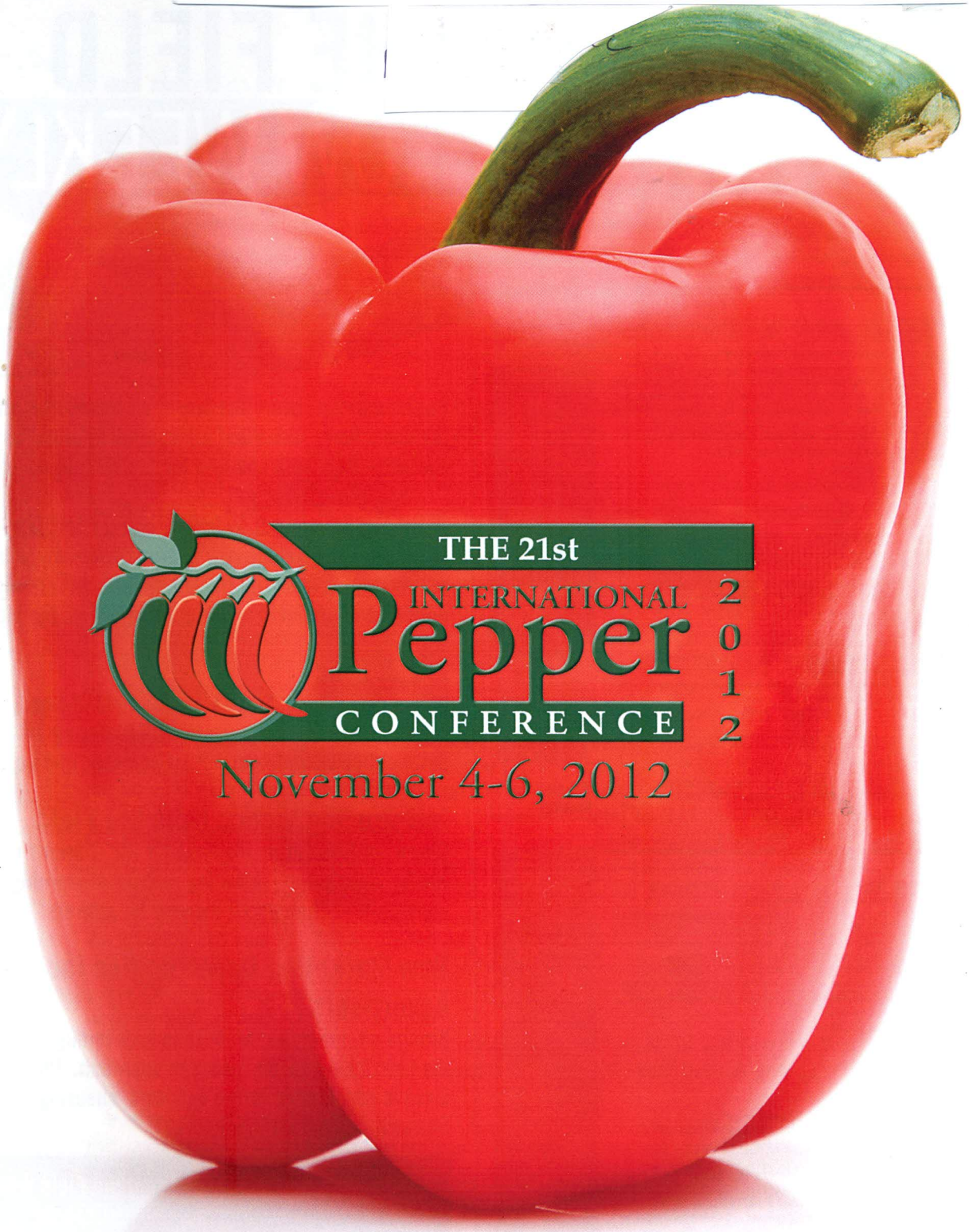

THE 21st INTERNATIONAL Pepper CONFERENCE 2012

November 4-6, 2012

UF UNIVERSITY of FLORIDA IFAS

75 YEARS VANCE

CITRUS+ VEGETABLE

Compiled by Gene McAvoy, Extension Agent IV | Regional Vegetable/Horticulture, UF/IFAS Hendry County Cooperative Extension

and nitrate levels. Certified organic production in these settings requires increased levels of soluble nitrogen compared to field settings. However there are few commercial organic sources of soluble nutrients available. In 2011 a study was initiated to evaluate a vermicompost extract as a fertility source on a high tunnel pepper crop in central New York, USA. Five pepper varieties were evaluated in a cooperating grower's unheated high tunnel, with fertilization programs based on vermicompost extract as well as a conventional grower standard schedule. Plant height, yield and foliar nutrient levels were recorded. Yield as measured by pounds of fruit per plant were significantly different among the varieties and fertilizer treatment. All varieties yielded more pounds per plant with the conventional fertilizer program than when fertilized with vermicompost extract. Yield as measured by fruit per plant was not as consistent, but 4 out of 5 of the highest yielding treatments received conventional fertilizer. Plant height was also generally higher for conventionally fertilized varieties, with 4 of the top 5 final mean height rankings coming from conventionally fertilized treatments. Fruit weight was consistently higher for vermicompost extract. Plant height were only significantly different on the final two sampling dates. Tissue analysis on July 1showed higher foliar nitrogen and phosphorus levels in the vermicompost sample than the conventional sample On August 8 there was a dramatic rise of foliar nitrogen in the conventional sample, while vermicompost treatments remained within sufficient range. Based on foliar tests and commercial yield parameters, in this trial vermicompost extract appears to have delivered nutrients at levels acceptable for commercial organic production of high tunnel peppers. For two of the recorded varieties yield in pounds per plant was statistically the same between conventional fertilizer and vermicompost extract. Improvements in seedling management prior to transplant would likely decrease the gap in results between the two programs.

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Reviewing 30 Years of *Capsicum* Breeding at Embrapa Vegetables, Brazil

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Capsicum breeding at Embrapa Vegetables, the National Research Center for Vegetable Crops, started in the early 1980's and concentrated its efforts in a) the development of disease resistant genotypes; b) establishing a wide network of Brazilian researchers working on different aspects of *Capsicum* – from germplasm expeditions in *Amazonia* to determining volatiles in aromatic Brazilian *Capsicum* genotypes; c) training human resources at undergraduate and graduate levels; and d) establishing a major germplasm collection which now holds over 4,000 accessions that support a program with over 30,000 lines and populations mostly from domesticated but also semi-domesticated species. Most of the research efforts have targeted hot peppers since sweet pepper breeding has been targeted by the national and international private sector. The breeding program has been mostly funded by Embrapa and CNPq, the Brazilian National Research Council, but international and national private sector has also been directly involved in its support through contract research. From its early years, the program strategy has been based on two pillars: a clear focus on the solution of problems faced by producers and processors in Brazil, normally accounting for *circa* 80% of the total research efforts and resources, and a more "opportunistic" set of research activities undertaken to benefit from special opportunities arising either in the breeding program itself or in producer's fields and markets. To date new *Capsicum* species have been found and several disease resistant inbred lines and populations have been developed and have been widely distributed in Brazil and elsewhere. Several cultivars have been released, including a *Cercospora* resistant small bock type sweet pepper (*Tico*), the first sweet paprika hybrid (*BRS Brasilândia*), hot peppers *BRS Seriema* and *BRS Mari*, sweet (beaked group) pepper *BRS Moema*, and two high yielding (up to 60 ton/ha) jalapeño peppers for the sauce industry, *BRS Garça and BRS Sarakura, the latter with over 2,000 tons harvested in 2011.* New genotypes in the pipeline include a virus tolerant *Malagueta* pepper (*C. frutescens*), red and orange habaneros (300,000 SHU), a nematode, bacterial wilt and *Phytophtora capsici* resistant rootstock for sweet peppers, as well as other hot and sweet peppers of different species. The program continues to expand its network and has already organized four national meetings (the last in 2011) in addition to creating an electronic platform (a google group) which brings together over 500 participants, mostly from the private sector.

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Genetic Divergence Among Jalapeño (*Capsicum annuum var. annuum*) Genotypes Based on Morpho-agronomic Characteristics.

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The market for hot pepper is expanding in Brazil; so, Brazilian breeders are working in hot pepper breeding program searching for cultivars with good fruit characteristic. Among the *Capsicum* hot peppers, the Jalapeño type is one of the most popular and is considered one of the best for chili sauce production. During a cultivar competition trial it was observed into the Jalapeño red-colored fruit cultivar segregation for red and yellow fruit color. Three individual plants with yellow fruit were observed and three fruits, one from each plant, were harvested. All seeds per individual fruit were collected and the seeds were sown in greenhouse. For three generations the plants were conducted by a modified single seed descendent method, resulting in twenty eight genotypes S_3, all with yellow fruits. This research was done in order to estimate the genetic divergence among those genotypes based on fruits characteristics (length, width, pulp thickness) and fruit yield per plant. It was used the multivariate analysis to estimate the genetic divergence. The data analysis showed that there is genetic variability among the 28 genotypes and the genotypes CNPH 25.192 and CNPH 25. 197 were the most divergent, since their genetic distance was 2.83. However, the best genotypes for hybrid combination were CNPH 25.192 and CNPH 25. 196 because the first one have higher pulp thickness and the second one has good average for fruit length, and the genetic distance between them was 2.46; so, they have the potential to generate good hybrid combination, therefore they are promising for Jalapeño breeding program.

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