

Combining or alternating fungicides is an important management strategy to prevent the development of fungicide resistant pathogens which is one of the most difficult problems of chemical disease management.

### **Strawberry Production under Different Plastic Mulches and Tunnels in Nonfumigated Fields in South Brazil**

Carlos Reisser Júnior<sup>1</sup>, Luis Eduardo Correa Antunes<sup>1</sup>, Sílvio Steinmetz<sup>2</sup>, Ivan Rodrigues Almeida<sup>1</sup>, and Bernadete Radin<sup>2</sup>, <sup>1</sup>Embrapa Clima Temperado, Pelotas-RS, Brazil; <sup>2</sup>Fepagro, Porto Alegre-RS, Brazil. (55 51) 3288 8083; carlos.reisser@cpact.embrapa.br; radin@fepagro.rs.gov.br

In the Rio Grande do Sul State, southern Brazil, the currently strawberry system production is based on the autumn/winter model using low tunnels covered by plastic translucent, black plastic mulch in raised-bed, drip irrigation, fertirrigation, North American short day varieties and nonfumigated soil system. The production season extends from June to December where the prices normally are below the average paid in other regions because there is a concentration of production. However, in the high altitude regions there are weather conditions that allow off-season production due to occurrence of medium temperatures lower during the summer/autumn season (January–May) and if planting day neutral varieties, when the prices are favorable. Despite of the prices the growers still are using the model utilized in the autumn/winter production. To improve the summer strawberry production system were evaluated different colors of plastic mulches and colors of plastic which cover low tunnels at Andrezza Farm, located in Caxias do Sul. It were installed six plots with 500 plants ('Aromas' variety) each in combinations with mulch colors (black, white and silver) being all they covered under low tunnels of two colors (white and translucent). The experimental design was randomized with factorial 3 × 2, considering as block the harvest season from 23 Oct. 2009 to 11 Feb. 2010. The strawberry yield using white mulch under translucent plastic tunnels was higher than others combinations, being 5% better than silver mulch with translucent and 20% better those where was utilized white mulch and white covered tunnel. Regarding this result it is possible to say that the combination white plastic mulch and low tunnels covered with translucent plastic is able to increase strawberry yield in high altitude regions in Rio Grande do Sul State.

### **Characterization and Strawberry Fruit Quality under Nonfumigated System Production**

Sílvia Carpenedo<sup>1</sup>, Luis Eduardo Corrêa Antunes<sup>2</sup>, and Rosa Trepton<sup>3</sup>, <sup>1</sup>Agronomist, Graduate student of Federal University of Pelotas-RS, Brazil, FAEM/UFPEL, scholarship by CNPq; <sup>2</sup>Dr, Agronomist, Researcher, Embrapa Temperate Climate, Pelotas-RS, Brazil; <sup>3</sup>Dr, Domestic Economist, Volunteer Researcher, Embrapa Temperate Climate, Pelotas-RS, Brazil; s.carpenedo@hotmail.com; luis.eduardo@cpact.embrapa.br; rotrepton@hotmail.com

Different from other fruits, strawberry still does not have a market identification defining the variety name, what takes the consumers to buy strawberry with different sensorial taste. Nowadays most foreigner cultivars are planted in Brazil, what causes huge yield differences and especially in fruit quality, depending on the regional environmental particularity. The aim of this work was to evaluate the sensorial characteristics of strawberries fruit produced under integrated production system (IPS) in Pelotas, southern Brazil, from Aromas, Albion, Diamante, Camarosa, Ventana Camino Real, Earlibrite and Florida Festival varieties. The sensorial team was composed by 14 judges, people that have experience in sensorial evaluations. By the Quantitative Method Description the judges realized evaluations regarding appearance, texture and taste of strawberry fruits. 'Camino Real' got the higher grade for color attribute, in another hand 'Earlibrite' and 'Diamante' showed less color intensity. 'Earlibrite' showed better brightness but it was negatively correlated with color intensity. 'Camarosa' showed higher misshape and together with 'Aromas' less quality. 'Albion', followed by 'Ventana' and 'Camino Real' showed best quality in general. These cultivars showed good sensorial quality being produced in IPS can be able to commercialize when identified in market.

### **Universal Fingerprinting Platform for Octoploid Strawberry (*Fragaria* species)**

A.H. Chambers<sup>1</sup>, S. Chamala<sup>2</sup>, W.B. Barbazuk<sup>2</sup>, V.M. Whitaker<sup>3</sup>, and K.M. Folta<sup>1</sup>, <sup>1</sup>Horticultural Sciences Department, University of Florida, Gainesville, FL; <sup>2</sup>Department of Biology, University of Florida, Gaines-

ville, FL; <sup>3</sup>Gulf Coast Research and Education Center, University of Florida, Wimauma, FL; vwhitaker@ufl.edu

Strawberries (*Fragaria* species) are grown around the world for their delicious taste, aesthetic appeal, and nutritional benefits. Breeding programs rely on germplasm diversity to improve these and other important characteristics, but uncovering sources of true diversity by morphology alone is challenging if not impossible. Simple Sequence Repeats (SSRs) are DNA markers defined by repeating, tandem nucleotide patterns found throughout a genome, and are useful for determining genomic diversity between even very related genotypes. Our current work includes developing a SSR universal fingerprinting platform of high nucleotide (> 4) repeats for strawberry using the "supercore" as a training set. The results from this study characterize the diversity within the "supercore" and selections from elite Florida adapted germplasm. Those genotypes showing the greatest diversity relative to Florida germplasm will be incorporated into the UF strawberry breeding program. We also hope to broadly link desirable phenotypes to clusters of related species in the "supercore" which can then be used as genetic donors for favorable alleles. We are especially interested in the long term goal of improving flavor in cultivated strawberry and investigating the volatile profiles of diverse strawberry genotypes. Our results will be useful to strawberry breeders and molecular researchers, as well as to those developing similar platforms in related systems.

### **Effect of the Intensity of Root Pruning on Strawberry Yield**

Carine Cocco<sup>1</sup>, Letícia Vanni Ferreira<sup>1</sup>, Sílvia Carpenedo<sup>1</sup>, and Luis Eduardo Corrêa Antunes<sup>2</sup>, <sup>1</sup>Agronomist, Graduate Program in Agronomy, concentration area in Temperate Climate Fruits, Federal University of Pelotas (FAEM/UFPEL); <sup>2</sup>Agronomist, Dr., Researcher at Embrapa Temperate Climate, BR 392, Km 78, CEP 96010-971, Pelotas, Rio Grande do Sul, Brazil. E-mail: luis.eduardo@cpact.embrapa.br; carine-cocco@yahoo.com.br; letivf@hotmail.com; carpenedo.s@hotmail.com

In the State of Rio Grande do Sul in Brazil, the yield of strawberry plants is limited by the lack of cultivars adapted to climate and soil conditions and the low physiological quality of plants, forcing the growers to import plants from Chile and Argentina. These plants usually have long roots and roots with high volume. Given the difficulty of carrying out the planting of these transplants in the soil, growers realize the pruning of the root system. However, with the cutting of roots, part of the transplants reserves, that would be used for plant growth and issuance of new leaves, are lost. These can cause stress, with consequent reduction in the earlier and yield of fruit. The aim of this study was to evaluate the growth and early yield in strawberry plants from transplants submitted to different pruning intensities on root system. It was used in the experiment bare root transplants from the Patagonia region in Argentina nurseries, with an average crown diameter of 12 mm. The planting was done in May 2010 in plots in the nonfumigated field. The treatments consisted of three cultivars ('Camarosa', 'Florida Festival', and 'Camino Real') and three pruning intensities on the total root length of transplants (pruning 1/3, pruning 2/3, and without root pruning). The variables evaluated were: crown diameter (mm), dry weight of shoots and roots (g/plant) determined in full flowering, early yield, number and weight of early fruit, considered early production to that obtained until the end of September. No significant interaction among cultivars and pruning intensities of the root system of transplants. The cultivars Camarosa and Festival were earlier and had higher number and weight of early fruits. The different intensities of pruning the roots of strawberry plants did not influence the variables. We conclude that to facilitate the planting of transplants, can do root pruning without losses on the earlier and early yield of fruit.

### **Seasonal Fruit Size and Production Patterns of Six Short Day Strawberry Cultivars**

David T. Handley, Mark G. Hutton, and James F. Dill, University of Maine Cooperative Extension and Maine Agriculture and Forestry Experiment Station, P.O. Box 179, Monmouth, ME 04259; david.handley@maine.edu

Six short day strawberry cultivars, including two early maturing ('Annapolis', 'Wendy'), two midseason ('Jewel', 'Darselect') and two late season ('Cabot', 'Ovation') types were planted into a matted row system in Monmouth, ME. Each cultivar was examined for marketable yield, fruit size and cull rates through the first harvest season, consisting of 10 pickings over 36 days. Ripening characteristics varied between the cultivars and within maturity classes. Of the two early maturing cultivars, 'Annap-