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Definitions and Descriptions: Conventional, Natural, and Organic Beef Production and Consumption

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Natural and organic beef production was only 1.1% of total beef production and 1.6% of total U.S. beef sales in 2006 but is the fastest growing sector in the beef industry.

With demand continuing to surge in these markets, you will find that terminology used in these marketing strategies is confusing. Beef that is produced following “natural” or “organic” protocols is assumed to have been raised without hormones or antibiotics. But “natural” and “organic” are not the same, and “natural” also is variable.

Natural beef

USDA defines “natural” as a product containing no artificial ingredients or added color and that is only minimally processed. This focuses strictly on post-harvest processing and does not guarantee that the product's source has never received hormone and/or antibiotic treatment.

Some label claims on natural products say more. These claims, which describe a verified process that must be documented, are specific to a particular company. The standard in the industry, however, has become “never-ever.”

Never-ever programs not only prohibit the use of antibiotics (therapeutic and feed grade) and hormones, but they also prohibit ionophores and animal by-products. There is considerable variation, even in never-ever. Industry programs may prohibit these products throughout the life of the animal, prohibit during the finishing phase, or allow production of a minimally processed product with no artificial ingredients.

Consumers have suggested that they would like to have natural claims cover more than the processing and ingredients of meat and poultry items. Since voluntary claims and statements are so variable, the USDA has moved to definitively classify “naturally raised” to improve clarity in the marketplace and to ensure consumer's interests are better protected. “Naturally raised” pertains to how cattle are managed. These management strategies are defined by companies that have process-verified programs by the American Marketing Service.

Organic beef

Consumers purchasing beef labeled as “organic” can assume that the product has come from a source that has never received hormones or antibiotics for any reason. The USDA has a program called the National Organic Program (NOP) and has agents that certify producers to follow the livestock production and handling standards set by the NOP.

Cattle for slaughter must be raised under organic management from the last third of gestation. Producers are required to feed products—including pastures—that are 100% organic, but they may provide vitamin and mineral supplements allowed by the NOP. Organically-raised cattle may not be given hormones, ionophores, or antibiotics for any reason. Preventive management practices, including use of vaccines, to keep cattle healthy are allowed, and producers are prohibited from withholding treatment from sick or injured cattle. However, cattle treated with a prohibited medication may not be sold as organic.

All organically raised cattle must have access to the outdoors, including access to pasture. Cattle may be temporarily confined only for reasons of health, safety, stage of production, or to protect soil or water quality. Further information on the NOP can be found at <http://www.ams.usda.gov/nop/indexIE.htm>.

Safety of beef

All beef sold in interstate commerce in the U.S. is inspected by the USDA, regardless of how the cattle were raised. Because of this inspection process, all beef from inspected slaughter facilities has been declared safe for human consumption.

Hormones

Growth implants, estrogenic and/or androgenic, provide a sharp increase in the rate and efficiency of gain in growing cattle. Data indicate that rate of gain can improve by 15 to 20% and feed efficiency (pounds fed to pounds gained) by 8 to 20%. Growth implants, consequently, have important economic considerations due to their return on investment. Many implants are available for use in beef cattle and for different stages of cattle production.

In January 1989, the European community stopped purchasing American beef that had been raised with the use of growth promotants (hormones), prompting comparison research on levels of hormones contained in various food products. Table 1 contains the concentration of estrogen activity in multiple food products. There are many human foods that contain naturally occurring hormone activity.

Antibiotics

Antibiotics are used in conventional beef production for prevention, therapy, and growth promotion. Sick animals will have depressed performance and feed intake; and if conditions persist, decreased quality grades can be expected. Cattle that have received antibiotics are to be removed from natural programs that do not allow antibiotic use. Cattle that have received antibiotics need to be excluded from the NOP. However, cattle that are sick must be administered the appropriate therapeutic treatment.

Table 1. Estrogenic activity in food

Food	Estrogenic activity
Beef from non-implanted cattle	8
Beef from implanted cattle	11
Peas	2,000
Ice Cream	3,000
Cabbage	12,000
Eggs	17,500
Soybean Oil	1,000,000

.billionths of a gram/pound of food
Preston, 1997

The largest concern about antibiotics is that bacteria may develop resistance. In 1998, the European Union banned antibiotics for livestock that were also manufactured for human use; in January 2006, all antibiotic use in cattle for growth promotion was eliminated.

In the U.S., animal health companies must demonstrate the safety of their products prior to approval from the Food and Drug Administration (FDA). Companies must perform a series of experiments to determine proper dosage and withdrawal times to assure the product will not contain any harmful residues. The FDA also requires that all antibiotics go through a meticulous resistance-risk assessment.

Vaccination and beef production

Simply stated, vaccines are NOT antibiotics. In fact, vaccines are part of the preventative management practices required by the NOP. Health management is critical to the success of any natural or organic program, and is one of the highest risk areas in attaining and feeding these cattle.

Cost of a treated calf in a natural and organic program is much higher than one that is fed conventionally. This can be attributed to decreased market value, depressed performance, opportunity cost associated with removal from a natural or organic program, and cost of treatment. Actual costs may be difficult to quantify.

Vaccinations are critical to the health, success, and profitability of natural and organic cattle.

Conclusion

Conventionally-raised beef has been proven safe, and vaccinations are critical to conventional, natural, and organic programs and are not antibiotics. Because eliminating the use of implants, ionophores, and antibiotics increases the amount of feed required to produce one pound of beef, the cost of producing natural or organic beef will be higher, which subsequently will increase the price paid when purchasing natural or organic beef products.

Literature cited

Preston, R.L. 1997. Rationale for the safety of implants. Symposium: Impact of Implants on Performance and Carcass Value of Beef Cattle. Oklahoma AES P-957: 199-203.

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