047	16.695
5/14/2009	1	0	2	638	4	B	58.526	55.388	55.388	22.816	25.197	25.644	14.647	16.119	17.034
5/14/2009	1	0	3	679	7	A	56.813	57.124	55.691	25.586	25.321	26.705	15.842	14.759	15.894
5/14/2009	1	0	4	679	7	B	59.255	55.686	58.668	25.287	26.828	23.905	16.448	16.482	14.795
5/14/2009	1	0	5	108	1	A	60.941	57.582	57.262	22.698	24.529	25.082	15.286	14.317	14.385
5/14/2009	1	0	6	108	1	B	56.323	57.358	55.514	26.31	27.483	25.127	16.087	17.861	14.486
5/14/2009	1	0	7	517	5	A	57.468	54.405	56.684	24.503	25.726	24.63	15.709	15.539	15.326
5/14/2009	1	0	8	517	5	B	57.107	56.313	55.865	25.31	25.62	25.231	15.084	15.725	15.761
5/14/2009	1	0	9	927	9	A	55.923	55.811	53.254	26.071	23.042	25.205	16.98	13.861	15.052
5/14/2009	1	0	10	927	9	B	57.401	50.149	57.088	23.086	19.089	25.29	15.207	11.691	16.638
5/14/2009	1	0	11	642	6	A	53.32	54.576	56.009	25.141	25.088	24.353	15.955	15.42	14.983
5/14/2009	1	0	12	642	6	B	57.872	56.14	53.982	24.404	22.796	24.232	16.03	13.108	15.01
5/14/2009	1	0	13	742	0	A	56.647	55.361	54.723	24.95	23.354	26.692	14.428	14.19	15.537
5/14/2009	1	0	14	742	0	B	54.458	54.296	58.576	26.52	24.634	25.066	15.892	14.477	16.613
5/14/2009	1	0	15	156	2	A	57.018	56.081	56.188	26.117	26.723	26.38	16.973	17	16.444
5/14/2009	1	0	16	156	2	B	57.286	58.057	57.367	25.596	24.06	26.337	15.852	15.404	16.716
5/14/2009	1	0	17	596	3	A	56.696	56.761	57.282	25.132	25.935	26.05	16.291	16.904	16.692
5/14/2009	1	0	18	596	3	B	56.37	58.959	57.352	26.488	24.958	26.572	16.9	16.53	17.622
5/14/2009	1	0	19	173	10	A	55.12	55.685	54.702	20.159	22.677	24.007	12.326	15.064	15.204
5/14/2009	1	0	20	173	10	B	56.91	54.325	54.156	20.997	22.293	25.715	13.591	13.465	15.524
5/14/2009	1	0	21	416	8	A	58.537	55.744	57.063	23.198	25.926	24.029	14.96	16.203	15.665
5/14/2009	1	0	22	416	8	B	55.27	54.85	58.177	25.104	25.673	23.739	14.725	15.628	14.584
5/15/2009	1	1	1	743	0	A	53.511	53.779	53.989	20.737	20.616	19.334	12.991	13.526	11.973
5/15/2009	1	1	2	534	7	A	56.772	55.259	56.613	17.965	19.668	17.548	12.231	13.437	10.729
5/15/2009	1	1	3	273	10	B	51.362	53.323	50.772	19.647	19.829	19.749	13.421	13.672	13.32
5/15/2009	1	1	4	426	5	B	54.728	52.607	54.529	19.209	18.77	19.75	12.445	11.475	12.502
5/15/2009	1	1	5	550	10	A	56.834	52.774	52.37	17.966	19.107	18.665	12.498	12.991	12.25
5/15/2009	1	1	6	492	2	B	52.951	54.207	56.029	21.69	23.768	19.987	14.422	15.795	13.495
5/15/2009	1	1	7	334	0	B	53.821	50.035	52.91	20.845	20.212	21.373	15.033	12.43	13.65
5/15/2009	1	1	8	808	3	B	52.307	55.096	52.353	22.498	20.592	24.302	15.332	12.309	15.81
5/15/2009	1	1	9	781	8	A	53.537	53.25	55.828	20.078	20.97	19.026	12.479	12.643	12.114
5/15/2009	1	1	10	745	6	B	51.384	52.479	51.522	21.14	21.463	19.915	14.668	13.787	12.707
5/15/2009	1	1	11	541	8	B	57.823	51.625	53.277	18.407	23.676	22.757	12.822	16.362	15.325

5/15/2009	1	1	12	154	6	A	54.332	53.623	51.489	15.767	21.327	20.856	9.8841	14.465	14.682
5/15/2009	1	1	13	327	4	B	50.084	48.213	53.749	16.892	21.38	18.378	12.256	14.059	14.955
5/15/2009	1	1	14	628	7	B	50.219	54.537	55.938	21.709	22.222	19.496	13.44	15.627	12.615
5/15/2009	1	1	15	712	9	A	52.667	51.536	52.307	21.008	21.365	19.233	14.296	13.876	13.381
5/15/2009	1	1	16	105	4	A	54.374	52.613	49.527	19.321	18.196	18.157	14.778	14.167	13.122
5/15/2009	1	1	17	700	1	B	52.807	53.423	54.1	23.482	20.35	23.472	16.464	14.231	16.112
5/15/2009	1	1	18	905	3	A	53.617	53.73	54.029	21.321	21.988	23.011	13.496	15.239	15.549
5/15/2009	1	1	19	561	2	A	56.679	55.521	55.484	18.788	21.594	21.138	12.194	14.051	13.623
5/15/2009	1	1	20	432	1	A	56.583	54.315	54.498	18.707	23.067	20.224	14.57	15.706	13.139
5/15/2009	1	1	21	631	9	B	50.236	51.783	52.432	19.434	19.823	20.896	13.246	13.158	14.653
5/15/2009	1	1	22	139	5	A	53.99	55.064	53.572	20.736	19.786	19.541	14.139	13.663	12.729
5/17/2009	1	3	1	557	4	A	51.228	51.498	53.345	14.467	14.915	14.21	11.842	12.086	12.115
5/17/2009	1	3	2	317	2	A	51.83	53.116	51.074	17.767	16.53	18.117	13.658	12.339	12.627
5/17/2009	1	3	3	452	10	B	54.246	55.38	51.752	17.528	15.348	15.699	13.957	11.609	12.112
5/17/2009	1	3	4	659	1	A	52.997	53.539	52.362	17.454	17.262	18.383	13.856	12.813	12.653
5/17/2009	1	3	5	322	6	B	49.079	50.965	54.664	14.513	16.932	16.308	8.8507	12.288	12.371
5/17/2009	1	3	6	687	10	A	51.007	55.285	54.342	16.674	14.719	14.46	13.644	12.543	13.357
5/17/2009	1	3	7	974	2	B	57.303	55.087	53.602	16.093	17.231	16.574	13.72	13.199	11.594
5/17/2009	1	3	8	764	8	A	53.959	54.205	53.556	17.935	17.847	19.128	13.33	14.072	15.003
5/17/2009	1	3	9	628	9	B	52.373	53.621	55.357	17.368	16.382	15.299	12.432	12.336	11.101
5/17/2009	1	3	10	833	0	B	55.604	50.644	53.108	15.022	17.903	17.397	12.401	13.365	13.999
5/17/2009	1	3	11	501	5	A	52.236	51.365	50.822	16.327	17.021	16.804	11.594	13.381	11.926
5/17/2009	1	3	12	342	7	B	52.072	49.73	53.347	17.165	16.864	15.441	13.804	12.467	12.178
5/17/2009	1	3	13	350	6	A	55.266	52.106	56.994	15.627	17.175	14.795	12.62	11.928	13.832
5/17/2009	1	3	14	641	7	A	51.337	52.49	54.461	15.323	13.794	16.371	10.169	9.7956	13.247
5/17/2009	1	3	15	111	5	B	56.966	53.386	52.882	15.397	15.769	14.702	11.884	11.061	9.3022
5/17/2009	1	3	16	250	8	B	57.478	55.277	57.312	14.822	14.93	14.926	11.229	11.192	11.867
5/17/2009	1	3	17	529	3	A	50.351	55.586	53.392	18.479	13.118	16.221	14.42	11.803	12.941
5/17/2009	1	3	18	507	3	B	57.309	54.849	56.114	15.69	15.789	15.338	12.588	11.861	13.016
5/17/2009	1	3	19	426	4	B	54.669	51.616	51.916	14.723	15.327	13.498	13.387	13.018	10.741
5/17/2009	1	3	20	425	1	B	54.283	54.152	53.637	16.475	16.686	14.12	13.737	13.897	10.355
5/17/2009	1	3	21	860	9	A	55.585	52.307	52.379	14.989	15.317	14.988	13.094	12.135	11.968
5/17/2009	1	3	22	100	0	A	51.952	51.687	51.096	17.568	19.719	17.692	13.2	14.396	11.517
5/19/2009	1	5	1	635	3	A	53.804	56.949	53.043	11.337	10.079	10.726	12.674	10.298	12.156
5/19/2009	1	5	2	916	1	A	53.649	53.447	55.646	10.372	10.878	10.032	11.689	10.621	10.065
5/19/2009	1	5	3	970	9	B	53.645	54.154	51.835	8.884	9.4507	7.2682	9.1052	11.772	8.9768
5/19/2009	1	5	4	313	3	B	54.271	54.921	55.301	10.411	8.4544	9.551	11.455	10.61	13.338

5/19/2009	1	5	5	885	2	B	55.874	56.799	55.743	9.9538	9.5216	9.9782	12.059	13.189	11.373
5/19/2009	1	5	6	551	5	B	52.956	55.614	54.012	11.125	9.9404	9.4018	11.766	12.973	8.7387
5/19/2009	1	5	7	232	8	B	54.333	57.804	55.288	9.6676	9.0999	8.4086	13.474	12.024	11.974
5/19/2009	1	5	8	308	4	B	54.16	52.984	52.688	9.7415	9.9439	10.43	12.512	13.117	13.655
5/19/2009	1	5	9	786	7	B	52.958	53.416	53.358	12.287	12.957	11.932	13.422	14.38	13.266
5/19/2009	1	5	10	800	6	B	50.832	50.025	51.495	11.64	11.673	11.011	11.587	11.51	11.07
5/19/2009	1	5	11	806	9	A	53.428	53.093	52.659	14.486	12.345	13.367	12.785	10.615	12.085
5/19/2009	1	5	12	626	0	B	54.686	51.009	56.389	10.445	13.477	9.3312	10.775	13.997	11.732
5/19/2009	1	5	13	558	6	A	52.562	51.427	53.366	12.751	11.042	9.3343	12.775	10.697	10.71
5/19/2009	1	5	14	647	2	A	54.871	55.31	55.755	11.286	11.286	11.748	12.016	11.535	13.676
5/19/2009	1	5	15	403	7	A	57.475	54.696	54.039	10.59	13.027	12.447	10.09	10.826	12.217
5/19/2009	1	5	16	673	0	A	55.755	56.014	55.164	7.435	11.297	9.287	10.483	12.104	12.796
5/19/2009	1	5	17	549	10	B	54.501	54.973	53.378	11.329	10.243	13.287	11.947	9.6518	12.909
5/19/2009	1	5	18	915	5	A	54.029	54.839	51.976	11.033	9.4753	11.276	12.899	11.899	12.497
5/19/2009	1	5	19	292	1	B	54.624	52.198	53.772	11.143	11.214	9.6652	12.654	11.533	10.789
5/19/2009	1	5	20	603	8	A	55.63	56.634	55.751	9.7241	9.8228	10.802	11.41	10.761	13.505
5/19/2009	1	5	21	630	10	A	49.571	52.813	50.576	12.806	12.069	12.26	11.311	12.246	12.024
5/19/2009	1	5	22	235	4	A	52.975	55.539	56.493	10.708	9.2811	9.9265	12.958	11.674	13.341
5/20/2009	2	0	1	'71A	4	A	57.503	58.986	59.363	21.802	21.442	19.676	12.624	15.237	12.649
5/20/2009	2	0	2	'71B	4	B	59.74	56.982	56.177	22.663	24.201	23.024	15.929	15.532	14.936
5/20/2009	2	0	3	'85A	7	A	56.96	58.326	56.11	26.146	22.134	23.159	16.477	14.525	14.405
5/20/2009	2	0	4	'85B	7	B	58.592	58.213	58.661	23.921	23.377	23.784	15.19	15.323	15.48
5/20/2009	2	0	5	'22A	3	A	61.143	57.319	59.669	21.255	23.064	22.11	15.458	15.405	15.394
5/20/2009	2	0	6	'22B	3	B	57.574	57.267	56.542	23.231	22.968	22.57	15.499	15.07	15.121
5/20/2009	2	0	7	81A	8	A	55.925	55.585	59.481	23.184	23.268	20.806	13.341	13.652	13.877
5/20/2009	2	0	8	81B	8	B	56.245	56.926	58.05	24.055	23.714	22.977	14.949	15.278	15.118
5/20/2009	2	0	9	51A	2	A	54.579	56.031	58.74	23.993	23.918	24.016	15.319	16.156	16.486
5/20/2009	2	0	10	51B	2	B	55.309	58.242	57.843	22.31	23.071	24.435	14.127	15.558	15.91
5/20/2009	2	0	11	46A	0	A	60.003	58.983	61.508	21.929	21.959	20.82	14.762	14.341	13.868
5/20/2009	2	0	12	46B	0	B	58.343	60.435	58.077	22.682	22.843	25.174	14.99	15.663	16.369
5/20/2009	2	0	13	'63A	6	A	57.975	60.344	57.199	21.413	17.906	18.836	13.544	13.044	12.539
5/20/2009	2	0	14	'63B	6	B	56.528	56.287	59.859	23.053	22.917	19.601	15.474	15.226	13.58
5/20/2009	2	0	15	'55A	9	A	61.337	62.763	56.102	16.399	17.871	20.728	11.65	10.655	13.117
5/20/2009	2	0	16	'55B	9	B	55.163	59.376	59.508	22.81	21.239	20.531	14.652	14.593	14.071
5/20/2009	2	0	17	14A	5	A	59.261	60.009	57.358	20.063	21.442	23.033	13.304	14.856	15.836
5/20/2009	2	0	18	14B	5	B	56.559	58.601	58.04	21.629	20.664	22.446	12.924	13.697	15.025
5/20/2009	2	0	19	9A	1	A	59.413	58.475	64.426	21.925	23.897	17.405	14.734	15.618	13.421

5/20/2009	2	0	20	i9B	1	B	57.809	57.471	57.727	22.405	23.266	22.805	14.503	15.094	15.191
5/20/2009	2	0	21	i67A	10	A	55.322	58.324	56.654	24.176	18.22	19.813	14.601	12.148	12.717
5/20/2009	2	0	22	i67B	10	B	56.396	53.627	55.631	20.511	22.923	21.579	13.871	14.041	14.245
5/21/2009	2	1	1	705	9	B	57.583	56.093	60.519	17.919	19.571	15.821	12.91	13.359	11.634
5/21/2009	2	1	2	686	1	B	57.061	56.019	57.763	18.907	21.254	20.603	12.909	14.854	15.25
5/21/2009	2	1	3	956	10	A	56.965	57.48	55.931	18.71	18.078	17.179	13.046	13.304	12.157
5/21/2009	2	1	4	431	3	B	56.122	54.668	57.745	18.357	20.46	18.445	12.798	16.069	13.327
5/21/2009	2	1	5	426	4	B	56.385	51.829	54.864	17.159	12.121	18.247	14.115	8.3595	13.007
5/21/2009	2	1	6	266	2	A	56.062	57.914	56.301	21.152	21.363	22.515	15.729	15.294	15.431
5/21/2009	2	1	7	998	2	B	56.248	60.005	54.58	19.04	18.759	20.247	13.047	13.197	13.418
5/21/2009	2	1	8	724	5	A	58.666	55.582	53.131	19.545	19.056	22.578	13.762	12.245	14.7
5/21/2009	2	1	9	270	9	A	56.393	54.997	57.168	18.483	19.522	20.606	13.334	13.724	14.084
5/21/2009	2	1	10	331	6	B	57.871	55.719	55.059	18.524	20.309	21.454	13.246	14.294	14.244
5/21/2009	2	1	11	245	5	B	53.437	58.936	59.459	22.382	17.172	16.71	15.999	11.817	12.04
5/21/2009	2	1	12	457	7	A	55.799	57.869	56.542	19.038	17.999	20.056	13.659	14.438	14.143
5/21/2009	2	1	13	924	7	B	58.099	57.75	60.466	19.558	18.992	17.963	14.273	14.255	14.048
5/21/2009	2	1	14	706	6	A	57.528	54.883	52.9	17.65	20.841	21.026	12.713	14.234	14.288
5/21/2009	2	1	15	622	0	B	58.165	56.548	56.035	19.205	17.576	19.41	13.836	13.097	14.664
5/21/2009	2	1	16	958	8	B	58.297	54.913	56.256	16.958	17.037	18.669	12.657	10.825	12.91
5/21/2009	2	1	17	30	0	A	54.94	59.539	57.458	21.427	17.5	17.921	14.436	12.198	12.433
5/21/2009	2	1	18	534	8	A	57.441	54.578	55.967	19.508	23.201	20.871	14.867	16.377	15.205
5/21/2009	2	1	19	168	3	A	54.518	56.945	54.857	19.785	18.925	16.606	14.009	14.522	11.471
5/21/2009	2	1	20	762	10	B	51.801	57.003	55.129	17.37	15.07	18.671	12.039	11.53	12.655
5/21/2009	2	1	21	505	1	A	58.645	62.172	55.817	19.519	17.989	21.734	14.254	12.972	15.344
5/21/2009	2	1	22	119	4	A	57.659	55.586	57.735	18.038	16.177	17.458	12.87	12.137	14.057
5/23/2009	2	3	1	251	5	B	58.246	57.001	56.043	14.791	13.91	15.284	12.394	11.141	12.181
5/23/2009	2	3	2	9	10	A	53.728	53.772	56.915	5.7021	7.056	7.2328	10.559	10.84	8.8387
5/23/2009	2	3	3	927	5	A	58.26	55.352	56.83	15.14	14.664	14.402	13.6	10.449	11.038
5/23/2009	2	3	4	313	8	B	54.81	59.161	57.174	6.989	6.7909	6.3308	10.255	12.321	11.415
5/23/2009	2	3	5	547	4	A	55.415	55.507	56.626	10.455	10.218	9.1266	13.322	12.846	9.8677
5/23/2009	2	3	6	976	9	A	54.065	54.399	56.409	14.631	14.505	14.438	10.267	11.43	12.11
5/23/2009	2	3	7	923	3	B	54.759	54.25	55.72	11.14	9.8721	10.676	10.445	10.142	13.676
5/23/2009	2	3	8	49	7	B	55.401	57.287	57.005	9.5019	10.593	10.64	11.967	12.436	12.554
5/23/2009	2	3	9	800	1	B	54.817	55.591	57.486	16.263	14.448	14.631	13.082	11.747	10.479
5/23/2009	2	3	10	641	3	A	59.002	54.861	56.318	9.0172	11.144	10.897	10.854	11.609	12.612
5/23/2009	2	3	11	763	6	B	53.44	54	55.288	14.226	14.863	15.78	10.401	12.403	12.682
5/23/2009	2	3	12	372	1	A	54.048	58.822	54.316	15.829	12.687	17.378	13.108	12.049	14.168

5/23/2009	2	3	13	256	4	B	53.186	57.369	54.773	10.341	8.837	11.105	13.149	11.815	13.248
5/23/2009	2	3	14	137	7	A	56.26	58.824	58.109	8.7037	8.5147	7.7938	10.636	12.88	12.336
5/23/2009	2	3	15	915	6	A	52.62	56.804	53.339	15.463	14.581	15.763	11.218	11.235	11.976
5/23/2009	2	3	16	665	10	B	57.624	57.459	57.656	6.0976	5.669	6.2541	11.017	11.532	11.466
5/23/2009	2	3	17	851	8	A	55.965	49.8	51.232	7.7666	8.5654	9.6518	10.351	9.4613	10.385
5/23/2009	2	3	18	247	2	A	54.782	53.957	52.333	10.941	13.18	10.883	10.438	12.545	10.586
5/23/2009	2	3	19	289	0	A	54.388	52.155	54.791	9.7679	10.505	9.5474	11.275	12.702	10.031
5/23/2009	2	3	20	292	2	B	54.066	42.411	54.775	11.378	7.4774	11.757	11.964	5.7501	11.952
5/23/2009	2	3	21	579	9	B	56.819	56.7	55.236	12.512	10.324	13.651	11.296	9.7748	12.758
5/23/2009	2	3	22	974	0	B	56.478	56.871	56.514	9.4774	9.4834	7.8064	13.186	12.697	9.4459
5/25/2009	2	5	1	535	2	A	59.845	57.157	57.545	5.5968	6.0619	5.9095	9.1636	9.2511	9.151
5/25/2009	2	5	2	286	4	B	59.185	59.206	61.06	7.9172	6.4734	7.1973	10.306	9.069	10.804
5/25/2009	2	5	3	43	4	A	62.11	56.021	61.09	5.8411	6.2024	6.681	8.7375	8.9629	11.922
5/25/2009	2	5	4	281	1	B	54.668	57.226	54.854	11.187	10.342	10.361	11.869	11.28	9.8115
5/25/2009	2	5	5	840	6	A	54.647	56.004	57.53	9.6421	10.465	9.0757	12.95	11.825	10.032
5/25/2009	2	5	6	20	8	A	59.391	59.184	58.66	6.4409	5.9258	6.4719	12.496	10.632	13.078
5/25/2009	2	5	7	422	0	B	57.169	58.747	58.286	7.0439	6.6603	6.5013	11.658	11.827	11.674
5/25/2009	2	5	8	257	5	B	54.702	55.325	53.124	8.7813	7.4876	10.439	10.672	9.9973	12.948
5/25/2009	2	5	9	787	9	B	55.023	56.767	58.213	5.3335	6.169	5.6551	10.261	12.211	11.002
5/25/2009	2	5	10	313	1	A	54.141	57.474	56.846	10.544	9.4537	10.454	10.637	9.9875	13.201
5/25/2009	2	5	11	184	3	B	56.241	56.608	55.962	8.4953	6.8231	8.2212	10.717	11.426	13.685
5/25/2009	2	5	12	41	9	A	54.096	57.681	57.826	6.2384	5.2863	5.6992	10.763	9.7119	11.835
5/25/2009	2	5	13	788	7	A	56.023	57.782	59.995	5.1512	7.0772	5.8793	9.3562	12.808	10.675
5/25/2009	2	5	14	170	3	A	54.531	55.644	54.524	10.048	7.6511	7.4123	12.751	13.913	9.5908
5/25/2009	2	5	15	332	0	A	56.045	55.777	57.985	7.7919	6.7571	6.6011	12.306	12.429	12.582
5/25/2009	2	5	16	591	2	B	57.911	56.513	57.262	6.7657	6.4391	7.4185	11.927	11.23	12.74
5/25/2009	2	5	17	638	8	B	59.437	58.638	56.13	5.7426	5.6347	7.0647	11.448	11.713	13.481
5/25/2009	2	5	18	109	7	B	56.955	59.501	60.737	7.2369	5.7423	6.7087	12.831	10.722	13.823
5/25/2009	2	5	19	395	6	B	56.163	61.4	55.572	6.5434	5.971	6.3879	12.082	12.443	12.026
5/25/2009	2	5	20	119	10	A	55.066	56.51	50.815	5.8265	4.984	4.1691	12.716	11.547	8.1738
5/25/2009	2	5	21	168	5	A	54.545	58.634	52.662	10.132	7.1968	9.3757	12.429	12.874	11.647
5/25/2009	2	5	22	480	10	B	54.176	56.043	53.731	6.788	6.0026	5.3218	12.727	13.81	11.168
6/7/2009	3	0	1	74	5	A	56.344	56.976	55.585	24.195	23.48	24.117	13.944	13.112	13.97
6/7/2009	3	0	2	74	5	B	58.141	59.6	58.167	23.052	19.475	22.193	13.276	10.363	13.239
6/7/2009	3	0	3	397	8	A	57.917	58.626	55.565	23.897	22.12	25.584	14.493	12.249	14.781
6/7/2009	3	0	4	397	8	B	58.701	57.846	58.619	21.685	22.713	23.401	12.05	12.832	14.29
6/7/2009	3	0	5	261	10	A	53.668	53.399	56.128	23.925	24.881	23.65	14.789	15.825	15.04

6/7/2009	3	0	6	261	10	B	54.57	56.081	55.279	22.184	22.408	20.953	12.663	13.341	12.13
6/7/2009	3	0	7	726	3	A	53.94	56.067	53.747	26.408	23.428	26.313	15.615	13.74	16.334
6/7/2009	3	0	8	726	3	B	53.765	56.106	54.895	26.306	24.802	25.186	16.461	14.607	14.954
6/7/2009	3	0	9	743	4	A	54.384	55.787	54.164	24.581	20.846	25.811	16.044	12.517	17.209
6/7/2009	3	0	10	743	4	B	54.472	56.402	53.826	23.349	20.051	24.62	15.025	12.953	15.848
6/7/2009	3	0	11	478	2	A	57.425	55.253	54.311	21.621	23.108	26.259	12.535	13.278	17.126
6/7/2009	3	0	12	478	2	B	57.059	56.489	53.955	23.988	25.947	28.005	14.455	15.902	16.928
6/7/2009	3	0	13	331	0	A	58.239	55.188	60.296	22.551	25.591	19.424	13.87	15.671	11.994
6/7/2009	3	0	14	331	0	B	57.759	55.548	55.73	22.856	25.973	23.565	14.201	15.85	14.574
6/7/2009	3	0	15	627	7	A	58.666	56.946	54.603	23.317	25.243	28.432	15.847	15.667	17.716
6/7/2009	3	0	16	627	7	B	59.703	59.358	55.863	22.806	22.612	23.398	14.391	13.568	13.843
6/7/2009	3	0	17	212	6	A	55.678	56.152	52.68	24.514	21.931	25.682	14.634	12.341	15.422
6/7/2009	3	0	18	212	6	B	54.42	56.816	54.967	25.73	22.365	24.337	15.88	13.81	14.209
6/7/2009	3	0	19	967	9	A	52.777	49.898	55.043	25.189	27.285	21.961	15.131	16.364	13.062
6/7/2009	3	0	20	967	9	B	53.083	52.671	53.289	24.78	25.138	26.242	14.318	15.147	16.569
6/7/2009	3	0	21	26	1	A	54.207	53.463	53.591	27.259	23.739	26.224	16.978	13.152	15.651
6/7/2009	3	0	22	26	1	B	54.476	55.822	55.861	26.625	24.546	25.783	16.172	14.406	15.033
6/8/2009	3	1	1	980	2	A	55.291	53.898	53.342	19.498	19.946	21.327	13.042	13.021	14.075
6/8/2009	3	1	2	324	9	A	49.392	51.029	49.054	22.1	21.657	22.492	13.895	13.713	14.64
6/8/2009	3	1	3	885	10	B	50.467	50.203	51.531	20.141	19.517	19.482	13.77	12.637	12.496
6/8/2009	3	1	4	110	5	B	53.07	53.834	52.116	21.37	19.001	19.768	14.394	12.658	11.67
6/8/2009	3	1	5	396	6	B	53.887	50.089	52.751	18.996	19.584	20.999	12.337	11.978	14.24
6/8/2009	3	1	6	586	8	A	54.477	54.062	53.127	20.173	18.664	21.762	13.976	11.876	14.53
6/8/2009	3	1	7	956	7	A	52.888	53.291	57.829	21.246	19.901	17.915	14.634	12.955	12.632
6/8/2009	3	1	8	712	0	B	56.569	54.765	54.45	20.329	18.975	18.994	14.727	12.128	11.953
6/8/2009	3	1	9	732	1	A	51.775	52.265	51.568	22.057	22.663	22.636	13.609	14.76	13.9
6/8/2009	3	1	10	743	9	B	51.472	50.007	49.295	21.148	23.277	23.369	13.957	14.834	14.828
6/8/2009	3	1	11	726	6	A	55.24	51.653	55.037	18.715	22.102	19.092	11.515	14.291	12.604
6/8/2009	3	1	12	999	4	A	52.969	53.789	52.904	17.606	15.595	17.695	12.589	11.266	13.075
6/8/2009	3	1	13	974	8	B	54.392	50.864	53.841	21.074	18.91	20.269	14.772	11.911	14.152
6/8/2009	3	1	14	34	4	B	53.426	53.765	52.886	18.757	18.385	17.233	13.946	13.72	12.347
6/8/2009	3	1	15	968	10	A	48.052	52.439	49.218	21.154	19.431	18.241	13.106	13.034	12.493
6/8/2009	3	1	16	152	0	A	56.138	55.058	54.458	17.91	18.776	20.701	12.556	12.281	14.107
6/8/2009	3	1	17	32	1	B	54.142	53.607	52.658	24.403	19.844	21.992	16.074	11.608	13.48
6/8/2009	3	1	18	674	3	B	52.524	51.367	51.427	20.228	22.282	20.784	13.679	15.46	14.39
6/8/2009	3	1	19	823	2	B	53.039	51.771	50.791	21.877	19.676	20.372	15.319	13.589	12.567
6/8/2009	3	1	20	942	7	B	54.344	54.525	53.819	21.109	19.744	20.685	15.147	13.066	14.285

6/8/2009	3	1	21	274	5	A	54.733	52.713	53.71	17.949	19.726	18.106	11.771	12.447	11.391
6/8/2009	3	1	22	278	3	A	51.581	51.525	53.555	21.191	23.134	20.909	14.387	15.262	15.121
6/10/2009	3	3	1	870	9	B	49.82	50.961	48.764	14.169	15.542	16.37	10.235	12.978	12.511
6/10/2009	3	3	2	387	4	B	51.89	54.437	52.587	12.99	14.31	13.585	11.195	13.251	11.703
6/10/2009	3	3	3	203	8	A	50.619	55.048	53.318	16.022	14.688	17.865	12.058	13.384	13.406
6/10/2009	3	3	4	813	4	A	53.334	52.437	53.104	14.139	14.799	13.779	11.268	12.377	10.217
6/10/2009	3	3	5	99	1	A	49.542	53.989	51.346	15.955	13.752	16.894	11.894	9.8468	14.261
6/10/2009	3	3	6	496	3	B	49.366	53.639	52.123	14.02	11.992	13.49	11.835	10.245	12.916
6/10/2009	3	3	7	73	1	B	51.07	51.199	48.483	17.66	16.529	16.403	13.643	12.087	10.985
6/10/2009	3	3	8	142	6	A	52.671	51.571	51.709	16.423	13.587	13.173	12.952	9.7953	10.305
6/10/2009	3	3	9	890	2	A	51.681	52.713	51.909	16.025	18.547	17.21	11.918	14.427	13.462
6/10/2009	3	3	10	421	5	B	51.245	54.28	52.246	16.919	14.412	14.332	12.322	11.712	10.181
6/10/2009	3	3	11	183	0	A	54.234	54.668	54.077	17.044	16.101	15.913	14.079	13.007	12.894
6/10/2009	3	3	12	110	6	B	50.319	53.085	49.016	14.274	12.783	15.691	10.634	9.4745	11.557
6/10/2009	3	3	13	703	8	B	49.562	52.15	54.844	16.76	16.827	15.647	13.278	14.197	12.934
6/10/2009	3	3	14	339	7	A	53.968	55.101	53.751	15.838	16.337	16.766	11.731	13.244	12.134
6/10/2009	3	3	15	367	0	B	54.328	52.067	52.753	16.127	16.041	16.153	13.384	10.96	12.84
6/10/2009	3	3	16	857	3	A	49.468	50.65	53.144	15.866	15.215	13.46	12.125	13.077	11.02
6/10/2009	3	3	17	254	7	B	54.679	50.789	54.93	14.958	17.828	15.688	10.911	13.48	12.425
6/10/2009	3	3	18	642	5	A	51.922	53.785	51.589	16.183	14.516	15.307	12.953	9.4359	11.136
6/10/2009	3	3	19	311	9	A	52.29	53.863	49.981	12.778	11.882	13.94	9.918	9.8709	10.816
6/10/2009	3	3	20	478	2	B	53.601	53.465	54.621	19.02	16.557	18.737	14.077	12.435	14.786
6/10/2009	3	3	21	555	10	A	51.219	50.967	51.036	14.182	14.983	15.013	11.701	11.792	11.815
6/10/2009	3	3	22	716	10	B	50.754	50.871	50.151	13.891	13.291	12.772	11.723	9.6039	10.624
6/12/2009	3	5	1	636	2	A	53.629	53.779	59.642	11.749	8.6924	8.7158	10.378	12.032	9.3768
6/12/2009	3	5	2	639	10	A	48.818	51.553	44.94	9.6848	10.127	13.289	10.161	10.456	13.181
6/12/2009	3	5	3	72	5	B	55.593	52.374	53.783	7.4546	7.5015	6.1865	12.416	11.668	9.5919
6/12/2009	3	5	4	251	4	B	53.078	53.494	54.446	11.017	10.446	10.005	12.634	10.283	11.617
6/12/2009	3	5	5	43	6	B	49.472	50.408	49.148	10.107	8.9913	11.529	9.8089	8.0384	11.104
6/12/2009	3	5	6	467	1	A	52.381	54.636	54.971	10.244	9.1545	10.045	10.86	8.7815	10.156
6/12/2009	3	5	7	858	9	B	48.464	49.078	50.458	11.6	12.484	9.5236	11.749	12.673	9.6558
6/12/2009	3	5	8	197	9	A	50.385	47.554	50.214	10.75	12.307	11.215	11.949	12.637	12.575
6/12/2009	3	5	9	390	0	A	53.463	56.796	53.977	11.957	9.5998	8.3655	12.147	9.7185	9.6319
6/12/2009	3	5	10	482	1	B	47.745	48.597	55.165	13.738	13.704	9.2913	11.681	12.898	9.4473
6/12/2009	3	5	11	917	8	B	50.799	57.161	53.087	11.949	9.1646	10.199	12.338	10.158	11.491
6/12/2009	3	5	12	277	3	A	53.497	52.3	51.047	8.7713	9.3254	11.196	10.625	9.3487	12.555
6/12/2009	3	5	13	320	2	B	54.567	52.742	55.116	11.915	13.098	12.98	9.5404	10.268	10.608

6/12/2009	3	5	14	372	7	B	54.617	56.247	55.635	11.966	10.86	9.4296	12.06	10.996	8.4373
6/12/2009	3	5	15	239	6	A	50.201	49.243	51.985	10.736	8.9248	10.106	11.406	8.5304	10.291
6/12/2009	3	5	16	480	7	A	52.617	55.776	53.778	11.724	6.7843	10.722	14.13	8.1083	11.898
6/12/2009	3	5	17	54	0	B	51.51	54.737	56.116	8.6214	7.5153	7.7383	12.652	12.288	12.021
6/12/2009	3	5	18	442	5	A	54.649	51.77	54.302	9.3766	9.8692	9.147	9.5725	13.291	9.6288
6/12/2009	3	5	19	139	4	A	52.367	51.096	52.031	10.353	10.388	11.458	12.156	11.332	11.854
6/12/2009	3	5	20	208	10	B	49.327	52.845	52.038	8.3473	8.2172	8.93	10.45	12.832	10.638
6/12/2009	3	5	21	672	3	B	54.239	52.881	52.378	9.3429	9.1339	10.264	12.124	10.016	12.449
6/12/2009	3	5	22	53	8	A	54.702	53.409	55.374	9.8462	10.342	10.512	11.299	12.035	12.427

SUBJECTIVE COLOR

Date	Batch	Day	Order	Panelist	ID	Trt	Ptty	LeanC	Pdis	PBr	BrDis	PGr	GrDis	Specks	Comments
5/14/2009	1	0	1	Briana	638	4	A	4	0	0	0	0	0	3	
5/14/2009	1	0	2	Briana	637	4	B	3	0	0	0	0	0	3	
5/14/2009	1	0	3	Briana	679	7	A	.	.	.	.	.	.	.	
5/14/2009	1	0	4	Briana	680	7	B	.	.	.	.	.	.	.	
5/14/2009	1	0	7	Briana	517	5	A	3	0	0	0	0	0	5	
5/14/2009	1	0	8	Briana	518	5	B	4	0	0	0	0	0	7	speckles very light
5/14/2009	1	0	9	Briana	927	9	A	4	0	0	0	0	0	11	
5/14/2009	1	0	10	Briana	928	9	B	3	0	0	0	0	0	9	
5/14/2009	1	0	11	Briana	642	6	A	4	0	0	0	0	0	10	
5/14/2009	1	0	12	Briana	644	6	B	4	0	0	0	0	0	12	
5/14/2009	1	0	13	Briana	742	0	A	4	0	0	0	0	0	0	
5/14/2009	1	0	14	Briana	741	0	B	3	0	0	0	0	0	3	
5/14/2009	1	0	15	Briana	156	2	A	3	0	0	0	0	0	3	
5/14/2009	1	0	16	Briana	157	2	B	3	0	0	0	0	0	0	
5/14/2009	1	0	17	Briana	596	3	A	3	0	0	0	0	0	0	
5/14/2009	1	0	18	Briana	597	3	B	4	0	0	0	0	0	1	
5/14/2009	1	0	19	Briana	173	10	A	3	0	0	0	0	0	26	
5/14/2009	1	0	20	Briana	174	10	B	3	0	0	0	0	0	29	
5/14/2009	1	0	21	Briana	416	8	A	3	0	0	0	0	0	0	
5/14/2009	1	0	22	Briana	417	8	B	3	0	0	0	0	0	0	
5/14/2009	1	0	1	Shannon	638	4	A	4	0	0	0	0	0	1	
5/14/2009	1	0	2	Shannon	637	4	B	4	0	0	0	0	0	4	
5/14/2009	1	0	3	Shannon	679	7	A	4	0	0	0	0	0	0	
5/14/2009	1	0	4	Shannon	680	7	B	4	0	0	0	0	0	0	
5/14/2009	1	0	5	Shannon	107	1	A	3	0	0	0	0	0	0	
5/14/2009	1	0	6	Shannon	108	1	B	4	0	0	0	0	0	0	
5/14/2009	1	0	7	Shannon	517	5	A	4	0	0	0	0	0	15	
5/14/2009	1	0	8	Shannon	518	5	B	4	0	0	0	0	0	9	
5/14/2009	1	0	9	Shannon	927	9	A	4	0	0	0	0	0	26	
5/14/2009	1	0	10	Shannon	928	9	B	4	0	0	0	0	0	21	

5/14/2009	1	0	11	Shannon	642	6	A	4	0	0	0	0	0	20
5/14/2009	1	0	12	Shannon	644	6	B	4	0	0	0	0	0	10
5/14/2009	1	0	13	Shannon	742	0	A	3	0	0	0	0	0	0
5/14/2009	1	0	14	Shannon	741	0	B	3	0	0	0	0	0	0
5/14/2009	1	0	15	Shannon	156	2	A	3	0	0	0	0	0	0
5/14/2009	1	0	16	Shannon	157	2	B	4	0	0	0	0	0	0
5/14/2009	1	0	17	Shannon	596	3	A	3	0	0	0	0	0	1
5/14/2009	1	0	18	Shannon	597	3	B	4	0	0	0	0	0	0
5/14/2009	1	0	19	Shannon	173	10	A	4	0	0	0	0	0	50
5/14/2009	1	0	20	Shannon	174	10	B	4	0	0	0	0	0	37
5/14/2009	1	0	21	Shannon	416	8	A	3	0	0	0	0	0	0
5/14/2009	1	0	22	Shannon	417	8	B	3	0	0	0	0	0	0
5/14/2009	1	0	5	Sonia	107	1	A	3	0	0	0	0	0	0
5/14/2009	1	0	6	Sonia	108	1	B	3	0	0	0	0	0	0
5/14/2009	1	0	1	Tabitha	638	4	A	4	0	0	0	0	0	2
5/14/2009	1	0	2	Tabitha	637	4	B	4	0	0	0	0	0	5
5/14/2009	1	0	3	Tabitha	679	7	A	4	0	0	0	0	0	1
5/14/2009	1	0	4	Tabitha	680	7	B	4	0	0	0	0	0	1
5/14/2009	1	0	5	Tabitha	107	1	A	4	0	0	0	0	0	0
5/14/2009	1	0	6	Tabitha	108	1	B	4	0	0	0	0	0	0
5/14/2009	1	0	7	Tabitha	517	5	A	3	0	0	0	0	0	13
5/14/2009	1	0	8	Tabitha	518	5	B	4	0	0	0	0	0	11
5/14/2009	1	0	9	Tabitha	927	9	A	4	0	0	0	0	0	22
5/14/2009	1	0	10	Tabitha	928	9	B	4	0	0	0	0	0	17
5/14/2009	1	0	11	Tabitha	642	6	A	4	0	0	0	0	0	23
5/14/2009	1	0	12	Tabitha	644	6	B	4	0	0	0	0	0	22
5/14/2009	1	0	13	Tabitha	742	0	A	4	0	0	0	0	0	0
5/14/2009	1	0	14	Tabitha	741	0	B	4	0	0	0	0	0	0
5/14/2009	1	0	15	Tabitha	156	2	A	3	0	0	0	0	0	0
5/14/2009	1	0	16	Tabitha	157	2	B	3	0	0	0	0	0	0
5/14/2009	1	0	17	Tabitha	596	3	A	4	0	0	0	0	0	0
5/14/2009	1	0	18	Tabitha	597	3	B	3	0	0	0	0	0	0
5/14/2009	1	0	19	Tabitha	173	10	A	4	0	0	0	0	0	47

5/14/2009	1	0	20	Tabitha	174	10	B	4	0	0	0	0	0	28
5/14/2009	1	0	21	Tabitha	416	8	A	4	0	0	0	0	0	0
5/14/2009	1	0	22	Tabitha	417	8	B	4	0	0	0	0	0	0
5/15/2009	1	1	1	Briana	743	0	A	3	50	50	3	0	0	0
5/15/2009	1	1	2	Briana	534	7	A	3	10	10	3	0	0	1
5/15/2009	1	1	3	Briana	273	10	B	3	40	40	3	0	0	26
5/15/2009	1	1	4	Briana	426	5	B	3	10	10	3	0	0	3
5/15/2009	1	1	5	Briana	550	10	A	4	50	50	3	0	0	35
5/15/2009	1	1	6	Briana	492	2	B	3	0	0	0	0	0	0
5/15/2009	1	1	7	Briana	334	0	B	3	20	20	3	0	0	0
5/15/2009	1	1	8	Briana	808	3	B	3	0	0	0	0	0	0
5/15/2009	1	1	9	Briana	781	8	A	3	0	0	0	0	0	0
5/15/2009	1	1	10	Briana	745	6	B	3	0	0	0	0	0	13
5/15/2009	1	1	11	Briana	541	8	B	3	0	0	0	0	0	0
5/15/2009	1	1	12	Briana	154	6	A	3	10	10	3	0	0	17
5/15/2009	1	1	13	Briana	327	4	B	3	40	40	3	0	0	6
5/15/2009	1	1	14	Briana	628	7	B	4	0	0	0	0	0	0
5/15/2009	1	1	15	Briana	712	9	A	3	10	10	5	0	0	13
5/15/2009	1	1	16	Briana	105	4	A	3	20	20	3	0	0	7
5/15/2009	1	1	17	Briana	700	1	B	3	10	10	4	0	0	0
5/15/2009	1	1	18	Briana	905	3	A	3	10	10	3	0	0	5
5/15/2009	1	1	19	Briana	561	2	A	3	0	0	0	0	0	2
5/15/2009	1	1	20	Briana	432	1	A	4	10	10	3	0	0	5
5/15/2009	1	1	21	Briana	631	9	B	4	30	30	3	0	0	16
5/15/2009	1	1	22	Briana	139	5	A	3	10	10	4	0	0	4
5/15/2009	1	1	1	Shannon	743	0	A	4	10	10	2	0	0	0
5/15/2009	1	1	2	Shannon	534	7	A	4	20	20	3	0	0	0
5/15/2009	1	1	3	Shannon	273	10	B	4	30	30	4	0	0	27
5/15/2009	1	1	4	Shannon	426	5	B	4	0	0	0	0	0	6
5/15/2009	1	1	5	Shannon	550	10	A	4	40	40	3	0	0	26
5/15/2009	1	1	6	Shannon	492	2	B	4	10	10	2	0	0	0
5/15/2009	1	1	7	Shannon	334	0	B	4	20	20	3	0	0	0
5/15/2009	1	1	8	Shannon	808	3	B	3	0	0	0	0	0	0

5/15/2009	1	1	9	Shannon	781	8	A	4	0	0	0	0	0	0	
5/15/2009	1	1	10	Shannon	745	6	B	4	30	30	3	0	0	10	
5/15/2009	1	1	11	Shannon	541	8	B	4	10	10	2	0	0	0	
5/15/2009	1	1	12	Shannon	154	6	A	4	20	20	2	0	0	13	
5/15/2009	1	1	13	Shannon	327	4	B	4	30	30	2	0	0	4	
5/15/2009	1	1	14	Shannon	628	7	B	4	0	0	0	0	0	1	
5/15/2009	1	1	15	Shannon	712	9	A	4	20	20	3	0	0	16	
5/15/2009	1	1	16	Shannon	105	4	A	4	20	20	3	0	0	0	
5/15/2009	1	1	17	Shannon	700	1	B	4	20	20	3	0	0	0	
5/15/2009	1	1	18	Shannon	905	3	A	4	0	0	0	0	0	0	
5/15/2009	1	1	19	Shannon	561	2	A	4	0	0	0	0	0	0	
5/15/2009	1	1	20	Shannon	432	1	A	4	10	10	3	0	0	0	Some darker brown#3 spots
5/15/2009	1	1	21	Shannon	631	9	B	4	20	20	3	0	0	12	1 sm brown spot #5
5/15/2009	1	1	22	Shannon	139	5	A	4	10	10	3	0	0	3	
5/15/2009	1	1	1	Tabitha	743	0	A	3	0	0	0	0	0	0	
5/15/2009	1	1	2	Tabitha	534	7	A	4	0	0	0	0	0	0	
5/15/2009	1	1	3	Tabitha	273	10	B	4	10	10	3	0	0	48	
5/15/2009	1	1	4	Tabitha	426	5	B	4	10	10	2	0	0	9	
5/15/2009	1	1	5	Tabitha	550	10	A	4	10	10	3	0	0	41	
5/15/2009	1	1	6	Tabitha	492	2	B	4	10	10	2	0	0	0	
5/15/2009	1	1	7	Tabitha	334	0	B	4	10	10	4	0	0	0	
5/15/2009	1	1	8	Tabitha	808	3	B	4	10	10	2	0	0	4	
5/15/2009	1	1	9	Tabitha	781	8	A	4	0	0	0	0	0	0	
5/15/2009	1	1	10	Tabitha	745	6	B	4	30	30	4	0	0	24	
5/15/2009	1	1	11	Tabitha	541	8	B	4	0	0	0	0	0	1	
5/15/2009	1	1	12	Tabitha	154	6	A	4	10	10	2	0	0	10	
5/15/2009	1	1	13	Tabitha	327	4	B	4	10	10	2	0	0	2	
5/15/2009	1	1	14	Tabitha	628	7	B	4	0	0	0	0	0	0	
5/15/2009	1	1	15	Tabitha	712	9	A	4	10	10	2	0	0	22	
5/15/2009	1	1	16	Tabitha	105	4	A	4	10	10	1	0	0	5	
5/15/2009	1	1	17	Tabitha	700	1	B	4	10	10	2	0	0	0	
5/15/2009	1	1	18	Tabitha	905	3	A	4	0	0	0	0	0	0	
5/15/2009	1	1	19	Tabitha	561	2	A	4	0	0	0	0	0	0	

5/15/2009	1	1	20	Tabitha	432	1	A	4	0	0	0	0	0	0
5/15/2009	1	1	21	Tabitha	631	9	B	4	0	0	0	0	0	20
5/15/2009	1	1	22	Tabitha	139	5	A	4	10	10	3	0	0	6
5/17/2009	1	3	1	Shannon	557	4	A	4	70	70	4	0	0	3
5/17/2009	1	3	2	Shannon	317	2	A	4	10	10	2	0	0	0
5/17/2009	1	3	3	Shannon	452	10	B	4	40	40	4	0	0	17
5/17/2009	1	3	4	Shannon	659	1	A	4	30	30	2	0	0	0
5/17/2009	1	3	5	Shannon	322	6	B	3	20	20	4	0	0	10
5/17/2009	1	3	6	Shannon	687	10	A	4	70	70	4	0	0	21
5/17/2009	1	3	7	Shannon	974	2	B	4	10	10	2	0	0	0
5/17/2009	1	3	8	Shannon	764	8	A	4	10	10	2	0	0	0
5/17/2009	1	3	9	Shannon	629	9	B	4	40	40	3	0	0	10
5/17/2009	1	3	10	Shannon	833	0	B	4	30	30	3	0	0	0
5/17/2009	1	3	11	Shannon	501	5	A	4	10	10	4	0	0	6
5/17/2009	1	3	12	Shannon	342	7	B	4	20	20	2	0	0	0
5/17/2009	1	3	13	Shannon	350	6	A	4	40	40	4	0	0	10
5/17/2009	1	3	14	Shannon	641	7	A	4	0	0	0	0	0	0
5/17/2009	1	3	15	Shannon	111	5	B	4	30	30	2	0	0	6
5/17/2009	1	3	16	Shannon	250	8	B	4	10	10	2	0	0	0
5/17/2009	1	3	17	Shannon	529	3	A	1	40	40	3	0	0	0
5/17/2009	1	3	18	Shannon	507	3	B	4	50	50	2	0	0	0
5/17/2009	1	3	19	Shannon	427	4	B	1	80	80	4	0	0	1
5/17/2009	1	3	20	Shannon	425	1	B	4	30	30	4	0	0	0
5/17/2009	1	3	21	Shannon	860	9	A	4	40	40	4	0	0	22
5/17/2009	1	3	22	Shannon	100	0	A	3	20	20	3	0	0	0
5/17/2009	1	3	1	Sonia	557	4	A	6	70	70	3	0	0	3
5/17/2009	1	3	2	Sonia	317	2	A	5	60	60	2	0	0	1
5/17/2009	1	3	3	Sonia	452	10	B	4	30	30	3	0	0	28
5/17/2009	1	3	4	Sonia	659	1	A	4	50	50	2	0	0	0
5/17/2009	1	3	5	Sonia	322	6	B	4	30	30	3	0	0	13
5/17/2009	1	3	6	Sonia	687	10	A	5	30	30	3	0	0	22
5/17/2009	1	3	7	Sonia	974	2	B	4	20	20	2	0	0	0
5/17/2009	1	3	8	Sonia	764	8	A	4	20	20	2	0	0	0

5/17/2009	1	3	9	Sonia	629	9	B	4	20	20	2	0	0	21	
5/17/2009	1	3	10	Sonia	833	0	B	4	20	20	2	0	0	0	
5/17/2009	1	3	11	Sonia	501	5	A	4	20	20	2	0	0	0	
5/17/2009	1	3	12	Sonia	342	7	B	4	20	20	2	0	0	0	
5/17/2009	1	3	13	Sonia	350	6	A	4	20	20	3	0	0	16	
5/17/2009	1	3	14	Sonia	641	7	A	4	20	20	2	0	0	0	
5/17/2009	1	3	15	Sonia	111	5	B	4	20	20	3	0	0	9	
5/17/2009	1	3	16	Sonia	250	8	B	4	20	20	2	0	0	0	A few # 4 spots
5/17/2009	1	3	17	Sonia	529	3	A	4	30	30	2	0	0	3	
5/17/2009	1	3	18	Sonia	507	3	B	4	20	20	2	0	0	3	
5/17/2009	1	3	19	Sonia	427	4	B	4	20	20	3	0	0	0	
5/17/2009	1	3	20	Sonia	425	1	B	4	20	20	2	0	0	0	
5/17/2009	1	3	21	Sonia	860	9	A	4	20	20	3	0	0	8	
5/17/2009	1	3	22	Sonia	100	0	A	4	20	20	2	0	0	0	
5/17/2009	1	3	1	Tabitha	557	4	A	8	30	30	3	0	0	3	
5/17/2009	1	3	2	Tabitha	317	2	A	4	30	30	2	0	0	0	
5/17/2009	1	3	3	Tabitha	452	10	B	4	20	20	4	0	0	65	
5/17/2009	1	3	4	Tabitha	659	1	A	4	10	10	2	0	0	0	
5/17/2009	1	3	5	Tabitha	322	6	B	4	10	10	4	0	0	29	
5/17/2009	1	3	6	Tabitha	687	10	A	4	30	30	4	0	0	41	
5/17/2009	1	3	7	Tabitha	974	2	B	1	50	50	2	0	0	0	
5/17/2009	1	3	8	Tabitha	764	8	A	4	30	30	2	0	0	1	
5/17/2009	1	3	9	Tabitha	629	9	B	4	10	10	3	0	0	32	
5/17/2009	1	3	10	Tabitha	833	0	B	4	20	20	2	0	0	0	
5/17/2009	1	3	11	Tabitha	501	5	A	4	10	10	4	0	0	12	
5/17/2009	1	3	12	Tabitha	342	7	B	4	30	30	2	0	0	0	
5/17/2009	1	3	13	Tabitha	350	6	A	1	30	30	4	0	0	17	
5/17/2009	1	3	14	Tabitha	641	7	A	4	10	10	1	0	0	0	
5/17/2009	1	3	15	Tabitha	111	5	B	4	30	30	1	0	0	9	
5/17/2009	1	3	16	Tabitha	250	8	B	1	10	10	1	0	0	0	
5/17/2009	1	3	17	Tabitha	529	3	A	1	50	50	4	0	0	1	
5/17/2009	1	3	18	Tabitha	507	3	B	4	40	40	3	0	0	1	
5/17/2009	1	3	19	Tabitha	427	4	B	1	60	60	3	0	0	0	

5/17/2009	1	3	20	Tabitha	425	1	B	4	20	20	5	0	0	0
5/17/2009	1	3	21	Tabitha	860	9	A	4	60	60	3	0	0	18
5/17/2009	1	3	22	Tabitha	100	0	A	3	10	10	1	0	0	2
5/19/2009	1	5	1	Shannon	635	3	A	8	90	90	4	0	0	0
5/19/2009	1	5	2	Shannon	916	1	A	1	80	70	3	10	2	0
5/19/2009	1	5	3	Shannon	970	9	B	4	80	80	4	0	0	13
5/19/2009	1	5	4	Shannon	313	3	B	0	100	100	4	0	0	0
5/19/2009	1	5	5	Shannon	885	2	B	0	100	100	4	0	0	0
5/19/2009	1	5	6	Shannon	551	5	B	4	90	90	4	0	0	8
5/19/2009	1	5	7	Shannon	232	8	B	4	90	80	4	10	3	0
5/19/2009	1	5	8	Shannon	308	4	B	0	100	100	4	0	0	0
5/19/2009	1	5	9	Shannon	786	7	B	0	100	100	3	0	0	0
5/19/2009	1	5	10	Shannon	800	6	B	4	80	70	4	10	2	6
5/19/2009	1	5	11	Shannon	806	9	A	4	40	40	4	0	0	8
5/19/2009	1	5	12	Shannon	626	0	B	8	70	60	1	10	2	0
5/19/2009	1	5	13	Shannon	558	6	A	4	80	80	4	0	0	4
5/19/2009	1	5	14	Shannon	647	2	A	1	60	60	2	0	0	0
5/19/2009	1	5	15	Shannon	403	7	A	4	20	20	4	0	0	0
5/19/2009	1	5	16	Shannon	673	0	A	4	80	80	4	0	0	0
5/19/2009	1	5	17	Shannon	549	10	B	8	50	50	4	0	0	0
5/19/2009	1	5	18	Shannon	915	5	A	1	90	90	3	0	0	2
5/19/2009	1	5	19	Shannon	292	1	B	1	80	60	4	20	2	0
5/19/2009	1	5	20	Shannon	603	8	A	0	100	100	4	0	0	0
5/19/2009	1	5	21	Shannon	630	10	A	4	30	30	4	0	0	22
5/19/2009	1	5	22	Shannon	235	4	A	1	80	80	4	0	0	2
5/19/2009	1	5	1	Sonia	635	3	A	0	100	80	3	20	2	0
5/19/2009	1	5	2	Sonia	916	1	A	4	80	60	3	20	2	0
5/19/2009	1	5	3	Sonia	970	9	B	4	90	80	3	10	2	20
5/19/2009	1	5	4	Sonia	313	3	B	4	90	70	3	20	2	0
5/19/2009	1	5	5	Sonia	885	2	B	0	100	80	3	20	2	0
5/19/2009	1	5	6	Sonia	551	5	B	0	100	80	3	20	1	0
5/19/2009	1	5	7	Sonia	232	8	B	4	90	70	3	20	2	0
5/19/2009	1	5	8	Sonia	308	4	B	0	100	100	3	0	0	0

5/19/2009	1	5	9	Sonia	786	7	B	4	80	80	3	0	0	0
5/19/2009	1	5	10	Sonia	800	6	B	0	100	70	3	30	2	7
5/19/2009	1	5	11	Sonia	806	9	A	4	60	60	3	0	0	18
5/19/2009	1	5	12	Sonia	626	0	B	0	100	80	3	20	2	0
5/19/2009	1	5	13	Sonia	558	6	A	5	80	80	3	0	0	14
5/19/2009	1	5	14	Sonia	647	2	A	4	90	80	3	10	2	0
5/19/2009	1	5	15	Sonia	403	7	A	4	70	70	3	0	0	0
5/19/2009	1	5	16	Sonia	673	0	A	4	80	60	3	20	1	0
5/19/2009	1	5	17	Sonia	549	10	B	5	40	40	3	0	0	28
5/19/2009	1	5	18	Sonia	915	5	A	0	100	100	3	0	0	9
5/19/2009	1	5	19	Sonia	292	1	B	4	90	70	3	20	2	0
5/19/2009	1	5	20	Sonia	603	8	A	4	90	80	3	10	1	0
5/19/2009	1	5	21	Sonia	630	10	A	4	50	50	3	0	0	33
5/19/2009	1	5	22	Sonia	235	4	A	0	100	90	3	10	2	0
5/19/2009	1	5	1	Tabitha	635	3	A	0	100	100	4	0	0	4
5/19/2009	1	5	2	Tabitha	916	1	A	0	100	80	3	20	2	0
5/19/2009	1	5	3	Tabitha	970	9	B	4	90	90	3	0	0	28
5/19/2009	1	5	4	Tabitha	313	3	B	0	100	100	4	0	0	0
5/19/2009	1	5	5	Tabitha	885	2	B	0	100	80	3	20	2	0
5/19/2009	1	5	6	Tabitha	551	5	B	0	100	100	3.5	0	0	7
5/19/2009	1	5	7	Tabitha	232	8	B	0	100	70	3	30	2	2
5/19/2009	1	5	8	Tabitha	308	4	B	0	100	100	4	0	0	5
5/19/2009	1	5	9	Tabitha	786	7	B	4	90	90	3.5	0	0	1
5/19/2009	1	5	10	Tabitha	800	6	B	0	100	80	3	20	2	14
5/19/2009	1	5	11	Tabitha	806	9	A	4	70	70	3	0	0	30
5/19/2009	1	5	12	Tabitha	626	0	B	4	70	70	4	0	0	0
5/19/2009	1	5	13	Tabitha	558	6	A	4	90	90	4	0	0	22
5/19/2009	1	5	14	Tabitha	647	2	A	0	100	100	3	0	0	0
5/19/2009	1	5	15	Tabitha	403	7	A	4	50	50	3	0	0	0
5/19/2009	1	5	16	Tabitha	673	0	A	0	100	30	3	70	2	0
5/19/2009	1	5	17	Tabitha	549	10	B	4	70	60	4	10	4	54
5/19/2009	1	5	18	Tabitha	915	5	A	0	100	100	4	0	0	5
5/19/2009	1	5	19	Tabitha	292	1	B	0	100	40	3	60	2	0

5/19/2009	1	5	20	Tabitha	603	8	A	0	100	30	3	70	2	0
5/19/2009	1	5	21	Tabitha	630	10	A	4	60	60	4	0	0	21
5/19/2009	1	5	22	Tabitha	235	4	A	4	90	80	3	10	2	1
5/20/2009	2	0	1	Shannon	771	4	A	4	0	0	0	0	0	2
5/20/2009	2	0	2	Shannon	772	4	B	4	0	0	0	0	0	0
5/20/2009	2	0	3	Shannon	785	7	A	3	0	0	0	0	0	0
5/20/2009	2	0	4	Shannon	784	7	B	3	0	0	0	0	0	0
5/20/2009	2	0	5	Shannon	722	3	A	4	0	0	0	0	0	0
5/20/2009	2	0	6	Shannon	723	3	B	4	0	0	0	0	0	1
5/20/2009	2	0	7	Shannon	381	8	A	3	0	0	0	0	0	0
5/20/2009	2	0	8	Shannon	382	8	B	4	0	0	0	0	0	0
5/20/2009	2	0	9	Shannon	251	2	A	3	0	0	0	0	0	0
5/20/2009	2	0	10	Shannon	252	2	B	3	0	0	0	0	0	0
5/20/2009	2	0	11	Shannon	946	0	A	4	0	0	0	0	0	0
5/20/2009	2	0	12	Shannon	947	0	B	4	0	0	0	0	0	0
5/20/2009	2	0	13	Shannon	763	6	A	4	0	0	0	0	0	18
5/20/2009	2	0	14	Shannon	60	1	B	3	0	0	0	0	0	0
5/20/2009	2	0	14	Shannon	761	6	B	4	0	0	0	0	0	18
5/20/2009	2	0	15	Shannon	755	9	A	4	0	0	0	0	0	28
5/20/2009	2	0	16	Shannon	756	9	B	4	0	0	0	0	0	22
5/20/2009	2	0	17	Shannon	814	5	A	3	0	0	0	0	0	11
5/20/2009	2	0	18	Shannon	815	5	B	3	0	0	0	0	0	8
5/20/2009	2	0	19	Shannon	59	1	A	4	0	0	0	0	0	0
5/20/2009	2	0	21	Shannon	667	10	A	4	0	0	0	0	0	33
5/20/2009	2	0	22	Shannon	668	10	B	4	0	0	0	0	0	18
5/20/2009	2	0	1	Sonia	771	4	A	4	0	0	0	0	0	0
5/20/2009	2	0	2	Sonia	772	4	B	4	0	0	0	0	0	0
5/20/2009	2	0	3	Sonia	785	7	A	3	0	0	0	0	0	0
5/20/2009	2	0	4	Sonia	784	7	B	3	0	0	0	0	0	0
5/20/2009	2	0	5	Sonia	722	3	A	4	0	0	0	0	0	1
5/20/2009	2	0	6	Sonia	723	3	B	4	0	0	0	0	0	1
5/20/2009	2	0	7	Sonia	381	8	A	3	0	0	0	0	0	0
5/20/2009	2	0	8	Sonia	382	8	B	3	0	0	0	0	0	1

5/20/2009	2	0	9	Sonia	251	2	A	4	0	0	0	0	0	0
5/20/2009	2	0	10	Sonia	252	2	B	4	0	0	0	0	0	0
5/20/2009	2	0	11	Sonia	946	0	A	3	0	0	0	0	0	0
5/20/2009	2	0	12	Sonia	947	0	B	4	0	0	0	0	0	0
5/20/2009	2	0	13	Sonia	763	6	A	3	0	0	0	0	0	15
5/20/2009	2	0	14	Sonia	761	6	B	3	0	0	0	0	0	22
5/20/2009	2	0	15	Sonia	755	9	A	3	0	0	0	0	0	19
5/20/2009	2	0	16	Sonia	756	9	B	4	0	0	0	0	0	17
5/20/2009	2	0	1	Tabitha	771	4	A	4	0	0	0	0	0	2
5/20/2009	2	0	2	Tabitha	772	4	B	4	0	0	0	0	0	2
5/20/2009	2	0	3	Tabitha	785	7	A	4	0	0	0	0	0	0
5/20/2009	2	0	4	Tabitha	784	7	B	4	0	0	0	0	0	0
5/20/2009	2	0	5	Tabitha	722	3	A	4	0	0	0	0	0	0
5/20/2009	2	0	6	Tabitha	723	3	B	4	0	0	0	0	0	0
5/20/2009	2	0	7	Tabitha	381	8	A	4	0	0	0	0	0	0
5/20/2009	2	0	8	Tabitha	382	8	B	4	0	0	0	0	0	0
5/20/2009	2	0	9	Tabitha	251	2	A	4	0	0	0	0	0	0
5/20/2009	2	0	10	Tabitha	252	2	B	4	0	0	0	0	0	0
5/20/2009	2	0	11	Tabitha	946	0	A	4	0	0	0	0	0	0
5/20/2009	2	0	12	Tabitha	947	0	B	4	0	0	0	0	0	0
5/20/2009	2	0	13	Tabitha	763	6	A	4	0	0	0	0	0	15
5/20/2009	2	0	12	Tabitha	60	1	B	4	0	0	0	0	0	0
5/20/2009	2	0	14	Tabitha	761	6	B	4	0	0	0	0	0	24
5/20/2009	2	0	15	Tabitha	755	9	A	3	0	0	0	0	0	16
5/20/2009	2	0	16	Tabitha	756	9	B	3	0	0	0	0	0	21
5/20/2009	2	0	17	Tabitha	814	5	A	3	0	0	0	0	0	4
5/20/2009	2	0	18	Tabitha	815	5	B	4	0	0	0	0	0	6
5/20/2009	2	0	19	Tabitha	59	1	A	4	0	0	0	0	0	1
5/20/2009	2	0	21	Tabitha	667	10	A	3	0	0	0	0	0	35
5/20/2009	2	0	22	Tabitha	668	10	B	3	0	0	0	0	0	48
5/20/2009	2	0	22	Teresa	60	1	B	3	0	0	0	0	0	0
5/20/2009	2	0	17	Teresa	814	5	A	4	0	0	0	0	0	5
5/20/2009	2	0	18	Teresa	815	5	B	4	0	0	0	0	0	7

5/20/2009	2	0	19	Teresa	59	1	A	3	0	0	0	0	0	0
5/20/2009	2	0	21	Teresa	667	10	A	4	0	0	0	0	0	38
5/20/2009	2	0	22	Teresa	668	10	B	4	0	0	0	0	0	46
5/21/2009	2	1	1	Shannon	705	9	B	4	10	10	4	0	0	14
5/21/2009	2	1	2	Shannon	686	1	B	4	0	0	0	0	0	0
5/21/2009	2	1	3	Shannon	956	10	A	4	10	10	2	0	0	20
5/21/2009	2	1	4	Shannon	431	3	B	4	10	10	3	0	0	0
5/21/2009	2	1	5	Shannon	428	4	B	1	40	40	3	0	0	1
5/21/2009	2	1	6	Shannon	266	2	A	3	0	0	0	0	0	0
5/21/2009	2	1	7	Shannon	998	2	B	4	10	10	2	0	0	0
5/21/2009	2	1	8	Shannon	724	5	A	4	10	10	3	0	0	7
5/21/2009	2	1	9	Shannon	270	9	A	4	10	10	4	0	0	11
5/21/2009	2	1	10	Shannon	331	6	B	4	20	20	3	0	0	12
5/21/2009	2	1	11	Shannon	245	5	B	4	10	10	3	0	0	8
5/21/2009	2	1	12	Shannon	457	7	A	4	40	40	2	0	0	0
5/21/2009	2	1	13	Shannon	924	7	B	4	10	10	4	0	0	0
5/21/2009	2	1	14	Shannon	706	6	A	4	10	10	2	0	0	11
5/21/2009	2	1	15	Shannon	622	0	B	4	20	20	2	0	0	0
5/21/2009	2	1	16	Shannon	958	8	B	4	30	30	4	0	0	0
5/21/2009	2	1	17	Shannon	30	0	A	4	0	0	0	0	0	0
5/21/2009	2	1	18	Shannon	533	8	A	2	30	30	4	0	0	0
5/21/2009	2	1	19	Shannon	168	3	A	4	30	30	3	0	0	1
5/21/2009	2	1	20	Shannon	762	10	B	4	30	30	4	0	0	29
5/21/2009	2	1	21	Shannon	505	1	A	3	0	0	0	0	0	0
5/21/2009	2	1	22	Shannon	119	4	A	1	80	80	4	0	0	0
5/21/2009	2	1	1	Sonia	705	9	B	4	0	0	0	0	0	12
5/21/2009	2	1	2	Sonia	686	1	B	4	0	0	0	0	0	0
5/21/2009	2	1	3	Sonia	956	10	A	4	0	0	0	0	0	17
5/21/2009	2	1	4	Sonia	431	3	B	4	0	0	0	0	0	0
5/21/2009	2	1	5	Sonia	428	4	B	4	0	0	0	0	0	0
5/21/2009	2	1	6	Sonia	266	2	A	4	0	0	0	0	0	0
5/21/2009	2	1	7	Sonia	998	2	B	4	0	0	0	0	0	0
5/21/2009	2	1	8	Sonia	724	5	A	4	0	0	0	0	0	8

5/21/2009	2	1	9	Sonia	270	9	A	2	10	10	2	0	0	10
5/21/2009	2	1	10	Sonia	331	6	B	2	0	0	0	0	0	22
5/21/2009	2	1	11	Sonia	245	5	B	3	0	0	0	0	0	19
5/21/2009	2	1	12	Sonia	457	7	A	3	10	10	2	0	0	0
5/21/2009	2	1	13	Sonia	924	7	B	2	10	10	2	0	0	0
5/21/2009	2	1	14	Sonia	706	6	A	4	0	0	0	0	0	15
5/21/2009	2	1	15	Sonia	622	0	B	3	0	0	0	0	0	0
5/21/2009	2	1	16	Sonia	958	8	B	4	10	10	2	0	0	0
5/21/2009	2	1	17	Sonia	30	0	A	3	0	0	0	0	0	0
5/21/2009	2	1	18	Sonia	533	8	A	4	0	0	0	0	0	0
5/21/2009	2	1	19	Sonia	168	3	A	4	0	0	0	0	0	2
5/21/2009	2	1	20	Sonia	762	10	B	4	0	0	0	0	0	28
5/21/2009	2	1	21	Sonia	505	1	A	2	0	0	0	0	0	0
5/21/2009	2	1	22	Sonia	119	4	A	3	20	20	3	0	0	0
5/21/2009	2	1	1	Tabitha	705	9	B	3	0	0	0	0	0	0
5/21/2009	2	1	2	Tabitha	686	1	B	3	0	0	0	0	0	0
5/21/2009	2	1	3	Tabitha	956	10	A	4	10	10	4	0	0	30
5/21/2009	2	1	4	Tabitha	431	3	B	4	10	10	4	0	0	0
5/21/2009	2	1	5	Tabitha	428	4	B	4	20	20	3	0	0	0
5/21/2009	2	1	6	Tabitha	266	2	A	3	0	0	0	0	0	0
5/21/2009	2	1	7	Tabitha	998	2	B	4	0	0	0	0	0	0
5/21/2009	2	1	8	Tabitha	724	5	A	4	0	0	0	0	0	7
5/21/2009	2	1	9	Tabitha	270	9	A	4	10	10	2	0	0	8
5/21/2009	2	1	10	Tabitha	331	6	B	4	0	0	0	0	0	38
5/21/2009	2	1	11	Tabitha	245	5	B	4	0	0	0	0	0	21
5/21/2009	2	1	12	Tabitha	457	7	A	4	10	10	2	0	0	0
5/21/2009	2	1	13	Tabitha	924	7	B	3	10	10	2	0	0	32
5/21/2009	2	1	14	Tabitha	706	6	A	4	0	0	0	0	0	12
5/21/2009	2	1	15	Tabitha	622	0	B	4	0	0	0	0	0	0
5/21/2009	2	1	16	Tabitha	958	8	B	4	10	10	2	0	0	0
5/21/2009	2	1	17	Tabitha	30	0	A	3	0	0	0	0	0	0
5/21/2009	2	1	18	Tabitha	533	8	A	4	10	10	3	0	0	0
5/21/2009	2	1	19	Tabitha	168	3	A	4	20	20	3	0	0	0

5/21/2009	2	1	20	Tabitha	762	10	B	4	30	30	3	0	0	39	
5/21/2009	2	1	21	Tabitha	505	1	A	3	0	0	0	0	0	0	
5/21/2009	2	1	22	Tabitha	119	4	A	4	30	30	3	0	0	0	
5/23/2009	2	3	1	Shannon	253	5	B	4	10	10	4	0	0	9	
5/23/2009	2	3	2	Shannon	9	10	A	2	90	90	4	0	0	25	
5/23/2009	2	3	3	Shannon	929	5	A	4	10	10	4	0	0	4	
5/23/2009	2	3	4	Shannon	314	8	B	0	100	20	3	80	2	0	
5/23/2009	2	3	5	Shannon	547	4	A	1	90	90	4	0	0	0	
5/23/2009	2	3	6	Shannon	976	9	A	4	10	10	4	0	0	13	
5/23/2009	2	3	7	Shannon	923	3	B	4	80	80	4	0	0	0	
5/23/2009	2	3	8	Shannon	49	7	B	4	90	90	3	0	0	0	
5/23/2009	2	3	9	Shannon	801	1	B	4	0	0	0	0	0	0	
5/23/2009	2	3	10	Shannon	643	3	A	4	80	80	4	0	0	0	
5/23/2009	2	3	11	Shannon	760	6	B	4	10	10	1	0	0	18	looks fresh
5/23/2009	2	3	12	Shannon	372	1	A	4	10	10	4	0	0	0	
5/23/2009	2	3	13	Shannon	256	4	B	1	80	80	4	0	0	0	GROSS
5/23/2009	2	3	14	Shannon	137	7	A	2	90	90	2	0	0	0	
5/23/2009	2	3	15	Shannon	914	6	A	3	10	10	2	0	0	13	
5/23/2009	2	3	16	Shannon	665	10	B	4	90	20	3	70	2	19	
5/23/2009	2	3	17	Shannon	851	8	A	4	80	60	4	20	2	0	
5/23/2009	2	3	18	Shannon	247	2	A	4	70	70	3	0	0	0	
5/23/2009	2	3	19	Shannon	289	0	A	1	70	70	4	0	0	0	
5/23/2009	2	3	20	Shannon	293	2	B	4	70	70	4	0	0	0	
5/23/2009	2	3	21	Shannon	579	9	B	4	30	30	4	0	0	16	
5/23/2009	2	3	22	Shannon	975	0	B	1	90	80	4	10	2	0	
5/23/2009	2	3	1	Sonia	253	5	B	4	20	20	2	0	0	13	
5/23/2009	2	3	2	Sonia	9	10	A	4	90	45	2	45	1	19	
5/23/2009	2	3	3	Sonia	929	5	A	4	30	30	2	0	0	15	
5/23/2009	2	3	4	Sonia	314	8	B	4	90	50	2	40	1	0	
5/23/2009	2	3	5	Sonia	547	4	A	3	90	90	3	0	0	0	
5/23/2009	2	3	6	Sonia	976	9	A	4	20	20	3	0	0	23	
5/23/2009	2	3	7	Sonia	923	3	B	4	70	70	3	0	0	0	
5/23/2009	2	3	8	Sonia	49	7	B	3	80	60	2	20	1	0	

5/23/2009	2	3	9	Sonia	801	1	B	4	0	0	0	0	0	0	
5/23/2009	2	3	10	Sonia	643	3	A	3	80	60	3	20	2	0	
5/23/2009	2	3	11	Sonia	760	6	B	4	10	10	2	0	0	14	
5/23/2009	2	3	12	Sonia	372	1	A	4	10	10	2	0	0	0	
5/23/2009	2	3	13	Sonia	256	4	B	2	90	90	3	0	0	0	looks fresh
5/23/2009	2	3	14	Sonia	137	7	A	2	80	80	2	0	0	0	
5/23/2009	2	3	15	Sonia	914	6	A	4	0	0	0	0	0	24	
5/23/2009	2	3	16	Sonia	665	10	B	4	90	60	3	30	2	16	
5/23/2009	2	3	17	Sonia	851	8	A	2	90	70	3	20	1	0	
5/23/2009	2	3	18	Sonia	247	2	A	3	80	80	3	0	0	0	
5/23/2009	2	3	19	Sonia	289	0	A	2	80	60	3	20	2	0	
5/23/2009	2	3	20	Sonia	293	2	B	3	70	70	3	0	0	0	
5/23/2009	2	3	21	Sonia	579	9	B	4	10	10	2	0	0	12	
5/23/2009	2	3	22	Sonia	975	0	B	2	90	70	3	20	2	0	
5/23/2009	2	3	1	Tabitha	253	5	B	4	20	20	2	0	0	16	
5/23/2009	2	3	2	Tabitha	9	10	A	4	90	10	4	80	2	33	
5/23/2009	2	3	3	Tabitha	929	5	A	4	20	15	2	5	2	8	
5/23/2009	2	3	4	Tabitha	314	8	B	4	90	10	3	80	2	0	
5/23/2009	2	3	5	Tabitha	547	4	A	4	90	90	3	0	0	0	
5/23/2009	2	3	6	Tabitha	976	9	A	4	20	20	3	0	0	28	
5/23/2009	2	3	7	Tabitha	923	3	B	4	90	45	3	45	2	3	
5/23/2009	2	3	8	Tabitha	49	7	B	4	90	45	3	45	2	1	
5/23/2009	2	3	9	Tabitha	801	1	B	4	10	10	3	0	0	0	
5/23/2009	2	3	10	Tabitha	643	3	A	4	90	80	4	10	2	2	
5/23/2009	2	3	11	Tabitha	760	6	B	4	10	10	3	0	0	13	
5/23/2009	2	3	12	Tabitha	372	1	A	4	20	20	4	0	0	0	
5/23/2009	2	3	13	Tabitha	256	4	B	2	90	70	4	20	4	0	
5/23/2009	2	3	14	Tabitha	137	7	A	4	90	10	3	80	2	0	
5/23/2009	2	3	15	Tabitha	914	6	A	4	10	10	4	0	0	16	
5/23/2009	2	3	16	Tabitha	665	10	B	4	90	10	3	80	2	49	
5/23/2009	2	3	17	Tabitha	851	8	A	4	90	20	3	70	4	0	brown #2&4 spots
5/23/2009	2	3	18	Tabitha	247	2	A	4	70	70	3	0	0	1	
5/23/2009	2	3	19	Tabitha	289	0	A	4	80	40	3	40	4	0	

5/23/2009	2	3	20	Tabitha	293	2	B	4	70	70	4	0	0	0
5/23/2009	2	3	21	Tabitha	579	9	B	4	30	30	1	0	0	11
5/23/2009	2	3	22	Tabitha	975	0	B	4	90	45	4	45	4	3
5/25/2009	2	5	1	Shannon	535	2	A	0	100	90	4	10	2	0
5/25/2009	2	5	2	Shannon	286	4	B	1	90	70	4	20	2	0
5/25/2009	2	5	3	Shannon	43	4	A	1	90	70	4	20	2	0
5/25/2009	2	5	4	Shannon	281	1	B	1	60	30	3	30	2	0
5/25/2009	2	5	5	Shannon	840	6	A	4	70	35	3	35	2	10
5/25/2009	2	5	6	Shannon	20	8	A	0	100	70	4	30	2	0
5/25/2009	2	5	7	Shannon	422	0	B	0	100	90	4	10	2	0
5/25/2009	2	5	8	Shannon	257	5	B	4	80	60	4	20	2	10
5/25/2009	2	5	9	Shannon	787	9	B	0	100	10	3	90	2	21
5/25/2009	2	5	10	Shannon	315	1	A	4	60	20	4	40	2	0
5/25/2009	2	5	11	Shannon	184	3	B	1	80	70	4	10	2	0
5/25/2009	2	5	12	Shannon	41	9	A	0	100	10	4	90	2	20
5/25/2009	2	5	13	Shannon	788	7	A	0	100	100	4	0	0	0
5/25/2009	2	5	14	Shannon	170	3	A	1	70	60	4	10	2	0
5/25/2009	2	5	15	Shannon	332	0	A	0	100	70	4	30	2	0
5/25/2009	2	5	16	Shannon	591	2	B	1	90	80	4	10	2	0
5/25/2009	2	5	17	Shannon	640	8	B	0	100	60	4	40	2	0
5/25/2009	2	5	18	Shannon	109	7	B	0	100	100	4	0	0	0
5/25/2009	2	5	19	Shannon	395	6	B	1	90	60	4	30	2	21
5/25/2009	2	5	20	Shannon	120	10	A	0	100	60	4	40	2	21
5/25/2009	2	5	21	Shannon	169	5	A	4	70	40	4	30	2	7
5/25/2009	2	5	22	Shannon	480	10	B	0	100	30	4	70	2	26
5/25/2009	2	5	1	Sonia	535	2	A	0	100	80	4	20	2	0
5/25/2009	2	5	2	Sonia	286	4	B	1	90	70	3	20	2	0
5/25/2009	2	5	3	Sonia	43	4	A	1	90	70	3	20	1	0
5/25/2009	2	5	4	Sonia	281	1	B	2	60	40	2	20	1	0
5/25/2009	2	5	5	Sonia	840	6	A	1	80	60	3	20	1	18
5/25/2009	2	5	6	Sonia	20	8	A	0	100	70	2	30	2	0
5/25/2009	2	5	7	Sonia	422	0	B	0	100	70	3	30	2	0
5/25/2009	2	5	8	Sonia	257	5	B	1	80	60	2	20	2	13

5/25/2009	2	5	9	Sonia	787	9	B	0	100	40	2	60	1	17	
5/25/2009	2	5	10	Sonia	315	1	A	2	80	60	2	20	2	0	
5/25/2009	2	5	11	Sonia	184	3	B	2	90	70	3	20	2	0	
5/25/2009	2	5	12	Sonia	41	9	A	0	100	40	1	60	1	22	
5/25/2009	2	5	13	Sonia	788	7	A	0	100	40	1	60	1	0	piece of green meat/Ct
5/25/2009	2	5	14	Sonia	170	3	A	1	70	40	3	30	1	0	
5/25/2009	2	5	15	Sonia	332	0	A	0	100	70	4	30	2	0	
5/25/2009	2	5	16	Sonia	591	2	B	0	100	80	4	20	2	0	
5/25/2009	2	5	17	Sonia	640	8	B	0	100	70	3	30	2	0	
5/25/2009	2	5	18	Sonia	109	7	B	0	100	80	2	20	1	0	
5/25/2009	2	5	19	Sonia	395	6	B	1	90	70	4	20	1	16	
5/25/2009	2	5	20	Sonia	120	10	A	0	100	60	1	40	2	26	
5/25/2009	2	5	21	Sonia	169	5	A	2	70	30	2	40	1	14	
5/25/2009	2	5	22	Sonia	480	10	B	0	100	80	4	20	2	23	
5/25/2009	2	5	1	Tabitha	535	2	A	4	100	10	3	90	1	0	
5/25/2009	2	5	2	Tabitha	286	4	B	4	100	90	4	10	1	1	
5/25/2009	2	5	3	Tabitha	43	4	A	1	100	30	4	70	2	9	
5/25/2009	2	5	4	Tabitha	281	1	B	2	90	45	3	45	2	0	
5/25/2009	2	5	5	Tabitha	840	6	A	1	90	45	4	45	1	27	Sm. Turquoise spot 20%
5/25/2009	2	5	6	Tabitha	20	8	A	0	100	0	0	100	2	0	
5/25/2009	2	5	7	Tabitha	422	0	B	0	100	10	4	90	2	0	
5/25/2009	2	5	8	Tabitha	257	5	B	4	90	45	3	45	2	16	
5/25/2009	2	5	9	Tabitha	787	9	B	0	100	0	0	100	2	23	
5/25/2009	2	5	10	Tabitha	315	1	A	4	80	50	3	30	2	0	
5/25/2009	2	5	11	Tabitha	184	3	B	0	100	30	3	70	2	3	
5/25/2009	2	5	12	Tabitha	41	9	A	0	100	0	0	100	3	25	
5/25/2009	2	5	13	Tabitha	788	7	A	0	100	0	0	100	2	0	
5/25/2009	2	5	14	Tabitha	170	3	A	4	90	50	3	40	2	0	
5/25/2009	2	5	15	Tabitha	332	0	A	0	100	10	4	90	2	0	
5/25/2009	2	5	16	Tabitha	591	2	B	0	100	20	2	80	2	0	
5/25/2009	2	5	17	Tabitha	640	8	B	0	100	0	0	100	2	0	
5/25/2009	2	5	18	Tabitha	109	7	B	0	100	0	0	100	2	0	
5/25/2009	2	5	19	Tabitha	395	6	B	0	100	10	4	90	2	21	

5/25/2009	2	5	20	Tabitha	120	10	A	0	100	0	0	100	2	53
5/25/2009	2	5	21	Tabitha	169	5	A	4	80	20	4	60	2	5
5/25/2009	2	5	22	Tabitha	480	10	B	0	100	10	5	90	2	30
6/7/2009	3	0	1	Shannon	74	5	A	3	0	0	0	0	0	10
6/7/2009	3	0	2	Shannon	75	5	B	3	0	0	0	0	0	7
6/7/2009	3	0	3	Shannon	397	8	A	4	0	0	0	0	0	1
6/7/2009	3	0	4	Shannon	398	8	B	4	0	0	0	0	0	0
6/7/2009	3	0	5	Shannon	261	10	A	4	0	0	0	0	0	33
6/7/2009	3	0	6	Shannon	262	10	B	4	0	0	0	0	0	36
6/7/2009	3	0	7	Shannon	726	3	A	4	0	0	0	0	0	1
6/7/2009	3	0	8	Shannon	727	3	B	4	0	0	0	0	0	0
6/7/2009	3	0	9	Shannon	740	4	A	4	0	0	0	0	0	0
6/7/2009	3	0	10	Shannon	739	4	B	4	0	0	0	0	0	0
6/7/2009	3	0	11	Shannon	478	2	A	4	0	0	0	0	0	0
6/7/2009	3	0	12	Shannon	479	2	B	4	0	0	0	0	0	0
6/7/2009	3	0	13	Shannon	333	0	A	4	0	0	0	0	0	0
6/7/2009	3	0	14	Shannon	330	0	B	4	0	0	0	0	0	0
6/7/2009	3	0	15	Shannon	627	7	A	4	0	0	0	0	0	2
6/7/2009	3	0	16	Shannon	625	7	B	4	0	0	0	0	0	0
6/7/2009	3	0	17	Shannon	212	6	A	3	0	0	0	0	0	22
6/7/2009	3	0	18	Shannon	213	6	B	4	0	0	0	0	0	14
6/7/2009	3	0	19	Shannon	967	9	A	4	0	0	0	0	0	22
6/7/2009	3	0	20	Shannon	966	9	B	3	0	0	0	0	0	19
6/7/2009	3	0	21	Shannon	26	1	A	3	0	0	0	0	0	0
6/7/2009	3	0	22	Shannon	27	1	B	3	0	0	0	0	0	0
6/7/2009	3	0	1	Sonia	74	5	A	4	0	0	0	0	0	9
6/7/2009	3	0	2	Sonia	75	5	B	4	0	0	0	0	0	13
6/7/2009	3	0	3	Sonia	397	8	A	4	0	0	0	0	0	1
6/7/2009	3	0	4	Sonia	398	8	B	3	0	0	0	0	0	0
6/7/2009	3	0	5	Sonia	261	10	A	4	0	0	0	0	0	20
6/7/2009	3	0	6	Sonia	262	10	B	4	0	0	0	0	0	26
6/7/2009	3	0	7	Sonia	726	3	A	3	0	0	0	0	0	0
6/7/2009	3	0	8	Sonia	727	3	B	3	0	0	0	0	0	0

6/7/2009	3	0	9	Sonia	740	4	A	4	0	0	0	0	0	0
6/7/2009	3	0	10	Sonia	739	4	B	4	0	0	0	0	0	0
6/7/2009	3	0	11	Sonia	478	2	A	3	0	0	0	0	0	0
6/7/2009	3	0	12	Sonia	479	2	B	3	0	0	0	0	0	0
6/7/2009	3	0	13	Sonia	333	0	A	4	0	0	0	0	0	0
6/7/2009	3	0	14	Sonia	330	0	B	4	0	0	0	0	0	0
6/7/2009	3	0	15	Sonia	627	7	A	4	0	0	0	0	0	0
6/7/2009	3	0	16	Sonia	625	7	B	4	0	0	0	0	0	0
6/7/2009	3	0	17	Sonia	212	6	A	3	0	0	0	0	0	12
6/7/2009	3	0	18	Sonia	213	6	B	3	0	0	0	0	0	16
6/7/2009	3	0	19	Sonia	967	9	A	3	0	0	0	0	0	16
6/7/2009	3	0	20	Sonia	966	9	B	3	0	0	0	0	0	20
6/7/2009	3	0	21	Sonia	26	1	A	4	0	0	0	0	0	0
6/7/2009	3	0	22	Sonia	27	1	B	4	0	0	0	0	0	0
6/7/2009	3	0	1	Tabitha	74	5	A	3	0	0	0	0	0	12
6/7/2009	3	0	2	Tabitha	75	5	B	3	0	0	0	0	0	11
6/7/2009	3	0	3	Tabitha	397	8	A	4	0	0	0	0	0	0
6/7/2009	3	0	4	Tabitha	398	8	B	3	0	0	0	0	0	2
6/7/2009	3	0	5	Tabitha	261	10	A	4	0	0	0	0	0	31
6/7/2009	3	0	6	Tabitha	262	10	B	4	0	0	0	0	0	40
6/7/2009	3	0	7	Tabitha	726	3	A	4	0	0	0	0	0	0
6/7/2009	3	0	8	Tabitha	727	3	B	3	0	0	0	0	0	0
6/7/2009	3	0	9	Tabitha	740	4	A	4	0	0	0	0	0	0
6/7/2009	3	0	10	Tabitha	739	4	B	3	0	0	0	0	0	1
6/7/2009	3	0	11	Tabitha	478	2	A	4	0	0	0	0	0	0
6/7/2009	3	0	12	Tabitha	479	2	B	3	0	0	0	0	0	0
6/7/2009	3	0	13	Tabitha	333	0	A	4	0	0	0	0	0	0
6/7/2009	3	0	14	Tabitha	330	0	B	4	0	0	0	0	0	0
6/7/2009	3	0	15	Tabitha	627	7	A	4	0	0	0	0	0	1
6/7/2009	3	0	16	Tabitha	625	7	B	4	0	0	0	0	0	0
6/7/2009	3	0	17	Tabitha	212	6	A	4	0	0	0	0	0	20
6/7/2009	3	0	18	Tabitha	213	6	B	3	0	0	0	0	0	19
6/7/2009	3	0	19	Tabitha	967	9	A	3	0	0	0	0	0	24

6/7/2009	3	0	20	Tabitha	966	9	B	3	0	0	0	0	0	36
6/7/2009	3	0	21	Tabitha	26	1	A	3	0	0	0	0	0	0
6/7/2009	3	0	22	Tabitha	27	1	B	3	0	0	0	0	0	0
6/8/2009	3	1	1	Shannon	980	2	A	3	10	10	3	0	0	0
6/8/2009	3	1	2	Shannon	324	9	A	4	0	0	0	0	0	19
6/8/2009	3	1	3	Shannon	886	10	B	4	10	10	4	0	0	30
6/8/2009	3	1	4	Shannon	110	5	B	4	10	10	3	0	0	12
6/8/2009	3	1	5	Shannon	396	6	B	4	10	10	4	0	0	9
6/8/2009	3	1	6	Shannon	586	8	A	4	10	10	3	0	0	0
6/8/2009	3	1	7	Shannon	957	7	A	4	20	20	3	0	0	0
6/8/2009	3	1	8	Shannon	713	0	B	4	10	10	2	0	0	0
6/8/2009	3	1	9	Shannon	732	1	A	3	0	0	0	0	0	0
6/8/2009	3	1	10	Shannon	744	9	B	4	10	10	4	0	0	16
6/8/2009	3	1	11	Shannon	728	6	A	4	20	20	3	0	0	4
6/8/2009	3	1	12	Shannon	999	4	A	4	40	40	3	0	0	1
6/8/2009	3	1	13	Shannon	973	8	B	4	20	20	3	0	0	0
6/8/2009	3	1	14	Shannon	34	4	B	4	30	30	3	0	0	1
6/8/2009	3	1	15	Shannon	968	10	A	4	40	40	4	0	0	32
6/8/2009	3	1	16	Shannon	152	0	A	4	10	10	2	0	0	0
6/8/2009	3	1	17	Shannon	32	1	B	4	0	0	0	0	0	0
6/8/2009	3	1	18	Shannon	674	3	B	4	10	10	3	0	0	1
6/8/2009	3	1	19	Shannon	823	2	B	4	10	10	3	0	0	0
6/8/2009	3	1	20	Shannon	942	7	B	4	20	20	3	0	0	0
6/8/2009	3	1	21	Shannon	274	5	A	4	10	10	4	0	0	10
6/8/2009	3	1	22	Shannon	278	3	A	3	30	30	2	0	0	0
6/8/2009	3	1	1	Sonia	980	2	A	3	0	0	0	0	0	0
6/8/2009	3	1	2	Sonia	324	9	A	4	0	0	0	0	0	23
6/8/2009	3	1	3	Sonia	886	10	B	3	10	10	2	0	0	29
6/8/2009	3	1	4	Sonia	110	5	B	3	10	10	2	0	0	8
6/8/2009	3	1	5	Sonia	396	6	B	4	0	0	0	0	0	24
6/8/2009	3	1	6	Sonia	586	8	A	4	0	0	0	0	0	0
6/8/2009	3	1	7	Sonia	957	7	A	4	10	10	2	0	0	0
6/8/2009	3	1	8	Sonia	713	0	B	4	10	10	2	0	0	0

6/8/2009	3	1	9	Sonia	732	1	A	3	0	0	0	0	0	0
6/8/2009	3	1	10	Sonia	744	9	B	4	0	0	0	0	0	20
6/8/2009	3	1	11	Sonia	728	6	A	3	0	0	0	0	0	16
6/8/2009	3	1	12	Sonia	999	4	A	3	10	10	3	0	0	0
6/8/2009	3	1	13	Sonia	973	8	B	4	0	0	0	0	0	0
6/8/2009	3	1	14	Sonia	34	4	B	4	10	10	3	0	0	0
6/8/2009	3	1	15	Sonia	968	10	A	4	0	0	0	0	0	26
6/8/2009	3	1	16	Sonia	152	0	A	3	10	10	2	0	0	0
6/8/2009	3	1	17	Sonia	32	1	B	4	0	0	0	0	0	0
6/8/2009	3	1	18	Sonia	674	3	B	3	0	0	0	0	0	0
6/8/2009	3	1	19	Sonia	823	2	B	4	0	0	0	0	0	0
6/8/2009	3	1	20	Sonia	942	7	B	3	10	10	2	0	0	0
6/8/2009	3	1	21	Sonia	274	5	A	4	0	0	0	0	0	6
6/8/2009	3	1	22	Sonia	278	3	A	4	0	0	0	0	0	0
6/8/2009	3	1	1	Tabitha	980	2	A	4	0	0	0	0	0	0
6/8/2009	3	1	2	Tabitha	324	9	A	4	10	10	4	0	0	19
6/8/2009	3	1	3	Tabitha	886	10	B	4	30	30	4	0	0	34
6/8/2009	3	1	4	Tabitha	110	5	B	4	10	10	3	0	0	11
6/8/2009	3	1	5	Tabitha	396	6	B	4	10	10	4	0	0	19
6/8/2009	3	1	6	Tabitha	586	8	A	4	10	10	3	0	0	0
6/8/2009	3	1	7	Tabitha	957	7	A	4	10	10	3	0	0	1
6/8/2009	3	1	8	Tabitha	713	0	B	4	10	10	4	0	0	1
6/8/2009	3	1	9	Tabitha	732	1	A	4	0	0	0	0	0	0
6/8/2009	3	1	10	Tabitha	744	9	B	4	10	10	3	0	0	22
6/8/2009	3	1	11	Tabitha	728	6	A	3	10	10	4	0	0	9
6/8/2009	3	1	12	Tabitha	999	4	A	4	10	10	4	0	0	0
6/8/2009	3	1	13	Tabitha	973	8	B	4	10	10	3	0	0	1
6/8/2009	3	1	14	Tabitha	34	4	B	4	20	20	4	0	0	1
6/8/2009	3	1	15	Tabitha	968	10	A	4	10	10	4	0	0	46
6/8/2009	3	1	16	Tabitha	152	0	A	4	10	10	2	0	0	0
6/8/2009	3	1	17	Tabitha	32	1	B	4	10	10	3	0	0	0
6/8/2009	3	1	18	Tabitha	674	3	B	4	10	10	3	0	0	0
6/8/2009	3	1	19	Tabitha	823	2	B	3	0	0	0	0	0	1

6/8/2009	3	1	20	Tabitha	942	7	B	3	10	10	3	0	0	0	
6/8/2009	3	1	21	Tabitha	274	5	A	4	10	10	4	0	0	14	
6/8/2009	3	1	22	Tabitha	278	3	A	3	10	10	3	0	0	3	
6/10/2009	3	3	1	Shannon	870	9	B	8	50	50	4	0	0	13	
6/10/2009	3	3	2	Shannon	387	4	B	4	80	80	2	0	0	0	
6/10/2009	3	3	3	Shannon	203	8	A	4	70	70	4	0	0	0	
6/10/2009	3	3	4	Shannon	813	4	A	4	70	70	3	0	0	5	
6/10/2009	3	3	5	Shannon	99	1	A	4	60	60	3	0	0	0	
6/10/2009	3	3	6	Shannon	496	3	B	8	90	90	4	0	0	0	
6/10/2009	3	3	7	Shannon	73	1	B	4	60	60	3	0	0	2	
6/10/2009	3	3	8	Shannon	142	6	A	3	70	70	4	0	0	5	
6/10/2009	3	3	9	Shannon	890	2	A	4	0	0	0	0	0	0	
6/10/2009	3	3	10	Shannon	421	5	B	4	60	60	4	0	0	13	
6/10/2009	3	3	11	Shannon	183	0	A	4	40	40	3	0	0	0	
6/10/2009	3	3	12	Shannon	112	6	B	4	80	80	4	0	0	18	
6/10/2009	3	3	13	Shannon	703	8	B	4	80	80	3	0	0	0	almost looks fresh
6/10/2009	3	3	14	Shannon	339	7	A	4	30	30	3	0	0	0	
6/10/2009	3	3	15	Shannon	367	0	B	4	10	10	2	0	0	0	
6/10/2009	3	3	16	Shannon	857	3	A	8	70	70	4	0	0	0	
6/10/2009	3	3	17	Shannon	254	7	B	4	20	20	3	0	0	0	
6/10/2009	3	3	18	Shannon	645	5	A	1	70	70	4	0	0	5	
6/10/2009	3	3	19	Shannon	311	9	A	8	90	90	4	0	0	17	
6/10/2009	3	3	20	Shannon	477	2	B	4	20	20	3	0	0	1	
6/10/2009	3	3	21	Shannon	555	10	A	4	80	80	4	0	0	18	
6/10/2009	3	3	22	Shannon	716	10	B	8	90	90	4	0	0	30	
6/10/2009	3	3	1	Sonia	870	9	B	8	30	30	5	0	0	16	
6/10/2009	3	3	2	Sonia	387	4	B	8	40	40	3	0	0	0	
6/10/2009	3	3	3	Sonia	203	8	A	4	20	20	3	0	0	0	
6/10/2009	3	3	4	Sonia	813	4	A	4	30	30	3	0	0	0	
6/10/2009	3	3	5	Sonia	99	1	A	4	30	30	3	0	0	0	
6/10/2009	3	3	6	Sonia	496	3	B	8	30	30	5	0	0	0	
6/10/2009	3	3	7	Sonia	73	1	B	8	20	20	3	0	0	0	
6/10/2009	3	3	8	Sonia	142	6	A	8	20	20	3	0	0	7	

6/10/2009	3	3	9	Sonia	890	2	A	3	10	10	2	0	0	0	
6/10/2009	3	3	10	Sonia	421	5	B	4	30	30	3	0	0	10	
6/10/2009	3	3	11	Sonia	183	0	A	4	20	20	2	0	0	0	
6/10/2009	3	3	12	Sonia	112	6	B	8	20	20	5	0	0	6	little discoloration
6/10/2009	3	3	13	Sonia	703	8	B	4	20	20	3	0	0	0	
6/10/2009	3	3	14	Sonia	339	7	A	4	10	10	2	0	0	0	
6/10/2009	3	3	15	Sonia	367	0	B	4	10	10	2	0	0	0	
6/10/2009	3	3	16	Sonia	857	3	A	6	10	10	5	0	0	0	
6/10/2009	3	3	17	Sonia	254	7	B	4	10	10	2	0	0	0	
6/10/2009	3	3	18	Sonia	645	5	A	4	20	20	3	0	0	5	
6/10/2009	3	3	19	Sonia	311	9	A	8	20	20	5	0	0	10	
6/10/2009	3	3	20	Sonia	477	2	B	4	0	0	0	0	0	0	
6/10/2009	3	3	21	Sonia	555	10	A	6	10	10	5	0	0	30	
6/10/2009	3	3	22	Sonia	716	10	B	7	10	10	5	0	0	21	some brn #5 spots
6/10/2009	3	3	1	Tabitha	870	9	B	4	30	30	4	0	0	22	
6/10/2009	3	3	2	Tabitha	387	4	B	4	80	80	4	0	0	1	
6/10/2009	3	3	3	Tabitha	203	8	A	4	80	80	4	0	0	0	
6/10/2009	3	3	4	Tabitha	813	4	A	8	30	30	3	0	0	0	
6/10/2009	3	3	5	Tabitha	99	1	A	8	40	40	4	0	0	0	
6/10/2009	3	3	6	Tabitha	496	3	B	4	70	70	4	0	0	0	fat has high particle def
6/10/2009	3	3	7	Tabitha	73	1	B	4	80	80	3	0	0	0	
6/10/2009	3	3	8	Tabitha	142	6	A	3	70	70	4	0	0	20	
6/10/2009	3	3	9	Tabitha	890	2	A	4	10	10	4	0	0	0	
6/10/2009	3	3	10	Tabitha	421	5	B	4	60	60	4	0	0	8	
6/10/2009	3	3	11	Tabitha	183	0	A	4	10	10	4	0	0	1	
6/10/2009	3	3	12	Tabitha	112	6	B	4	80	80	4	0	0	12	
6/10/2009	3	3	13	Tabitha	703	8	B	4	50	50	4	0	0	1	very little discoloration
6/10/2009	3	3	14	Tabitha	339	7	A	4	10	10	4	0	0	0	still looks fresh
6/10/2009	3	3	15	Tabitha	367	0	B	4	20	20	3	0	0	0	
6/10/2009	3	3	16	Tabitha	857	3	A	8	60	60	4	0	0	1	Some brn #4 spots
6/10/2009	3	3	17	Tabitha	254	7	B	4	20	20	3	0	0	0	
6/10/2009	3	3	18	Tabitha	645	5	A	4	70	70	4	0	0	13	
6/10/2009	3	3	19	Tabitha	311	9	A	8	80	80	4	0	0	6	

6/10/2009	3	3	20	Tabitha	477	2	B	4	10	10	3	0	0	0
6/10/2009	3	3	21	Tabitha	555	10	A	4	80	80	4	0	0	18
6/10/2009	3	3	22	Tabitha	716	10	B	4	80	80	4	0	0	47
6/12/2009	3	5	1	Shannon	636	2	A	8	80	60	3	20	2	0
6/12/2009	3	5	2	Shannon	639	10	A	4	90	90	4	0	0	27
6/12/2009	3	5	3	Shannon	72	5	B	0	100	100	4	0	0	4
6/12/2009	3	5	4	Shannon	255	4	B	8	80	80	5	0	0	1
6/12/2009	3	5	5	Shannon	44	6	B	8	90	90	4	0	0	6
6/12/2009	3	5	6	Shannon	467	1	A	4	90	90	4	0	0	1
6/12/2009	3	5	7	Shannon	858	9	B	0	100	100	5	0	0	15
6/12/2009	3	5	8	Shannon	197	9	A	8	90	90	4	0	0	7
6/12/2009	3	5	9	Shannon	390	0	A	0	100	70	3	30	2	0
6/12/2009	3	5	10	Shannon	482	1	B	1	80	80	3	0	0	2
6/12/2009	3	5	11	Shannon	917	8	B	0	100	100	4	0	0	1
6/12/2009	3	5	12	Shannon	277	3	A	0	100	100	4	0	0	0
6/12/2009	3	5	13	Shannon	320	2	B	4	60	60	4	0	0	0
6/12/2009	3	5	14	Shannon	373	7	B	4	70	60	4	10	2	0
6/12/2009	3	5	15	Shannon	239	6	A	0	100	100	4	0	0	6
6/12/2009	3	5	16	Shannon	481	7	A	8	80	60	4	20	2	0
6/12/2009	3	5	17	Shannon	54	0	B	0	100	20	3	80	2	0
6/12/2009	3	5	18	Shannon	442	5	A	1	80	60	4	20	2	5
6/12/2009	3	5	19	Shannon	140	4	A	4	80	80	4	0	0	0
6/12/2009	3	5	20	Shannon	208	10	B	0	100	100	4	0	0	24
6/12/2009	3	5	21	Shannon	672	3	B	0	100	100	4	0	0	0
6/12/2009	3	5	22	Shannon	53	8	A	1	90	80	4	10	2	0
6/12/2009	3	5	1	Sonia	636	2	A	4	80	80	3	0	0	0
6/12/2009	3	5	2	Sonia	639	10	A	5	90	90	4	0	0	24
6/12/2009	3	5	3	Sonia	72	5	B	2	90	0	0	90	2	11
6/12/2009	3	5	4	Sonia	255	4	B	3	90	90	4	0	0	0
6/12/2009	3	5	5	Sonia	44	6	B	2	90	90	5	0	0	13
6/12/2009	3	5	6	Sonia	467	1	A	2	90	80	5	10	4	0
6/12/2009	3	5	7	Sonia	858	9	B	0	100	100	5	0	0	10
6/12/2009	3	5	8	Sonia	197	9	A	0	100	100	5	0	0	15

6/12/2009	3	5	9	Sonia	390	0	A	4	80	40	3	40	2	0
6/12/2009	3	5	10	Sonia	482	1	B	0	100	100	4	0	0	0
6/12/2009	3	5	11	Sonia	917	8	B	4	90	90	3	0	0	0
6/12/2009	3	5	12	Sonia	277	3	A	2	90	90	5	0	0	0
6/12/2009	3	5	13	Sonia	320	2	B	4	10	10	3	0	0	0
6/12/2009	3	5	14	Sonia	373	7	B	4	30	30	3	0	0	0
6/12/2009	3	5	15	Sonia	239	6	A	0	100	80	4	20	2	14
6/12/2009	3	5	16	Sonia	481	7	A	4	70	40	3	30	2	0
6/12/2009	3	5	17	Sonia	54	0	B	0	100	20	3	80	2	0
6/12/2009	3	5	18	Sonia	442	5	A	4	90	80	4	10	2	12
6/12/2009	3	5	19	Sonia	140	4	A	0	100	100	5	0	0	0
6/12/2009	3	5	20	Sonia	208	10	B	3	90	90	4	0	0	25
6/12/2009	3	5	21	Sonia	672	3	B	0	100	100	5	0	0	0
6/12/2009	3	5	22	Sonia	53	8	A	3	90	90	5	0	0	0
6/12/2009	3	5	1	Tabitha	636	2	A	4	80	70	3	10	2	0
6/12/2009	3	5	2	Tabitha	639	10	A	4	90	90	4	0	0	43
6/12/2009	3	5	3	Tabitha	72	5	B	4	100	10	3	90	2	8
6/12/2009	3	5	4	Tabitha	255	4	B	4	90	90	3	0	0	1
6/12/2009	3	5	5	Tabitha	44	6	B	4	90	90	4	0	0	14
6/12/2009	3	5	6	Tabitha	467	1	A	4	100	100	3	0	0	0
6/12/2009	3	5	7	Tabitha	858	9	B	8	100	100	3	0	0	23
6/12/2009	3	5	8	Tabitha	197	9	A	8	100	100	3	0	0	22
6/12/2009	3	5	9	Tabitha	390	0	A	4	80	40	3	40	2	0
6/12/2009	3	5	10	Tabitha	482	1	B	4	80	80	3	0	0	1
6/12/2009	3	5	11	Tabitha	917	8	B	4	80	80	4	0	0	0
6/12/2009	3	5	12	Tabitha	277	3	A	4	100	100	4	0	0	1
6/12/2009	3	5	13	Tabitha	320	2	B	4	70	70	3	0	0	1
6/12/2009	3	5	14	Tabitha	373	7	B	4	80	60	3	20	2	0
6/12/2009	3	5	15	Tabitha	239	6	A	0	100	100	4	0	0	14
6/12/2009	3	5	16	Tabitha	481	7	A	4	100	60	3	40	2	0
6/12/2009	3	5	17	Tabitha	54	0	B	0	100	10	3	90	2	0
6/12/2009	3	5	18	Tabitha	442	5	A	4	90	20	3	70	2	9
6/12/2009	3	5	19	Tabitha	140	4	A	4	80	80	4	0	0	1

6/12/2009	3	5	20	Tabitha	208	10	B	0	100	80	4	20	2	38
6/12/2009	3	5	21	Tabitha	672	3	B	4	100	100	4	0	0	2
6/12/2009	3	5	22	Tabitha	53	8	A	4	90	45	4	45	2	0

COOK DATA

Date	Batch	Order	Trt	Day	Ptty	RawWt	CkWt	TempOn	TimeOn	TempOff	TimeOff
5/14/2009	1	7	0	0	B	200.3	126.4	7.9	1038	73	1057
5/14/2009	1	7	0	0	A	199.8	145.6	9.6	1038	73	1048
5/14/2009	1	7	0	1	B	199.8	133.6	8.1	1038	73	1058
5/14/2009	1	7	0	1	A	200.1	132.9	10.7	1038	73	1055
5/14/2009	1	7	0	3	A	200.7	123.5	8.5	1038	73	1059
5/14/2009	1	7	0	3	B	200.5	134.2	9.4	1038	73	1057
5/14/2009	1	7	0	5	A	200.7	133.4	6.9	1038	73	1059
5/14/2009	1	7	0	5	B	200.1	135.3	8.8	1038	73	1053
5/14/2009	1	3	1	0	B	200.8	133.4	6.4	852	73	912
5/14/2009	1	3	1	0	A	200.6	132.7	9.1	852	73.9	907
5/14/2009	1	3	1	1	A	200.6	128	7.8	852	73	905
5/14/2009	1	3	1	1	B	200.6	123.9	8.6	852	73	912
5/14/2009	1	3	1	3	A	199.8	127	9.4	852	73	909
5/14/2009	1	3	1	3	B	200.7	134.4	7.5	852	73.4	908
5/14/2009	1	3	1	5	A	200.1	128.3	6	852	73	912
5/14/2009	1	3	1	5	B	200	134.4	8.8	852	73	904
5/14/2009	1	8	2	0	B	199.2	120.4	10.2	1108	73	1124
5/14/2009	1	8	2	0	A	199.4	119	10.9	1108	73	1124
5/14/2009	1	8	2	1	B	200.2	131	8.1	1108	73	1124
5/14/2009	1	8	2	1	A	200	120.7	9.2	1108	73	1124
5/14/2009	1	8	2	3	B	200.9	133.7	8.6	1108	73	1123
5/14/2009	1	8	2	3	A	200.2	123.1	9.7	1108	73	1124
5/14/2009	1	8	2	5	B	200.7	122.4	7.4	1108	73	.
5/14/2009	1	8	2	5	A	200.9	123.3	11.8	1108	73	1124
5/14/2009	1	9	3	0	A	200.3	141	12.4	1135	73	1149
5/14/2009	1	9	3	0	B	200.2	129.3	13	1135	73	1150
5/14/2009	1	9	3	1	A	199.7	127.5	11.3	1135	73	1149
5/14/2009	1	9	3	1	B	200.6	129.8	11.8	1135	73	1150
5/14/2009	1	9	3	3	B	200.8	130.8	11.2	1135	73	1150
5/14/2009	1	9	3	3	A	200.7	148.8	12.3	1135	73	1145

5/14/2009	1	9	3	5	A	199.3	141.6	10	1135	73	1150
5/14/2009	1	9	3	5	B	199.5	129.7	10.4	1135	73	1150
5/14/2009	1	1	4	0	B	200.6	132.1	10.8	802	73	820
5/14/2009	1	1	4	0	A	200.5	134.3	11.7	802	73	823
5/14/2009	1	1	4	1	A	201	133.8	12.5	802	73	823
5/14/2009	1	1	4	1	B	199.3	141.4	12.8	802	73	822
5/14/2009	1	1	4	3	A	200.7	135.2	.	802	73	819
5/14/2009	1	1	4	3	B	199.4	132	12.8	802	74.3	818
5/14/2009	1	1	4	5	A	200.5	137.4	11.1	802	73	817
5/14/2009	1	1	4	5	B	201	139.2	12.7	802	73	823
5/14/2009	1	4	5	0	B	199.7	127	11.9	924	73	944
5/14/2009	1	4	5	0	A	200.4	127.2	12.4	924	73	944
5/14/2009	1	4	5	1	A	199.9	133.3	11.5	924	73	939
5/14/2009	1	4	5	1	B	199.6	128.7	11.6	924	73	942
5/14/2009	1	4	5	3	A	199.7	137.9	11.7	924	73	939
5/14/2009	1	4	5	3	B	200.1	130.4	12.6	924	73	942
5/14/2009	1	4	5	5	B	200.9	138.5	10.8	924	73	936
5/14/2009	1	4	5	5	A	200.9	124.7	13.6	924	73	944
5/14/2009	1	6	6	0	B	200.5	134.5	10.5	1015	73	1029
5/14/2009	1	6	6	0	A	199.7	131.5	13	1015	73	1028
5/14/2009	1	6	6	1	A	200	113.1	10.8	1015	73	1030
5/14/2009	1	6	6	1	B	200.3	133.5	12.3	1015	73	1031
5/14/2009	1	6	6	3	B	199.9	134	10.7	1015	73	1031
5/14/2009	1	6	6	3	A	200.2	136	12.3	1015	73	1031
5/14/2009	1	6	6	5	B	200.4	131.3	7.7	1015	73	1030
5/14/2009	1	6	6	5	A	199.5	137.9	8.8	1015	73	1031
5/14/2009	1	2	7	0	B	200.3	130.6	10.2	827	73	842
5/14/2009	1	2	7	0	A	200.9	146.9	12.3	827	73.7	839
5/14/2009	1	2	7	1	B	200.7	134.6	11.2	827	73	842
5/14/2009	1	2	7	1	A	199.4	145.2	12.6	827	73	841
5/14/2009	1	2	7	3	B	200.7	137.7	10.7	827	73	842
5/14/2009	1	2	7	3	A	200.2	139.6	11.9	827	73.1	841
5/14/2009	1	2	7	5	A	200	134.3	10.8	827	73	842

5/14/2009	1	2	7	5	B	200.2	145.5	11.5	827	73	839
5/14/2009	1	11	8	0	B	200.8	142.6	11.2	1220	73	1234
5/14/2009	1	11	8	0	A	200.7	134.5	11.8	1220	73	1238
5/14/2009	1	11	8	1	B	200.1	147.2	12.1	1220	73	1232
5/14/2009	1	11	8	1	A	199.5	127	12.4	1220	73	1238
5/14/2009	1	11	8	3	B	200.7	150	11	1220	73	1232
5/14/2009	1	11	8	3	A	200.2	141.7	12.4	1220	73	1233
5/14/2009	1	11	8	5	B	200.8	140.9	9.4	1220	73	1235
5/14/2009	1	11	8	5	A	200.9	143.4	10.5	1220	73	1235
5/14/2009	1	5	9	0	B	200.8	131.1	6.9	952	73	1009
5/14/2009	1	5	9	0	A	199.4	129.6	10.8	952	73	1008
5/14/2009	1	5	9	1	B	200.6	130.2	7.5	952	73	1007
5/14/2009	1	5	9	1	A	200	130.9	10.6	952	73	1007
5/14/2009	1	5	9	3	B	200.2	126.5	7.5	952	73	1009
5/14/2009	1	5	9	3	A	200.9	130.7	8.1	952	73	1008
5/14/2009	1	5	9	5	B	199	132.6	7.4	952	73	1009
5/14/2009	1	5	9	5	A	199.9	143.9	11.3	952	73	1003
5/14/2009	1	10	10	0	A	200.6	131.3	9.3	1159	73	1215
5/14/2009	1	10	10	0	B	199.3	135.7	9.4	1159	73	1212
5/14/2009	1	10	10	1	A	200.3	135.1	9.3	1159	73	1215
5/14/2009	1	10	10	1	B	199.5	130.3	10.4	1159	73	1215
5/14/2009	1	10	10	3	B	200	132.8	8.4	1159	73	1212
5/14/2009	1	10	10	3	A	200.2	130.4	10.1	1159	73	1215
5/14/2009	1	10	10	5	A	200.8	135.4	6.8	1159	73	1215
5/14/2009	1	10	10	5	B	200.6	121.9	9.9	1159	73	1215
5/20/2009	2	6	0	0	B	199.9	137.8	4.9	843	73	902
5/20/2009	2	6	0	0	A	200.6	137	6.8	843	73	902
5/20/2009	2	6	0	1	A	200.3	140.4	6.4	843	73	902
5/20/2009	2	6	0	1	B	200.6	136.3	8	843	73	902
5/20/2009	2	6	0	3	B	200.1	139.5	7.2	843	73	902
5/20/2009	2	6	0	3	A	200.6	134.5	7.8	843	73	902
5/20/2009	2	6	0	5	A	200.4	139.7	4.6	843	73	902
5/20/2009	2	6	0	5	B	200.7	129.2	5.5	843	73	902

5/20/2009	2	10	1	0	A	200.3	136.6	5.5	.		73	1035
5/20/2009	2	10	1	0	B	200	144.7	6.6	.		73	1033
5/20/2009	2	10	1	1	B	200.7	137.2	7	.		73	1033
5/20/2009	2	10	1	1	A	200.5	143.4	9.1	.		73	1035
5/20/2009	2	10	1	3	B	200.3	135.1	4.5	.		73	1034
5/20/2009	2	10	1	3	A	200.7	132.7	5.5	.		74	1036
5/20/2009	2	10	1	5	B	200.8	137.3	5.6	.		73	1033
5/20/2009	2	10	1	5	A	200.3	146.1	8.4	.		73	1032
5/20/2009	2	5	2	0	A	200	128.3	7.6		813	73	829
5/20/2009	2	5	2	0	B	199.5	132.7	8.4		813	73	828
5/20/2009	2	5	2	1	B	199.9	138.8	7.3		813	73	829
5/20/2009	2	5	2	1	A	200.3	135.7	7.9		813	73	832
5/20/2009	2	5	2	3	A	200.5	136.3	4.6		813	73	832
5/20/2009	2	5	2	3	B	199.5	133.2	6.1		813	73	832
5/20/2009	2	5	2	5	B	199.8	140.2	3.3		813	73	827
5/20/2009	2	5	2	5	A	200.3	136.6	5.6		813	73	830
5/20/2009	2	3	3	0	B	199.7	139.8	5.1		730	73	744
5/20/2009	2	3	3	0	A	199.6	146	5.4		730	73	744
5/20/2009	2	3	3	1	B	200.3	142	6.7		730	73	744
5/20/2009	2	3	3	1	A	199.6	137.8	9		730	73	744
5/20/2009	2	3	3	3	A	200.4	145.3	8		730	73	743
5/20/2009	2	3	3	3	B	200.5	137.7	8.8		730	73	744
5/20/2009	2	3	3	5	B	200	146.3	6		730	73	744
5/20/2009	2	3	3	5	A	200.4	149.1	6.2		730	73	744
5/20/2009	2	1	4	0	B	200.5	137.2	8.1	.		73	649
5/20/2009	2	1	4	0	A	199.7	128.7	9.8	.		73	653
5/20/2009	2	1	4	1	B	199.8	134.4	9.3	.		73	653
5/20/2009	2	1	4	1	A	199.7	128.8	9.8	.		73	653
5/20/2009	2	1	4	3	B	200	142.5	8.3	.		73	649
5/20/2009	2	1	4	3	A	199.5	132.2	9	.		73	653
5/20/2009	2	1	4	5	A	200	127.5	7.5	.		73	653
5/20/2009	2	1	4	5	B	200.2	145.3	8.1	.		73	649
5/20/2009	2	9	5	0	B	200.5	133.8	8.1		951	73	1008

5/20/2009	2	9	5	0	A	199.6	136.5	10.6	951	73	1006
5/20/2009	2	9	5	1	B	200.6	135.1	8.1	951	73	1008
5/20/2009	2	9	5	1	A	200.6	138.9	9.6	951	73	1006
5/20/2009	2	9	5	3	A	200.5	144.2	7.3	951	73	1004
5/20/2009	2	9	5	3	B	200.6	142	8.7	951	73	1004
5/20/2009	2	9	5	5	B	200.7	133.6	7.5	951	73	1009
5/20/2009	2	9	5	5	A	199.9	138.4	8.6	951	73	1005
5/20/2009	2	7	6	0	A	199.8	150.6	6	905	73	918
5/20/2009	2	7	6	0	B	200.4	136.2	7	905	73	920
5/20/2009	2	7	6	1	A	200.6	132.4	6.9	905	73	921
5/20/2009	2	7	6	1	B	200.9	136.5	8	905	73	920
5/20/2009	2	7	6	3	A	200.1	152.8	6.1	905	73	918
5/20/2009	2	7	6	3	B	200.6	138.4	6.2	905	73	922
5/20/2009	2	7	6	5	B	200.4	138.1	5.4	905	73	923
5/20/2009	2	7	6	5	A	200.1	140.7	6.5	905	73	921
5/20/2009	2	2	7	0	B	199.7	135.3	9.6	659	73	715
5/20/2009	2	2	7	0	A	199.6	143.9	9.4	659	73.3	714
5/20/2009	2	2	7	1	B	199.7	151.2	8.6	659	73	714
5/20/2009	2	2	7	1	A	200.1	151.3	10.3	659	73	712
5/20/2009	2	2	7	3	B	199.7	143.9	7.4	659	73	714
5/20/2009	2	2	7	3	A	200.1	146.1	9.3	659	73	715
5/20/2009	2	2	7	5	A	199.6	136.9	8	659	73	715
5/20/2009	2	2	7	5	B	199.8	153.4	8.7	659	73	715
5/20/2009	2	4	8	0	B	200.5	140.9	3.8	751	73	809
5/20/2009	2	4	8	0	A	199.7	135.2	4.3	751	73	809
5/20/2009	2	4	8	1	B	199.5	134.5	6.6	751	73	808
5/20/2009	2	4	8	1	A	199.8	132.5	8.8	751	73	809
5/20/2009	2	4	8	3	A	200.2	149.9	6.9	751	73	807
5/20/2009	2	4	8	3	B	200.2	128	8.5	751	73	808
5/20/2009	2	4	8	5	A	199.7	137	5.9	751	73	809
5/20/2009	2	4	8	5	B	200	137.1	6.8	751	73	808
5/20/2009	2	8	9	0	B	200.8	131	11.3	930	73	946
5/20/2009	2	8	9	0	A	200.6	147.1	12.5	930	73	944

5/20/2009	2	8	9	1	A	200.1	137.5	7.9	930	73	947
5/20/2009	2	8	9	1	B	200.7	133.6	11.8	930	73	945
5/20/2009	2	8	9	3	A	200.5	136.3	8.1	930	73	946
5/20/2009	2	8	9	3	B	200.4	140.2	8.6	930	73	944
5/20/2009	2	8	9	5	A	199.7	133.8	7	930	73	948
5/20/2009	2	8	9	5	B	200	139.6	8.1	930	73	946
5/20/2009	2	11	10	0	A	200.2	142.9	7.4	1038	73	1052
5/20/2009	2	11	10	0	B	200.1	138.6	7.7	1038	73	1054
5/20/2009	2	11	10	1	B	200.1	139.2	7.4	1038	73	1055
5/20/2009	2	11	10	1	A	200.5	130.5	8.1	1038	73	1056
5/20/2009	2	11	10	3	B	200.9	132.6	6.5	1038	73.1	1055
5/20/2009	2	11	10	3	A	199.9	130.3	6.6	1038	73.3	1057
5/20/2009	2	11	10	5	B	200.8	116.4	6.8	1038	73	1056
5/20/2009	2	11	10	5	A	200.4	138.1	7.3	1038	73	1054
6/7/2009	3	7	0	0	B	201.5	137	13.2	845	73	859
6/7/2009	3	7	0	0	A	200.5	142.3	13.3	845	73	859
6/7/2009	3	7	0	1	B	199.8	141.1	11.3	845	73	858
6/7/2009	3	7	0	1	A	199.6	132.6	14.2	845	73	859
6/7/2009	3	7	0	3	B	200.6	148.4	13.1	845	73	858
6/7/2009	3	7	0	3	A	200.2	134.2	13.6	845	73	859
6/7/2009	3	7	0	5	A	200.5	135	11.5	845	73	859
6/7/2009	3	7	0	5	B	201.1	139.7	12.6	845	73	859
6/7/2009	3	11	1	0	B	201.4	136.1	14.8	1010	73	1027
6/7/2009	3	11	1	0	A	199.4	138.6	15.6	1010	73	1023
6/7/2009	3	11	1	1	B	200.5	133.3	13.8	1010	73	1025
6/7/2009	3	11	1	1	A	200.5	139	15.6	1010	73	1027
6/7/2009	3	11	1	3	B	200.3	159.5	14.1	1010	73	1023
6/7/2009	3	11	1	3	A	201.2	143.6	14.5	1010	73	1023
6/7/2009	3	11	1	5	B	199.3	136.7	13.8	1010	73	1025
6/7/2009	3	11	1	5	A	200.6	135.6	14.2	1010	73	1027
6/7/2009	3	6	2	0	A	201.9	152.5	11.9	.	73	837
6/7/2009	3	6	2	0	B	199.1	151.8	12.8	.	73	837
6/7/2009	3	6	2	1	B	199.6	130.6	12.1	.	73	841

6/7/2009	3	6	2	1	A	201.1	134.4	12.4	.		73	843
6/7/2009	3	6	2	3	B	199.4	146.9	9.2	.		73	839
6/7/2009	3	6	2	3	A	200.3	133.3	12.4	.		73	843
6/7/2009	3	6	2	5	B	200	157.4	9.6	.		73	838
6/7/2009	3	6	2	5	A	199.1	137.6	10.3	.		73	843
6/7/2009	3	4	3	0	B	199.6	139.8	12.4		743	73	759
6/7/2009	3	4	3	0	A	199.6	136	14		743	73	757
6/7/2009	3	4	3	1	B	199.1	132.7	13.5		743	73	759
6/7/2009	3	4	3	1	A	200.5	138.9	14.1		743	73	759
6/7/2009	3	4	3	3	A	201.2	144.3	11.4		743	73	759
6/7/2009	3	4	3	3	B	199.9	138.8	12.1		743	73	759
6/7/2009	3	4	3	5	B	200.6	142.3	11.2		743	73	756
6/7/2009	3	4	3	5	A	200.1	148.1	11.7		743	73	756
6/7/2009	3	5	4	0	A	200.3	134	12.9		802	73	817
6/7/2009	3	5	4	0	B	200.3	132.1	14.1		802	73	820
6/7/2009	3	5	4	1	B	199.3	126.9	12.2		802	73	820
6/7/2009	3	5	4	1	A	199.1	128.8	14.1		802	73	820
6/7/2009	3	5	4	3	B	199.2	132.4	12		802	73	817
6/7/2009	3	5	4	3	A	200.6	129.3	12		802	73	820
6/7/2009	3	5	4	5	A	200.8	150.1	11.5		802	73	814
6/7/2009	3	5	4	5	B	199.7	130	13.3		802	73	820
6/7/2009	3	1	5	0	B	200	136.4	8.5		641	73	656
6/7/2009	3	1	5	0	A	200	133.7	15.6		641	73	656
6/7/2009	3	1	5	1	B	200.2	137.1	9.2		641	73	656
6/7/2009	3	1	5	1	A	199.2	145.7	10		641	73	656
6/7/2009	3	1	5	3	B	200.8	129.2	8.3		641	73	656
6/7/2009	3	1	5	3	A	200.2	139.4	9.2		641	73	656
6/7/2009	3	1	5	5	B	200.9	137.5	7.8		641	73	656
6/7/2009	3	1	5	5	A	200.1	135.5	8.7		641	73	656
6/7/2009	3	9	6	0	B	200.1	136.3	14.6		929	73	945
6/7/2009	3	9	6	0	A	201.1	134.8	15.3		929	73	945
6/7/2009	3	9	6	1	B	200.5	147.9	15.7		929	73	945
6/7/2009	3	9	6	1	A	199.9	137.7	15.8		929	73	945

6/7/2009	3	9	6	3	B	200	136.3	10.6		929	73	945
6/7/2009	3	9	6	3	A	200.4	136.7	14.5		929	73	945
6/7/2009	3	9	6	5	B	200.5	152.6	14.4		929	73	945
6/7/2009	3	9	6	5	A	200.3	141.1	14.5		929	73	945
6/7/2009	3	8	7	0	B	201	139	11.9		905	74	923
6/7/2009	3	8	7	0	A	200.2	137	11.1		905	78	923
6/7/2009	3	8	7	1	B	200	135.4	12.3		905	73	923
6/7/2009	3	8	7	1	A	200.4	138.2	12.6		905	73	923
6/7/2009	3	8	7	3	A	200.5	139.1	11.3		905	70	923
6/7/2009	3	8	7	3	B	201.9	137.8	12.4		905	75	923
6/7/2009	3	8	7	5	A	201.2	143	13.2		905	73	923
6/7/2009	3	8	7	5	B	200.2	137.5	12		905	78	923
6/7/2009	3	2	8	0	A	200.3	155.3	12.2		700	73	712
6/7/2009	3	2	8	0	B	201	147.5	12.5		700	73	712
6/7/2009	3	2	8	1	B	199.7	159.2	11.6		700	73	712
6/7/2009	3	2	8	1	A	200.3	160.3	12		700	73	712
6/7/2009	3	2	8	3	A	201	154.2	11.5		700	73	712
6/7/2009	3	2	8	3	B	201	155.6	14.4		700	73	712
6/7/2009	3	2	8	5	B	199.9	158.5	9.9		700	73	712
6/7/2009	3	2	8	5	A	201	153.7	10.7		700	73	712
6/7/2009	3	10	9	0	A	201.2	136.6	15.5	.		73	1006
6/7/2009	3	10	9	0	B	200	143.8	15.2	.		75	1001
6/7/2009	3	10	9	1	B	201.9	142.1	11.5	.		73	1006
6/7/2009	3	10	9	1	A	201.4	145.7	15.2	.		73	1006
6/7/2009	3	10	9	3	B	199.3	132.6	12.5	.		73	1006
6/7/2009	3	10	9	3	A	199.8	136.1	14.4	.		73	1006
6/7/2009	3	10	9	5	A	200.8	138.1	13.8	.		73	1006
6/7/2009	3	10	9	5	B	200.6	152.5	15	.		73	1006
6/7/2009	3	3	10	0	B	200.1	138	12.3		722	73	736
6/7/2009	3	3	10	0	A	201.1	154.9	12.6		722	73	732
6/7/2009	3	3	10	1	B	199.3	150.2	11.8		722	73	735
6/7/2009	3	3	10	1	A	200.1	146.1	14		722	73	736
6/7/2009	3	3	10	3	B	199.7	156.7	10.4		722	73	732

6/7/2009	3	3	10	3	A	200.9	138.3	13	722	73	736
6/7/2009	3	3	10	5	B	200.3	147.7	10.2	722	73	735
6/7/2009	3	3	10	5	A	200.2	139.8	11	722	73	736

APPENDIX D

RAW DATA

STUDY 2. CHESTNUT, MIMOSA, QUEBRACHO, AND GRAPESEED TANNINS

TREATMENT CODES

0=Control
1=0.02% Combined BHA/BHT
2=0.2% Rosemary
3=0.25% Chardonnay Grapeseed
4=0.5% Chardonnay Grapeseed
5=0.5% Norton Grapeseed
6=0.25% Chestnut
7=0.5% Chestnut
8=0.25% Mimosa
9=0.5% Mimosa
10=0.25% Quebracho
11=0.5% Quebracho

TBARS

Date	Batch	Day	Order	Trt	Patty	SampleA	SlurryA	SampleB	SlurryB	AbsA1	AbsA2	AbsB1	AbsB2
9/14/2009	1	0	1	1	A	30.02	30.04	29.98	30.01	0.1307	0.1275	0.1356	0.1362
9/14/2009	1	0	2	8	A	30.02	30.05	29.97	30	0.0766	0.0735	0.1027	0.0731
9/14/2009	1	0	3	8	B	29.95	30.01	29.99	30.03	0.1601	0.0799	0.1218	0.1171
9/14/2009	1	0	4	11	B	30.01	30	29.98	30	0.11	0.1101	0.1134	0.1151
9/14/2009	1	0	5	7	A	30.03	29.97	30.01	30.03	0.133	0.0797	0.1223	0.1068
9/14/2009	1	0	6	10	B	30.02	29.98	30	29.99	0.0889	0.0872	0.1737	0.0812
9/14/2009	1	0	7	5	A	29.97	29.99	29.98	30.01	0.1158	0.1054	0.1264	0.1236
9/14/2009	1	0	8	6	B	30.03	30.01	29.99	30.02	0.1055	0.1056	0.0953	0.0933
9/14/2009	1	0	9	9	A	29.98	30.03	29.97	30.01	0.1298	0.1312	0.1118	0.1127
9/14/2009	1	0	10	11	A	29.99	30.01	30.01	30	0.0905	0.0899	0.0882	0.0921
9/14/2009	1	0	11	4	B	30	29.99	30	29.98	0.1132	0.0959	0.1008	0.1017
9/14/2009	1	0	12	6	A	29.99	30.01	30.02	30.02	0.1403	0.1384	0.1224	0.1237
9/14/2009	1	0	13	0	B	30.01	30	29.97	30	0.2013	0.2027	0.2202	0.2213
9/14/2009	1	0	14	9	B	30.03	29.97	30	29.99	0.0983	0.0931	0.0987	0.0973
9/14/2009	1	0	15	4	A	29.99	29.98	29.99	30.03	0.104	0.1046	0.1092	0.1065
9/14/2009	1	0	16	5	B	30.03	30	29.99	30.03	0.1236	0.1137	0.1132	0.111
9/14/2009	1	0	17	1	B	29.99	30.03	30.01	30.02	0.0991	0.1057	0.1033	0.1058
9/14/2009	1	0	18	7	B	29.99	29.98	30.01	30.03	0.103	0.1206	0.1159	0.1097
9/14/2009	1	0	19	0	A	30.03	30.02	29.99	30.02	0.2727	0.2728	0.2822	0.1426
9/14/2009	1	0	20	3	A	30.03	30.01	29.98	29.99	0.0596	0.0568	0.0529	0.0519
9/14/2009	1	0	21	10	A	30.03	30.05	30.03	30.03	0.0853	0.0849	0.0969	.
9/14/2009	1	0	22	2	B	27.01	29.99	30.02	30	0.0919	0.0908	0.1234	0.1389
9/14/2009	1	0	23	3	B	29.98	29.98	30	30	0.1043	0.0997	0.0982	0.101
9/14/2009	1	0	24	2	A	29.99	30.02	30.01	30.03	0.0797	0.1063	0.1091	0.112
9/15/2009	1	1	1	1	A	29.98	29.99	30.02	29.99	0.1669	0.174	0.1743	0.1366
9/15/2009	1	1	2	4	A	30	29.98	30.02	30.03	0.056	0.0515	0.0546	0.0509
9/15/2009	1	1	3	0	A	30	30	29.95	30	0.1788	0.2036	0.2176	0.2192
9/15/2009	1	1	4	5	A	30.03	30.01	30.04	29.97	0.0632	0.0673	0.0657	0.0625
9/15/2009	1	1	5	11	B	29.99	30.01	30	29.99	0.0536	0.0564	0.0485	0.0501
9/15/2009	1	1	6	2	B	30	30	30.01	30.01	0.0976	0.098	0.0829	0.0756

9/15/2009	1	1	7	6	B	30.03	30	30.02	30	0.043	0.0432	0.0447	0.0448
9/15/2009	1	1	8	1	B	30.02	30	29.99	30.01	0.081	0.0828	0.0659	0.0719
9/15/2009	1	1	9	10	A	30	30.04	29.97	29.98	0.0395	0.0413	0.0883	0.0943
9/15/2009	1	1	10	0	B	29.99	30.01	30	30.01	0.5172	0.5214	0.3995	0.4383
9/15/2009	1	1	11	3	B	30.02	30.02	30	30.02	0.1402	0.1308	0.1354	0.1395
9/15/2009	1	1	12	8	A	30.05	30.05	30.05	30.05	0.0704	0.0751	0.0851	0.0859
9/15/2009	1	1	13	9	A	30.04	30	30.02	30.05	0.0872	0.0841	0.1186	0.1282
9/15/2009	1	1	14	7	B	30.05	30.01	30.05	30.03	0.0886	0.0918	0.1004	0.1059
9/15/2009	1	1	15	4	B	30.01	30.04	30.04	29.99	0.0898	0.0932	0.0984	0.0999
9/15/2009	1	1	16	3	A	30.03	29.97	30.01	29.97	0.1552	0.1544	0.1251	0.1216
9/15/2009	1	1	17	7	A	30.01	30.05	29.97	30.03	0.0872	0.0812	0.1026	0.1008
9/15/2009	1	1	18	9	B	30.03	29.97	30.05	29.96	0.0957	0.0961	0.0866	0.0913
9/15/2009	1	1	19	10	B	30.05	30.04	30	30	0.0813	0.0803	0.1055	0.1202
9/15/2009	1	1	20	8	B	30.05	29.97	30	29.95	0.0872	0.0854	0.0708	0.0786
9/15/2009	1	1	21	6	A	29.98	29.99	30.04	30.04	0.0871	0.0901	0.0744	0.0792
9/15/2009	1	1	22	5	B	29.96	29.96	30.03	30.03	0.124	0.1273	0.1227	0.128
9/15/2009	1	1	23	2	A	29.96	30.02	29.98	29.99	0.2165	0.212	0.2175	0.2153
9/15/2009	1	1	24	11	A	29.99	30.05	29.96	29.96	0.1091	0.0984	0.0801	0.0822
9/17/2009	1	3	1	9	B	30	29.97	30.03	30.03	0.101	0.1054	0.0814	0.0792
9/17/2009	1	3	2	5	A	29.99	29.96	30.03	30	0.1525	0.152	0.1336	0.1318
9/17/2009	1	3	3	4	B	30	29.96	30.03	29.97	0.0918	0.0903	0.0994	0.0956
9/17/2009	1	3	4	8	B	30.01	30.02	30.03	30.04	0.0755	0.0799	0.0771	0.0747
9/17/2009	1	3	5	6	B	29.98	30.05	29.98	29.98	0.0921	0.0911	0.1054	0.1022
9/17/2009	1	3	6	5	B	30	29.95	30	30.04	0.1574	0.1568	0.1654	0.166
9/17/2009	1	3	7	7	B	30	30.01	29.99	29.99	0.089	0.0886	0.0997	0.103
9/17/2009	1	3	8	2	B	30.04	30.04	29.99	30	0.3438	0.3475	0.3926	0.3875
9/17/2009	1	3	9	6	A	29.98	30.01	29.98	29.98	0.0991	0.0979	0.0864	0.101
9/17/2009	1	3	10	3	B	30.05	30.01	30.03	30.03	0.1807	0.1771	0.1875	0.1856
9/17/2009	1	3	11	9	A	30.04	29.99	29.98	29.98	0.1074	0.103	0.1009	0.1007
9/17/2009	1	3	12	1	A	30.01	29.97	30.01	30	0.2133	0.2148	0.2091	0.2077
9/17/2009	1	3	13	3	A	30	29.99	30.01	30.04	0.1509	0.1611	0.1262	0.1299
9/17/2009	1	3	14	7	A	29.97	29.99	30.01	30.01	0.0835	0.0945	0.0909	0.0889
9/17/2009	1	3	15	10	B	29.98	29.97	30.01	30.02	0.0943	0.099	0.1099	0.094

9/17/2009	1	3	16	2	A	29.98	29.99	29.98	29.98	0.1953	0.201	0.4065	0.4127
9/17/2009	1	3	17	10	A	30.01	29.99	30	29.98	0.097	0.0921	0.0948	0.1077
9/17/2009	1	3	18	0	B	30.02	30.01	30.03	30	0.5912	0.6419	0.7687	0.8148
9/17/2009	1	3	19	8	A	30.02	30	30.03	30.02	0.0881	0.0905	0.063	0.0741
9/17/2009	1	3	20	4	A	30.01	30.01	29.98	29.98	0.088	0.0902	0.0871	0.0915
9/17/2009	1	3	21	1	B	30.01	30.01	30.03	30.03	0.2081	0.2119	0.2021	0.2292
9/17/2009	1	3	22	11	A	30.02	30.01	29.98	30	0.0977	0.0953	0.0968	0.1129
9/17/2009	1	3	23	0	A	30.01	30	29.97	30	0.5667	0.6176	0.6984	0.6864
9/17/2009	1	3	24	11	B	30.05	30.04	30.03	30.03	0.088	0.0948	0.0911	0.0976
9/19/2009	1	5	1	1	B	29.98	30.01	30.03	30	0.2362	0.2399	0.2655	0.2744
9/19/2009	1	5	2	4	B	30.02	30.02	30.04	29.98	0.0943	0.0992	0.1021	0.0945
9/19/2009	1	5	3	9	B	29.99	29.97	30.02	29.97	0.0913	0.1014	0.0921	0.0793
9/19/2009	1	5	4	8	A	30.02	30.02	29.96	30.03	0.0692	0.0762	0.0775	0.0821
9/19/2009	1	5	5	2	A	30.01	30.01	30.01	29.98	0.5384	0.5792	0.4785	0.4826
9/19/2009	1	5	6	4	A	29.97	29.97	30.01	30	0.0961	0.0976	0.0978	0.104
9/19/2009	1	5	7	9	A	30.02	30.04	30.03	29.99	0.103	0.1068	0.0848	0.0967
9/19/2009	1	5	8	3	A	29.99	30.02	29.96	29.96	0.1906	0.1926	0.1992	0.2016
9/19/2009	1	5	9	8	B	30.01	30	30.03	29.97	0.0911	0.0949	0.1014	0.1064
9/19/2009	1	5	10	2	B	29.99	30.02	30.03	30.03	0.5329	0.5125	0.6333	0.6295
9/19/2009	1	5	11	6	A	30.02	29.97	29.99	29.98	0.0869	0.0942	0.0935	0.0917
9/19/2009	1	5	12	5	A	29.99	29.98	30.03	30.03	0.1745	0.1914	0.1745	0.1769
9/19/2009	1	5	13	10	B	29.99	30.01	29.97	30	0.0831	0.0902	0.0891	0.0919
9/19/2009	1	5	14	11	B	30.01	30	30.03	30.02	0.103	0.1128	0.0847	0.0919
9/19/2009	1	5	15	7	B	30	30.03	30	30.02	0.0893	0.0875	0.0911	0.0826
9/19/2009	1	5	16	0	B	29.98	30	29.99	30	0.9591	1.0969	1.0273	0.9941
9/19/2009	1	5	17	10	A	29.99	30.03	30.04	29.98	0.072	0.0734	0.0992	0.0966
9/19/2009	1	5	18	5	B	30.02	30.01	30	30	0.1408	0.1368	0.1738	0.1668
9/19/2009	1	5	19	1	A	30.01	30.02	29.98	29.98	0.2877	0.2937	0.3034	0.2845
9/19/2009	1	5	20	7	A	29.99	29.98	29.98	30.02	0.0786	0.0818	0.0891	0.0863
9/19/2009	1	5	21	3	B	30.02	30.02	30.03	30.02	0.1367	0.1396	0.1494	0.1522
9/19/2009	1	5	22	6	B	30.02	29.97	30	30	0.0852	0.0795	0.0776	0.0776
9/19/2009	1	5	23	11	A	30.03	29.99	29.99	30.01	0.102	0.1065	0.1	0.1037
9/19/2009	1	5	24	0	A	30.04	29.99	30.01	30.02	0.9222	0.8844	1.0178	0.9263

9/21/2009	2	0	1	11	A	30	29.98	30.03	30	0.0748	0.0762	0.0775	0.0759
9/21/2009	2	0	2	4	A	30	29.98	30.02	29.98	0.0779	0.0903	0.0883	0.0708
9/21/2009	2	0	3	5	B	30.03	30.01	29.97	29.98	0.079	0.1012	0.0813	0.0831
9/21/2009	2	0	4	0	A	29.97	29.98	30.02	29.99	0.1343	0.1235	0.0722	0.0663
9/21/2009	2	0	5	10	A	29.98	30.03	30	30.03	0.0736	0.0763	0.0407	0.0789
9/21/2009	2	0	6	6	B	29.98	29.99	29.99	29.97	0.0743	0.0405	0.055	0.0556
9/21/2009	2	0	7	10	B	30	30.03	30	30.01	0.0826	0.0665	0.0686	0.0828
9/21/2009	2	0	8	0	B	29.99	29.97	29.97	30.03	0.1779	0.1622	0.1624	0.179
9/21/2009	2	0	9	7	B	30.02	30.03	30.02	29.97	0.082	0.0934	0.092	0.071
9/21/2009	2	0	10	5	A	30.01	30.02	30.01	30.03	0.0738	0.0872	0.0754	0.0688
9/21/2009	2	0	11	7	A	30.03	30	30.01	30.01	0.0701	0.0819	0.0739	0.0724
9/21/2009	2	0	12	11	B	29.98	30	29.98	29.99	0.0708	0.0718	0.0745	0.0666
9/21/2009	2	0	13	9	B	29.99	29.99	29.98	30	0.0678	0.0679	0.0814	0.0746
9/21/2009	2	0	14	9	A	30.03	30.02	30.01	30.03	0.0712	0.0684	0.0693	0.0665
9/21/2009	2	0	15	8	B	30.02	30.01	30.03	30.02	0.0735	0.0797	0.0757	0.0795
9/21/2009	2	0	16	1	B	30	30.03	29.98	29.99	0.11	0.1063	0.1058	0.0954
9/21/2009	2	0	17	1	A	29.98	30.03	30	30	0.1178	0.1042	0.0994	0.1014
9/21/2009	2	0	18	3	A	29.99	30	30	29.99	0.0919	0.0929	0.0953	0.0935
9/21/2009	2	0	19	8	A	30	30.01	29.99	30.01	0.0688	0.073	0.0868	0.0897
9/21/2009	2	0	20	6	A	30	30.01	29.99	30.01	0.0642	0.0697	0.0632	0.0665
9/21/2009	2	0	21	3	B	30	30.01	30.01	30.03	0.0889	0.0877	0.0876	0.0878
9/21/2009	2	0	22	4	B	30.01	30.01	30.02	30.02	0.0628	0.075	0.075	0.0747
9/21/2009	2	0	23	2	B	30	30.03	29.99	30.02	0.0897	0.0977	0.0957	0.0992
9/21/2009	2	0	24	2	A	30	30	30.02	30.03	0.1026	0.0964	0.0797	0.0887
9/22/2009	2	1	1	2	A	30.05	29.97	29.97	30	0.1311	0.13	0.1783	0.1782
9/22/2009	2	1	2	10	B	29.97	30.04	30.04	30.04	0.0782	0.0602	0.0691	0.0689
9/22/2009	2	1	3	8	A	29.98	30	30	30.05	0.0632	0.0639	0.0678	0.0667
9/22/2009	2	1	4	10	A	29.99	29.97	29.99	30.04	0.0665	0.0629	0.0694	0.0758
9/22/2009	2	1	5	5	A	30	29.96	30.05	29.98	0.109	0.1145	0.1122	0.108
9/22/2009	2	1	6	4	B	29.97	30.02	30	30.03	0.0743	0.0889	0.0762	0.0706
9/22/2009	2	1	7	0	A	29.97	30.01	30.01	29.99	0.4241	0.4469	0.5044	0.4747
9/22/2009	2	1	8	4	A	30.05	29.98	30.03	30.03	0.0639	0.063	0.0766	0.0807
9/22/2009	2	1	9	2	B	30.03	30.01	30.04	29.96	0.1301	0.1309	0.1318	0.128

9/22/2009	2	1	10	9	B	29.99	30.03	29.97	29.96	0.0671	0.0716	0.0572	0.0561
9/22/2009	2	1	11	11	A	30.01	30.04	29.96	30.02	0.0771	0.0866	0.0625	0.0609
9/22/2009	2	1	12	7	A	29.95	30.05	30.03	30.01	0.0684	0.0707	0.0713	0.0665
9/22/2009	2	1	13	3	B	30.04	29.99	30.02	29.96	0.0916	0.0924	0.1101	0.0944
9/22/2009	2	1	14	1	A	29.98	30.04	30.04	30	0.1587	0.1691	0.1628	0.1665
9/22/2009	2	1	15	1	B	30.03	30.03	30.02	30.02	0.1284	0.1252	0.1429	0.1454
9/22/2009	2	1	16	5	B	30.01	30.01	30.03	30.02	0.0905	0.0931	0.098	0.0883
9/22/2009	2	1	17	6	B	30	30	30.01	30	0.0564	0.0521	0.0533	0.0526
9/22/2009	2	1	18	7	B	30.01	30.03	30.02	30.03	0.0686	0.662	0.0632	0.0643
9/22/2009	2	1	19	9	A	29.99	30.02	30.03	30.03	0.0689	0.0566	0.054	0.063
9/22/2009	2	1	20	6	A	30.02	30.02	30.02	30.01	0.0543	0.052	0.0498	0.0424
9/22/2009	2	1	21	11	B	30.02	30.01	30.03	30.02	0.0574	0.0624	0.0645	0.0597
9/22/2009	2	1	22	0	B	29.99	30.02	30.01	30.02	0.3555	0.3718	0.3755	0.3635
9/22/2009	2	1	23	3	A	30.01	30	30	30.01	0.1209	0.1155	0.0984	0.101
9/22/2009	2	1	24	8	B	29.99	30.01	30.01	30.01	0.0559	0.0618	0.0646	0.0673
9/24/2009	2	3	1	10	B	30.02	29.97	30	30.05	0.0733	0.0697	0.0769	0.0701
9/24/2009	2	3	2	8	A	29.98	30.04	29.99	30.04	0.0851	0.0831	0.0803	0.0834
9/24/2009	2	3	3	5	B	29.95	30.04	30.01	30.04	0.126	0.1227	0.1477	0.126
9/24/2009	2	3	4	1	A	30.05	29.97	30.03	30	0.1977	0.2156	0.2385	0.2075
9/24/2009	2	3	5	7	B	29.99	30.03	30.01	30.03	0.0491	0.0448	0.0614	0.0628
9/24/2009	2	3	6	6	A	29.96	30.03	29.95	30	0.0505	0.0491	0.0554	0.0581
9/24/2009	2	3	7	10	A	30.04	3.01	30.01	30.02	0.0634	0.0675	0.0734	0.0734
9/24/2009	2	3	8	8	B	29.98	29.98	30.04	29.96	0.0888	0.0889	0.0631	0.0728
9/24/2009	2	3	9	5	A	30.02	30	30.01	30	0.1397	0.1391	0.1223	0.1253
9/24/2009	2	3	10	4	B	30	30.02	30	29.99	0.0628	0.0783	0.0619	0.0648
9/24/2009	2	3	11	11	A	29.98	30.01	30.02	30.03	0.0546	0.0608	0.0618	0.0666
9/24/2009	2	3	12	0	B	30.02	30	30.04	30.01	0.7444	0.7475	0.6483	0.6481
9/24/2009	2	3	13	0	A	30.04	29.99	30.03	30	0.7067	0.6856	0.6479	0.6318
9/24/2009	2	3	14	2	B	30.02	30	30.01	29.99	0.3576	0.3643	0.3406	0.3673
9/24/2009	2	3	15	2	A	30.01	29.97	30.05	30.05	0.2906	0.3014	0.3426	0.3468
9/24/2009	2	3	16	4	A	29.97	30.02	29.99	29.96	0.0676	0.0687	0.0672	0.0728
9/24/2009	2	3	17	9	B	29.98	29.98	29.97	30.04	0.0531	0.0547	0.0592	0.0528
9/24/2009	2	3	18	3	B	29.99	29.98	29.99	29.97	0.1569	0.1758	0.1572	0.1655

9/24/2009	2	3	19	11	B	29.98	30	30.05	29.97	0.0612	0.0575	0.0659	0.0626
9/24/2009	2	3	20	3	A	29.95	30.03	30	29.97	0.1483	0.1563	0.1678	0.1663
9/24/2009	2	3	21	7	A	30	30	30	30.02	0.055	0.0656	0.0699	0.0753
9/24/2009	2	3	22	9	A	30.02	30.03	30.01	29.98	0.0611	0.0596	0.0688	0.0609
9/24/2009	2	3	23	6	B	29.98	29.96	29.95	29.96	0.0606	0.066	0.0702	0.0753
9/24/2009	2	3	24	1	B	30.05	30.03	29.99	30.02	0.2396	0.229	0.2343	0.2648
9/26/2009	2	5	1	2	A	29.99	30.02	29.99	29.98	0.617	0.6157	0.5657	0.573
9/26/2009	2	5	2	4	A	30.03	29.99	30.01	30	0.0825	0.094	0.0818	0.076
9/26/2009	2	5	3	9	B	30.02	29.98	29.96	30.02	0.0617	0.0584	0.0572	0.056
9/26/2009	2	5	4	4	B	30.04	29.99	30	29.95	0.0723	0.0751	0.0692	0.0703
9/26/2009	2	5	5	9	A	30.05	29.97	30.05	29.98	0.0603	0.0615	0.0588	0.0567
9/26/2009	2	5	6	5	A	30.02	29.96	29.96	29.95	0.1636	0.1819	0.1888	0.2041
9/26/2009	2	5	7	1	A	29.95	29.95	30.02	29.96	0.1768	0.1933	0.216	0.2253
9/26/2009	2	5	8	0	A	30.03	29.99	30	30.02	1.0593	1.097	1.1156	1.0851
9/26/2009	2	5	9	0	B	30	30.03	30.04	29.95	1.04	1.0032	1.0725	1.0791
9/26/2009	2	5	10	11	A	30.01	30.03	30.04	29.97	0.0653	0.0726	0.0643	0.0651
9/26/2009	2	5	11	6	A	30.05	29.97	30.02	29.98	0.0558	0.0561	0.0533	0.052
9/26/2009	2	5	12	10	A	29.95	29.95	29.98	29.96	0.0548	0.0617	0.0502	0.0484
9/26/2009	2	5	13	2	B	30.05	30.04	30.01	29.96	0.4084	0.4069	0.3933	0.3953
9/26/2009	2	5	14	10	B	30	29.98	30.02	30.01	0.0506	0.0496	0.0474	0.0546
9/26/2009	2	5	15	1	B	30.02	30	29.98	30.02	0.2189	0.2095	0.2041	0.2198
9/26/2009	2	5	16	3	A	30.04	29.98	30.03	30.03	0.1584	0.1438	0.1099	0.1461
9/26/2009	2	5	17	5	B	29.98	29.95	29.97	30	0.1738	0.1708	0.1797	0.1908
9/26/2009	2	5	18	7	A	29.96	29.97	30.02	29.98	0.0607	0.0766	0.0774	0.0851
9/26/2009	2	5	19	8	B	30.03	30.05	30.02	29.95	0.0675	0.0775	0.068	0.0679
9/26/2009	2	5	20	8	A	30.04	30.04	29.98	29.98	0.0589	0.0635	0.0721	0.0643
9/26/2009	2	5	21	7	B	30	30.01	30.05	29.97	0.0642	0.0638	0.0728	0.0685
9/26/2009	2	5	22	6	B	29.96	29.97	30.04	29.97	0.0804	0.0655	0.0624	0.061
9/26/2009	2	5	23	3	B	30.03	29.99	29.98	29.95	0.1472	0.1477	0.1573	0.1689
9/26/2009	2	5	24	11	B	29.99	30.04	29.98	30.02	0.0647	0.0736	0.0733	0.0761
9/28/2009	3	0	1	10	A	30.04	30	30	30.04	0.0875	0.078	0.0753	0.0809
9/28/2009	3	0	2	4	A	29.95	30.04	30.03	30.05	0.0917	0.1038	0.0919	0.0879
9/28/2009	3	0	3	0	A	30.05	30.05	29.96	30.05	0.1321	0.1368	0.1709	0.1664

9/28/2009	3	0	4	2	B	30.02	29.98	30	29.98	0.0821	0.0945	0.0744	0.0732
9/28/2009	3	0	5	2	A	30	30.04	30.04	30.05	0.0772	0.0781	0.0816	0.0839
9/28/2009	3	0	6	7	B	29.99	30.01	30.02	30.02	0.0782	0.0753	0.082	0.086
9/28/2009	3	0	7	11	B	30.02	30.05	29.96	29.97	0.0919	0.0783	0.0729	0.0727
9/28/2009	3	0	8	8	B	30.05	30	30.03	29.98	0.0768	0.0974	0.0723	0.0839
9/28/2009	3	0	9	5	B	30.03	30.01	30.02	30.03	0.123	0.1416	0.0897	0.0983
9/28/2009	3	0	10	9	A	30.04	30.04	30.05	30	0.0698	0.0782	0.0884	0.0896
9/28/2009	3	0	11	3	B	30.01	30.01	30.04	29.95	0.0776	0.0913	0.0888	0.0872
9/28/2009	3	0	12	3	A	30.02	30.04	30.05	30.01	0.0751	0.0857	0.1095	0.1032
9/28/2009	3	0	13	5	A	30.01	30.01	30	30.03	0.0972	0.096	0.0868	0.0961
9/28/2009	3	0	14	9	B	30	29.98	30.05	30.01	0.076	0.0755	0.0874	0.0762
9/28/2009	3	0	15	1	A	30.05	30.05	30.02	30.03	0.0833	0.0563	0.0864	0.0803
9/28/2009	3	0	16	10	B	29.98	30	30	30.04	0.0833	0.0588	0.0703	0.0557
9/28/2009	3	0	17	6	B	30.02	30.02	29.99	30.02	0.0537	0.0565	0.076	0.0558
9/28/2009	3	0	18	0	B	30.03	29.99	30.04	29.99	0.1247	0.1219	0.1185	0.1157
9/28/2009	3	0	19	4	B	30	30.01	29.97	29.97	0.0631	0.0646	0.0575	0.065
9/28/2009	3	0	20	8	A	30.05	30.03	30.01	29.95	0.0643	0.0766	0.0678	0.0662
9/28/2009	3	0	21	7	A	30.05	29.96	29.97	30.03	0.0615	0.0573	0.0504	0.0514
9/28/2009	3	0	22	6	A	30	29.97	29.98	30.03	0.0678	0.0645	0.082	0.0672
9/28/2009	3	0	23	11	A	29.95	29.95	29.99	30.01	0.0637	0.0662	0.0854	0.0619
9/28/2009	3	0	24	1	B	29.97	30.04	30.01	30.02	0.0677	0.0766	0.078	0.0756
9/29/2009	3	1	1	7	B	29.97	30.03	30.01	29.98	0.0588	0.0617	0.0621	0.0823
9/29/2009	3	1	2	10	B	30.01	29.95	30.03	30.03	0.0647	0.0796	0.0648	0.0685
9/29/2009	3	1	3	6	A	30.01	30.04	30.04	30.02	0.0607	0.0582	0.0587	0.0611
9/29/2009	3	1	4	6	B	30.03	30.01	30.01	29.97	0.0562	0.0593	0.0529	0.0596
9/29/2009	3	1	5	9	A	30.02	30.01	29.99	30	0.0652	0.0583	0.0718	0.064
9/29/2009	3	1	6	1	B	30	30	30.02	30	0.1069	0.1069	0.111	0.113
9/29/2009	3	1	7	2	B	30.03	29.99	30.03	30.04	0.1401	0.1584	0.1646	0.171
9/29/2009	3	1	8	2	A	30.03	29.99	30	29.97	0.1792	0.1564	0.1346	0.149
9/29/2009	3	1	9	10	A	29.99	30.03	30.01	29.98	0.0673	0.0699	0.0665	0.0694
9/29/2009	3	1	10	11	A	30.04	30.04	29.98	30	0.0955	0.0741	0.0675	0.0675
9/29/2009	3	1	11	7	A	30	29.98	29.97	30.04	0.0632	0.065	0.0547	0.0558
9/29/2009	3	1	12	1	A	30	30.03	30	29.97	0.1458	0.1359	0.1454	0.1328

9/29/2009	3	1	13	11	B	30.03	30.02	29.98	30.04	0.0502	0.0484	0.0531	0.0585
9/29/2009	3	1	14	5	B	30.03	29.99	30.02	30.01	0.1063	0.1234	0.1253	0.1285
9/29/2009	3	1	15	0	A	30.03	30.03	29.99	30.05	0.3428	0.2981	0.3342	0.345
9/29/2009	3	1	16	3	A	30.02	30.03	29.97	29.97	0.1046	0.0936	0.0914	0.1289
9/29/2009	3	1	17	0	B	30.03	30.01	29.96	29.98	0.3776	0.5066	0.3485	0.3488
9/29/2009	3	1	18	8	A	30.02	30	29.99	30.05	0.0674	0.0691	0.0651	0.0625
9/29/2009	3	1	19	4	A	30	30.02	29.98	30.03	0.0821	0.0837	0.0676	0.066
9/29/2009	3	1	20	8	B	29.99	30.01	30.01	29.98	0.0716	0.0737	0.1079	0.1382
9/29/2009	3	1	21	9	B	29.95	30.05	30.03	29.96	0.0687	0.0758	0.0711	0.0672
9/29/2009	3	1	22	3	B	30.03	29.99	29.96	30.02	0.1093	0.1057	0.1161	0.1125
9/29/2009	3	1	23	5	A	29.99	30.03	30.03	29.96	0.0952	0.0943	0.1024	0.0989
9/29/2009	3	1	24	4	B	29.99	29.97	30.05	30.04	0.0664	0.0614	0.0684	0.0722
10/1/2009	3	3	1	8	B	29.98	30.03	30.04	30.02	0.0779	0.0744	0.0684	0.074
10/1/2009	3	3	2	4	A	29.98	29.97	29.98	30	0.0827	0.0776	0.0735	0.0779
10/1/2009	3	3	3	6	B	30.04	29.99	30.02	29.99	0.0574	0.065	0.0642	0.0627
10/1/2009	3	3	4	9	A	30.02	30.01	29.99	30	0.0795	0.0801	0.0726	0.0781
10/1/2009	3	3	5	5	B	30.05	30.03	30	30	0.1649	0.1769	0.1452	0.1521
10/1/2009	3	3	6	5	A	30	30	30.02	30.01	0.1865	0.2182	0.1698	0.1658
10/1/2009	3	3	7	1	B	30.01	30	30	30.02	0.1886	0.194	0.1889	0.1833
10/1/2009	3	3	8	1	A	30.01	29.99	30.01	30.03	0.2372	0.2323	0.2421	0.2381
10/1/2009	3	3	9	3	A	30.01	30.02	30.01	30.02	0.1679	0.1733	0.1847	0.1854
10/1/2009	3	3	10	7	A	29.99	30.03	30.03	30	0.0768	0.0828	0.0775	0.0798
10/1/2009	3	3	11	6	A	30	30.03	30.03	30.03	0.0808	0.084	0.0759	0.076
10/1/2009	3	3	12	9	B	30.01	30.03	30.01	30	0.0714	0.0692	0.0751	0.084
10/1/2009	3	3	13	7	B	30.01	30.01	30	30.02	0.0896	0.0714	0.0773	0.0731
10/1/2009	3	3	14	0	B	30.02	30.02	30	30.03	0.755	0.7072	0.7073	0.6832
10/1/2009	3	3	15	0	A	29.99	30.03	30.02	30.01	0.7257	0.6385	0.6326	0.6332
10/1/2009	3	3	16	10	B	30.02	29.99	30.01	30.02	0.0826	0.1153	0.0686	0.0651
10/1/2009	3	3	17	11	A	29.99	30.01	30.02	30	0.0613	0.0565	0.0677	0.0621
10/1/2009	3	3	18	3	B	30.02	30.01	29.98	29.98	0.1314	0.1418	0.185	0.1909
10/1/2009	3	3	19	11	B	30.02	29.99	30.02	29.99	0.0868	0.0745	0.0654	0.073
10/1/2009	3	3	20	8	A	30.01	30.01	29.99	29.99	0.0725	0.0805	0.0624	0.0667
10/1/2009	3	3	21	4	B	30.02	30.02	30.01	30.01	0.072	0.0731	0.0741	0.0825

10/1/2009	3	3	22	2	A	29.99	30	29.99	29.98	0.2896	0.3034	0.3394	0.3664
10/1/2009	3	3	23	2	B	29.99	30	30.01	29.98	0.4012	0.3733	0.3325	0.3015
10/1/2009	3	3	24	10	A	30	30	30.02	30	0.0636	0.0643	0.0681	0.0624
10/3/2009	3	5	1	8	A	30.01	29.99	30.01	30.01	0.0622	0.0633	0.0642	0.0644
10/3/2009	3	5	2	1	B	29.99	29.99	30.04	30.02	0.1264	0.1433	0.157	0.1568
10/3/2009	3	5	3	1	A	30.05	29.97	30.01	29.97	0.2008	0.2272	0.183	0.1723
10/3/2009	3	5	4	0	A	29.98	29.99	30.02	30.04	0.7077	0.7024	0.6725	0.6791
10/3/2009	3	5	5	11	B	30.02	30.02	30.01	30.03	0.0666	0.068	0.0663	0.0673
10/3/2009	3	5	6	10	B	30	30.01	29.99	29.99	0.0802	0.0835	0.0942	0.0867
10/3/2009	3	5	7	4	A	30.03	30.01	30.05	30.02	0.084	0.0971	0.0871	0.1054
10/3/2009	3	5	8	9	B	30.03	30.05	29.98	30.02	0.0675	0.0642	0.0757	0.0742
10/3/2009	3	5	9	10	A	30	30.03	30.05	30	0.0581	0.0591	0.057	0.0622
10/3/2009	3	5	10	7	B	30.04	29.99	30.02	30.04	0.0624	0.0667	0.0634	0.0627
10/3/2009	3	5	11	5	A	29.99	30.01	30.01	30.04	0.2323	0.237	0.2447	0.2429
10/3/2009	3	5	12	6	B	30.03	30.03	29.98	30.03	0.062	0.0654	0.0644	0.0635
10/3/2009	3	5	13	2	A	29.97	30	29.99	29.97	0.3986	0.3916	0.388	0.3708
10/3/2009	3	5	14	7	A	30.03	29.99	30.04	29.95	0.0606	0.0578	0.0637	0.0657
10/3/2009	3	5	15	0	B	30.03	30.05	30.02	30.05	0.8862	0.8989	0.8238	0.8072
10/3/2009	3	5	16	5	B	30.04	30.02	30.05	29.99	0.1969	0.1991	0.2452	0.2284
10/3/2009	3	5	17	6	A	30.04	30.02	30.02	30.01	0.0635	0.0555	0.0686	0.0642
10/3/2009	3	5	18	3	B	30.05	29.98	29.96	29.97	0.1608	0.1392	0.1665	0.1589
10/3/2009	3	5	19	3	A	29.97	30	30.01	30.04	0.0995	0.1545	0.1698	0.1684
10/3/2009	3	5	20	8	B	29.98	29.97	30.01	30.04	0.0803	0.0751	0.086	0.0837
10/3/2009	3	5	21	11	A	29.96	30.01	29.98	30	0.1941	0.2046	0.0739	0.0682
10/3/2009	3	5	22	4	B	30.05	29.98	30.03	29.96	0.0729	0.0846	0.0888	0.2149
10/3/2009	3	5	23	2	B	29.99	29.97	30.05	29.96	0.2839	0.3125	0.3003	0.3186
10/3/2009	3	5	24	9	A	29.98	29.98	30.03	29.99	0.0832	0.1191	0.0846	0.0873

pH

Date	Batch	Day	Order	ID	Trt	Ptty	pH1	pH2	pH3
9/14/2009	1	0	1	426	10	A	5.58	5.63	5.63
9/14/2009	1	0	2	807	10	B	5.61	5.56	5.55
9/14/2009	1	0	3	587	4	A	5.59	5.63	5.64
9/14/2009	1	0	4	199	4	B	5.57	5.62	5.56
9/14/2009	1	0	5	717	1	A	5.66	5.59	5.57
9/14/2009	1	0	6	184	1	B	5.61	5.55	5.61
9/14/2009	1	0	7	333	5	A	5.41	5.58	5.56
9/14/2009	1	0	8	738	5	B	5.53	5.52	5.52
9/14/2009	1	0	9	615	9	A	5.41	5.5	5.46
9/14/2009	1	0	10	416	9	B	5.48	5.54	5.51
9/14/2009	1	0	11	21	3	A	5.5	5.49	5.49
9/14/2009	1	0	12	357	3	B	5.41	5.43	5.45
9/14/2009	1	0	13	403	2	A	5.45	5.47	5.51
9/14/2009	1	0	14	898	2	B	5.46	5.5	5.44
9/14/2009	1	0	15	41	6	A	5.33	5.48	5.46
9/14/2009	1	0	16	461	6	B	5.44	5.48	5.51
9/14/2009	1	0	17	9	0	A	5.52	5.53	5.47
9/14/2009	1	0	18	676	0	B	5.51	5.44	5.52
9/14/2009	1	0	19	84	8	A	5.53	5.52	5.51
9/14/2009	1	0	20	304	8	B	5.49	5.54	5.53
9/14/2009	1	0	21	422	11	A	5.45	5.48	5.49
9/14/2009	1	0	22	109	11	B	5.48	5.51	5.47
9/14/2009	1	0	23	934	7	A	5.52	5.51	5.48
9/14/2009	1	0	24	788	7	B	5.52	5.51	5.44
9/15/2009	1	1	1	530	10	A	5.48	5.47	5.5
9/15/2009	1	1	2	455	2	A	5.55	5.55	5.56
9/15/2009	1	1	3	74	8	B	565	5.66	5.65
9/15/2009	1	1	4	101	6	A	5.54	5.6	5.59
9/15/2009	1	1	5	113	1	A	5.55	5.47	5.6
9/15/2009	1	1	6	143	6	B	5.42	5.55	5.58
9/15/2009	1	1	7	240	3	B	5.55	5.63	5.6
9/15/2009	1	1	8	614	11	B	5.62	5.58	5.58
9/15/2009	1	1	9	262	2	B	5.55	5.6	5.54
9/15/2009	1	1	10	18	7	A	5.53	5.58	5.52
9/15/2009	1	1	11	176	0	A	5.63	5.62	5.54
9/15/2009	1	1	12	177	9	B	5.59	5.57	5.5
9/15/2009	1	1	13	342	0	B	5.62	5.55	5.44
9/15/2009	1	1	14	383	11	A	5.56	5.59	5.53
9/15/2009	1	1	15	431	5	A	5.51	5.56	5.58
9/15/2009	1	1	16	100	5	B	5.55	5.55	5.57
9/15/2009	1	1	17	445	3	A	5.54	5.6	5.65
9/15/2009	1	1	18	168	9	A	5.38	5.55	5.54
9/15/2009	1	1	19	504	8	A	5.65	5.49	5.63
9/15/2009	1	1	20	123	10	B	5.6	5.56	5.57

9/15/2009	1	1	21	739	4	A	5.61	5.54	5.56
9/15/2009	1	1	22	749	7	B	5.58	5.53	5.49
9/15/2009	1	1	23	228	4	B	5.5	5.57	5.55
9/15/2009	1	1	24	273	1	B	5.55	5.44	5.57
9/17/2009	1	3	1	534	4	A	5.49	5.5	5.53
9/17/2009	1	3	2	410	5	A	5.63	5.59	5.57
9/17/2009	1	3	3	853	2	A	5.62	5.58	5.63
9/17/2009	1	3	4	132	8	B	5.69	5.68	5.66
9/17/2009	1	3	5	982	6	A	5.7	5.61	5.57
9/17/2009	1	3	6	91	6	B	5.61	5.59	5.58
9/17/2009	1	3	7	341	7	A	5.6	5.46	5.59
9/17/2009	1	3	8	995	2	B	5.52	5.6	5.55
9/17/2009	1	3	9	277	10	A	5.49	5.49	5.5
9/17/2009	1	3	10	577	11	A	5.56	5.62	5.56
9/17/2009	1	3	11	880	11	B	5.62	5.63	5.59
9/17/2009	1	3	12	281	10	B	5.46	5.5	5.49
9/17/2009	1	3	13	354	9	A	5.52	5.53	5.6
9/17/2009	1	3	14	99	1	B	5.64	5.51	5.6
9/17/2009	1	3	15	979	8	A	5.65	5.7	5.68
9/17/2009	1	3	16	440	7	B	5.41	5.54	5.56
9/17/2009	1	3	17	224	0	B	5.67	5.59	5.6
9/17/2009	1	3	18	865	5	B	5.56	5.53	5.58
9/17/2009	1	3	19	215	3	B	5.55	5.58	5.57
9/17/2009	1	3	20	605	4	B	5.56	5.55	5.54
9/17/2009	1	3	21	115	3	A	5.64	5.61	5.63
9/17/2009	1	3	22	658	9	B	5.63	5.58	5.56
9/17/2009	1	3	23	747	1	A	5.64	5.62	5.52
9/17/2009	1	3	24	401	0	A	5.62	5.63	5.61
9/19/2009	1	5	1	178	1	B	5.44	5.49	5.49
9/19/2009	1	5	2	937	8	B	5.7	5.72	5.71
9/19/2009	1	5	3	750	10	B	5.31	5.27	5.37
9/19/2009	1	5	4	701	2	A	5.48	5.36	5.46
9/19/2009	1	5	5	574	5	A	5.35	5.31	5.33
9/19/2009	1	5	6	973	11	A	5.48	5.5	5.44
9/19/2009	1	5	7	216	4	B	5.2	5.42	5.22
9/19/2009	1	5	8	925	11	B	5.44	5.5	5.5
9/19/2009	1	5	9	906	0	A	5.45	5.38	5.46
9/19/2009	1	5	10	19	1	A	5.44	5.52	5.43
9/19/2009	1	5	11	734	7	A	5.29	5.29	5.34
9/19/2009	1	5	12	241	6	A	5.34	5.23	5.29
9/19/2009	1	5	13	760	7	B	5.3	5.31	5.34
9/19/2009	1	5	14	561	6	B	5.24	5.28	5.22
9/19/2009	1	5	15	327	10	A	5.52	5.32	5.41
9/19/2009	1	5	16	288	5	B	5.34	5.42	5.35
9/19/2009	1	5	17	794	9	B	5.27	5.48	5.33
9/19/2009	1	5	18	831	4	A	5.42	5.27	5.28
9/19/2009	1	5	19	193	0	B	5.44	5.41	5.42
9/19/2009	1	5	20	966	9	A	5.33	5.4	5.3

9/19/2009	1	5	21	238	3	A	5.38	5.34	5.42
9/19/2009	1	5	22	204	8	A	5.72	5.74	5.71
9/19/2009	1	5	23	468	3	B	5.44	5.34	5.35
9/19/2009	1	5	24	552	2	B	5.49	5.44	5.42
9/21/2009	2	0	1	555	6	A	5.68	5.71	5.68
9/21/2009	2	0	2	289	6	B	5.54	5.62	5.71
9/21/2009	2	0	3	190	4	A	5.7	5.68	5.6
9/21/2009	2	0	4	776	4	B	5.71	5.72	5.62
9/21/2009	2	0	5	955	10	A	5.7	5.69	5.72
9/21/2009	2	0	6	380	10	B	5.73	5.57	5.75
9/21/2009	2	0	7	971	1	A	5.71	5.7	5.73
9/21/2009	2	0	8	795	1	B	5.69	5.65	5.67
9/21/2009	2	0	9	89	2	A	5.74	5.7	5.67
9/21/2009	2	0	10	797	2	B	5.46	5.71	5.74
9/21/2009	2	0	11	187	11	A	5.63	5.72	5.72
9/21/2009	2	0	12	840	11	B	5.74	5.61	5.72
9/21/2009	2	0	13	68	7	A	5.6	5.63	5.65
9/21/2009	2	0	14	25	7	B	5.66	5.65	5.67
9/21/2009	2	0	15	557	0	A	5.71	5.67	5.67
9/21/2009	2	0	16	924	0	B	5.56	5.63	5.72
9/21/2009	2	0	17	328	9	A	5.71	5.7	5.56
9/21/2009	2	0	18	320	9	B	5.71	5.72	5.53
9/21/2009	2	0	19	399	5	A	5.72	5.58	5.7
9/21/2009	2	0	20	930	5	B	5.69	5.68	5.6
9/21/2009	2	0	21	597	8	A	5.66	5.52	5.72
9/21/2009	2	0	22	423	8	B	5.66	5.7	5.69
9/21/2009	2	0	23	624	3	A	5.69	5.66	5.68
9/21/2009	2	0	24	893	3	B	5.65	5.71	5.72
9/22/2009	2	1	1	388	0	B	5.62	5.62	5.59
9/22/2009	2	1	2	1	9	A	5.63	5.64	5.61
9/22/2009	2	1	3	20	8	A	5.64	5.65	5.65
9/22/2009	2	1	4	28	5	B	5.63	5.6	5.54
9/22/2009	2	1	5	29	6	A	5.56	5.62	5.56
9/22/2009	2	1	6	137	4	A	5.65	5.55	5.55
9/22/2009	2	1	7	462	2	A	5.61	5.63	5.61
9/22/2009	2	1	8	432	0	A	5.61	5.6	5.61
9/22/2009	2	1	9	191	11	A	5.66	5.64	5.61
9/22/2009	2	1	10	221	9	B	5.65	5.59	5.59
9/22/2009	2	1	11	243	2	B	5.61	5.59	5.58
9/22/2009	2	1	12	300	6	B	5.63	5.63	5.57
9/22/2009	2	1	13	355	11	B	5.59	5.6	5.58
9/22/2009	2	1	14	435	3	A	5.64	5.62	5.59
9/22/2009	2	1	15	377	7	A	5.62	5.6	5.59
9/22/2009	2	1	16	762	1	A	5.65	5.62	5.61
9/22/2009	2	1	17	467	8	B	5.44	5.59	5.6
9/22/2009	2	1	18	609	7	B	5.61	5.62	5.56
9/22/2009	2	1	19	613	4	B	5.62	5.64	5.64
9/22/2009	2	1	20	503	1	B	5.59	5.56	5.63

9/22/2009	2	1	21	732	5	A	5.55	5.55	5.61
9/22/2009	2	1	22	847	10	B	5.57	5.63	5.6
9/22/2009	2	1	23	956	10	A	5.63	5.6	5.59
9/22/2009	2	1	24	999	3	B	5.62	5.61	5.62
9/24/2009	2	3	1	465	6	A	5.67	5.6	5.53
9/24/2009	2	3	2	244	1	B	5.61	5.66	5.66
9/24/2009	2	3	3	77	6	B	5.65	5.66	5.65
9/24/2009	2	3	4	367	8	B	5.62	5.65	5.66
9/24/2009	2	3	5	173	11	B	5.63	5.65	5.61
9/24/2009	2	3	6	533	2	A	5.56	5.6	5.56
9/24/2009	2	3	7	502	5	B	5.59	5.54	5.57
9/24/2009	2	3	8	483	7	A	5.59	5.64	5.61
9/24/2009	2	3	9	628	9	A	5.62	5.65	5.59
9/24/2009	2	3	10	466	9	B	5.62	5.7	5.61
9/24/2009	2	3	11	789	10	B	5.64	5.63	5.64
9/24/2009	2	3	12	368	7	B	5.61	5.6	5.6
9/24/2009	2	3	13	583	3	B	5.58	5.62	5.63
9/24/2009	2	3	14	430	1	A	5.63	5.6	5.62
9/24/2009	2	3	15	102	5	A	5.66	5.67	5.62
9/24/2009	2	3	16	819	0	B	5.64	5.63	5.62
9/24/2009	2	3	17	376	0	A	5.62	5.63	5.55
9/24/2009	2	3	18	130	10	A	5.59	5.61	5.68
9/24/2009	2	3	19	46	4	B	5.63	5.62	5.64
9/24/2009	2	3	20	567	11	A	5.68	5.65	5.68
9/24/2009	2	3	21	229	2	B	5.62	5.67	5.62
9/24/2009	2	3	22	634	3	A	5.54	5.66	5.61
9/24/2009	2	3	23	40	8	A	5.68	5.66	5.65
9/24/2009	2	3	24	256	4	A	5.66	5.66	5.63
9/26/2009	2	5	1	972	3	B	5.44	5.41	5.4
9/26/2009	2	5	2	625	2	B	5.39	5.45	5.39
9/26/2009	2	5	3	683	7	A	5.33	5.31	5.26
9/26/2009	2	5	4	743	10	A	5.58	5.52	5.61
9/26/2009	2	5	5	829	8	B	5.47	5.43	5.41
9/26/2009	2	5	6	197	6	B	5.52	5.42	5.42
9/26/2009	2	5	7	553	7	B	5.42	5.4	5.47
9/26/2009	2	5	8	174	8	A	5.53	5.5	5.49
9/26/2009	2	5	9	412	1	B	5.46	5.49	5.48
9/26/2009	2	5	10	856	5	B	5.37	5.56	5.5
9/26/2009	2	5	11	387	4	B	5.5	5.46	5.41
9/26/2009	2	5	12	523	3	A	5.45	5.37	5.39
9/26/2009	2	5	13	458	0	A	5.58	5.54	5.55
9/26/2009	2	5	14	356	11	B	5.56	5.54	5.56
9/26/2009	2	5	15	970	6	A	5.55	5.52	5.59
9/26/2009	2	5	16	510	9	B	5.62	5.61	5.6
9/26/2009	2	5	17	155	5	A	5.62	5.45	5.51
9/26/2009	2	5	18	849	0	B	5.51	5.5	5.48
9/26/2009	2	5	19	756	1	A	5.44	5.39	5.38
9/26/2009	2	5	20	104	10	B	5.54	5.59	5.5

9/26/2009	2	5	21	575	4	A	5.51	5.51	5.52
9/26/2009	2	5	22	908	11	A	5.58	5.64	5.51
9/26/2009	2	5	23	404	9	A	5.54	5.59	5.61
9/26/2009	2	5	24	14	2	A	5.45	5.48	5.46
9/28/2009	3	0	1	692	2	A	5.66	5.35	5.67
9/28/2009	3	0	2	881	2	B	5.61	5.67	5.69
9/28/2009	3	0	3	511	10	A	5.61	5.62	5.63
9/28/2009	3	0	4	796	10	B	5.64	5.64	5.68
9/28/2009	3	0	5	4	5	A	5.63	5.55	5.62
9/28/2009	3	0	6	695	5	B	5.61	5.63	5.55
9/28/2009	3	0	7	936	0	A	5.69	5.63	5.67
9/28/2009	3	0	8	90	0	B	5.64	5.66	5.67
9/28/2009	3	0	9	652	9	A	5.64	5.63	5.66
9/28/2009	3	0	10	39	9	B	5.65	5.65	5.64
9/28/2009	3	0	11	64	7	A	5.54	5.59	5.6
9/28/2009	3	0	12	417	7	B	5.42	5.56	5.6
9/28/2009	3	0	13	516	4	A	5.26	5.45	5.64
9/28/2009	3	0	14	59	4	B	5.53	5.55	5.61
9/28/2009	3	0	15	645	6	A	5.52	5.57	5.46
9/28/2009	3	0	16	337	6	B	5.54	5.61	5.59
9/28/2009	3	0	17	58	11	A	5.64	5.63	5.6
9/28/2009	3	0	18	33	11	B	5.61	5.55	5.62
9/28/2009	3	0	19	473	1	A	5.6	5.61	5.57
9/28/2009	3	0	20	47	1	B	5.36	5.57	5.59
9/28/2009	3	0	21	179	8	A	5.61	5.6	5.58
9/28/2009	3	0	22	111	8	B	5.58	5.63	5.63
9/28/2009	3	0	23	945	3	A	5.55	5.63	5.33
9/28/2009	3	0	24	938	3	B	5.48	5.58	5.63
9/29/2009	3	1	1	108	7	A	5.53	5.59	5.55
9/29/2009	3	1	2	373	1	A	5.58	5.62	5.58
9/29/2009	3	1	3	616	9	B	5.65	5.55	5.65
9/29/2009	3	1	4	287	10	B	5.68	5.64	5.64
9/29/2009	3	1	5	964	11	B	5.42	5.62	5.57
9/29/2009	3	1	6	854	2	B	5.6	5.59	5.6
9/29/2009	3	1	7	65	10	A	5.61	5.6	5.65
9/29/2009	3	1	8	501	3	A	5.58	5.58	5.58
9/29/2009	3	1	9	718	6	A	5.6	5.56	5.61
9/29/2009	3	1	10	948	8	B	5.62	5.61	5.54
9/29/2009	3	1	11	23	5	A	5.62	5.52	5.59
9/29/2009	3	1	12	588	11	A	5.64	5.61	5.64
9/29/2009	3	1	13	293	0	A	5.55	5.63	5.64
9/29/2009	3	1	14	290	1	B	5.62	5.58	5.64
9/29/2009	3	1	15	315	5	B	5.64	5.57	5.63
9/29/2009	3	1	16	670	7	B	5.54	5.56	5.61
9/29/2009	3	1	17	662	8	A	5.44	5.64	5.57
9/29/2009	3	1	18	175	2	A	5.65	5.61	5.59
9/29/2009	3	1	19	442	3	B	5.64	5.63	5.58
9/29/2009	3	1	20	876	4	B	5.6	5.57	5.58

9/29/2009	3	1	21	86	6	B	5.56	5.56	5.6
9/29/2009	3	1	22	635	0	B	5.61	5.6	5.57
9/29/2009	3	1	23	939	4	A	5.57	5.66	5.62
9/29/2009	3	1	24	375	9	A	5.59	5.65	5.64
10/1/2009	3	3	1	8	5	A	5.62	5.61	5.64
10/1/2009	3	3	2	691	11	B	5.65	5.68	5.58
10/1/2009	3	3	3	815	6	B	5.65	5.63	5.58
10/1/2009	3	3	4	159	4	A	5.63	5.63	5.62
10/1/2009	3	3	5	278	8	A	5.61	5.59	5.65
10/1/2009	3	3	6	182	3	B	5.58	5.56	5.62
10/1/2009	3	3	7	133	1	B	5.67	5.67	5.65
10/1/2009	3	3	8	824	1	A	5.6	5.59	5.59
10/1/2009	3	3	9	873	10	B	5.65	5.62	5.62
10/1/2009	3	3	10	16	10	A	5.59	5.62	5.68
10/1/2009	3	3	11	314	9	B	5.59	5.61	5.59
10/1/2009	3	3	12	98	7	A	5.58	5.62	5.61
10/1/2009	3	3	13	162	6	A	5.64	5.65	5.62
10/1/2009	3	3	14	441	2	B	5.63	5.62	5.59
10/1/2009	3	3	15	22	0	A	5.63	5.59	5.62
10/1/2009	3	3	16	378	8	B	5.57	5.63	5.59
10/1/2009	3	3	17	66	0	B	5.68	5.68	5.62
10/1/2009	3	3	18	882	7	B	5.6	5.53	5.52
10/1/2009	3	3	19	434	11	A	5.69	5.63	5.64
10/1/2009	3	3	20	161	3	A	5.62	5.52	5.67
10/1/2009	3	3	21	402	2	A	5.6	5.63	5.58
10/1/2009	3	3	22	922	5	B	5.6	5.61	5.59
10/1/2009	3	3	23	348	4	B	5.66	5.56	5.63
10/1/2009	3	3	24	386	9	A	5.62	5.58	5.61
10/3/2009	3	5	1	957	11	B	5.42	5.51	5.43
10/3/2009	3	5	2	784	6	B	5.5	5.44	5.42
10/3/2009	3	5	3	913	9	B	5.32	5.39	5.31
10/3/2009	3	5	4	793	0	A	5.45	5.44	5.54
10/3/2009	3	5	5	538	6	A	5.41	5.44	5.43
10/3/2009	3	5	6	556	2	A	5.4	5.41	5.4
10/3/2009	3	5	7	590	1	A	5.47	5.44	5.47
10/3/2009	3	5	8	529	9	A	5.41	539	5.374
10/3/2009	3	5	9	390	10	B	5.53	5.46	5.46
10/3/2009	3	5	10	826	0	B	5.44	5.44	5.47
10/3/2009	3	5	11	744	4	A	5.46	5.36	5.34
10/3/2009	3	5	12	535	7	A	5.38	5.35	5.35
10/3/2009	3	5	13	848	3	B	5.38	5.39	5.4
10/3/2009	3	5	14	755	8	B	5.35	5.32	5.35
10/3/2009	3	5	15	902	2	B	5.47	5.43	5.46
10/3/2009	3	5	16	93	1	B	5.51	5.4	5.41
10/3/2009	3	5	17	242	11	A	5.47	5.47	5.4
10/3/2009	3	5	18	630	10	A	5.5	5.48	5.54
10/3/2009	3	5	19	35	8	A	5.33	5.38	5.37
10/3/2009	3	5	20	322	3	A	5.4	5.4	5.37

10/3/2009	3	5	21	834	5	A	5.43	5.34	5.35
10/3/2009	3	5	22	12	7	B	5.39	5.34	5.36
10/3/2009	3	5	23	145	5	B	5.37	5.33	5.34
10/3/2009	3	5	24	633	4	B	5.35	5.37	5.37

MINOLTA

Date	Batch	Day	Order	ID	Trt	Ptty	L1	L2	L3	a1	a2	a3	b1	b2	b3
9/14/2009	1	0	1	426	10	A	61.13	59.441	59.286	21.369	22.203	22.493	15.359	14.718	15.473
9/14/2009	1	0	2	807	10	B	58.749	58.693	55.746	22.576	22.796	25.547	15.267	15.272	17.043
9/14/2009	1	0	3	587	4	A	56.404	57.908	57.412	23.164	19.04	21.75	15.73	11.986	15.623
9/14/2009	1	0	4	199	4	B	57.092	57.132	54.628	19.757	21.971	24.214	12.79	14.304	15.427
9/14/2009	1	0	5	717	1	A	58.312	58.442	58.464	21.697	23.309	22.425	13.609	15.772	13.843
9/14/2009	1	0	6	184	1	B	57.989	58.977	59.182	22.001	23.165	21.778	13.459	15.296	15.246
9/14/2009	1	0	7	333	5	A	56.396	58.433	55.309	20.062	15.928	19.482	13.654	10.776	12.647
9/14/2009	1	0	8	738	5	B	54.846	54.434	55.931	18.611	17.299	17.313	11.164	10.416	11.953
9/14/2009	1	0	9	615	9	A	57.819	55.659	58.106	18.186	19.777	16.703	12.736	13.652	11.854
9/14/2009	1	0	10	416	9	B	55.652	58.191	56.537	17.434	15.999	19.443	11.138	10.946	13.136
9/14/2009	1	0	11	21	3	A	57.751	57.856	57.407	22.085	21.057	22.122	15.54	13.542	14.782
9/14/2009	1	0	12	357	3	B	59.109	61.945	57.323	19.018	18.471	21.071	12.899	12.203	13.213
9/14/2009	1	0	13	403	2	A	58.243	55.851	57.34	23.316	23.014	23.324	15.213	14.962	16.432
9/14/2009	1	0	14	898	2	B	55.746	57.551	55.116	22.031	21.925	24.673	14.567	15.109	16.173
9/14/2009	1	0	15	41	6	A	56.49	57.753	53.119	16.91	20.017	19.326	11.099	13.292	13.445
9/14/2009	1	0	16	461	6	B	57.516	59.659	54.087	17.529	17.347	21.786	11.987	12.567	15.219
9/14/2009	1	0	17	9	0	A	56.138	57.153	58.877	24.268	22.535	21.229	15.625	13.812	13.323
9/14/2009	1	0	18	676	0	B	58.2	56.746	56.126	22.193	21.305	22.67	15.064	13.105	14.873
9/14/2009	1	0	19	84	8	A	56.607	58.14	54.382	22.53	20.144	21.28	14.537	12.535	13.603
9/14/2009	1	0	20	304	8	B	54.264	53.123	54.079	23.872	21.561	21.687	15.24	12.489	11.857
9/14/2009	1	0	21	422	11	A	52.874	54.884	56.718	19.623	17.989	18.939	13.285	11.962	14.101
9/14/2009	1	0	22	109	11	B	59.524	54.792	60.033	18.144	21.455	18.335	13.719	14.562	14.683
9/14/2009	1	0	23	934	7	A	52.256	57.198	53.654	17.947	15.899	18.852	13.953	13.24	13.647
9/14/2009	1	0	24	788	7	B	53.097	55.551	56.968	19.398	17.913	14.786	12.972	13.47	11.509
9/15/2009	1	1	1	530	10	A	57.505	58.12	57.666	17.089	16.538	14.221	12.945	11.436	9.6
9/15/2009	1	1	2	455	2	A	55.16	56.604	58.65	21.754	20.318	18.546	14.992	15.535	12.613
9/15/2009	1	1	3	74	8	B	50.43	55.635	53.348	17.364	17.466	18.624	10.717	13.725	13.471
9/15/2009	1	1	4	101	6	A	53.694	55.837	53.433	16.549	15.691	17.344	12.029	11.274	13.315
9/15/2009	1	1	5	113	1	A	55.549	58.07	56.958	16.775	17.877	18.489	10.859	13.787	13.853
9/15/2009	1	1	6	143	6	B	54.678	53.71	55.399	15.289	18.039	16.769	11.349	12.822	13.341

9/15/2009	1	1	7	240	3	B	53.046	56.912	56.086	19.273	18.76	19.314	13.33	14.468	12.834
9/15/2009	1	1	8	614	11	B	56.365	55.084	56.181	16.056	17.202	15.671	12.405	13.576	12.613
9/15/2009	1	1	9	262	2	B	59.468	55.752	56.125	14.546	19.616	21.054	11.053	13.738	15.173
9/15/2009	1	1	10	18	7	A	56.56	55.351	54.105	16.627	15.046	13.564	13.354	13.561	12.852
9/15/2009	1	1	11	176	0	A	55.26	57.607	57.034	20.127	17.793	16.795	15.002	13.591	12.212
9/15/2009	1	1	12	177	9	B	56.103	57.932	59.664	15.456	14.333	13.688	10.551	11.247	10.688
9/15/2009	1	1	13	342	0	B	56.95	54.974	54.858	19.898	17.834	20.131	13.792	11.39	14.072
9/15/2009	1	1	14	383	11	A	54.55	52.797	52.326	14.685	18.189	17.415	11.636	12.912	11.747
9/15/2009	1	1	15	431	5	A	52.98	54.685	52.687	16.95	15.933	16.878	11.569	12.113	13.148
9/15/2009	1	1	16	100	5	B	55.809	55.814	53.468	14.657	14.575	17.595	10.038	10.349	13.354
9/15/2009	1	1	17	445	3	A	49.505	56.979	54.657	19.681	18.498	19.338	13.006	13.766	13.291
9/15/2009	1	1	18	168	9	A	56.056	54.851	53.955	15.954	15.933	17.99	12.884	12.321	13.573
9/15/2009	1	1	19	504	8	A	51.701	52.647	52.902	19.321	16.274	19.862	13.072	10.891	13.386
9/15/2009	1	1	20	123	10	B	56.904	57.323	55.499	16.771	17.032	16.814	11.761	13.715	12.286
9/15/2009	1	1	21	739	4	A	53.152	53.371	54.081	19.531	20.056	17.847	13.844	14.79	13.05
9/15/2009	1	1	22	749	7	B	54.435	53.674	56.007	15.529	14.973	14.537	13.323	13.415	13.012
9/15/2009	1	1	23	228	4	B	55.633	51.88	54.908	19.194	18.088	19.108	13.483	12.088	13.666
9/15/2009	1	1	24	273	1	B	55.755	54.89	57.899	19.165	20.117	17.67	13.52	14.625	13.227
9/17/2009	1	3	1	534	4	A	55.833	54.882	55.093	16.606	14.854	15.429	12.531	10.453	12.364
9/17/2009	1	3	2	410	5	A	55.757	52.529	52.416	13.696	16.804	13.029	11.36	12.993	9.6487
9/17/2009	1	3	3	853	2	A	54.227	58.484	55.097	16.853	17.359	17.545	13.388	13.853	13.498
9/17/2009	1	3	4	132	8	B	47.671	55.912	52.258	14.574	13.445	15.395	8.0722	10.475	12.144
9/17/2009	1	3	5	982	6	A	54.237	58.631	53.736	13.945	11.089	14.249	11.722	11.229	10.882
9/17/2009	1	3	6	91	6	B	55.167	54.115	54.139	13.93	15.672	13.825	11.807	12.691	10.681
9/17/2009	1	3	7	341	7	A	54.31	56.86	53.02	9.2242	9.9326	7.877	10.149	13.339	8.9113
9/17/2009	1	3	8	995	2	B	57.016	57.845	55.179	14.572	14.834	15.513	12.929	13.159	12.652
9/17/2009	1	3	9	277	10	A	60.041	57.66	55.436	12.615	15.358	13.198	14.347	13.284	12.791
9/17/2009	1	3	10	577	11	A	54.59	58.952	56.269	14.774	14.272	14.123	13.331	13.38	12.836
9/17/2009	1	3	11	880	11	B	52.7	56.097	53.972	15.718	14.817	15.685	11.781	13.293	13.067
9/17/2009	1	3	12	281	10	B	53.768	55.737	55.119	12.186	12.373	13.31	10.597	9.7418	11.694
9/17/2009	1	3	13	354	9	A	57.994	56.034	52.715	12.548	14.734	15.481	11.251	11.653	13.164
9/17/2009	1	3	14	99	1	B	53.912	54.73	56.829	19.236	15.69	15.424	15.101	11.056	12.768
9/17/2009	1	3	15	979	8	A	52.048	53.76	56.703	15.676	16.995	13.29	11.338	12.174	10.483

9/17/2009	1	3	16	440	7	B	52.224	55.359	53.266	8.2533	9.8364	8.4032	10.49	13.996	13.343
9/17/2009	1	3	17	224	0	B	54.685	51.896	54.075	17.043	18.989	14.034	14.124	13.621	10.136
9/17/2009	1	3	18	865	5	B	51.413	54.48	53.706	13.029	15.385	13.986	9.2591	12.839	10.884
9/17/2009	1	3	19	215	3	B	55.638	55.161	53.389	14.65	15.71	16.986	11.102	13.358	12.993
9/17/2009	1	3	20	605	4	B	53.947	53.951	53.346	14.398	15.153	14.742	11.36	11.005	11.664
9/17/2009	1	3	21	115	3	A	54.151	56.297	54.639	15.945	17.067	16.488	11.406	13.196	11.55
9/17/2009	1	3	22	658	9	B	52.623	60.623	55.089	16.177	11.185	12.983	12.607	10.424	10.067
9/17/2009	1	3	23	747	1	A	54.447	56.023	56.547	17.661	15.804	17.544	12.769	11.414	13.166
9/17/2009	1	3	24	401	0	A	52.454	57.045	53.842	14.29	12.477	14.09	10.644	9.7234	10.585
9/19/2009	1	5	1	178	1	B	56.794	55.183	57.004	9.8069	11.288	10.193	8.4781	9.9056	12.007
9/19/2009	1	5	2	937	8	B	54.567	58.405	56.093	12.716	13.683	11.475	9.8437	13.12	7.8096
9/19/2009	1	5	3	750	10	B	56.677	56.266	55.336	7.768	8.5223	7.4863	11.686	11.997	9.2332
9/19/2009	1	5	4	701	2	A	56.829	57.74	57.6	10.736	10.763	10.191	11.725	11.177	12.688
9/19/2009	1	5	5	574	5	A	57.69	55.279	57.181	7.0614	8.3737	9.9596	9.7865	11.903	13.051
9/19/2009	1	5	6	973	11	A	51.771	56.866	55.399	13.811	12.483	11.85	13.663	13.007	12.512
9/19/2009	1	5	7	216	4	B	57.728	60.886	57.395	5.93	4.7877	5.2252	10.95	9.3483	9.9327
9/19/2009	1	5	8	925	11	B	56.995	58.186	52.958	10.983	10.646	12.268	13.277	14.304	14.059
9/19/2009	1	5	9	906	0	A	58.122	55.041	58.099	9.8498	10.351	6.5607	12.53	12.975	11.821
9/19/2009	1	5	10	19	1	A	62.003	56.322	57.246	9.6618	9.4126	10.436	10.628	11.019	10.997
9/19/2009	1	5	11	734	7	A	54.504	60.153	58.256	8.6195	7.0632	6.3814	15.107	13.519	11.705
9/19/2009	1	5	12	241	6	A	57.796	52.407	52.545	4.5015	6.6019	5.3766	11.814	13.135	10.51
9/19/2009	1	5	13	760	7	B	52.652	58.096	55.973	8.0661	6.8958	7.8815	14.454	12.481	13.242
9/19/2009	1	5	14	561	6	B	52.399	52.277	53.259	7.3452	5.622	5.6863	13.927	11.9	11.116
9/19/2009	1	5	15	327	10	A	59.012	57.055	55.78	5.18	6.564	6.6711	9.9363	14.086	13.064
9/19/2009	1	5	16	288	5	B	59.082	57.084	58.676	6.8852	7.1964	5.9721	10.674	10.194	8.3613
9/19/2009	1	5	17	794	9	B	57.704	60.265	57.523	9.8695	8.148	8.6308	13.148	13.358	10.535
9/19/2009	1	5	18	831	4	A	59.538	60.161	60.335	4.2508	4.7577	4.7261	11.309	12.312	11.477
9/19/2009	1	5	19	193	0	B	56.062	56.42	56.428	6.1	7.9814	7.2088	10.565	11.155	12.061
9/19/2009	1	5	20	966	9	A	57.841	57.707	58.111	9.9205	9.8689	8.7631	13.471	12.974	12.59
9/19/2009	1	5	21	238	3	A	57.466	55.963	55.955	8.7626	9.959	9.1801	9.4334	11.29	10.619
9/19/2009	1	5	22	204	8	A	56.843	55.892	57.38	13.32	13.192	12.525	12.543	11.03	12.684
9/19/2009	1	5	23	468	3	B	59.019	60.36	56.149	6.8956	6.1748	7.3208	10.531	12.033	11.016
9/19/2009	1	5	24	552	2	B	58.013	54.995	56.842	13.243	14.02	10.326	13.403	12.581	10.286

9/21/2009	2	0	1	555	6	A	53.33	54.945	53.247	22.105	22.461	22.637	14.775	15.905	15.466
9/21/2009	2	0	2	289	6	B	56.349	58.12	55.278	19.845	18.167	19.938	12.014	11.927	13.197
9/21/2009	2	0	3	190	4	A	55.496	55.18	54.936	22.078	19.558	20.016	14.371	11.531	12.377
9/21/2009	2	0	4	776	4	B	57.299	53.537	53.41	20.545	23.35	23.326	13.812	14.907	15.054
9/21/2009	2	0	5	955	10	A	57.203	54.874	53.666	21.216	21.306	22.02	14.918	14.051	15.585
9/21/2009	2	0	6	380	10	B	54.146	53.971	56.459	20.127	19.674	20.426	12.536	12.598	13.417
9/21/2009	2	0	7	971	1	A	58.121	58.943	57.764	18.747	20.639	23.113	11.092	14.099	15.148
9/21/2009	2	0	8	795	1	B	58.963	54.541	55.259	21.423	22.946	23.312	14.17	14.308	15.112
9/21/2009	2	0	9	89	2	A	55.6	56.407	58.038	20.141	24.989	23.517	12.989	16.772	16.655
9/21/2009	2	0	10	797	2	B	59.885	58.757	55.786	21.096	21.347	25.589	14.161	11.788	16.742
9/21/2009	2	0	11	187	11	A	53.752	53.545	57.006	20.86	23.975	20.1	13.857	15.377	14.576
9/21/2009	2	0	12	840	11	B	54.529	50.136	56.415	21.419	20.671	21.348	14.024	13.456	14.768
9/21/2009	2	0	13	68	7	A	52.117	51.128	54.337	19.336	22.977	19.146	13.372	15.97	13.876
9/21/2009	2	0	14	25	7	B	53.099	52.061	54.906	20.353	16.636	15.105	14.163	11.518	10.471
9/21/2009	2	0	15	557	0	A	55.499	55.875	58.796	22.913	24.348	21.203	13.166	16.25	13.088
9/21/2009	2	0	16	924	0	B	57.616	55.155	53.816	24.542	24.61	25.749	16.436	15.917	16.211
9/21/2009	2	0	17	328	9	A	56.334	53.639	54.794	17.195	20.212	18.757	11.422	13.33	11.549
9/21/2009	2	0	18	320	9	B	56.303	57.441	58.243	21.927	20.447	19.292	14.298	14.139	13.975
9/21/2009	2	0	19	399	5	A	54.971	51.374	54.908	20.797	19.431	17.212	13.531	11.471	10.648
9/21/2009	2	0	20	930	5	B	53.157	55.096	53.815	20.206	19.399	22.253	13.076	11.388	14.005
9/21/2009	2	0	21	597	8	A	58.102	57.268	55.741	19.658	20.087	20.403	14.087	13.162	13.357
9/21/2009	2	0	22	423	8	B	57.555	52.853	58.382	19.465	21.556	18.088	13.206	12.73	10.994
9/21/2009	2	0	23	624	3	A	57.993	56.119	58.524	20.23	22.215	20.559	12.396	14.737	12.693
9/21/2009	2	0	24	893	3	B	55.316	59.545	58.242	20.253	20.395	20.073	12.429	12.753	12.395
9/22/2009	2	1	1	388	0	B	57.059	56.716	54.628	18.807	18.257	19.677	13.079	13.649	12.951
9/22/2009	2	1	2	1	9	A	56.63	53.307	51.272	15.166	18.959	20.12	10.911	14.383	14.613
9/22/2009	2	1	3	20	8	A	54.446	52.853	52.756	19.178	19.425	20.31	14.011	13.057	14.877
9/22/2009	2	1	4	28	5	B	55.826	52.587	51.668	17.992	15.628	15.973	13.364	10.82	10.13
9/22/2009	2	1	5	29	6	A	55.512	52.426	53.543	16.733	18.439	18.485	13.336	12.608	13.985
9/22/2009	2	1	6	137	4	A	51.131	55.479	52.056	19.385	19.309	20.199	12.793	13.925	14.617
9/22/2009	2	1	7	462	2	A	55.014	57.29	53.129	22.092	18.336	20.562	14.956	13.63	14.081
9/22/2009	2	1	8	432	0	A	53.024	54.054	55.835	20.424	20.16	19.365	13.567	13.965	13.074
9/22/2009	2	1	9	191	11	A	55.66	52.627	53.902	17.993	21.036	18.329	15.404	16.196	13.726

9/22/2009	2	1	10	221	9	B	53.709	57.278	54.841	16.508	16.057	15.665	10.755	13.371	10.831
9/22/2009	2	1	11	243	2	B	52.529	54.723	53.929	20.004	20.869	18.402	13.26	14.579	13.841
9/22/2009	2	1	12	300	6	B	52.684	51.357	50.589	19.653	18.321	21.121	14.825	11.918	14.578
9/22/2009	2	1	13	355	11	B	56.094	55.077	56.163	19.505	16.709	17.169	16.239	12.394	12.392
9/22/2009	2	1	14	435	3	A	51.487	52.895	56.398	21.823	18.833	18.146	14.148	11.902	13.148
9/22/2009	2	1	15	377	7	A	51.408	50.222	53.153	15.351	18.037	15.383	12.789	13.191	13.632
9/22/2009	2	1	16	762	1	A	53.045	54.325	55.379	19.614	18.032	17.699	12.392	12.52	12.227
9/22/2009	2	1	17	467	8	B	51.256	55.815	53.204	18.463	17.437	19.365	12.35	12.812	13.814
9/22/2009	2	1	18	609	7	B	50.335	50.629	53.572	14.957	16.303	15.524	12.783	11.454	13.106
9/22/2009	2	1	19	613	4	B	53.662	51.362	56.857	18.698	19.821	17.072	13.255	13.509	11.351
9/22/2009	2	1	20	503	1	B	53.885	54.96	54.571	18.737	18.453	18.961	13.8	12.531	12.665
9/22/2009	2	1	21	732	5	A	52.045	52.853	50.61	18.966	16.292	15.81	13.668	11.346	9.9094
9/22/2009	2	1	22	847	10	B	51.725	53.357	50.947	16.867	17.418	21.282	10.891	11.91	16.003
9/22/2009	2	1	23	956	10	A	50.024	51.424	53.931	20.009	19.68	19.048	13.542	13.873	14.053
9/22/2009	2	1	24	999	3	B	51.351	51.865	54.239	20.163	20.067	18.363	13.181	12.764	12.306
9/24/2009	2	3	1	465	6	A	51.951	51.801	54.34	15.112	15.934	12.767	11.357	12.548	9.19
9/24/2009	2	3	2	244	1	B	53.3	52.954	54.379	17.061	13.623	15.671	11.705	9.5372	11.613
9/24/2009	2	3	3	77	6	B	52.194	53.913	54.08	13.598	13.064	13.2	11.912	10.39	10.152
9/24/2009	2	3	4	367	8	B	53.844	52.104	54.194	15.373	14.587	15.23	11.008	10.976	12.081
9/24/2009	2	3	5	173	11	B	54.497	53.568	51.077	15.932	16	16.087	12.657	13.279	12.228
9/24/2009	2	3	6	533	2	A	52.314	51.94	52.591	15.559	12.846	16.072	11.843	9.0073	12.329
9/24/2009	2	3	7	502	5	B	50.916	54.314	51.751	14.363	15.227	13.601	10.186	11.416	9.0215
9/24/2009	2	3	8	483	7	A	52.59	53.003	56.055	11.186	13.044	11.414	10.016	13.232	12.549
9/24/2009	2	3	9	628	9	A	52.12	59.989	56.687	15.556	14.618	16.035	12.006	13.941	12.553
9/24/2009	2	3	10	466	9	B	52.296	52.184	53.026	16.757	15.473	13.844	12.417	11.563	10.177
9/24/2009	2	3	11	789	10	B	54.159	53.552	54.873	16.758	14.926	16.252	13.374	11.725	12.661
9/24/2009	2	3	12	368	7	B	51.662	52.499	50.132	13.768	12.597	14.42	12.522	11.037	11.17
9/24/2009	2	3	13	583	3	B	53.394	54.128	54.07	17.435	15.418	14.679	11.766	11.136	11.029
9/24/2009	2	3	14	430	1	A	55.231	55.535	53.824	16.723	15.976	15.051	12.716	12.541	12.96
9/24/2009	2	3	15	102	5	A	54.219	54.923	51.111	15.418	16.222	16.162	11.825	12.138	11.35
9/24/2009	2	3	16	819	0	B	58.893	52.742	56.12	16.593	16.309	16.409	13.735	10.968	11.604
9/24/2009	2	3	17	376	0	A	48.855	52.73	55.913	11.562	15.174	14.946	8.9171	11.956	13.54
9/24/2009	2	3	18	130	10	A	53.394	50.316	55.02	16.288	17.459	14.188	12.625	13.738	10.821

9/24/2009	2	3	19	46	4	B	53.189	51.385	54.695	14.553	17.232	16.765	10.622	11.66	13.067
9/24/2009	2	3	20	567	11	A	58.16	53.61	52.341	15.873	15.094	18.111	14.883	10.971	13.026
9/24/2009	2	3	21	229	2	B	56.091	54.303	51.582	14.286	16.56	16.628	12.473	13.507	12.827
9/24/2009	2	3	22	634	3	A	55.041	57.123	56.246	15.799	14.217	13.683	13.151	11.897	11.091
9/24/2009	2	3	23	40	8	A	55.194	53.379	53.134	13.821	15.749	17.065	10.732	12.083	13.786
9/24/2009	2	3	24	256	4	A	53.652	53.372	54.801	15.528	13.773	15.345	12.007	10.002	11.962
9/26/2009	2	5	1	972	3	B	53.792	51.527	52.275	11.215	11.31	13.14	9.8785	8.5351	10.944
9/26/2009	2	5	2	625	2	B	52.845	51.115	51.379	9.7125	10.093	10.954	9.8392	9.1784	11.622
9/26/2009	2	5	3	683	7	A	49.829	51.813	55.992	6.9369	6.9542	6.2455	14.527	11.577	11.361
9/26/2009	2	5	4	743	10	A	50.216	51.753	55.563	13.068	13.503	11.793	10.374	11.8	10.84
9/26/2009	2	5	5	829	8	B	54.762	53.235	55.657	11.698	10.042	10.265	12.729	8.5338	10.381
9/26/2009	2	5	6	197	6	B	52.597	56.747	53.446	11.045	12.347	13.351	9.5278	13.26	11.661
9/26/2009	2	5	7	553	7	B	53.292	52.129	51.949	8.5092	8.6482	10.119	13.193	11.347	11.637
9/26/2009	2	5	8	174	8	A	52.414	53.363	55.794	11.299	11.623	12.075	12.125	11.985	12.082
9/26/2009	2	5	9	412	1	B	57.932	53.811	52.182	9.394	11.142	12.357	9.317	10.775	12.271
9/26/2009	2	5	10	856	5	B	47.435	51.307	53.921	11.577	10.258	9.4042	10.741	9.3755	11.063
9/26/2009	2	5	11	387	4	B	53.437	56.912	52.174	10.293	10.932	10.165	8.5539	11.474	8.02
9/26/2009	2	5	12	523	3	A	56.68	51.145	52.873	10.981	11.671	11.524	12.192	9.5174	9.5448
9/26/2009	2	5	13	458	0	A	54.778	55.356	52.357	8.4577	10.467	6.9597	9.7875	13.264	9.3464
9/26/2009	2	5	14	356	11	B	55.849	53.548	52.976	12.488	13.119	14.532	13.212	13.082	13.684
9/26/2009	2	5	15	970	6	A	53.847	54.219	52.662	12.963	13.229	13.789	11.465	12.36	12.715
9/26/2009	2	5	16	510	9	B	57.934	55.773	54.61	9.9665	12.49	12.427	11.071	12.141	12.497
9/26/2009	2	5	17	155	5	A	53.441	52.571	52.982	11.338	13.604	12.318	11.635	12.122	10.829
9/26/2009	2	5	18	849	0	B	57.979	55.4	58.464	6.7676	8.6174	6.3633	10.104	10.311	11.886
9/26/2009	2	5	19	756	1	A	52.684	56.591	54.872	10.047	10.664	9.3739	10.594	9.904	8.3474
9/26/2009	2	5	20	104	10	B	53.66	52.28	52.633	12.444	13.848	12.926	10.913	12.942	11.625
9/26/2009	2	5	21	575	4	A	53.53	52.867	52.224	9.7388	10.827	11.932	10.04	10.836	10.796
9/26/2009	2	5	22	908	11	A	55.495	53.928	52.894	13.037	13.22	14.028	12.221	13.477	12.594
9/26/2009	2	5	23	404	9	A	53.042	51.816	53.385	10.08	11.564	12.102	9.6256	10.437	13.455
9/26/2009	2	5	24	14	2	A	54.647	55.002	55.116	11.337	11.994	9.8816	10.349	11.284	10.378
9/28/2009	3	0	1	692	2	A	57.821	56.977	57.199	24.538	26.168	20.848	16.674	17.092	12.922
9/28/2009	3	0	2	881	2	B	56.943	60.802	61.714	24.598	22.167	20.71	14.974	14.19	13.5
9/28/2009	3	0	3	511	10	A	59.765	56.651	57.351	20.273	25.33	24.111	12.791	17.094	16.44

9/28/2009	3	0	4	796	10	B	57.887	57.004	57.399	21.016	23.355	23.95	12.868	14.638	14.722
9/28/2009	3	0	5	4	5	A	55.856	54.269	58.12	22.154	23.518	20.994	14.208	15.848	13.401
9/28/2009	3	0	6	695	5	B	56.985	55.195	54.849	18.71	22.661	24.124	11.462	13.488	15.658
9/28/2009	3	0	7	936	0	A	58.61	56.478	60.466	23.621	27.193	21.477	14.336	17.794	13.244
9/28/2009	3	0	8	90	0	B	57.926	57.416	61.793	26.675	25.509	23.847	17.917	17.007	16.486
9/28/2009	3	0	9	652	9	A	57.576	55.726	55.921	22.203	22.402	24.097	15.069	15.563	15.223
9/28/2009	3	0	10	39	9	B	56.605	56.091	57.536	21.857	23.173	21.33	13.949	15.207	14.422
9/28/2009	3	0	11	64	7	A	56.981	56.752	54.694	19.885	17.62	20.332	13.607	11.301	14.482
9/28/2009	3	0	12	417	7	B	54.323	49.257	51.324	20.909	23.021	22.507	14.007	13.933	15.001
9/28/2009	3	0	13	516	4	A	56.775	55.985	58.033	23.431	20.798	22.484	14.835	13.158	14.996
9/28/2009	3	0	14	59	4	B	57.33	54.941	54.484	22.466	24.31	25.502	14.154	15.131	16.55
9/28/2009	3	0	15	645	6	A	56.764	55.52	57.034	20.394	21.661	18.987	13.814	14.262	11.849
9/28/2009	3	0	16	337	6	B	57.554	54.55	57.053	19.982	22.147	21.902	13.752	14.655	14.835
9/28/2009	3	0	17	58	11	A	55.509	56.002	54.924	22.67	23.877	23.185	14.35	15.379	14.937
9/28/2009	3	0	18	33	11	B	59.177	56.129	56.411	21.085	22.514	23.104	14.733	15.199	15.38
9/28/2009	3	0	19	473	1	A	57.638	57.829	57.879	24.781	25.521	24.688	16.229	17.482	16.072
9/28/2009	3	0	20	47	1	B	60.212	56.465	57.806	22.003	25.381	22.289	13.947	16.385	13.302
9/28/2009	3	0	21	179	8	A	57.697	56.8	55.69	22.064	22.476	20.562	14.517	14.233	12.866
9/28/2009	3	0	22	111	8	B	61.727	57.79	58.552	19.855	23.63	21.692	13.351	15.964	13.699
9/28/2009	3	0	23	945	3	A	56.827	59.686	56.02	24.656	21.029	25.27	16.064	12.934	16.386
9/28/2009	3	0	24	938	3	B	58.974	55.369	57.386	21.288	26.428	23.847	12.795	16.985	15.19
9/29/2009	3	1	1	108	7	A	53.042	53.699	55.258	18.184	17.527	18.142	13.996	13.185	13.247
9/29/2009	3	1	2	373	1	A	56.933	55.839	56.469	21.942	24.055	22.199	15.686	16.738	14.423
9/29/2009	3	1	3	616	9	B	55.326	52.035	54.24	16.581	17.152	21.463	11.507	10.219	15.888
9/29/2009	3	1	4	287	10	B	57.977	55.828	55.667	17.589	19.937	20.365	12.158	14.019	14.508
9/29/2009	3	1	5	964	11	B	53.699	57.252	54.199	20.325	17.273	20.885	13.936	12.192	14.885
9/29/2009	3	1	6	854	2	B	56.243	55.604	57.369	19.997	20.16	20.836	13.573	12.373	13.733
9/29/2009	3	1	7	65	10	A	52.033	54.021	56.638	18.786	20.318	19.147	13.24	13.977	14.838
9/29/2009	3	1	8	501	3	A	56.747	55.062	56.802	21.497	20.214	21.828	15.236	12.404	14.866
9/29/2009	3	1	9	718	6	A	55.534	53.991	54.791	19.441	21.376	20.242	13.65	15.563	13.908
9/29/2009	3	1	10	948	8	B	57.614	57.554	54.909	19.098	18.439	22.211	14.575	13.141	15.615
9/29/2009	3	1	11	23	5	A	52.802	54.924	55.003	18.16	16.551	18.105	12.603	10.588	12.611
9/29/2009	3	1	12	588	11	A	53.46	55.224	51.604	22.445	18.326	22.242	14.904	13.634	14.726

9/29/2009	3	1	13	293	0	A	55.336	53.286	57.473	21.936	21.96	20.564	14.805	14.827	15.058
9/29/2009	3	1	14	290	1	B	54.997	57.022	55.516	20.633	23.472	23.139	13.357	15.893	15.281
9/29/2009	3	1	15	315	5	B	50.637	55.089	52.644	19.825	20.642	20.682	12.521	15.139	13.989
9/29/2009	3	1	16	670	7	B	53.494	52.884	52.826	16.686	16.478	18.168	13.158	12.259	13.92
9/29/2009	3	1	17	662	8	A	54.373	53.221	53.191	19.252	22.203	19.732	13.221	15.812	13.009
9/29/2009	3	1	18	175	2	A	54.128	55.702	52.939	22.409	21.41	21.918	14.455	15.319	14.514
9/29/2009	3	1	19	442	3	B	54.472	53.895	57.354	20.968	22.96	20.191	13.417	15.76	14.047
9/29/2009	3	1	20	876	4	B	55.863	52.264	54.78	20.56	21.597	18.431	14.712	14.851	12.585
9/29/2009	3	1	21	86	6	B	53.627	54.716	54.33	20.897	19.163	18.715	15.194	14.059	14.029
9/29/2009	3	1	22	635	0	B	56.727	55.321	57.418	21.699	22.076	22.882	14.801	13.176	16.139
9/29/2009	3	1	23	939	4	A	55.018	53.594	53.817	20.763	20.298	18.519	14.139	14.074	12.88
9/29/2009	3	1	24	375	9	A	52.181	50.12	48.026	20.114	20.548	13.771	14.4	13.769	8.9911
10/1/2009	3	3	1	8	5	A	55.037	52.72	52.965	14.512	14.292	13.526	12.665	11.176	10.015
10/1/2009	3	3	2	691	11	B	56.62	53.546	54.619	15.595	18.884	17.851	12.118	14.45	13.922
10/1/2009	3	3	3	815	6	B	51.425	52.408	52.847	17.13	16.236	17.59	13.09	12.381	12.149
10/1/2009	3	3	4	159	4	A	52.723	53.384	55.092	17.594	18.752	17.672	13.231	12.975	13.055
10/1/2009	3	3	5	278	8	A	54.168	57.62	52.361	15.748	14.751	15.134	10.914	10.554	10.906
10/1/2009	3	3	6	182	3	B	56.847	55.502	55.781	14.087	14.233	14.915	11.196	11.254	11.783
10/1/2009	3	3	7	133	1	B	56.361	54.457	56.494	17.713	17.539	16.809	13.993	12.19	13.479
10/1/2009	3	3	8	824	1	A	55.876	55.856	57.054	19.314	19.551	18.485	13.05	13.923	12.598
10/1/2009	3	3	9	873	10	B	55.584	54.529	54.888	17.12	17.855	16.047	12.917	13.117	11.32
10/1/2009	3	3	10	16	10	A	55.614	55.493	54.008	17.55	17.03	17.536	13.859	13.982	12.926
10/1/2009	3	3	11	314	9	B	55.26	54.574	57.427	16.226	14.819	15.378	11.897	12.102	12.959
10/1/2009	3	3	12	98	7	A	53.268	53.899	50.67	10.612	10.594	10.705	10.523	12.805	10.733
10/1/2009	3	3	13	162	6	A	54.352	53.293	52.416	16.732	16.402	18.549	13.168	12.719	13.58
10/1/2009	3	3	14	441	2	B	52.249	56.726	57.431	19.776	18.487	17.867	14.064	13.767	13.57
10/1/2009	3	3	15	22	0	A	59.128	54.703	56.381	14.258	19.293	17.044	11.358	14.412	12.764
10/1/2009	3	3	16	378	8	B	55.733	51.862	53.689	15.007	14.646	17.165	12.254	11.066	13.296
10/1/2009	3	3	17	66	0	B	57.6	56.064	59.379	17.027	15.845	13.5	14.184	10.982	9.5252
10/1/2009	3	3	18	882	7	B	50.8	53.6	52.388	10.574	11.719	12.832	10.469	13.401	12.002
10/1/2009	3	3	19	434	11	A	56.079	52.084	55.756	16.507	15.469	15.987	15.053	10.943	13.262
10/1/2009	3	3	20	161	3	A	55.547	52.647	57.473	18.058	17.362	15.931	13.227	11.312	11.716
10/1/2009	3	3	21	402	2	A	54.769	55.442	56.286	17.363	17.568	18.218	12.955	11.553	14.422

10/1/2009	3	3	22	922	5	B	54.218	55.925	55.059	17.464	16.54	15.866	13.305	12.84	11.813
10/1/2009	3	3	23	348	4	B	53.609	52.66	53.136	16.297	16.556	14.218	11.998	12.139	10.659
10/1/2009	3	3	24	386	9	A	53.479	54.147	55.528	13.875	13.769	14.155	11.237	10.421	11.021
10/3/2009	3	5	1	957	11	B	53.223	57.315	57.53	11.394	11.384	11.346	10.773	11.893	11.731
10/3/2009	3	5	2	784	6	B	52.48	59.268	52.744	8.6834	9.4951	12.626	9.5913	12.867	13.209
10/3/2009	3	5	3	913	9	B	55.531	52.101	52.207	9.135	8.3662	8.4531	10.2	10.208	9.062
10/3/2009	3	5	4	793	0	A	57.477	55.594	57.417	9.6523	10.728	8.5269	11.941	12.715	10.472
10/3/2009	3	5	5	538	6	A	54.911	56.09	55.401	9.5305	12.19	11.416	10.33	13.716	11.63
10/3/2009	3	5	6	556	2	A	56.133	57.778	57.862	6.8234	6.8258	7.4938	12.312	13.058	12.383
10/3/2009	3	5	7	590	1	A	54.63	55.057	54.452	8.5998	9.5722	10.031	10.216	12.134	12.328
10/3/2009	3	5	8	529	9	A	50.316	55.167	55.27	9.8816	10.002	9.6645	8.6329	9.758	10.042
10/3/2009	3	5	9	390	10	B	55.214	56.25	52.475	12.575	12.607	10.929	10.997	11.833	9.8236
10/3/2009	3	5	10	826	0	B	57.702	60.301	53.332	10.7	7.8892	13.17	13.208	11.864	13.914
10/3/2009	3	5	11	744	4	A	52.729	54.185	53.597	11.862	11.369	8.2006	11.504	9.9886	8.6355
10/3/2009	3	5	12	535	7	A	53.662	54.343	55.59	9.2251	9.2369	9.4152	13.756	13.417	14.967
10/3/2009	3	5	13	848	3	B	53.447	54.913	53.428	11.154	11.097	12.24	11.291	12.474	13.024
10/3/2009	3	5	14	755	8	B	54.358	54.683	55.411	11.953	11.414	10.313	11.613	11.744	10.095
10/3/2009	3	5	15	902	2	B	55.916	54.043	55.354	10.772	13.492	10.195	11.366	12.352	12.018
10/3/2009	3	5	16	93	1	B	54.286	52.716	55.814	13.85	12.936	10.767	12.703	12.177	10.302
10/3/2009	3	5	17	242	11	A	56.811	56.428	55.467	11.231	10.913	11.132	12.555	11.246	10.601
10/3/2009	3	5	18	630	10	A	56.501	53.552	57.776	11.517	13.187	12.035	12.811	11.855	13.136
10/3/2009	3	5	19	35	8	A	53.749	54.3	54.032	13.137	12.076	11.52	13.563	11.892	9.6277
10/3/2009	3	5	20	322	3	A	55.115	58.75	54.739	11.374	9.8715	10.57	10.452	11.395	12.027
10/3/2009	3	5	21	834	5	A	55.271	53.305	55.124	8.4745	10.084	8.6691	11.026	11.654	11.726
10/3/2009	3	5	22	12	7	B	52.802	52.614	55.522	8.7518	9.1131	8.0861	12.472	12.833	12.779
10/3/2009	3	5	23	145	5	B	56.072	53.146	54.973	8.5468	10.396	9.6779	11.229	9.4843	10.947
10/3/2009	3	5	24	633	4	B	54.121	52.641	57.256	9.178	10.762	10.145	10.513	11.723	12.4

SUBJECTIVE COLOR

Date	Batch	Day	Order	Panelist	ID	Trt	ptty	LeanC	Pdis	PBr	BrDis	PGr	GrDis	Specks	Comments
9/14/2009	1	0	1	Chrisly	426	10	A	4	0	0	0	0	0	0	
9/14/2009	1	0	2	Chrisly	807	10	B	4	0	0	0	0	0	0	
9/14/2009	1	0	3	Chrisly	587	4	A	4	0	0	0	0	0	9	
9/14/2009	1	0	4	Chrisly	199	4	B	4	0	0	0	0	0	13	
9/14/2009	1	0	5	Chrisly	717	1	A	3	0	0	0	0	0	0	
9/14/2009	1	0	6	Chrisly	184	1	B	4	0	0	0	0	0	0	
9/14/2009	1	0	7	Chrisly	333	5	A	4	0	0	0	0	0	15	
9/14/2009	1	0	8	Chrisly	738	5	B	4	0	0	0	0	0	25	
9/14/2009	1	0	9	Chrisly	615	9	A	4	0	0	0	0	0	1	
9/14/2009	1	0	10	Chrisly	416	9	B	3	0	0	0	0	0	0	
9/14/2009	1	0	11	Chrisly	21	3	A	3	0	0	0	0	0	7	
9/14/2009	1	0	12	Chrisly	357	3	B	3	0	0	0	0	0	6	
9/14/2009	1	0	13	Chrisly	403	2	A	3	0	0	0	0	0	0	
9/14/2009	1	0	14	Chrisly	898	2	B	3	0	0	0	0	0	0	
9/14/2009	1	0	15	Chrisly	41	6	A	4	0	0	0	0	0	0	
9/14/2009	1	0	16	Chrisly	461	6	B	4	0	0	0	0	0	0	
9/14/2009	1	0	17	Chrisly	9	0	A	4	0	0	0	0	0	0	
9/14/2009	1	0	18	Chrisly	676	0	B	4	0	0	0	0	0	0	
9/14/2009	1	0	19	Chrisly	84	8	A	4	0	0	0	0	0	0	
9/14/2009	1	0	20	Chrisly	304	8	B	4	0	0	0	0	0	0	
9/14/2009	1	0	21	Chrisly	422	11	A	4	0	0	0	0	0	0	
9/14/2009	1	0	22	Chrisly	109	11	B	4	0	0	0	0	0	0	
9/14/2009	1	0	23	Chrisly	934	7	A	4	0	0	0	0	0	0	
9/14/2009	1	0	24	Chrisly	788	7	B	4	0	0	0	0	0	0	
9/14/2009	1	0	13	Sarah	403	2	A	4	0	0	0	0	0	3	
9/14/2009	1	0	14	Sarah	898	2	B	4	0	0	0	0	0	1	
9/14/2009	1	0	15	Sarah	41	6	A	4	0	0	0	0	0	0	
9/14/2009	1	0	16	Sarah	461	6	B	4	0	0	0	0	0	4	
9/14/2009	1	0	1	Shannon	426	10	A	4	0	0	0	0	0	0	
9/14/2009	1	0	2	Shannon	807	10	B	4	0	0	0	0	0	0	

9/14/2009	1	0	3	Shannon	587	4	A	4	0	0	0	0	0	26
9/14/2009	1	0	4	Shannon	199	4	B	4	0	0	0	0	0	18
9/14/2009	1	0	5	Shannon	717	1	A	3	0	0	0	0	0	0
9/14/2009	1	0	6	Shannon	184	1	B	3	0	0	0	0	0	0
9/14/2009	1	0	7	Shannon	333	5	A	4	0	0	0	0	0	31
9/14/2009	1	0	8	Shannon	738	5	B	4	0	0	0	0	0	45
9/14/2009	1	0	9	Shannon	615	9	A	4	0	0	0	0	0	0
9/14/2009	1	0	10	Shannon	416	9	B	4	0	0	0	0	0	0
9/14/2009	1	0	11	Shannon	21	3	A	3	0	0	0	0	0	10
9/14/2009	1	0	12	Shannon	357	3	B	3	0	0	0	0	0	7
9/14/2009	1	0	13	Shannon	403	2	A	4	0	0	0	0	0	0
9/14/2009	1	0	14	Shannon	898	2	B	3	0	0	0	0	0	0
9/14/2009	1	0	15	Shannon	41	6	A	4	0	0	0	0	0	0
9/14/2009	1	0	16	Shannon	461	6	B	4	0	0	0	0	0	0
9/14/2009	1	0	17	Shannon	9	0	A	3	0	0	0	0	0	0
9/14/2009	1	0	18	Shannon	676	0	B	3	0	0	0	0	0	0
9/14/2009	1	0	19	Shannon	84	8	A	4	0	0	0	0	0	0
9/14/2009	1	0	20	Shannon	304	8	B	4	0	0	0	0	0	1
9/14/2009	1	0	21	Shannon	422	11	A	4	0	0	0	0	0	0
9/14/2009	1	0	22	Shannon	109	11	B	4	0	0	0	0	0	0
9/14/2009	1	0	23	Shannon	934	7	A	4	0	0	0	0	0	1
9/14/2009	1	0	24	Shannon	788	7	B	4	0	0	0	0	0	2
9/14/2009	1	0	1	Tabitha	426	10	A	4	0	0	0	0	0	0
9/14/2009	1	0	2	Tabitha	807	10	B	4	0	0	0	0	0	0
9/14/2009	1	0	3	Tabitha	587	4	A	4	0	0	0	0	0	34
9/14/2009	1	0	4	Tabitha	199	4	B	4	0	0	0	0	0	39
9/14/2009	1	0	5	Tabitha	717	1	A	4	0	0	0	0	0	0
9/14/2009	1	0	6	Tabitha	184	1	B	4	0	0	0	0	0	0
9/14/2009	1	0	7	Tabitha	333	5	A	4	0	0	0	0	0	59
9/14/2009	1	0	8	Tabitha	738	5	B	4	0	0	0	0	0	35
9/14/2009	1	0	9	Tabitha	615	9	A	4	0	0	0	0	0	1
9/14/2009	1	0	10	Tabitha	416	9	B	4	0	0	0	0	0	1
9/14/2009	1	0	11	Tabitha	21	3	A	4	0	0	0	0	0	16

9/14/2009	1	0	12	Tabitha	357	3	B	4	0	0	0	0	0	10	
9/14/2009	1	0	17	Teresa	9	0	A	4	0	0	0	0	0	0	
9/14/2009	1	0	18	Teresa	676	0	B	4	0	0	0	0	0	0	
9/14/2009	1	0	19	Teresa	84	8	A	4	0	0	0	0	0	0	
9/14/2009	1	0	20	Teresa	304	8	B	4	0	0	0	0	0	0	
9/14/2009	1	0	21	Teresa	422	11	A	4	0	0	0	0	0	0	
9/14/2009	1	0	22	Teresa	109	11	B	4	0	0	0	0	0	0	
9/14/2009	1	0	23	Teresa	934	7	A	4	0	0	0	0	0	0	
9/14/2009	1	0	24	Teresa	788	7	B	4	0	0	0	0	0	0	
9/15/2009	1	1	1	Shannon	530	10	A	4	10	10	2	0	0	0	
9/15/2009	1	1	2	Shannon	455	2	A	4	10	10	2	0	0	0	
9/15/2009	1	1	3	Shannon	74	8	B	4	10	10	3	0	0	0	2-3 Lg clumps of ingredient
9/15/2009	1	1	4	Shannon	101	6	A	4	30	30	4	0	0	0	
9/15/2009	1	1	5	Shannon	113	1	A	4	0	0	0	0	0	0	
9/15/2009	1	1	6	Shannon	143	6	B	4	30	30	3	0	0	0	
9/15/2009	1	1	7	Shannon	240	3	B	3	10	10	2	0	0	7	
9/15/2009	1	1	8	Shannon	614	11	B	4	40	40	2	0	0	0	
9/15/2009	1	1	9	Shannon	262	2	B	4	10	10	2	0	0	0	
9/15/2009	1	1	10	Shannon	18	7	A	4	40	40	4	0	0	0	
9/15/2009	1	1	11	Shannon	176	0	A	3	0	0	0	0	0	0	
9/15/2009	1	1	12	Shannon	177	9	B	4	30	30	2	0	0	0	
9/15/2009	1	1	13	Shannon	342	0	B	4	0	0	0	0	0	0	
9/15/2009	1	1	14	Shannon	383	11	A	4	40	40	3	0	0	2	
9/15/2009	1	1	15	Shannon	431	5	A	4	20	20	3	0	0	36	
9/15/2009	1	1	16	Shannon	100	5	B	4	40	40	3	0	0	32	
9/15/2009	1	1	17	Shannon	445	3	A	4	10	10	2	0	0	11	
9/15/2009	1	1	18	Shannon	168	9	A	4	40	40	2	0	0	0	
9/15/2009	1	1	19	Shannon	504	8	A	3	10	10	4	0	0	0	1 Lg clump of ingredient
9/15/2009	1	1	20	Shannon	123	10	B	1	30	30	2	0	0	0	
9/15/2009	1	1	21	Shannon	739	4	A	4	10	10	4	0	0	14	
9/15/2009	1	1	22	Shannon	749	7	B	4	60	60	4	0	0	0	
9/15/2009	1	1	23	Shannon	228	4	B	4	20	20	4	0	0	18	
9/15/2009	1	1	24	Shannon	273	1	B	3	0	0	0	0	0	0	

9/15/2009	1	1	1	Sonia	530	10	A	2	0	0	0	0	0	0	
9/15/2009	1	1	2	Sonia	455	2	A	4	0	0	0	0	0	0	
9/15/2009	1	1	3	Sonia	74	8	B	4	0	0	0	0	0	0	
9/15/2009	1	1	4	Sonia	101	6	A	3	0	0	0	0	0	1	
9/15/2009	1	1	5	Sonia	113	1	A	3	0	0	0	0	0	0	
9/15/2009	1	1	6	Sonia	143	6	B	4	0	0	0	0	0	0	
9/15/2009	1	1	7	Sonia	240	3	B	3	0	0	0	0	0	14	
9/15/2009	1	1	8	Sonia	614	11	B	3	10	10	2	0	0	0	
9/15/2009	1	1	9	Sonia	262	2	B	3	0	0	0	0	0	0	
9/15/2009	1	1	10	Sonia	18	7	A	4	20	20	4	0	0	0	
9/15/2009	1	1	11	Sonia	176	0	A	4	0	0	0	0	0	0	
9/15/2009	1	1	12	Sonia	177	9	B	4	10	10	2	0	0	0	
9/15/2009	1	1	13	Sonia	342	0	B	3	0	0	0	0	0	0	
9/15/2009	1	1	14	Sonia	383	11	A	3	10	10	2	0	0	0	
9/15/2009	1	1	15	Sonia	431	5	A	4	0	0	0	0	0	26	
9/15/2009	1	1	16	Sonia	100	5	B	4	0	0	0	0	0	38	
9/15/2009	1	1	17	Sonia	445	3	A	3	0	0	0	0	0	8	
9/15/2009	1	1	18	Sonia	168	9	A	3	10	10	2	0	0	0	
9/15/2009	1	1	19	Sonia	504	8	A	4	0	0	0	0	0	0	
9/15/2009	1	1	20	Sonia	123	10	B	3	10	10	2	0	0	0	
9/15/2009	1	1	21	Sonia	739	4	A	3	0	0	0	0	0	22	
9/15/2009	1	1	22	Sonia	749	7	B	4	20	20	3	0	0	0	
9/15/2009	1	1	23	Sonia	228	4	B	4	0	0	0	0	0	16	
9/15/2009	1	1	24	Sonia	273	1	B	3	0	0	0	0	0	0	Looks perfect
9/15/2009	1	1	1	Teresa	530	10	A	4	10	10	2	0	0	0	
9/15/2009	1	1	2	Teresa	455	2	A	4	10	10	2	0	0	0	
9/15/2009	1	1	3	Teresa	74	8	B	4	10	10	2	0	0	0	
9/15/2009	1	1	4	Teresa	101	6	A	3	20	20	2	0	0	0	
9/15/2009	1	1	5	Teresa	113	1	A	3	10	10	2	0	0	4	
9/15/2009	1	1	6	Teresa	143	6	B	3	10	10	2	0	0	0	
9/15/2009	1	1	7	Teresa	240	3	B	4	10	10	2	0	0	6	
9/15/2009	1	1	8	Teresa	614	11	B	3	20	20	2	0	0	0	
9/15/2009	1	1	9	Teresa	262	2	B	3	10	10	2	0	0	0	

9/15/2009	1	1	10	Teresa	18	7	A	3	30	30	4	0	0	0	
9/15/2009	1	1	11	Teresa	176	0	A	4	10	10	2	0	0	0	
9/15/2009	1	1	12	Teresa	177	9	B	2	30	30	1.5	0	0	0	
9/15/2009	1	1	13	Teresa	342	0	B	4	0	0	0	0	0	0	
9/15/2009	1	1	14	Teresa	383	11	A	3	10	10	2	0	0	0	
9/15/2009	1	1	15	Teresa	431	5	A	3	20	20	2	0	0	21	
9/15/2009	1	1	16	Teresa	100	5	B	3	20	20	2	0	0	18	
9/15/2009	1	1	17	Teresa	445	3	A	4	0	0	0	0	0	7	
9/15/2009	1	1	18	Teresa	168	9	A	3	10	10	2	0	0	0	
9/15/2009	1	1	19	Teresa	504	8	A	4	0	0	0	0	0	0	
9/15/2009	1	1	20	Teresa	123	10	B	2	30	30	2	0	0	0	
9/15/2009	1	1	21	Teresa	739	4	A	3	10	10	2	0	0	13	
9/15/2009	1	1	22	Teresa	749	7	B	3	30	30	2.5	0	0	0	
9/15/2009	1	1	23	Teresa	228	4	B	3	10	10	2	0	0	8	
9/15/2009	1	1	24	Teresa	273	1	B	3	0	0	0	0	0	0	
9/17/2009	1	3	1	Shannon	534	4	A	4	30	30	2	0	0	15	
9/17/2009	1	3	2	Shannon	410	5	A	4	30	30	3	0	0	29	
9/17/2009	1	3	3	Shannon	853	2	A	4	10	10	2	0	0	0	
9/17/2009	1	3	4	Shannon	132	8	B	4	30	30	4	0	0	0	2 Lg spots of ingredient
9/17/2009	1	3	5	Shannon	982	6	A	4	40	40	3	0	0	0	
9/17/2009	1	3	6	Shannon	91	6	B	4	20	20	3	0	0	0	
9/17/2009	1	3	7	Shannon	341	7	A	1	90	90	3	0	0	0	
9/17/2009	1	3	8	Shannon	995	2	B	4	10	10	3	0	0	0	
9/17/2009	1	3	9	Shannon	277	10	A	4	70	70	2	0	0	0	
9/17/2009	1	3	10	Shannon	577	11	A	4	20	20	3	0	0	0	
9/17/2009	1	3	11	Shannon	880	11	B	4	10	10	3	0	0	0	
9/17/2009	1	3	12	Shannon	281	10	B	1	70	70	3	0	0	0	
9/17/2009	1	3	13	Shannon	354	9	A	4	50	50	2	0	0	0	
9/17/2009	1	3	14	Shannon	99	1	B	4	0	0	0	0	0	0	
9/17/2009	1	3	15	Shannon	979	8	A	4	60	60	3	0	0	0	
9/17/2009	1	3	16	Shannon	440	7	B	4	90	90	4	0	0	0	
9/17/2009	1	3	17	Shannon	224	0	B	4	20	20	3	0	0	0	
9/17/2009	1	3	18	Shannon	865	5	B	4	30	30	4	0	0	23	

9/17/2009	1	3	19	Shannon	215	3	B	4	10	10	2	0	0	6	
9/17/2009	1	3	20	Shannon	605	4	B	4	60	60	3	0	0	24	
9/17/2009	1	3	21	Shannon	115	3	A	3	10	10	2	0	0	12	
9/17/2009	1	3	22	Shannon	658	9	B	1	50	50	2	0	0	0	
9/17/2009	1	3	23	Shannon	747	1	A	3	10	10	3	0	0	0	
9/17/2009	1	3	24	Shannon	401	0	A	4	40	40	3	0	0	0	
9/17/2009	1	3	1	Sonia	534	4	A	4	20	20	2	0	0	20	
9/17/2009	1	3	2	Sonia	410	5	A	4	10	10	3	0	0	34	
9/17/2009	1	3	3	Sonia	853	2	A	4	0	0	0	0	0	0	looks fresh to me
9/17/2009	1	3	4	Sonia	132	8	B	3	10	10	3	0	0	0	
9/17/2009	1	3	5	Sonia	982	6	A	5	20	20	3	0	0	0	
9/17/2009	1	3	6	Sonia	91	6	B	5	20	20	3	0	0	0	
9/17/2009	1	3	7	Sonia	341	7	A	3	80	80	5	0	0	0	must be control bc very brown
9/17/2009	1	3	8	Sonia	995	2	B	4	0	0	0	0	0	0	
9/17/2009	1	3	9	Sonia	277	10	A	4	50	40	2	10	2	0	
9/17/2009	1	3	10	Sonia	577	11	A	3	10	10	2	0	0	0	
9/17/2009	1	3	11	Sonia	880	11	B	4	20	20	2	0	0	0	
9/17/2009	1	3	12	Sonia	281	10	B	4	40	30	3	10	2	0	
9/17/2009	1	3	13	Sonia	354	9	A	4	20	20	3	0	0	0	
9/17/2009	1	3	14	Sonia	99	1	B	4	0	0	0	0	0	0	looks like day 0 patty
9/17/2009	1	3	15	Sonia	979	8	A	5	10	10	5	0	0	0	
9/17/2009	1	3	16	Sonia	440	7	B	4	80	70	4	10	2	0	very discolored, gross
9/17/2009	1	3	17	Sonia	224	0	B	3	0	0	0	0	0	0	still looks fresh
9/17/2009	1	3	18	Sonia	865	5	B	5	10	10	3	0	0	38	lots of visible specks
9/17/2009	1	3	19	Sonia	215	3	B	4	10	10	2	0	0	12	
9/17/2009	1	3	20	Sonia	605	4	B	4	20	20	2	0	0	18	
9/17/2009	1	3	21	Sonia	115	3	A	4	0	0	0	0	0	22	looks fresh
9/17/2009	1	3	22	Sonia	658	9	B	3	30	30	2	0	0	0	
9/17/2009	1	3	23	Sonia	747	1	A	4	0	0	0	0	0	0	fresh
9/17/2009	1	3	24	Sonia	401	0	A	5	10	10	3	0	0	0	
9/17/2009	1	3	1	Teresa	534	4	A	2	40	40	3	0	0	8	
9/17/2009	1	3	2	Teresa	410	5	A	3	20	20	2.5	0	0	10	

9/17/2009	1	3	3	Teresa	853	2	A	3	10	10	2	0	0	0
9/17/2009	1	3	4	Teresa	132	8	B	3	10	10	2	0	0	0
9/17/2009	1	3	5	Teresa	982	6	A	3	40	40	3	0	0	0
9/17/2009	1	3	6	Teresa	91	6	B	3	10	10	2.5	0	0	0
9/17/2009	1	3	7	Teresa	341	7	A	1	50	50	3.5	0	0	0
9/17/2009	1	3	8	Teresa	995	2	B	3	10	10	2	0	0	0
9/17/2009	1	3	9	Teresa	277	10	A	3	10	10	2	0	0	0
9/17/2009	1	3	10	Teresa	577	11	A	2	40	40	3	0	0	0
9/17/2009	1	3	11	Teresa	880	11	B	3	30	30	3	0	0	0
9/17/2009	1	3	12	Teresa	281	10	B	3	10	10	2	0	0	0
9/17/2009	1	3	13	Teresa	354	9	A	2	20	20	2.5	0	0	0
9/17/2009	1	3	14	Teresa	99	1	B	3	0	0	0	0	0	0
9/17/2009	1	3	15	Teresa	979	8	A	3	10	10	2	0	0	0
9/17/2009	1	3	16	Teresa	440	7	B	1	50	50	4	0	0	0
9/17/2009	1	3	17	Teresa	224	0	B	3	10	10	2.5	0	0	0
9/17/2009	1	3	18	Teresa	865	5	B	3	10	10	2	0	0	23
9/17/2009	1	3	19	Teresa	215	3	B	3	10	10	2	0	0	4
9/17/2009	1	3	20	Teresa	605	4	B	3	20	20	2.5	0	0	12
9/17/2009	1	3	21	Teresa	115	3	A	3	10	10	2	0	0	13
9/17/2009	1	3	22	Teresa	658	9	B	1	40	40	2.5	0	0	0
9/17/2009	1	3	23	Teresa	747	1	A	3	0	0	0	0	0	0
9/17/2009	1	3	24	Teresa	401	0	A	3	20	20	2.5	0	0	0
9/19/2009	1	5	1	Shannon	178	1	B	1	30	10	1	20	2	0
9/19/2009	1	5	2	Shannon	937	8	B	8	20	20	4	0	0	0
9/19/2009	1	5	3	Shannon	750	10	B	1	90	50	4	40	2	0
9/19/2009	1	5	4	Shannon	701	2	A	1	40	20	4	20	2	0
9/19/2009	1	5	5	Shannon	574	5	A	1	90	90	4	0	0	24
9/19/2009	1	5	6	Shannon	973	11	A	1	50	50	3	0	0	0
9/19/2009	1	5	7	Shannon	216	4	B	0	100	100	4	0	0	13
9/19/2009	1	5	8	Shannon	925	11	B	1	50	50	3	0	0	0
9/19/2009	1	5	9	Shannon	906	0	A	8	50	0	0	50	2	0
9/19/2009	1	5	10	Shannon	19	1	A	1	50	50	4	0	0	0
9/19/2009	1	5	11	Shannon	734	7	A	0	100	100	5	0	0	0

9/19/2009	1	5	12	Shannon	241	6	A	0	100	100	4	0	0	0	
9/19/2009	1	5	13	Shannon	760	7	B	1	90	90	4	0	0	0	
9/19/2009	1	5	14	Shannon	561	6	B	0	100	100	4	0	0	0	
9/19/2009	1	5	15	Shannon	327	10	A	1	90	10	4	80	2	2	
9/19/2009	1	5	16	Shannon	288	5	B	1	90	90	4	0	0	18	
9/19/2009	1	5	17	Shannon	794	9	B	1	60	60	3	0	0	0	
9/19/2009	1	5	18	Shannon	831	4	A	1	90	50	4	40	2	8	
9/19/2009	1	5	19	Shannon	193	0	B	1	70	0	0	70	3	0	
9/19/2009	1	5	20	Shannon	966	9	A	1	70	70	4	0	0	0	
9/19/2009	1	5	21	Shannon	238	3	A	4	70	70	4	0	0	13	
9/19/2009	1	5	22	Shannon	204	8	A	6	10	10	3	0	0	0	1 lg ingrpotedient
9/19/2009	1	5	23	Shannon	468	3	B	1	90	50	3	40	4	5	
9/19/2009	1	5	24	Shannon	552	2	B	4	20	20	4	0	0	0	
9/19/2009	1	5	1	Tabitha	178	1	B	4	90	40	3	50	2	0	
9/19/2009	1	5	2	Tabitha	937	8	B	4	10	10	4	0	0	0	
9/19/2009	1	5	3	Tabitha	750	10	B	0	100	70	4	30	2	0	
9/19/2009	1	5	4	Tabitha	701	2	A	4	80	40	3	40	2	1	
9/19/2009	1	5	5	Tabitha	574	5	A	0	100	90	4	10	2	46	
9/19/2009	1	5	6	Tabitha	973	11	A	4	60	60	3	0	0	1	
9/19/2009	1	5	7	Tabitha	216	4	B	0	100	0	0	100	2	17	
9/19/2009	1	5	8	Tabitha	925	11	B	4	90	90	3	0	0	0	
9/19/2009	1	5	9	Tabitha	906	0	A	4	80	40	3	40	2	0	
9/19/2009	1	5	10	Tabitha	19	1	A	1	90	70	3	20	1	0	
9/19/2009	1	5	11	Tabitha	734	7	A	0	100	100	4	0	0	0	
9/19/2009	1	5	12	Tabitha	241	6	A	0	100	90	4	10	4	0	
9/19/2009	1	5	13	Tabitha	760	7	B	0	100	100	4	0	0	0	
9/19/2009	1	5	14	Tabitha	561	6	B	0	100	90	4	10	4	1	
9/19/2009	1	5	15	Tabitha	327	10	A	0	100	20	3	80	2	0	
9/19/2009	1	5	16	Tabitha	288	5	B	0	100	100	3.5	0	0	31	
9/19/2009	1	5	17	Tabitha	794	9	B	4	90	90	3	0	0	1	
9/19/2009	1	5	18	Tabitha	831	4	A	2	90	90	3.5	0	0	24	
9/19/2009	1	5	19	Tabitha	193	0	B	4	90	20	3	70	2	0	
9/19/2009	1	5	20	Tabitha	966	9	A	4	80	70	3	10	2	0	

9/19/2009	1	5	21	Tabitha	238	3	A	4	90	80	3	10	2	10
9/19/2009	1	5	22	Tabitha	204	8	A	3	10	10	2	0	0	1
9/19/2009	1	5	23	Tabitha	468	3	B	0	100	20	3	80	2	9
9/19/2009	1	5	24	Tabitha	552	2	B	4	60	30	3	30	2	3
9/19/2009	1	5	1	Teresa	178	1	B	1	40	10	2	20	1.5	0
9/19/2009	1	5	2	Teresa	937	8	B	3	10	10	2	0	0	0
9/19/2009	1	5	3	Teresa	750	10	B	1	90	50	2.5	40	1.5	0
9/19/2009	1	5	4	Teresa	701	2	A	1	50	30	2.5	20	0.5	0
9/19/2009	1	5	5	Teresa	574	5	A	1	50	50	4	0	0	32
9/19/2009	1	5	6	Teresa	973	11	A	1	30	30	2.5	0	0	0
9/19/2009	1	5	7	Teresa	216	4	B	0	100	50	1	50	2.5	13
9/19/2009	1	5	8	Teresa	925	11	B	1	50	50	2.5	0	0	0
9/19/2009	1	5	9	Teresa	906	0	A	1	60	40	2	20	1.5	0
9/19/2009	1	5	10	Teresa	19	1	A	1	50	40	2	10	1	0
9/19/2009	1	5	11	Teresa	734	7	A	0	100	100	4	0	0	0
9/19/2009	1	5	12	Teresa	241	6	A	0	100	100	4	0	0	0
9/19/2009	1	5	13	Teresa	760	7	B	0	100	100	4	0	0	0
9/19/2009	1	5	14	Teresa	561	6	B	0	100	100	4	0	0	0
9/19/2009	1	5	15	Teresa	327	10	A	1	90	60	4	30	2	0
9/19/2009	1	5	16	Teresa	288	5	B	1	90	90	4	0	0	20
9/19/2009	1	5	17	Teresa	794	9	B	1	50	50	3	0	0	0
9/19/2009	1	5	18	Teresa	831	4	A	0	100	50	1	50	2	17
9/19/2009	1	5	19	Teresa	193	0	B	1	90	20	1	70	3	0
9/19/2009	1	5	20	Teresa	966	9	A	1	40	40	3	0	0	0
9/19/2009	1	5	21	Teresa	238	3	A	1	60	50	3	10	2	8
9/19/2009	1	5	22	Teresa	204	8	A	3	20	20	2	0	0	0
9/19/2009	1	5	23	Teresa	468	3	B	1	90	60	4	30	2	7
9/19/2009	1	5	24	Teresa	552	2	B	1	30	20	3	10	1	0
9/21/2009	2	0	1	Sarah	555	6	A	3	0	0	0	0	0	0
9/21/2009	2	0	2	Sarah	289	6	B	4	0	0	0	0	0	1
9/21/2009	2	0	3	Sarah	190	4	A	4	0	0	0	0	0	11
9/21/2009	2	0	4	Sarah	776	4	B	4	0	0	0	0	0	15
9/21/2009	2	0	5	Sarah	955	10	A	4	0	0	0	0	0	0

9/21/2009	2	0	6	Sarah	380	10	B	4	0	0	0	0	0	4
9/21/2009	2	0	7	Sarah	971	1	A	3	0	0	0	0	0	0
9/21/2009	2	0	8	Sarah	795	1	B	4	0	0	0	0	0	0
9/21/2009	2	0	9	Sarah	89	2	A	4	0	0	0	0	0	1
9/21/2009	2	0	10	Sarah	797	2	B	4	0	0	0	0	0	0
9/21/2009	2	0	11	Sarah	187	11	A	4	0	0	0	0	0	1
9/21/2009	2	0	12	Sarah	840	11	B	4	0	0	0	0	0	0
9/21/2009	2	0	13	Sarah	68	7	A	4	0	0	0	0	0	0
9/21/2009	2	0	14	Sarah	25	7	B	4	0	0	0	0	0	0
9/21/2009	2	0	15	Sarah	557	0	A	3	0	0	0	0	0	1
9/21/2009	2	0	16	Sarah	924	0	B	4	0	0	0	0	0	2
9/21/2009	2	0	17	Sarah	328	9	A	4	0	0	0	0	0	1
9/21/2009	2	0	18	Sarah	320	9	B	4	0	0	0	0	0	0
9/21/2009	2	0	19	Sarah	399	5	A	3	0	0	0	0	0	17
9/21/2009	2	0	20	Sarah	930	5	B	4	0	0	0	0	0	15
9/21/2009	2	0	21	Sarah	597	8	A	4	0	0	0	0	0	3
9/21/2009	2	0	22	Sarah	423	8	B	4	0	0	0	0	0	2
9/21/2009	2	0	23	Sarah	624	3	A	3	0	0	0	0	0	4
9/21/2009	2	0	24	Sarah	893	3	B	3	0	0	0	0	0	7
9/21/2009	2	0	1	Shannon	555	6	A	4	0	0	0	0	0	0
9/21/2009	2	0	2	Shannon	289	6	B	4	0	0	0	0	0	1
9/21/2009	2	0	3	Shannon	190	4	A	3	0	0	0	0	0	18
9/21/2009	2	0	4	Shannon	776	4	B	4	0	0	0	0	0	17
9/21/2009	2	0	5	Shannon	955	10	A	3	0	0	0	0	0	0
9/21/2009	2	0	6	Shannon	380	10	B	4	0	0	0	0	0	0
9/21/2009	2	0	7	Shannon	971	1	A	3	0	0	0	0	0	0
9/21/2009	2	0	8	Shannon	795	1	B	3	0	0	0	0	0	0
9/21/2009	2	0	9	Shannon	89	2	A	4	0	0	0	0	0	0
9/21/2009	2	0	10	Shannon	797	2	B	4	0	0	0	0	0	0
9/21/2009	2	0	11	Shannon	187	11	A	4	0	0	0	0	0	0
9/21/2009	2	0	12	Shannon	840	11	B	4	0	0	0	0	0	0
9/21/2009	2	0	13	Shannon	68	7	A	4	0	0	0	0	0	0
9/21/2009	2	0	14	Shannon	25	7	B	4	0	0	0	0	0	0

9/21/2009	2	0	15	Shannon	557	0	A	4	0	0	0	0	0	0
9/21/2009	2	0	16	Shannon	924	0	B	4	0	0	0	0	0	0
9/21/2009	2	0	17	Shannon	328	9	A	4	0	0	0	0	0	0
9/21/2009	2	0	18	Shannon	320	9	B	4	0	0	0	0	0	0
9/21/2009	2	0	19	Shannon	399	5	A	4	0	0	0	0	0	26
9/21/2009	2	0	20	Shannon	930	5	B	4	0	0	0	0	0	42
9/21/2009	2	0	21	Shannon	597	8	A	3	0	0	0	0	0	0
9/21/2009	2	0	22	Shannon	423	8	B	4	0	0	0	0	0	0
9/21/2009	2	0	23	Shannon	624	3	A	3	0	0	0	0	0	15
9/21/2009	2	0	24	Shannon	893	3	B	4	0	0	0	0	0	9
9/21/2009	2	0	1	Tabitha	555	6	A	3	0	0	0	0	0	0
9/21/2009	2	0	2	Tabitha	289	6	B	3	0	0	0	0	0	2
9/21/2009	2	0	3	Tabitha	190	4	A	4	0	0	0	0	0	24
9/21/2009	2	0	4	Tabitha	776	4	B	4	0	0	0	0	0	21
9/21/2009	2	0	5	Tabitha	955	10	A	4	0	0	0	0	0	0
9/21/2009	2	0	6	Tabitha	380	10	B	4	0	0	0	0	0	1
9/21/2009	2	0	7	Tabitha	971	1	A	4	0	0	0	0	0	0
9/21/2009	2	0	8	Tabitha	795	1	B	4	0	0	0	0	0	0
9/21/2009	2	0	9	Tabitha	89	2	A	4	0	0	0	0	0	0
9/21/2009	2	0	10	Tabitha	797	2	B	4	0	0	0	0	0	0
9/21/2009	2	0	11	Tabitha	187	11	A	4	0	0	0	0	0	0
9/21/2009	2	0	12	Tabitha	840	11	B	4	0	0	0	0	0	0
9/21/2009	2	0	13	Tabitha	68	7	A	4	0	0	0	0	0	0
9/21/2009	2	0	14	Tabitha	25	7	B	4	0	0	0	0	0	0
9/21/2009	2	0	15	Tabitha	557	0	A	4	0	0	0	0	0	0
9/21/2009	2	0	16	Tabitha	924	0	B	4	0	0	0	0	0	0
9/21/2009	2	0	17	Tabitha	328	9	A	4	0	0	0	0	0	0
9/21/2009	2	0	18	Tabitha	320	9	B	4	0	0	0	0	0	0
9/21/2009	2	0	19	Tabitha	399	5	A	4	0	0	0	0	0	33
9/21/2009	2	0	20	Tabitha	930	5	B	4	0	0	0	0	0	32
9/21/2009	2	0	21	Tabitha	597	8	A	4	0	0	0	0	0	0
9/21/2009	2	0	22	Tabitha	423	8	B	4	0	0	0	0	0	2
9/21/2009	2	0	23	Tabitha	624	3	A	3	0	0	0	0	0	8

9/21/2009	2	0	24	Tabitha	893	3	B	3	0	0	0	0	0	6	
9/22/2009	2	1	1	Shannon	388	0	B	4	0	0	0	0	0	0	
9/22/2009	2	1	2	Shannon	1	9	A	4	20	20	2	0	0	0	4 Lg spots of ingredient
9/22/2009	2	1	3	Shannon	20	8	A	4	10	10	4	0	0	0	
9/22/2009	2	1	4	Shannon	28	5	B	4	20	20	4	0	0	44	
9/22/2009	2	1	5	Shannon	29	6	A	4	10	10	2	0	0	0	
9/22/2009	2	1	6	Shannon	137	4	A	4	10	10	3	0	0	10	
9/22/2009	2	1	7	Shannon	462	2	A	4	0	0	0	0	0	0	
9/22/2009	2	1	8	Shannon	432	0	A	4	10	10	2	0	0	0	
9/22/2009	2	1	9	Shannon	191	11	A	4	20	20	3	0	0	0	
9/22/2009	2	1	10	Shannon	221	9	B	4	30	30	2	0	0	0	
9/22/2009	2	1	11	Shannon	243	2	B	3	0	0	0	0	0	0	
9/22/2009	2	1	12	Shannon	300	6	B	4	30	30	3	0	0	0	
9/22/2009	2	1	13	Shannon	355	11	B	4	10	10	2	0	0	0	
9/22/2009	2	1	14	Shannon	435	3	A	4	0	0	0	0	0	3	
9/22/2009	2	1	15	Shannon	377	7	A	4	40	40	4	0	0	0	
9/22/2009	2	1	16	Shannon	762	1	A	3	0	0	0	0	0	0	
9/22/2009	2	1	17	Shannon	467	8	B	4	10	10	2	0	0	0	
9/22/2009	2	1	18	Shannon	609	7	B	8	60	60	3	0	0	0	
9/22/2009	2	1	19	Shannon	613	4	B	4	10	10	3	0	0	10	
9/22/2009	2	1	20	Shannon	503	1	B	4	0	0	0	0	0	0	
9/22/2009	2	1	21	Shannon	732	5	A	4	30	30	3	0	0	35	
9/22/2009	2	1	22	Shannon	847	10	B	4	10	10	2	0	0	0	
9/22/2009	2	1	23	Shannon	956	10	A	4	10	10	2	0	0	0	
9/22/2009	2	1	24	Shannon	999	3	B	4	0	0	0	0	0	12	
9/22/2009	2	1	1	Sonia	388	0	B	4	0	0	0	0	0	0	
9/22/2009	2	1	2	Sonia	1	9	A	4	10	10	2	0	0	0	
9/22/2009	2	1	3	Sonia	20	8	A	4	0	0	0	0	0	0	
9/22/2009	2	1	4	Sonia	28	5	B	3	0	0	0	0	0	30	
9/22/2009	2	1	5	Sonia	29	6	A	3	0	0	0	0	0	0	
9/22/2009	2	1	6	Sonia	137	4	A	4	0	0	0	0	0	27	
9/22/2009	2	1	7	Sonia	462	2	A	3	0	0	0	0	0	0	good fresh color
9/22/2009	2	1	8	Sonia	432	0	A	3	0	0	0	0	0	0	good fresh color

9/22/2009	2	1	9	Sonia	191	11	A	4	10	10	2	0	0	0	
9/22/2009	2	1	10	Sonia	221	9	B	4	20	20	2	0	0	0	
9/22/2009	2	1	11	Sonia	243	2	B	4	0	0	0	0	0	0	
9/22/2009	2	1	12	Sonia	300	6	B	4	10	10	2	0	0	0	
9/22/2009	2	1	13	Sonia	355	11	B	4	10	10	2	0	0	0	
9/22/2009	2	1	14	Sonia	435	3	A	4	0	0	0	0	0	14	
9/22/2009	2	1	15	Sonia	377	7	A	4	20	20	3	0	0	0	
9/22/2009	2	1	16	Sonia	762	1	A	4	0	0	0	0	0	0	looks perfect
9/22/2009	2	1	17	Sonia	467	8	B	4	0	0	0	0	0	0	
9/22/2009	2	1	18	Sonia	609	7	B	4	20	20	3	0	0	0	
9/22/2009	2	1	19	Sonia	613	4	B	4	0	0	0	0	0	24	
9/22/2009	2	1	20	Sonia	503	1	B	4	0	0	0	0	0	0	
9/22/2009	2	1	21	Sonia	732	5	A	5	0	0	0	0	0	28	
9/22/2009	2	1	22	Sonia	847	10	B	3	0	0	0	0	0	0	
9/22/2009	2	1	23	Sonia	956	10	A	4	0	0	0	0	0	0	
9/22/2009	2	1	24	Sonia	999	3	B	5	0	0	0	0	0	10	
9/22/2009	2	1	1	Teresa	388	0	B	3	0	0	0	0	0	0	
9/22/2009	2	1	2	Teresa	1	9	A	3	10	10	2	0	0	0	
9/22/2009	2	1	3	Teresa	20	8	A	3	10	10	3	0	0	0	
9/22/2009	2	1	4	Teresa	28	5	B	3	20	20	3	0	0	24	
9/22/2009	2	1	5	Teresa	29	6	A	3	20	20	3	0	0	0	
9/22/2009	2	1	6	Teresa	137	4	A	3	10	10	3	0	0	11	
9/22/2009	2	1	7	Teresa	462	2	A	3	0	0	0	0	0	0	
9/22/2009	2	1	8	Teresa	432	0	A	3	10	10	3	0	0	0	
9/22/2009	2	1	9	Teresa	191	11	A	3	20	20	3	0	0	0	
9/22/2009	2	1	10	Teresa	221	9	B	3	30	30	3	0	0	0	
9/22/2009	2	1	11	Teresa	243	2	B	4	0	0	0	0	0	0	
9/22/2009	2	1	12	Teresa	300	6	B	3	10	10	2	0	0	0	
9/22/2009	2	1	13	Teresa	355	11	B	3	10	10	2	0	0	0	
9/22/2009	2	1	14	Teresa	435	3	A	3	0	0	0	0	0	5	
9/22/2009	2	1	15	Teresa	377	7	A	3	30	30	4	0	0	0	
9/22/2009	2	1	16	Teresa	762	1	A	3	0	0	0	0	0	0	
9/22/2009	2	1	17	Teresa	467	8	B	3	10	10	2	0	0	0	

9/22/2009	2	1	18	Teresa	609	7	B	3	40	40	3	0	0	0	
9/22/2009	2	1	19	Teresa	613	4	B	4	10	10	3	0	0	14	
9/22/2009	2	1	20	Teresa	503	1	B	3	10	10	3	0	0	0	
9/22/2009	2	1	21	Teresa	732	5	A	3	20	20	3	0	0	22	
9/22/2009	2	1	22	Teresa	847	10	B	3	10	10	2	0	0	0	
9/22/2009	2	1	23	Teresa	956	10	A	3	10	10	2	0	0	0	
9/22/2009	2	1	24	Teresa	999	3	B	3	0	0	0	0	0	7	
9/24/2009	2	3	1	Shannon	465	6	A	4	20	20	3	0	0	0	
9/24/2009	2	3	2	Shannon	244	1	B	4	10	10	3	0	0	0	
9/24/2009	2	3	3	Shannon	77	6	B	4	70	70	3	0	0	0	
9/24/2009	2	3	4	Shannon	367	8	B	4	30	30	3	0	0	0	
9/24/2009	2	3	5	Shannon	173	11	B	4	30	30	4	0	0	0	
9/24/2009	2	3	6	Shannon	533	2	A	4	30	30	3	0	0	0	
9/24/2009	2	3	7	Shannon	502	5	B	4	10	10	4	0	0	31	
9/24/2009	2	3	8	Shannon	483	7	A	1	80	80	4	0	0	0	Lg Fat Pieces
9/24/2009	2	3	9	Shannon	628	9	A	4	20	20	4	0	0	0	Lg Ingredient spot
9/24/2009	2	3	10	Shannon	466	9	B	4	30	30	3	0	0	0	
9/24/2009	2	3	11	Shannon	789	10	B	4	10	10	3	0	0	0	
9/24/2009	2	3	12	Shannon	368	7	B	4	70	70	4	0	0	0	
9/24/2009	2	3	13	Shannon	583	3	B	4	30	30	3	0	0	8	
9/24/2009	2	3	14	Shannon	430	1	A	4	20	20	3	0	0	0	
9/24/2009	2	3	15	Shannon	102	5	A	4	40	40	4	0	0	22	
9/24/2009	2	3	16	Shannon	819	0	B	4	10	10	3	0	0	0	
9/24/2009	2	3	17	Shannon	376	0	A	4	40	40	2	0	0	0	
9/24/2009	2	3	18	Shannon	130	10	A	4	30	30	3	0	0	0	
9/24/2009	2	3	19	Shannon	46	4	B	4	30	30	4	0	0	6	
9/24/2009	2	3	20	Shannon	567	11	A	4	40	40	3	0	0	0	
9/24/2009	2	3	21	Shannon	229	2	B	4	30	30	3	0	0	0	
9/24/2009	2	3	22	Shannon	634	3	A	4	20	20	3	0	0	6	
9/24/2009	2	3	23	Shannon	40	8	A	4	40	40	3	0	0	0	Very Lg Ingredient spot
9/24/2009	2	3	24	Shannon	256	4	A	4	10	10	3	0	0	17	
9/24/2009	2	3	1	Sonia	465	6	A	4	30	30	3	0	0	0	
9/24/2009	2	3	2	Sonia	244	1	B	4	20	20	2	0	0	0	Could still pass as fresh

9/24/2009	2	3	3	Sonia	77	6	B	6	30	30	4	0	0	0	Darkened color of lean
9/24/2009	2	3	4	Sonia	367	8	B	4	20	20	2	0	0	0	
9/24/2009	2	3	5	Sonia	173	11	B	4	20	20	3	0	0	0	
9/24/2009	2	3	6	Sonia	533	2	A	4	20	20	3	0	0	0	
9/24/2009	2	3	7	Sonia	502	5	B	5	20	20	3	0	0	32	
9/24/2009	2	3	8	Sonia	483	7	A	4	40	40	5	0	0	0	
9/24/2009	2	3	9	Sonia	628	9	A	4	20	20	2	0	0	0	
9/24/2009	2	3	10	Sonia	466	9	B	4	20	20	3	0	0	0	
9/24/2009	2	3	11	Sonia	789	10	B	4	10	10	3	0	0	0	Looks fresh
9/24/2009	2	3	12	Sonia	368	7	B	4	30	30	4	0	0	0	Blotchy discoloring
9/24/2009	2	3	13	Sonia	583	3	B	4	10	10	3	0	0	16	
9/24/2009	2	3	14	Sonia	430	1	A	4	10	10	4	0	0	0	
9/24/2009	2	3	15	Sonia	102	5	A	4	20	20	3	0	0	34	
9/24/2009	2	3	16	Sonia	819	0	B	4	10	10	3	0	0	0	Still looks fresh
9/24/2009	2	3	17	Sonia	376	0	A	4	30	30	2	0	0	0	
9/24/2009	2	3	18	Sonia	130	10	A	4	10	10	3	0	0	0	
9/24/2009	2	3	19	Sonia	46	4	B	4	20	20	3	0	0	25	
9/24/2009	2	3	20	Sonia	567	11	A	4	30	30	3	0	0	0	
9/24/2009	2	3	21	Sonia	229	2	B	4	10	10	3	0	0	0	Looks fresh
9/24/2009	2	3	22	Sonia	634	3	A	4	30	30	3	0	0	14	
9/24/2009	2	3	23	Sonia	40	8	A	5	30	30	3	0	0	0	
9/24/2009	2	3	24	Sonia	256	4	A	4	10	10	3	0	0	22	Very Fresh appearance
9/24/2009	2	3	1	Teresa	465	6	A	3	30	30	3	0	0	0	
9/24/2009	2	3	2	Teresa	244	1	B	3	10	10	3	0	0	0	
9/24/2009	2	3	3	Teresa	77	6	B	3	50	50	3	0	0	0	
9/24/2009	2	3	4	Teresa	367	8	B	3	30	30	3	0	0	0	
9/24/2009	2	3	5	Teresa	173	11	B	3	20	20	3	0	0	0	
9/24/2009	2	3	6	Teresa	533	2	A	3	40	40	4	0	0	0	
9/24/2009	2	3	7	Teresa	502	5	B	3	20	20	3	0	0	33	
9/24/2009	2	3	8	Teresa	483	7	A	1	60	60	4	0	0	0	
9/24/2009	2	3	9	Teresa	628	9	A	3	30	30	3	0	0	0	
9/24/2009	2	3	10	Teresa	466	9	B	3	20	20	3	0	0	0	
9/24/2009	2	3	11	Teresa	789	10	B	3	10	10	3	0	0	0	

9/24/2009	2	3	12	Teresa	368	7	B	3	50	50	4	0	0	0
9/24/2009	2	3	13	Teresa	583	3	B	3	10	10	3	0	0	8
9/24/2009	2	3	14	Teresa	430	1	A	3	10	10	3	0	0	0
9/24/2009	2	3	15	Teresa	102	5	A	3	30	30	3	0	0	16
9/24/2009	2	3	16	Teresa	819	0	B	3	10	10	2	0	0	0
9/24/2009	2	3	17	Teresa	376	0	A	3	30	30	3	0	0	0
9/24/2009	2	3	18	Teresa	130	10	A	3	40	40	3	0	0	1
9/24/2009	2	3	19	Teresa	46	4	B	3	40	40	4	0	0	8
9/24/2009	2	3	20	Teresa	567	11	A	3	50	50	3	0	0	0
9/24/2009	2	3	21	Teresa	229	2	B	3	30	30	3	0	0	0
9/24/2009	2	3	22	Teresa	634	3	A	3	40	40	4	0	0	7
9/24/2009	2	3	23	Teresa	40	8	A	3	10	10	3	0	0	0
9/24/2009	2	3	24	Teresa	256	4	A	3	20	20	3	0	0	17
9/26/2009	2	5	1	Holly	972	3	B	2	20	20	1	0	0	0
9/26/2009	2	5	2	Holly	625	2	B	2	30	10	1	20	2	0
9/26/2009	2	5	3	Holly	683	7	A	0	100	100	4	0	0	0
9/26/2009	2	5	4	Holly	743	10	A	3	0	0	0	0	0	0
9/26/2009	2	5	5	Holly	829	8	B	3	10	10	3	0	0	0
9/26/2009	2	5	6	Holly	197	6	B	1	70	70	2	0	0	0
9/26/2009	2	5	7	Holly	553	7	B	0	90	80	3	10	2	0
9/26/2009	2	5	8	Holly	174	8	A	2	20	20	2	0	0	0
9/26/2009	2	5	9	Holly	412	1	B	3	50	50	3	0	0	0
9/26/2009	2	5	10	Holly	856	5	B	2	90	80	2	10	1	3
9/26/2009	2	5	11	Holly	387	4	B	2	40	30	2	10	2	2
9/26/2009	2	5	12	Holly	523	3	A	3	40	30	3	10	1	1
9/26/2009	2	5	13	Holly	458	0	A	2	70	40	1	60	2	0
9/26/2009	2	5	14	Holly	356	11	B	2	20	20	3	0	0	0
9/26/2009	2	5	15	Holly	970	6	A	3	0	0	0	0	0	0
9/26/2009	2	5	16	Holly	510	9	B	4	10	10	3	0	0	0
9/26/2009	2	5	17	Holly	155	5	A	5	0	0	0	0	0	16
9/26/2009	2	5	18	Holly	849	0	B	0	100	20	2	80	2	0
9/26/2009	2	5	19	Holly	756	1	A	1	80	80	3	0	0	0
9/26/2009	2	5	20	Holly	104	10	B	3	10	10	2	0	0	0

9/26/2009	2	5	21	Holly	575	4	A	2	40	40	3	0	0	3
9/26/2009	2	5	22	Holly	908	11	A	2	20	0	0	20	2	0
9/26/2009	2	5	23	Holly	404	9	A	1	30	30	2	0	0	0
9/26/2009	2	5	24	Holly	14	2	A	3	40	30	4	10	4	0
9/26/2009	2	5	1	Sarah	972	3	B	2	30	30	4	0	0	1
9/26/2009	2	5	2	Sarah	625	2	B	1	50	40	4	10	1	0
9/26/2009	2	5	3	Sarah	683	7	A	0	100	90	4	10	1	0
9/26/2009	2	5	4	Sarah	743	10	A	1	10	10	3	0	0	0
9/26/2009	2	5	5	Sarah	829	8	B	1	30	30	4	0	0	0
9/26/2009	2	5	6	Sarah	197	6	B	1	30	30	3	0	0	0
9/26/2009	2	5	7	Sarah	553	7	B	1	90	90	3	0	0	0
9/26/2009	2	5	8	Sarah	174	8	A	1	40	40	4	0	0	0
9/26/2009	2	5	9	Sarah	412	1	B	2	50	50	2	0	0	0
9/26/2009	2	5	10	Sarah	856	5	B	1	60	50	3	10	1	10
9/26/2009	2	5	11	Sarah	387	4	B	3	30	30	3	0	0	9
9/26/2009	2	5	12	Sarah	523	3	A	3	20	20	4	0	0	10
9/26/2009	2	5	13	Sarah	458	0	A	1	90	80	4	10	2	0
9/26/2009	2	5	14	Sarah	356	11	B	1	30	30	3	0	0	0
9/26/2009	2	5	15	Sarah	970	6	A	4	10	10	4	0	0	0
9/26/2009	2	5	16	Sarah	510	9	B	1	10	10	2	0	0	0
9/26/2009	2	5	17	Sarah	155	5	A	4	10	10	3	0	0	20
9/26/2009	2	5	18	Sarah	849	0	B	1	90	30	2	60	1	0
9/26/2009	2	5	19	Sarah	756	1	A	2	50	50	4	0	0	0
9/26/2009	2	5	20	Sarah	104	10	B	4	10	10	3	0	0	0
9/26/2009	2	5	21	Sarah	575	4	A	3	40	40	3	0	0	13
9/26/2009	2	5	22	Sarah	908	11	A	4	20	20	2	0	0	0
9/26/2009	2	5	23	Sarah	404	9	A	1	30	30	3	0	0	0
9/26/2009	2	5	24	Sarah	14	2	A	4	60	50	4	10	3	0
9/26/2009	2	5	1	Shannon	972	3	B	4	40	40	4	0	0	2
9/26/2009	2	5	2	Shannon	625	2	B	1	60	40	4	20	2	0
9/26/2009	2	5	3	Shannon	683	7	A	0	100	100	4	0	0	0
9/26/2009	2	5	4	Shannon	743	10	A	4	10	10	3	0	0	0
9/26/2009	2	5	5	Shannon	829	8	B	4	60	60	2	0	0	0

9/26/2009	2	5	6	Shannon	197	6	B	4	30	30	4	0	0	0
9/26/2009	2	5	7	Shannon	553	7	B	4	90	90	4	0	0	0
9/26/2009	2	5	8	Shannon	174	8	A	4	30	30	3	0	0	0
9/26/2009	2	5	9	Shannon	412	1	B	1	60	60	4	0	0	0
9/26/2009	2	5	10	Shannon	856	5	B	1	70	70	4	0	0	32
9/26/2009	2	5	11	Shannon	387	4	B	4	50	40	4	10	2	10
9/26/2009	2	5	12	Shannon	523	3	A	4	20	20	4	0	0	12
9/26/2009	2	5	13	Shannon	458	0	A	4	70	10	3	60	2	0
9/26/2009	2	5	14	Shannon	356	11	B	4	10	10	3	0	0	0
9/26/2009	2	5	15	Shannon	970	6	A	4	10	10	4	0	0	0
9/26/2009	2	5	16	Shannon	510	9	B	4	30	30	3	0	0	0
9/26/2009	2	5	17	Shannon	155	5	A	4	10	10	4	0	0	31
9/26/2009	2	5	18	Shannon	849	0	B	1	90	10	3	80	2	0
9/26/2009	2	5	19	Shannon	756	1	A	4	80	80	3	0	0	0
9/26/2009	2	5	20	Shannon	104	10	B	4	40	40	3	0	0	0
9/26/2009	2	5	21	Shannon	575	4	A	4	40	40	3	0	0	13
9/26/2009	2	5	22	Shannon	908	11	A	4	10	10	4	0	0	0
9/26/2009	2	5	23	Shannon	404	9	A	1	60	60	2	0	0	0
9/26/2009	2	5	24	Shannon	14	2	A	4	50	40	4	10	2	0
9/28/2009	3	0	1	Sarah	692	2	A	3	0	0	0	0	0	0
9/28/2009	3	0	2	Sarah	881	2	B	3	0	0	0	0	0	0
9/28/2009	3	0	3	Sarah	511	10	A	3	0	0	0	0	0	0
9/28/2009	3	0	4	Sarah	796	10	B	4	0	0	0	0	0	0
9/28/2009	3	0	5	Sarah	4	5	A	4	0	0	0	0	0	20
9/28/2009	3	0	6	Sarah	695	5	B	4	0	0	0	0	0	26
9/28/2009	3	0	7	Sarah	936	0	A	3	0	0	0	0	0	0
9/28/2009	3	0	8	Sarah	90	0	B	3	0	0	0	0	0	0
9/28/2009	3	0	9	Sarah	652	9	A	4	0	0	0	0	0	1
9/28/2009	3	0	10	Sarah	39	9	B	4	0	0	0	0	0	2
9/28/2009	3	0	11	Sarah	64	7	A	4	0	0	0	0	0	0
9/28/2009	3	0	12	Sarah	417	7	B	4	0	0	0	0	0	1
9/28/2009	3	0	13	Sarah	516	4	A	3	0	0	0	0	0	9
9/28/2009	3	0	14	Sarah	59	4	B	4	0	0	0	0	0	17

9/28/2009	3	0	15	Sarah	645	6	A	4	0	0	0	0	0	0
9/28/2009	3	0	16	Sarah	337	6	B	4	0	0	0	0	0	0
9/28/2009	3	0	17	Sarah	58	11	A	4	0	0	0	0	0	0
9/28/2009	3	0	18	Sarah	33	11	B	4	0	0	0	0	0	0
9/28/2009	3	0	19	Sarah	473	1	A	3	0	0	0	0	0	0
9/28/2009	3	0	20	Sarah	47	1	B	3	0	0	0	0	0	0
9/28/2009	3	0	21	Sarah	179	8	A	3	0	0	0	0	0	3
9/28/2009	3	0	22	Sarah	111	8	B	4	0	0	0	0	0	1
9/28/2009	3	0	23	Sarah	945	3	A	3	0	0	0	0	0	6
9/28/2009	3	0	24	Sarah	938	3	B	4	0	0	0	0	0	8
9/28/2009	3	0	1	Shannon	692	2	A	4	0	0	0	0	0	0
9/28/2009	3	0	2	Shannon	881	2	B	4	0	0	0	0	0	0
9/28/2009	3	0	3	Shannon	511	10	A	4	0	0	0	0	0	0
9/28/2009	3	0	4	Shannon	796	10	B	3	0	0	0	0	0	0
9/28/2009	3	0	5	Shannon	4	5	A	3	0	0	0	0	0	45
9/28/2009	3	0	6	Shannon	695	5	B	4	0	0	0	0	0	40
9/28/2009	3	0	7	Shannon	936	0	A	3	0	0	0	0	0	0
9/28/2009	3	0	8	Shannon	90	0	B	3	0	0	0	0	0	0
9/28/2009	3	0	9	Shannon	652	9	A	4	0	0	0	0	0	0
9/28/2009	3	0	10	Shannon	39	9	B	4	0	0	0	0	0	0
9/28/2009	3	0	11	Shannon	64	7	A	4	0	0	0	0	0	0
9/28/2009	3	0	12	Shannon	417	7	B	4	0	0	0	0	0	0
9/28/2009	3	0	13	Shannon	516	4	A	4	0	0	0	0	0	30
9/28/2009	3	0	14	Shannon	59	4	B	4	0	0	0	0	0	25
9/28/2009	3	0	15	Shannon	645	6	A	4	0	0	0	0	0	0
9/28/2009	3	0	16	Shannon	337	6	B	4	0	0	0	0	0	0
9/28/2009	3	0	17	Shannon	58	11	A	4	0	0	0	0	0	0
9/28/2009	3	0	18	Shannon	33	11	B	4	0	0	0	0	0	0
9/28/2009	3	0	19	Shannon	473	1	A	4	0	0	0	0	0	0
9/28/2009	3	0	20	Shannon	47	1	B	3	0	0	0	0	0	0
9/28/2009	3	0	21	Shannon	179	8	A	4	0	0	0	0	0	1
9/28/2009	3	0	22	Shannon	111	8	B	4	0	0	0	0	0	0
9/28/2009	3	0	23	Shannon	945	3	A	4	0	0	0	0	0	20

9/28/2009	3	0	24	Shannon	938	3	B	4	0	0	0	0	0	9	
9/28/2009	3	0	1	Tabitha	692	2	A	3	0	0	0	0	0	0	
9/28/2009	3	0	2	Tabitha	881	2	B	4	0	0	0	0	0	0	
9/28/2009	3	0	3	Tabitha	511	10	A	4	0	0	0	0	0	0	
9/28/2009	3	0	4	Tabitha	796	10	B	4	0	0	0	0	0	0	
9/28/2009	3	0	5	Tabitha	4	5	A	3	0	0	0	0	0	73	
9/28/2009	3	0	6	Tabitha	695	5	B	3	0	0	0	0	0	46	
9/28/2009	3	0	7	Tabitha	936	0	A	4	0	0	0	0	0	0	
9/28/2009	3	0	8	Tabitha	90	0	B	4	0	0	0	0	0	0	
9/28/2009	3	0	9	Tabitha	652	9	A	4	0	0	0	0	0	0	
9/28/2009	3	0	10	Tabitha	39	9	B	4	0	0	0	0	0	0	
9/28/2009	3	0	11	Tabitha	64	7	A	4	0	0	0	0	0	1	
9/28/2009	3	0	12	Tabitha	417	7	B	4	0	0	0	0	0	0	
9/28/2009	3	0	13	Tabitha	516	4	A	4	0	0	0	0	0	20	
9/28/2009	3	0	14	Tabitha	59	4	B	4	0	0	0	0	0	34	
9/28/2009	3	0	15	Tabitha	645	6	A	4	0	0	0	0	0	0	
9/28/2009	3	0	16	Tabitha	337	6	B	4	0	0	0	0	0	0	
9/28/2009	3	0	17	Tabitha	58	11	A	4	0	0	0	0	0	0	
9/28/2009	3	0	18	Tabitha	33	11	B	4	0	0	0	0	0	0	
9/28/2009	3	0	19	Tabitha	473	1	A	4	0	0	0	0	0	0	
9/28/2009	3	0	20	Tabitha	47	1	B	4	0	0	0	0	0	0	
9/28/2009	3	0	21	Tabitha	179	8	A	4	0	0	0	0	0	0	
9/28/2009	3	0	22	Tabitha	111	8	B	4	0	0	0	0	0	1	
9/28/2009	3	0	23	Tabitha	945	3	A	4	0	0	0	0	0	32	
9/28/2009	3	0	24	Tabitha	938	3	B	4	0	0	0	0	0	18	
9/29/2009	3	1	1	Shannon	108	7	A	4	20	20	2	0	0	0	
9/29/2009	3	1	2	Shannon	373	1	A	4	0	0	0	0	0	0	
9/29/2009	3	1	3	Shannon	616	9	B	4	10	10	2	0	0	1	2 Lg ingredient spots
9/29/2009	3	1	4	Shannon	287	10	B	4	10	10	3	0	0	0	
9/29/2009	3	1	5	Shannon	964	11	B	4	10	10	4	0	0	0	
9/29/2009	3	1	6	Shannon	854	2	B	4	0	0	0	0	0	0	
9/29/2009	3	1	7	Shannon	65	10	A	4	10	10	2	0	0	0	
9/29/2009	3	1	8	Shannon	501	3	A	4	0	0	0	0	0	17	

9/29/2009	3	1	9	Shannon	718	6	A	4	10	10	2	0	0	0	
9/29/2009	3	1	10	Shannon	948	8	B	4	10	10	2	0	0	0	
9/29/2009	3	1	11	Shannon	23	5	A	4	20	20	4	0	0	45	
9/29/2009	3	1	12	Shannon	588	11	A	4	20	20	2	0	0	0	
9/29/2009	3	1	13	Shannon	293	0	A	4	0	0	0	0	0	0	
9/29/2009	3	1	14	Shannon	290	1	B	4	0	0	0	0	0	0	
9/29/2009	3	1	15	Shannon	315	5	B	4	20	20	4	0	0	35	
9/29/2009	3	1	16	Shannon	670	7	B	4	30	30	4	0	0	0	
9/29/2009	3	1	17	Shannon	662	8	A	4	10	10	2	0	0	0	
9/29/2009	3	1	18	Shannon	175	2	A	4	0	0	0	0	0	0	
9/29/2009	3	1	19	Shannon	442	3	B	3	0	0	0	0	0	10	
9/29/2009	3	1	20	Shannon	876	4	B	4	10	10	3	0	0	17	
9/29/2009	3	1	21	Shannon	86	6	B	4	10	10	3	0	0	0	
9/29/2009	3	1	22	Shannon	635	0	B	4	0	0	0	0	0	0	
9/29/2009	3	1	23	Shannon	939	4	A	4	10	10	2	0	0	14	
9/29/2009	3	1	24	Shannon	375	9	A	4	20	20	2	0	0	0	
9/29/2009	3	1	1	Sonia	108	7	A	3	0	0	0	0	0	0	
9/29/2009	3	1	2	Sonia	373	1	A	3	0	0	0	0	0	0	Looks perfect
9/29/2009	3	1	3	Sonia	616	9	B	3	10	10	2	0	0	0	
9/29/2009	3	1	4	Sonia	287	10	B	4	10	10	3	0	0	0	
9/29/2009	3	1	5	Sonia	964	11	B	4	10	10	3	0	0	0	
9/29/2009	3	1	6	Sonia	854	2	B	4	0	0	0	0	0	0	
9/29/2009	3	1	7	Sonia	65	10	A	3	0	0	0	0	0	0	
9/29/2009	3	1	8	Sonia	501	3	A	4	0	0	0	0	0	16	
9/29/2009	3	1	9	Sonia	718	6	A	3	0	0	0	0	0	0	
9/29/2009	3	1	10	Sonia	948	8	B	4	0	0	0	0	0	0	
9/29/2009	3	1	11	Sonia	23	5	A	3	0	0	0	0	0	42	
9/29/2009	3	1	12	Sonia	588	11	A	4	10	10	2	0	0	0	
9/29/2009	3	1	13	Sonia	293	0	A	3	0	0	0	0	0	0	
9/29/2009	3	1	14	Sonia	290	1	B	4	0	0	0	0	0	0	
9/29/2009	3	1	15	Sonia	315	5	B	4	10	10	3	0	0	33	
9/29/2009	3	1	16	Sonia	670	7	B	4	20	20	4	0	0	0	
9/29/2009	3	1	17	Sonia	662	8	A	4	0	0	0	0	0	0	

9/29/2009	3	1	18	Sonia	175	2	A	4	0	0	0	0	0	0	Bright red color
9/29/2009	3	1	19	Sonia	442	3	B	4	10	10	2	0	0	9	
9/29/2009	3	1	20	Sonia	876	4	B	4	0	0	0	0	0	13	
9/29/2009	3	1	21	Sonia	86	6	B	3	10	10	2	0	0	0	
9/29/2009	3	1	22	Sonia	635	0	B	3	0	0	0	0	0	0	
9/29/2009	3	1	23	Sonia	939	4	A	4	0	0	0	0	0	20	
9/29/2009	3	1	24	Sonia	375	9	A	4	10	10	2	0	0	0	
9/29/2009	3	1	1	Teresa	108	7	A	3	10	10	3	0	0	0	
9/29/2009	3	1	2	Teresa	373	1	A	3	0	0	0	0	0	0	
9/29/2009	3	1	3	Teresa	616	9	B	3	0	0	0	0	0	0	
9/29/2009	3	1	4	Teresa	287	10	B	3	10	10	2	0	0	0	
9/29/2009	3	1	5	Teresa	964	11	B	3	10	10	3	0	0	0	
9/29/2009	3	1	6	Teresa	854	2	B	4	0	0	0	0	0	0	
9/29/2009	3	1	7	Teresa	65	10	A	3	0	0	0	0	0	0	
9/29/2009	3	1	8	Teresa	501	3	A	4	0	0	0	0	0	10	
9/29/2009	3	1	9	Teresa	718	6	A	3	10	10	3	0	0	0	
9/29/2009	3	1	10	Teresa	948	8	B	4	0	0	0	0	0	0	
9/29/2009	3	1	11	Teresa	23	5	A	3	20	20	3	0	0	20	
9/29/2009	3	1	12	Teresa	588	11	A	3	10	10	3	0	0	0	
9/29/2009	3	1	13	Teresa	293	0	A	4	0	0	0	0	0	0	
9/29/2009	3	1	14	Teresa	290	1	B	4	0	0	0	0	0	0	
9/29/2009	3	1	15	Teresa	315	5	B	3	40	40	4	0	0	23	
9/29/2009	3	1	16	Teresa	670	7	B	3	30	30	4	0	0	0	
9/29/2009	3	1	17	Teresa	662	8	A	3	0	0	0	0	0	0	
9/29/2009	3	1	18	Teresa	175	2	A	4	0	0	0	0	0	0	
9/29/2009	3	1	19	Teresa	442	3	B	3	10	10	3	0	0	5	
9/29/2009	3	1	20	Teresa	876	4	B	3	10	10	3	0	0	13	
9/29/2009	3	1	21	Teresa	86	6	B	3	30	30	3	0	0	0	
9/29/2009	3	1	22	Teresa	635	0	B	3	0	0	0	0	0	0	
9/29/2009	3	1	23	Teresa	939	4	A	3	10	10	3	0	0	14	
9/29/2009	3	1	24	Teresa	375	9	A	3	30	30	3	0	0	0	
10/1/2009	3	3	1	Shannon	8	5	A	4	20	20	4	0	0	32	
10/1/2009	3	3	2	Shannon	691	11	B	4	10	10	3	0	0	0	

10/1/2009	3	3	3	Shannon	815	6	B	4	20	20	2	0	0	0	
10/1/2009	3	3	4	Shannon	159	4	A	4	10	10	4	0	0	24	
10/1/2009	3	3	5	Shannon	278	8	A	4	20	20	4	0	0	0	
10/1/2009	3	3	6	Shannon	182	3	B	4	30	30	3	0	0	9	
10/1/2009	3	3	7	Shannon	133	1	B	4	10	10	5	0	0	0	
10/1/2009	3	3	8	Shannon	824	1	A	4	10	10	4	0	0	0	
10/1/2009	3	3	9	Shannon	873	10	B	4	20	20	3	0	0	0	
10/1/2009	3	3	10	Shannon	16	10	A	4	10	10	4	0	0	0	
10/1/2009	3	3	11	Shannon	314	9	B	4	30	30	4	0	0	0	
10/1/2009	3	3	12	Shannon	98	7	A	1	90	90	4	0	0	0	
10/1/2009	3	3	13	Shannon	162	6	A	4	50	50	4	0	0	0	
10/1/2009	3	3	14	Shannon	441	2	B	4	0	0	0	0	0	0	
10/1/2009	3	3	15	Shannon	22	0	A	4	10	10	2	0	0	0	
10/1/2009	3	3	16	Shannon	378	8	B	4	30	30	3	0	0	0	
10/1/2009	3	3	17	Shannon	66	0	B	4	0	0	0	0	0	0	
10/1/2009	3	3	18	Shannon	882	7	B	1	90	90	4	0	0	0	
10/1/2009	3	3	19	Shannon	434	11	A	4	20	20	2	0	0	0	
10/1/2009	3	3	20	Shannon	161	3	A	4	10	10	4	0	0	10	
10/1/2009	3	3	21	Shannon	402	2	A	4	20	20	2	0	0	0	
10/1/2009	3	3	22	Shannon	922	5	B	4	40	40	4	0	0	48	
10/1/2009	3	3	23	Shannon	348	4	B	4	30	30	3	0	0	18	
10/1/2009	3	3	24	Shannon	386	9	A	4	30	30	2	0	0	0	
10/1/2009	3	3	1	Sonia	8	5	A	3	20	20	3	0	0	28	
10/1/2009	3	3	2	Sonia	691	11	B	4	20	20	3	0	0	0	
10/1/2009	3	3	3	Sonia	815	6	B	3	30	30	4	0	0	0	
10/1/2009	3	3	4	Sonia	159	4	A	3	10	10	3	0	0	10	Still looks fresh
10/1/2009	3	3	5	Sonia	278	8	A	4	20	20	4	0	0	0	
10/1/2009	3	3	6	Sonia	182	3	B	4	30	30	3	0	0	12	
10/1/2009	3	3	7	Sonia	133	1	B	4	30	30	2	0	0	0	
10/1/2009	3	3	8	Sonia	824	1	A	4	30	30	2	0	0	0	
10/1/2009	3	3	9	Sonia	873	10	B	3	10	10	3	0	0	0	looks fresh
10/1/2009	3	3	10	Sonia	16	10	A	4	20	20	2	0	0	0	
10/1/2009	3	3	11	Sonia	314	9	B	4	40	40	3	0	0	0	

10/1/2009	3	3	12	Sonia	98	7	A	3	60	60	5	0	0	0	gross
10/1/2009	3	3	13	Sonia	162	6	A	4	40	40	3	0	0	0	
10/1/2009	3	3	14	Sonia	441	2	B	4	0	0	0	0	0	0	Bright red color
10/1/2009	3	3	15	Sonia	22	0	A	4	10	10	2	0	0	0	Good color, fresh
10/1/2009	3	3	16	Sonia	378	8	B	3	30	30	4	0	0	0	
10/1/2009	3	3	17	Sonia	66	0	B	3	10	10	2	0	0	0	
10/1/2009	3	3	18	Sonia	882	7	B	4	80	80	4	0	0	0	yuck
10/1/2009	3	3	19	Sonia	434	11	A	3	40	40	3	0	0	0	
10/1/2009	3	3	20	Sonia	161	3	A	4	20	20	2	0	0	18	
10/1/2009	3	3	21	Sonia	402	2	A	4	10	10	3	0	0	0	
10/1/2009	3	3	22	Sonia	922	5	B	4	30	30	3	0	0	26	
10/1/2009	3	3	23	Sonia	348	4	B	4	30	30	3	0	0	28	
10/1/2009	3	3	24	Sonia	386	9	A	4	40	40	3	0	0	0	
10/1/2009	3	3	1	Teresa	8	5	A	3	30	30	4	0	0	23	
10/1/2009	3	3	2	Teresa	691	11	B	3	20	20	3	0	0	0	
10/1/2009	3	3	3	Teresa	815	6	B	3	30	30	3	0	0	0	
10/1/2009	3	3	4	Teresa	159	4	A	3	10	10	3	0	0	17	
10/1/2009	3	3	5	Teresa	278	8	A	3	30	30	4	0	0	0	
10/1/2009	3	3	6	Teresa	182	3	B	3	40	40	4	0	0	8	
10/1/2009	3	3	7	Teresa	133	1	B	3	10	10	4	0	0	0	
10/1/2009	3	3	8	Teresa	824	1	A	3	10	10	3	0	0	0	
10/1/2009	3	3	9	Teresa	873	10	B	3	0	0	0	0	0	0	
10/1/2009	3	3	10	Teresa	16	10	A	3	10	10	4	0	0	0	
10/1/2009	3	3	11	Teresa	314	9	B	1	50	50	3	0	0	0	
10/1/2009	3	3	12	Teresa	98	7	A	0	100	100	4	0	0	0	
10/1/2009	3	3	13	Teresa	162	6	A	3	40	40	3	0	0	0	
10/1/2009	3	3	14	Teresa	441	2	B	3	0	0	0	0	0	0	
10/1/2009	3	3	15	Teresa	22	0	A	3	10	10	3	0	0	0	
10/1/2009	3	3	16	Teresa	378	8	B	3	50	50	4	0	0	0	
10/1/2009	3	3	17	Teresa	66	0	B	3	0	0	0	0	0	0	
10/1/2009	3	3	18	Teresa	882	7	B	1	90	90	4	0	0	0	
10/1/2009	3	3	19	Teresa	434	11	A	3	30	30	3	0	0	0	
10/1/2009	3	3	20	Teresa	161	3	A	3	10	10	3	0	0	3	

10/1/2009	3	3	21	Teresa	402	2	A	3	10	10	3	0	0	0
10/1/2009	3	3	22	Teresa	922	5	B	3	30	30	3	0	0	11
10/1/2009	3	3	23	Teresa	348	4	B	3	20	20	3	0	0	5
10/1/2009	3	3	24	Teresa	386	9	A	1	50	50	3	0	0	0
10/3/2009	3	5	1	Chrisly	957	11	B	0	100	100	3	0	0	0
10/3/2009	3	5	2	Chrisly	784	6	B	0	100	100	3	0	0	0
10/3/2009	3	5	3	Chrisly	913	9	B	0	100	90	3	10	2	0
10/3/2009	3	5	4	Chrisly	793	0	A	0	100	60	3	40	2	0
10/3/2009	3	5	5	Chrisly	538	6	A	4	80	80	3	0	0	0
10/3/2009	3	5	6	Chrisly	556	2	A	0	100	40	4	60	2	0
10/3/2009	3	5	7	Chrisly	590	1	A	0	100	60	3	40	2	0
10/3/2009	3	5	8	Chrisly	529	9	A	3	60	60	3	0	0	0
10/3/2009	3	5	9	Chrisly	390	10	B	4	40	40	4	0	0	0
10/3/2009	3	5	10	Chrisly	826	0	B	0	100	60	3	40	2	0
10/3/2009	3	5	11	Chrisly	744	4	A	3	50	50	3	0	0	13
10/3/2009	3	5	12	Chrisly	535	7	A	0	100	100	4	0	0	0
10/3/2009	3	5	13	Chrisly	848	3	B	3	50	20	3	30	3	7
10/3/2009	3	5	14	Chrisly	755	8	B	0	100	100	3	0	0	0
10/3/2009	3	5	15	Chrisly	902	2	B	4	30	30	4	0	0	0
10/3/2009	3	5	16	Chrisly	93	1	B	3	30	30	3	0	0	0
10/3/2009	3	5	17	Chrisly	242	11	A	0	100	100	3	0	0	0
10/3/2009	3	5	18	Chrisly	630	10	A	3	80	80	3	0	0	0
10/3/2009	3	5	19	Chrisly	35	8	A	3	60	60	3	0	0	0
10/3/2009	3	5	20	Chrisly	322	3	A	3	80	80	4	0	0	7
10/3/2009	3	5	21	Chrisly	834	5	A	0	100	40	3	60	2	17
10/3/2009	3	5	22	Chrisly	12	7	B	0	100	100	4	0	0	0
10/3/2009	3	5	23	Chrisly	145	5	B	0	100	20	3	80	3	19
10/3/2009	3	5	24	Chrisly	633	4	B	0	100	20	3	80	2	7
10/3/2009	3	5	1	Shannon	957	11	B	1	80	80	3	0	0	0
10/3/2009	3	5	2	Shannon	784	6	B	1	80	80	3	0	0	0
10/3/2009	3	5	3	Shannon	913	9	B	0	100	90	4	10	2	0
10/3/2009	3	5	4	Shannon	793	0	A	1	70	20	4	50	2	0
10/3/2009	3	5	5	Shannon	538	6	A	4	50	50	3	0	0	0

10/3/2009	3	5	6	Shannon	556	2	A	1	90	10	3	80	2	0	
10/3/2009	3	5	7	Shannon	590	1	A	1	60	10	4	50	2	0	
10/3/2009	3	5	8	Shannon	529	9	A	1	70	70	3	0	0	0	
10/3/2009	3	5	9	Shannon	390	10	B	4	20	20	3	0	0	0	
10/3/2009	3	5	10	Shannon	826	0	B	1	60	30	4	30	2	0	
10/3/2009	3	5	11	Shannon	744	4	A	4	60	60	4	0	0	17	
10/3/2009	3	5	12	Shannon	535	7	A	0	100	100	5	0	0	0	
10/3/2009	3	5	13	Shannon	848	3	B	1	70	60	4	10	2	8	
10/3/2009	3	5	14	Shannon	755	8	B	4	80	80	4	0	0	0	
10/3/2009	3	5	15	Shannon	902	2	B	4	20	10	4	10	2	0	
10/3/2009	3	5	16	Shannon	93	1	B	4	30	20	4	10	2	0	
10/3/2009	3	5	17	Shannon	242	11	A	1	80	70	3	10	3	0	
10/3/2009	3	5	18	Shannon	630	10	A	4	40	40	3	0	0	0	
10/3/2009	3	5	19	Shannon	35	8	A	1	80	80	3	0	0	0	
10/3/2009	3	5	20	Shannon	322	3	A	1	80	80	4	0	0	11	
10/3/2009	3	5	21	Shannon	834	5	A	4	90	70	4	20	2	27	
10/3/2009	3	5	22	Shannon	12	7	B	0	100	100	4	0	0	0	
10/3/2009	3	5	23	Shannon	145	5	B	4	80	60	4	20	2	21	
10/3/2009	3	5	24	Shannon	633	4	B	1	80	70	4	10	2	8	
10/3/2009	3	5	1	Sonia	957	11	B	4	80	80	3	0	0	0	
10/3/2009	3	5	2	Sonia	784	6	B	0	100	100	4	0	0	0	
10/3/2009	3	5	3	Sonia	913	9	B	0	100	70	4	30	2	0	
10/3/2009	3	5	4	Sonia	793	0	A	0	100	40	3	60	2	0	
10/3/2009	3	5	5	Sonia	538	6	A	4	90	80	3	10	2	0	
10/3/2009	3	5	6	Sonia	556	2	A	0	100	40	3	60	5	0	looks putrid
10/3/2009	3	5	7	Sonia	590	1	A	4	80	20	3	60	3	0	
10/3/2009	3	5	8	Sonia	529	9	A	3	60	60	3	0	0	0	
10/3/2009	3	5	9	Sonia	390	10	B	4	60	60	3	0	0	0	
10/3/2009	3	5	10	Sonia	826	0	B	0	100	40	3	60	2	0	
10/3/2009	3	5	11	Sonia	744	4	A	4	70	70	4	0	0	20	
10/3/2009	3	5	12	Sonia	535	7	A	0	100	100	4	0	0	0	
10/3/2009	3	5	13	Sonia	848	3	B	0	100	50	3	50	2	17	
10/3/2009	3	5	14	Sonia	755	8	B	0	100	100	3	0	0	0	

10/3/2009	3	5	15	Sonia	902	2	B	0	100	70	3	30	2	0
10/3/2009	3	5	16	Sonia	93	1	B	4	40	40	3	0	0	0
10/3/2009	3	5	17	Sonia	242	11	A	0	100	100	3	0	0	0
10/3/2009	3	5	18	Sonia	630	10	A	0	100	90	3	10	2	0
10/3/2009	3	5	19	Sonia	35	8	A	4	90	90	3	0	0	0
10/3/2009	3	5	20	Sonia	322	3	A	0	100	40	3	60	2	12
10/3/2009	3	5	21	Sonia	834	5	A	0	100	30	3	70	2	34
10/3/2009	3	5	22	Sonia	12	7	B	0	100	100	4	0	0	0
10/3/2009	3	5	23	Sonia	145	5	B	0	100	20	3	80	2	36
10/3/2009	3	5	24	Sonia	633	4	B	0	100	30	3	70	2	14

COOK DATA

Date	Batch	Order	Trt	Day	Patty	RawWt	CkWt	TempOn	TimeOn	TempOff	TimeOff
9/14/2009	1	1	10	0	A	200.4	134.5	11.7	.	73	654
9/14/2009	1	1	10	0	B	200.3	134.6	11	.	73	654
9/14/2009	1	1	10	1	A	200.8	141.7	10	.	73	654
9/14/2009	1	1	10	1	B	200.4	137.6	9.5	.	73	654
9/14/2009	1	1	10	3	A	200.7	136.9	9.2	.	73	654
9/14/2009	1	1	10	3	B	200.7	146.5	11.7	.	73	653
9/14/2009	1	1	10	5	A	200.8	134.4	10.8	.	73	655
9/14/2009	1	1	10	5	B	200.5	136.8	11.8	.	73	655
9/14/2009	1	2	4	0	A	200.9	134.5	11.4	702	73	719
9/14/2009	1	2	4	0	B	200.5	130.3	13.1	702	73	719
9/14/2009	1	2	4	1	A	200.2	144.6	13.2	702	73	713
9/14/2009	1	2	4	1	B	200.7	133.4	11.3	702	73	719
9/14/2009	1	2	4	3	A	200.3	137.8	13.4	702	73	719
9/14/2009	1	2	4	3	B	200.5	155.2	15	702	73	714
9/14/2009	1	2	4	5	A	200.5	144.6	14.3	702	73	715
9/14/2009	1	2	4	5	B	199.8	145.6	13.6	702	73	715
9/14/2009	1	3	1	0	A	200.7	129.6	13.1	725	73	745
9/14/2009	1	3	1	0	B	200.2	130.2	14.7	725	73	747
9/14/2009	1	3	1	1	A	200	124	13.7	725	73	748
9/14/2009	1	3	1	1	B	199.8	122.3	13	725	73	745
9/14/2009	1	3	1	3	A	200.4	132.1	12.5	725	73	747
9/14/2009	1	3	1	3	B	200.5	133.7	12.5	725	73	742
9/14/2009	1	3	1	5	A	200.4	138	12.7	725	73	739
9/14/2009	1	3	1	5	B	200.3	128.6	12.4	725	73	744
9/14/2009	1	4	5	0	A	200.2	131.6	13	752	73	807
9/14/2009	1	4	5	0	B	200.6	146.1	15.3	752	73	804
9/14/2009	1	4	5	1	A	200.9	135.2	15.1	752	73	808
9/14/2009	1	4	5	1	B	200.2	135.8	13.3	752	73	812
9/14/2009	1	4	5	3	A	200.1	130.1	13.4	752	73.7	807
9/14/2009	1	4	5	3	B	199.9	133.8	13.7	752	73	807

9/14/2009	1	4	5	5	A	200.3	128.8	14.6	752	73	809
9/14/2009	1	4	5	5	B	199.9	133.1	14.2	752	73	809
9/14/2009	1	5	9	0	A	199.5	143.9	15.2	814	73	830
9/14/2009	1	5	9	0	B	200.5	136.9	15.8	814	73	832
9/14/2009	1	5	9	1	A	199.5	134.4	16.5	814	73	833
9/14/2009	1	5	9	1	B	200.3	132.6	20.4	814	73	833
9/14/2009	1	5	9	3	A	200	135.8	16.2	814	73	829
9/14/2009	1	5	9	3	B	200.9	140	15.5	814	73	831
9/14/2009	1	5	9	5	A	200.3	142.3	14.9	814	73	831
9/14/2009	1	5	9	5	B	200.6	134.7	14.7	814	73	833
9/14/2009	1	6	3	0	A	200.8	135.1	16.3	826	73	841
9/14/2009	1	6	3	0	B	200.2	137.7	14.4	826	73	842
9/14/2009	1	6	3	1	A	200.1	144.8	16.8	826	80.2	840
9/14/2009	1	6	3	1	B	200.5	134.8	14.3	826	73	843
9/14/2009	1	6	3	3	A	199.5	161.4	15.6	826	73	836
9/14/2009	1	6	3	3	B	199.8	135.1	16.4	826	73	842
9/14/2009	1	6	3	5	A	200	138.5	14.1	826	73	840
9/14/2009	1	6	3	5	B	200.4	133.4	16.1	826	73	843
9/14/2009	1	7	2	0	A	199.8	133.4	17	852	73	907
9/14/2009	1	7	2	0	B	200.5	136.9	16.8	852	73	906
9/14/2009	1	7	2	1	A	199.9	129.7	15.8	852	73	913
9/14/2009	1	7	2	1	B	199.3	134.1	15.7	852	73	910
9/14/2009	1	7	2	3	A	200.5	134	15.3	852	73	907
9/14/2009	1	7	2	3	B	199.9	137.3	14.8	852	73	908
9/14/2009	1	7	2	5	A	200.8	129.1	14.6	852	73	913
9/14/2009	1	7	2	5	B	200.6	133.1	15.8	852	73	909
9/14/2009	1	8	6	0	A	199.4	132.5	17.8	919	73	936
9/14/2009	1	8	6	0	B	200.1	138.9	17.4	919	73.1	930
9/14/2009	1	8	6	1	A	199.1	135.4	17	919	73	932
9/14/2009	1	8	6	1	B	199.9	133.3	16.9	919	73.1	933
9/14/2009	1	8	6	3	A	200.6	140.5	17	919	73	931
9/14/2009	1	8	6	3	B	199.8	139.6	7.4	919	73	931
9/14/2009	1	8	6	5	A	200.1	136.2	17.3	919	73	934

9/14/2009	1	8	6	5	B	200.1	135.6	16.4	919	73.7	932
9/14/2009	1	9	0	0	A	200.5	139.3	15.1	940	73	956
9/14/2009	1	9	0	0	B	199.8	129.9	15.8	940	73	958
9/14/2009	1	9	0	1	A	200.2	134.8	15	940	73	956
9/14/2009	1	9	0	1	B	199.7	142.7	15.9	940	73	955
9/14/2009	1	9	0	3	A	200.4	155.8	15.4	940	73	952
9/14/2009	1	9	0	3	B	200.4	141.1	14.4	940	73	953
9/14/2009	1	9	0	5	A	200.3	138	15.6	940	73	959
9/14/2009	1	9	0	5	B	199.5	136.9	14.7	940	73	959
9/14/2009	1	10	8	0	A	199.4	141	10.8	958	73	1009
9/14/2009	1	10	8	0	B	200	154.7	13.5	958	73	1004
9/14/2009	1	10	8	1	A	199.2	150.5	12	958	73	1004
9/14/2009	1	10	8	1	B	200.2	144.3	11	958	73	1006
9/14/2009	1	10	8	3	A	199.8	157.7	11	958	73	1004
9/14/2009	1	10	8	3	B	200.6	153.8	10.8	958	73	1005
9/14/2009	1	10	8	5	A	199.6	159.4	9.8	958	73	1005
9/14/2009	1	10	8	5	B	200.5	136.1	10.6	958	73	1010
9/14/2009	1	11	11	0	A	199.3	140.2	14.9	1014	73	1025
9/14/2009	1	11	11	0	B	199.6	131	14	1014	73	1031
9/14/2009	1	11	11	1	A	199.2	136.7	15.5	1014	73	1028
9/14/2009	1	11	11	1	B	200.2	129.1	15.2	1014	73	1031
9/14/2009	1	11	11	3	A	200	131.1	14.4	1014	73	1031
9/14/2009	1	11	11	3	B	200.1	138.5	14.7	1014	73	1028
9/14/2009	1	11	11	5	A	199.4	134.5	13.8	1014	73	1031
9/14/2009	1	11	11	5	B	199.6	135	14.4	1014	73	1031
9/14/2009	1	12	7	0	A	200.8	134.7	17.6	.	73	1048
9/14/2009	1	12	7	0	B	199.5	131	17.2	.	73	1050
9/14/2009	1	12	7	1	A	200.3	139.8	15.7	.	73	1049
9/14/2009	1	12	7	1	B	199.4	138.2	16.1	.	73	1046
9/14/2009	1	12	7	3	A	199.8	137	14.3	.	73	1049
9/14/2009	1	12	7	3	B	201	131.6	14.5	.	73	1049
9/14/2009	1	12	7	5	A	199.6	129.7	17.6	.	73	1050
9/14/2009	1	12	7	5	B	199.3	136.7	15.5	.	73	1049

9/21/2009	2	1	6	0	A	200.8	136.8	14.6	637	73	653
9/21/2009	2	1	6	0	B	200.1	141.4	12.2	637	73	650
9/21/2009	2	1	6	1	A	199.9	143	12.1	637	73	653
9/21/2009	2	1	6	1	B	199.9	139	13	637	73	653
9/21/2009	2	1	6	3	A	200.8	138.8	12.4	637	.	654
9/21/2009	2	1	6	3	B	200.7	145	13	637	73	650
9/21/2009	2	1	6	5	A	200.5	149.2	13.3	637	73	649
9/21/2009	2	1	6	5	B	200.4	140.1	11.6	637	73	.
9/21/2009	2	2	4	0	A	199.9	144	10.1	655	73	711
9/21/2009	2	2	4	0	B	199.9	139	13	655	73	705
9/21/2009	2	2	4	1	A	200.2	134.9	12.1	655	73	710
9/21/2009	2	2	4	1	B	200.3	142.1	10.5	655	73	710
9/21/2009	2	2	4	3	A	200.4	142.4	11.9	655	73	710
9/21/2009	2	2	4	3	B	200.9	151.4	11.8	655	73	705
9/21/2009	2	2	4	5	A	200.4	137.6	11.3	655	73	710
9/21/2009	2	2	4	5	B	199.8	150.7	11.5	655	73	705
9/21/2009	2	3	10	0	A	200.4	159.7	11.9	706	73	718
9/21/2009	2	3	10	0	B	199.7	143.2	12.4	706	73	723
9/21/2009	2	3	10	1	A	200.1	142.3	10.2	706	73	722
9/21/2009	2	3	10	1	B	200.1	146.5	10.5	706	73	723
9/21/2009	2	3	10	3	A	200.5	145.6	9.9	706	73	722
9/21/2009	2	3	10	3	B	200.2	156.3	10.3	706	73	719
9/21/2009	2	3	10	5	A	200.7	144.1	9.4	706	73	723
9/21/2009	2	3	10	5	B	200	142.5	10.5	706	73	722
9/21/2009	2	4	1	0	A	199.8	139.8	11.9	726	73	741
9/21/2009	2	4	1	0	B	200.5	153.1	11	726	73	739
9/21/2009	2	4	1	1	A	200.1	149.3	12.8	726	73	741
9/21/2009	2	4	1	1	B	200.1	144.4	10.6	726	73	741
9/21/2009	2	4	1	3	A	200.3	141.3	10.7	726	73	743
9/21/2009	2	4	1	3	B	200.6	155.9	12.5	726	73	738
9/21/2009	2	4	1	5	A	200.1	145.2	6.6	726	73	743
9/21/2009	2	4	1	5	B	200.1	152.7	10.8	726	73	738
9/21/2009	2	5	2	0	A	200.9	147.1	8.5	744	73	800

9/21/2009	2	5	2	0	B	200.8	145.7	11.2	744	73	800
9/21/2009	2	5	2	1	A	200.7	145.5	11.8	744	73	758
9/21/2009	2	5	2	1	B	200.3	154.3	10.3	744	73	758
9/21/2009	2	5	2	3	A	200.7	145.8	12.3	744	73	758
9/21/2009	2	5	2	3	B	200.4	145.4	10.3	744	73	800
9/21/2009	2	5	2	5	A	199.9	137.8	10.8	744	73	759
9/21/2009	2	5	2	5	B	199.9	137.6	11.1	744	73	759
9/21/2009	2	6	11	0	A	200.2	157.3	10.1	753	73	803
9/21/2009	2	6	11	0	B	200.3	156.4	10.8	753	73	804
9/21/2009	2	6	11	1	A	200.8	159.1	13.3	753	73	804
9/21/2009	2	6	11	1	B	199.9	159.4	12.3	753	73	803
9/21/2009	2	6	11	3	A	200.6	159.1	11.4	753	73	802
9/21/2009	2	6	11	3	B	200.1	160.6	10.2	753	73	804
9/21/2009	2	6	11	5	A	200.2	168.3	12.2	753	73	800
9/21/2009	2	6	11	5	B	199.9	155	11.6	753	73	804
9/21/2009	2	7	7	0	A	200.2	168.3	14.7	813	73	820
9/21/2009	2	7	7	0	B	200.2	136	15.7	813	73	825
9/21/2009	2	7	7	1	A	199.5	163.9	13.6	813	73	822
9/21/2009	2	7	7	1	B	200.5	145.5	11.9	813	73	827
9/21/2009	2	7	7	3	A	199.9	140.4	13.8	813	73	825
9/21/2009	2	7	7	3	B	199.7	149.1	14.1	813	73	824
9/21/2009	2	7	7	5	A	199.8	148	14.3	813	73	826
9/21/2009	2	7	7	5	B	199.9	140.9	12.2	813	73	828
9/21/2009	2	8	0	0	A	199.7	151.8	13.7	822	73	830
9/21/2009	2	8	0	0	B	200.6	142.9	12	822	73	835
9/21/2009	2	8	0	1	A	200.3	144.7	12.3	822	73	835
9/21/2009	2	8	0	1	B	200.1	143.3	14.9	822	73	835
9/21/2009	2	8	0	3	A	200.7	148.2	10.8	822	73	836
9/21/2009	2	8	0	3	B	200.4	146.9	11.2	822	73	836
9/21/2009	2	8	0	5	A	200.5	143.7	11.3	822	73	836
9/21/2009	2	8	0	5	B	199.9	146	10.6	822	73	836
9/21/2009	2	9	9	0	A	200.4	153.4	13	840	73	849
9/21/2009	2	9	9	0	B	200.5	148.7	14.6	840	73	854

9/21/2009	2	9	9	1	A	200.2	167.9	15.1	840	73	849
9/21/2009	2	9	9	1	B	200.6	143.2	14	840	73	854
9/21/2009	2	9	9	3	A	200	152.5	13.4	840	73	853
9/21/2009	2	9	9	3	B	200.6	147.8	12.4	840	73	854
9/21/2009	2	9	9	5	A	200.9	153.4	12.8	840	73	853
9/21/2009	2	9	9	5	B	200	167.3	12.7	840	73	850
9/21/2009	2	10	5	0	A	200.6	165.9	13.5	852	73	901
9/21/2009	2	10	5	0	B	200.3	160	13.8	852	73	902
9/21/2009	2	10	5	1	A	200.4	146	14.9	852	73	906
9/21/2009	2	10	5	1	B	199.9	151.9	13.3	852	73	906
9/21/2009	2	10	5	3	A	200	165.8	19.3	852	73	902
9/21/2009	2	10	5	3	B	200.5	167	14.2	852	73	901
9/21/2009	2	10	5	5	A	200.4	156.1	14.2	852	73	902
9/21/2009	2	10	5	5	B	200.2	162.6	13.3	852	73	902
9/21/2009	2	11	8	0	A	200.3	149.4	14.9	907	73	920
9/21/2009	2	11	8	0	B	199.9	141.8	13.7	907	73	921
9/21/2009	2	11	8	1	A	200.8	151.1	14.9	907	73	921
9/21/2009	2	11	8	1	B	200	152.3	12.8	907	73	920
9/21/2009	2	11	8	3	A	200.2	151.8	13.5	907	73	920
9/21/2009	2	11	8	3	B	200.2	147.4	18.6	907	73	922
9/21/2009	2	11	8	5	A	200.1	145.2	12.3	907	73	922
9/21/2009	2	11	8	5	B	200.5	150.9	11.8	907	73	921
9/21/2009	2	12	3	0	A	200	142.3	14.3	916	73	932
9/21/2009	2	12	3	0	B	200	142.6	12.5	916	73	931
9/21/2009	2	12	3	1	A	200.2	143.5	11.9	916	73	930
9/21/2009	2	12	3	1	B	200.6	140.8	14.7	916	73	930
9/21/2009	2	12	3	3	A	200.3	146.7	14	916	73	930
9/21/2009	2	12	3	3	B	200.2	143.7	14.7	916	73	930
9/21/2009	2	12	3	5	A	200.5	151	13	916	73	927
9/21/2009	2	12	3	5	B	200.1	162.9	15.3	916	73	926
9/28/2009	3	1	2	0	A	200.5	144.1	7.8	622	73	636
9/28/2009	3	1	2	0	B	199.9	150	5.4	622	73	635
9/28/2009	3	1	2	1	A	199.5	158.2	7	622	73	632

9/28/2009	3	1	2	1	B	200.1	146.3	8.9	622	73	638
9/28/2009	3	1	2	3	A	200.2	142.3	11.4	622	73	638
9/28/2009	3	1	2	3	B	199.9	141.6	7.6	622	73	637
9/28/2009	3	1	2	5	A	200	147.1	4.7	622	73	637
9/28/2009	3	1	2	5	B	200.1	157.1	5.5	622	73	634
9/28/2009	3	2	10	0	A	199.6	158.2	7.1	637	73	649
9/28/2009	3	2	10	0	B	200.5	144.7	8.3	637	73	652
9/28/2009	3	2	10	1	A	199.9	144.9	5.2	637	73	654
9/28/2009	3	2	10	1	B	200.7	156	5.8	637	73	652
9/28/2009	3	2	10	3	A	200.3	145.7	5.6	637	73	656
9/28/2009	3	2	10	3	B	200.3	139.7	4.4	637	73	656
9/28/2009	3	2	10	5	A	200.1	148.2	4.7	637	73	653
9/28/2009	3	2	10	5	B	200.6	146.3	3.2	637	73	654
9/28/2009	3	3	5	0	A	199.8	134.3	8.4	654	73	716
9/28/2009	3	3	5	0	B	200.5	159.8	7.6	654	73	709
9/28/2009	3	3	5	1	A	200.4	171.2	7.1	654	73	707
9/28/2009	3	3	5	1	B	200.5	142.6	3.6	654	73	715
9/28/2009	3	3	5	3	A	200.3	143.9	2	654	73	714
9/28/2009	3	3	5	3	B	200.7	168.5	5.8	654	73	708
9/28/2009	3	3	5	5	A	200.5	147.4	6.1	654	73	712
9/28/2009	3	3	5	5	B	200.5	148.7	4.2	654	73	715
9/28/2009	3	4	0	0	A	200	153.6	5.8	704	73	714
9/28/2009	3	4	0	0	B	199.6	135.3	5.3	704	73	719
9/28/2009	3	4	0	1	A	200.5	146.8	7.5	704	73	718
9/28/2009	3	4	0	1	B	199.8	141.3	7.5	704	73	719
9/28/2009	3	4	0	3	A	199.7	149.9	4.8	704	73	716
9/28/2009	3	4	0	3	B	199.8	152.1	2	704	76.4	716
9/28/2009	3	4	0	5	A	200.7	154.7	2	704	73	718
9/28/2009	3	4	0	5	B	199.9	140.3	1.4	704	73	719
9/28/2009	3	5	9	0	A	200.4	145.8	9.3	721	73	737
9/28/2009	3	5	9	0	B	199.8	161	12.7	721	73	734
9/28/2009	3	5	9	1	A	200.4	145.4	18.6	721	73	737
9/28/2009	3	5	9	1	B	200.6	159.7	10.5	721	73	734

9/28/2009	3	5	9	3	A	200.6	140	9.7	721	73	737
9/28/2009	3	5	9	3	B	200.5	143.8	7.2	721	73	737
9/28/2009	3	5	9	5	A	200.8	143.5	8.5	721	73	737
9/28/2009	3	5	9	5	B	200.5	146.2	8.3	721	73	737
9/28/2009	3	6	7	0	A	200.7	157.3	11.8	733	73	744
9/28/2009	3	6	7	0	B	200	145.7	10.1	733	73	745
9/28/2009	3	6	7	1	A	200.1	147.1	8	733	73	745
9/28/2009	3	6	7	1	B	200.3	153.4	8.3	733	73	742
9/28/2009	3	6	7	3	A	200.6	147.6	8.3	733	73	746
9/28/2009	3	6	7	3	B	200.7	153.2	6.7	733	73	745
9/28/2009	3	6	7	5	A	199.9	154.2	6.1	733	73	745
9/28/2009	3	6	7	5	B	200.2	146.9	6.7	733	73	746
9/28/2009	3	7	4	0	A	199.9	152.7	10.2	751	73	804
9/28/2009	3	7	4	0	B	200.9	147.4	9	751	73	807
9/28/2009	3	7	4	1	A	200.6	150.8	10.7	751	73	806
9/28/2009	3	7	4	1	B	200.7	148.9	7.9	751	73	808
9/28/2009	3	7	4	3	A	200.8	159.3	7.3	751	73	805
9/28/2009	3	7	4	3	B	200.2	151.6	8.7	751	73	805
9/28/2009	3	7	4	5	A	200.2	142	5.4	751	73	809
9/28/2009	3	7	4	5	B	199.9	142.3	3.9	751	73	809
9/28/2009	3	8	6	0	A	199.7	146.1	8.1	809	73	827
9/28/2009	3	8	6	0	B	200.7	142.4	7.4	809	73	827
9/28/2009	3	8	6	1	A	199.6	145.2	6.7	809	73	825
9/28/2009	3	8	6	1	B	199.6	146.9	3.5	809	73	826
9/28/2009	3	8	6	3	A	200.1	142.6	6.1	809	73	827
9/28/2009	3	8	6	3	B	200.8	173.9	4.7	809	73	819
9/28/2009	3	8	6	5	A	200.1	141.8	5.3	809	73	827
9/28/2009	3	8	6	5	B	200.4	154.7	0.3	809	73	824
9/28/2009	3	9	11	0	A	200.5	159.3	9.2	822	73	830
9/28/2009	3	9	11	0	B	199.9	145.9	8.2	822	73	833
9/28/2009	3	9	11	1	A	200.4	144.3	6.2	822	73	835
9/28/2009	3	9	11	1	B	200.2	157.2	6	822	73	833
9/28/2009	3	9	11	3	A	200.5	143.9	7.1	822	73	834

9/28/2009	3	9	11	3	B	199.9	152.9	5.4	822	73	834
9/28/2009	3	9	11	5	A	200.5	145.9	4.1	822	73	834
9/28/2009	3	9	11	5	B	200.7	145.9	4.9	822	73	833
9/28/2009	3	10	1	0	A	200.6	172.3	9.7	836	73	847
9/28/2009	3	10	1	0	B	199.9	142.8	8.3	836	73	852
9/28/2009	3	10	1	1	A	200.8	144.5	6.2	836	73	853
9/28/2009	3	10	1	1	B	200.5	174.9	9.7	836	73	845
9/28/2009	3	10	1	3	A	200.8	147	3	836	73	851
9/28/2009	3	10	1	3	B	200.6	142.6	9.5	836	73	853
9/28/2009	3	10	1	5	A	200	140.6	6.9	836	73	853
9/28/2009	3	10	1	5	B	200.1	147.6	7.2	836	73	853
9/28/2009	3	11	8	0	A	199.8	161.1	9.7	848	73	858
9/28/2009	3	11	8	0	B	200.1	162.8	8.7	848	73	858
9/28/2009	3	11	8	1	A	200.5	152.8	7.9	848	73	900
9/28/2009	3	11	8	1	B	200.6	153.1	6	848	73	901
9/28/2009	3	11	8	3	A	200.3	145.6	6.6	848	73	901
9/28/2009	3	11	8	3	B	199.9	153.5	1.6	848	73	901
9/28/2009	3	11	8	5	A	200.3	147.4	3	848	73	901
9/28/2009	3	11	8	5	B	200.8	159.4	2.9	848	73	859
9/28/2009	3	12	3	0	A	199.9	157	11.2	903	73	915
9/28/2009	3	12	3	0	B	199.9	153.8	10.1	903	73	917
9/28/2009	3	12	3	1	A	200.5	144.7	8.5	903	73	918
9/28/2009	3	12	3	1	B	200.3	149.6	8.2	903	73	916
9/28/2009	3	12	3	3	A	200	154.9	6	903	73	915
9/28/2009	3	12	3	3	B	200.4	149.2	7	903	73	917
9/28/2009	3	12	3	5	A	199.9	151.4	7.2	903	73	916
9/28/2009	3	12	3	5	B	199.9	153.1	5.1	903	73	916

APPENDIX E

COLOR REFERENCES

COLOR	SCORE	BRAND	NAME	CARD#
Red	1	Sherwin-Williams	Resounding Rose	46
Red	2	Sherwin-Williams	Coral Bead	129
Red	3	Sherwin-Williams	Ablaze	128
Red	4	Sherwin-Williams	Red Tomato	87
Red	5	Sherwin-Williams	Positive Red	128
Red	6	Sherwin-Williams	Red Bay	46
Red	7	Sherwin-Williams	Luxurious Red	45
Red	8	Sherwin-Williams	Flower Pot	48
Brown	1	Sherwin-Williams	Truly Taupe	6
Brown	2	Sherwin-Williams	Interface Tan	9
Brown	3	Sherwin-Williams	Moraccan Brown	9
Brown	4	Sherwin-Williams	Mocha	10
Brown	5	Sherwin-Williams	Jute Brown	14
Green	1	Sherwin-Williams	Ancient Marble	24
Green	2	Sherwin-Williams	Harmonic Tan	20
Green	3	Sherwin-Williams	Antiquity	58
Green	4	Sherwin-Williams	Nankeen	57
Green	5	Sherwin-Williams	Grandiose	58

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Shannon Michelle Cruzen was born on July 30, 1985 to Mrs. Lori Kiphen. She attended Ellison High School in Killeen, TX and graduated with honors in 2003. In December 2007, she received her Bachelor of Science degree in animal science from Texas A&M University. Following graduation, Shannon entered graduate school at Texas A&M University to obtain her Master of Science degree in animal science under the direction of Dr. Rhonda K. Miller. Following the completion of her Master of Science, Shannon will be interning at the United States Meat Animal Research Center in Clay Center, Nebraska, and hopes to then pursue a PhD in meat science.