

Serra Gaúcha, which is located in Rio Grande do Sul, the Brazilian southernmost state. This region cultivates about 35 thousand hectares and produces more than 500 thousand tons of grapes, most of them processed for wine and grape juice production. Serra Gaúcha is a mountainous region with a somewhat mild climate during the four seasons of the year, which is an invitation to the enotourism. Indeed, thousands of people taste wines especially during the winter and summer times. Wine and grape juices are made following traditional methods. However, due to the increasing demand for foods produced according to agro ecological procedures all over the world, a group of growers began to produce grape juice, wine, and sparkling wine following these procedures. The partial change of consumer behavior is due to the perception of the benefits that this kind of product can bring to the human health and to the environment. All products made from the sustainable viticulture are certified by organizations registered in the Brazilian Ministry of Agriculture, Livestock and Food Supply. However, so far data regarding heavy metal contents is limited. Thus, 41 samples of agro ecological products derived from grapes were analyzed, i.e., 28 grape juices, 11 wines, and 2 sparkling wines. Samples were directly collected in the wineries and they represent products from the 2006 and 2007 vintages. For each product, the maximum, minimum, and mean concentrations of the following minerals and heavy metals were determined: phosphorus, potassium, calcium, magnesium, sulfur, copper, zinc, iron, manganese, sodium, aluminium, cadmium, chromium, nickel, lead, molybdenum, cobalt, arsenic, selenium, and vanadium. Results show that the concentrations of the minerals of the agro ecological products were according to Brazilian legislation and those of heavy metals presented very low values.

S14.296**Nutritional Quality of Organic Versus Conventional Horticultural Crops****Herencia, J. F.; Garcia-Galavis, P. A.; Ruiz-Dorado, J. A.; Ruiz-Porras, J. C.**

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Organic farming is growing rapidly for their potential to produce healthy foods and has been adopted in a wide range of climate and soil types. The perception amongst consumer that organically produced crop present higher nutritional quality. Unfortunately, there are many various factors that can affect the nutritional quality of crops and few studies have been able to account for these differences. A comparative long-term study of organic versus mineral fertilization has been conducted for nine years in a calcareous loamy soil classified as Xerofluvent in the Guadalquivir River Valley, Seville, Spain. The macronutrient concentration, dry matter and nitrate content in the edible part of the plants were examined. The nitrate concentration in the edible parts was significantly lower for the crops grown in the organically fertilized plots. No clearly difference was found for macro and micronutrients content in crops; only N and P showed a tendency to higher content in conventional and organic crops, respectively. We have found evidence to support a tendency in some parameters as lower N and Na and higher K and fundamentally P in organic crop cultivated in same crop cycle. But the results also showed higher variability in nutritional parameters in same crop cultivate in different years. We conclude that it is not possible to assert the higher nutritional quality of organic crop according only to criteria of type the fertilization; other factors such fertilizer characteristic and management in each particulate crop cycle, exert a higher influence in nutrients content of crops. Logically, even it will be more difficult to affirm this hypothesis if we were including other aspects possibly moreover important as it is the case of different soil type, cultivar, and climate and storage conditions.

S14.297***Aloe vera* Use as Preharvest Treatment to Maintain Postharvest Organic Table Grape Quality****Castillo, S.; Navarro, D.; Zapata, P. J.; Guillén, F.; Serrano, M.; Valero, D.; Martínez-Romero, D.**

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Organic table grape production shows several diseases and decay problems mainly due to *Botrytis cinerea* fungus, the problems being enhanced when the crops are located in wet areas or seasons, and with late cultivars grown in southern Spain. The effect of *Aloe vera* treatment applied in preharvest with high relative humidity conditions on organic table grape (cv. Crimson Seedless) has been evaluated. The use of *A. vera* allowed to reduce the microbiological counts at harvest (especially moulds), and these were maintained during postharvest storage. Additionally, the changes in quality parameters, such as firmness and colour during postharvest were reduced with the preharvest *A. vera* treatments. Furthermore, the percentage of rotten berries per cluster at the end of storage was lower in treated than control ones (3 and 13%, respectively).

S14.298**Are Organic Apples Really Healthier?****Nagy, P. T.¹; Nyéki, J.²; Szabó, Z.²**¹UNIVERSITY OF DEBRECEN AMTC, DEPARTMENT OF AGRICULTURAL CHEMISTRY AND SOIL SCIENCE, BŐSZÖRMÉNYI STR. 138., H-4032, DEBRECEN, HUNGARY²UNIVERSITY OF DEBRECEN AMTC, DEBRECEN, BŐSZÖRMÉNYI STR. 138., HUNGARY

As consumer's demand for organic fruits continues to increase worldwide, the organic horticulture has spread all over the world. The proper nutrition management is key factor in organic farms to produce healthy, well developed and attractive fruits which meet consumer's demands. To achieve this goal organic farmers should developed and improved their nutrition management. In this paper an organic and integrated apple plantation were compared to study their fruit quality parameters and to establish the similarities and differences between production systems. Sugars, organic acids, mineral contents, fruit firmness was studied at some apple cultivars both in organic and integrated orchard. Besides chemical analysis organoleptic survey was made to estimate real consumer's demand. It was found that titrable acidity and soluble sugars were higher at all studied cultivars produced by integrated than organic system. Moreover, fruit firmness was significantly higher at two cultivars produced by organic system. In addition organoleptic survey did not confirm measured differences between organic and integrated products. Majority of taster preferred integrated fruits to organic fruits. In sum, it was found that organic farmers should have to make more efforts to increase fruit productivity, quality and design but these excess efforts not sure to result a reliable profit for Hungarian fruit growers due to sale conditions.

S14.299**Physical and Chemical Characterization of Italian Tomatoes under Organic Crop Management****Mamede, A. M. G. N.¹; Soares, A. G.²; Torres, T. L.³; Goncalves, N. B.⁴; Fonseca, M. J. D. O.²; Farah, A. F.³**¹UNIVERSITY OF RIO DE JANEIRO, AVENIDA ATHOS DA SILVEIRA RAMOS, 149 -PRÉDIO DO CENTRO DE TECNOLOGIA - CIDADE UNIVERSITÁRIA, BLOCO A-SALA 528, 21.941-909, RIO DE JANEIRO, BRAZIL²EMBRAPA FOOD TECHNOLOGY, BRAZIL³UNIVERSITY OF RIO DE JANEIRO, BRAZIL⁴EMBRAPA VEGETABLES, BRAZIL

The purpose of this work was to evaluate the quality of two Italian tomatoes' hybrids, growing under organic production. There were used the hybrid San Vito (commercial cultivar) and 031 HEM (Embrapa's hybrid), from experimental field of Embrapa Hortaliças, Brasília, DF, harvested in March 2008. The fruits were harvested and sent to Embrapa Agroindústria de Alimentos, RJ, under refrigeration. The amounts of organic compounds used were: 6, 12, 24, 40 t/ha, equivalent to 100, 200, 400, 800 kg/ha of Nitrogen. The following analysis in the hybrids were performed: soluble solids (SS), total titratable acidity (TTA), pH, ascorbic acid (AA), β -carotene and lycopene, antioxidant activity through the trials of TRAP, FRAP and TEAC and minerals (Na, Mg, P, K, Ca, Mn, Fe, Cu, Zn, Al). The data were performed by analysis of variance and test T at 5% probability. To the hybrid San Vito there was no significant difference to SS, TTA, pH, AA. The content of β -carotene was higher in the fertilization 200 kg/ha N than the others. For lycopene analysis, fertilization with 100 kg/ha N was significantly lower, with an average increase of 171% for higher contents of N. From all minerals analyzed

were significant differences just to phosphorus and calcium, when fertilization of 100 kg/ha N presented lower contents of these minerals, with an increase of approximately 37% and 57%, respectively compared to other fertilizers. In both trials of antioxidant activity, the fertilization of 200 and 800 kg/ha N presented values significantly higher. For the hybrid HEM 031 no significant differences were found for SS, TA, pH, AA, β -carotene and minerals analyzed. The fertilization of 400 and 800 kg/ha N had higher levels of lycopene, about 61% higher than the others. In both trials of antioxidant activity, fertilization of 100 kg/ha N had values significantly higher.

S14.300

Effect of Soil Microorganisms on Vegetable Quality

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The aim of the study was detect the effect of soil microorganisms on vegetables growth, development and quality as well as soil biological parameters. Used microorganisms- *Trichoderma viride* and *Trichoderma lignorum* was given to the Soil and Plant Science Institute of Latvia University of Agriculture by the Institute of Microbiology and Biotechnology of the Latvia University and preparation Azotobacterin from the company Bioefekts. Control - without additional microorganisms. Physiological properties of lettuce *Lactuca sativa*, cucumbers *Cucumis sativus* and peas *Pisum sativum* was tested. Tests were set in 5 L vegetation pots filled with peat substrate. Plant growth parameters, leaf pigment content and soil biological activity was detected three times during vegetation period. Plant leaf pigment content and soil enzyme activity was detected spectrophotometrically, but soil respiration activity with Gas Analyser ADC 2250. It was found that Azotobacterin increases the plant weight and chlorophyll content. The effect of *Trichoderma viride* and *Trichoderma lignorum* depends on vegetable and sampling time. On the average the lowest values in catalase activity in soil were found when inoculation was made with Azotobacterin. Soil biological activity changed during plant cultivation.

S14.301

Some Internal Quality Properties of White Cabbage from Different Farming Systems

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As the importance of informations about food quality dependent on agriculture production method among many consumers has been increased some internal quality parameters of white cabbage were investigated in the samples from field experiment in the north east of Slovenia. In 2008 sensory properties, mineral composition and content of vitamin C were investigated in the samples from the control treatment and treatments according to conventional, integrated, organic and bio-dynamic farming systems. Randomly selected evaluators scored their preference for four characteristics (colour, odour, taste and overall acceptability) using the nine-point hedonic scale. Statistically significant differences were shown for all characteristics. According to the overall acceptability samples were ranked control = integrated = organic > conventional = biodynamic. Farming system influenced significantly the content of iron, zinc, phosphorous, potassium, manganese and ash in fresh and dry samples, magnesium only in fresh and sodium only in dry samples. The content of ascorbic acid was higher in the samples from control and biodynamic treatments compared to other three treatments.

S14.302

Comparing the Yield of Three Pepper Cultivars in Two Growing Systems, Organic and Conventional, in Extremadura (Spain)

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Three cultivars of pepper have been tested in open field during 2009 in the Centro de Investigación de la Finca "La Orden-Valdesequera", located in the Guadiana Valley (Badajoz), using two different growing systems: organic and conventional. The cultivars used were 'BGV-000604' and 'Corera', both "morrón" type, and 'BGV-005137', "piquillo" type. 'BGV-000604' and 'BGV-005137' are Spanish landraces preserved in the genebank of the INIA (COMAV, Valencia) who have been selected due to their good sensory properties in tests conducted in previous years. 'Corera' is a widely used commercial hybrid cultivar. The differences between production systems were the fertilizer used (organic or chemical), the number of phytosanitary treatments (largest in the organic system), the pesticide types applied (preventive or with a short period of effectiveness in the organic system and preventive or healing with variable period of effectiveness in the conventional one) and the weeding control (manual in the organic and chemical in the conventional system). The number of fruits per plant and the commercial production (kg/ha) were determined. There was no significant difference in the fruit number per plant in any cultivar between the production systems tested. However, the commercial production of 'BGV-000604' was significantly higher under organic growing conditions. As a result, the average commercial production of the three cultivars tested in organic system was significantly higher than the average of the three cultivars in conventional system. These results indicate that organic farming system let to obtain optimal production levels but with higher costs of cultivation compared with conventional farming. These cost increases are due to the number of phytosanitary treatments applied, the performance of manual weeding, and the higher cost per unit of fertilizer allowed in organic farming.

S14.303

A Model of Ecocity: Yalova

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The research study of organic farming in Yalova was started in 1998 in Atatürk Horticultural Research Institute on growing of tomatoes than spinach, leek, fig, kiwi fruit, strawberry, and vegetable seed production and marketing. The results of the studies are using Minister of Agriculture, farmers, private sectors and consumers. An ecovillage Project was taken start in Armutlu Peninsula by the Yalova Province that is contain organic farming and ecotourism. The Project was sponsored by the European Union. Because of the Project, the biodiversity of the peninsula is protected, the regional traditional crops were found the real value, the first certified ecotourism was started in Yalova with this Project and now this model is using by the tourism sector. The organic honey production is another leg of the Yalova organic movement. A honey union is founded and carrying this leg of the movement. Organic medicinal plants production and package is other activity of the model of the Yalova ecocity model. All members of the movement are collected under research institute chairman and extension services secretariat and taken park in National Organic Fair under Yalova Province umbrella. The products are separate all over the country especially to İstanbul markets. The training is obtained by collaboration research institute and extension service. This model is created with cooperation government, private sector, non government organisation, farmer unions and domestic people.

S14.304

A Procedure to Convert Fruit Orchard Management from Conventional to Certified Organic Production Methods in Compliance with EU and USDA-NOP Regulations

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