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Mark Your Calendar

Texas Pepper Conference
November 7-9, 2007
Palm Aire Hotel & Suites
Weslaco, Texas
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Texas Pepper Foundation

MEMORANDUM

TO: Texas Pepper Foundation Members
FROM: Dr. Kevin Crosby, Dr. Ben Villalon, and Dr. Juan Anciso
SUBJECT: TEXAS PEPPER CONFERENCE
DATE: February 26, 2007

The Texas Pepper Foundation (TPF) is fine and doing well in Weslaco, Texas. It was organized in 1976 with over 300 members from 25 different states, several other countries including Mexico and Canada who recognize the importance of peppers (chile, chilli) as the number one spice ingredient in the world. Members include research and extension scientists, growers, producers, seed and chemical industry and major food processing firms. TPF members support the genetic improvement of peppers being conducted at TAES Weslaco previously by Dr. Ben Villalon and now by Dr. Kevin Crosby and several other scientists throughout Texas. This is one of the **last** major public assisted chilli improvement projects in the U.S.A. Dr. Crosby has released several outstanding pepper cultivars since Dr. Ben retired in 1996.

TPF support has been sponsoring periodic conferences, field days, and financial research support. TPF officers include: President Lee Gernentz, Vice President Dwight Collier, Secretary Michael Key, and Treasurer Cliff Chambers.

A **SCIENTIFIC TEXAS PEPPER CONFERENCE IS BEING PLANNED AND ORGANIZED FOR NOVEMBER 7-9, 2007 AT THE WESLACO RESEARCH CENTER.** Activities include a Wednesday evening reception, Thursday presentations of the latest research findings by scientists throughout the world, followed by our traditional evening **CHILE FIESTA.** Friday morning includes observations of greenhouse and field trial plots of diverse, improved pepper genotypes. Space for booths/displays is available.

This is a **call for titles only now.** A ½ page abstract is to be sent to us no later than **September 1, 2007** to publish as Proceedings of the 2007 Texas Pepper Conference. CONTACT: j-anciso@tamu.edu ph. 956-968-5581, k-crosby@tamu.edu ph. 956-969-5636, bevillalon@msn.com ph. 956-968-2549. **RSVP REAL SOON.**

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Influences of Organic Fertilization, High Tunner Environment, and Postharvest Storage on Phenolic Compounds in Lettuce

Xin Zhao, Edward E. Carey, Janice E. Young, Weiqun Wang and Takeo Iwamoto
HortScience/February 2007

The inverse relationship between dietary intake of fruit and vegetables and incidence of many chronic diseases has been primarily attributed to the health benefits of phytochemicals. Phenolics constitute the largest group of phytochemicals as a result of their great abundance in plant foods and consist chiefly of phenolic acids and flavonoids. Dietary phenolic compounds significantly contribute to the antioxidant and antiproliferative activities of fruit and vegetables.

Lettuce (*Lactuca sativa* L.) is among the top five most commonly consumed vegetables in the U.S.. In lettuce, although phytochemical levels are relatively low on the basis of fresh weight, the high antioxidant capacity of lettuce phenolics, shown in scavenging peroxyl radicals, suggests the possibility of enhancing the potential health benefits of lettuce by increasing the levels of phenolic compounds. Phenolic composition and content of lettuce significantly vary among types, including loose leaf, oak leaf, iceberg, butterhead, and romaine. Given that synthesis of phenolic compounds in plants is influenced by various abiotic and biotic stresses such as hugh ultraviolet irradiation, low temperature, nutrient deficiency, insect and pathogen attack, cultural practices are likely to play an important role in modifying levels of phenolics in lettuce. Recent studies have attempted to examine the impact of organic production practices on phenolic content in fruit and vegetables. In comparisons of organically and conventionally grown apples, peaches, pears, strawberries, grapes, Welsh onions, green peppers, spinach and Chinese cabbage, it was concluded that organic produce seemed to contain higher levels of polyphenols than did conventional produce. However, confounding production factors as well as drawbacks associated with experimental designs in most previous studies preclude definitive conclusions and indicate a need for further studies. To develop a more complete understanding of the influence of organic production practices on phenolic compounds in fruit and vegetables, a wide range of crops grown under various conditions need to be tested. Few studies to date have investigated the influence of organic management on lettuce phenolics. The environmental effects of protected

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Influences of Organic Fertilization Continued

production structures deserve further study as well. Among other influences, glazing and covering materials cause changes in the light that plants receive. In the case of a red loose leaf lettuce cultivar, exclusion of ambient solar ultraviolet B (280-320 nm) not only reduced the concentration of anthocyanins, but also led to a significant decrease of other presumptive flavonoids with absorbance at 270, 300, and 330 nm. It has also been reported that lettuce grown in a polycarbonate greenhouse had lower content of flavonoids than that grown in the open field. The extent to which high tunnels, unheated polyethylene-covered greenhouse structures that are used in season-extending production for many horticultural crops, may affect phenolic content of lettuce has not been reported. Postharvest storage also influences lettuce phenolics. Total phenolics in iceberg lettuce increased by 25.0% and 23.3% in outer and inner leaves, respectively, during 2 weeks storage at 4°C. However, interactions among genotype, preharvest, and postharvest factors that may affect lettuce phenolics have not been well studied.

The aim of this study was to evaluate the effects of cultivar, organic fertilization, and high tunnel production on the phenolic constituents of lettuce.

Spring and summer trials were conducted in 2003 to examine the effects of organic fertilization and high tunnel environments on phenolic constituents of lettuce (*Lactuca sativa* L.) cultivars Red Sails and Kalura. Effects of postharvest storage at 4°C for 16 days on total phenolics of lettuce harvested from the summer trial were also evaluated. Total phenolics, excluding anthocyanins, were measured spectrophotometrically, and major phenolic constituents were identified and quantified by high-performance liquid chromatography. Chlorogenic acid and quercetin glycosides were found to be predominant in lettuce. 'Red Sails' consistently exhibited significantly higher phenolic concentrations than 'Kalura'. Organic (compost + fish emulsion) and conventional (N-P-K + $CaNO_3$) fertilization did not consistently differentially affect lettuce phenolics in our recently established organic and conventional plots. The high tunnel environment generally reduced phenolic levels in lettuce relative to the open field. However, differences between high tunnel and open field varied with cultivar and season. Effects of production factors on lettuce phenolics were maintained during cold storage. There was a substantial increase in total phenolics during storage, likely correlated with declining lettuce quality. Further studies are warranted to more fully assess the impact of cultivar and production management, including organic fertilization, on lettuce phenolics.

Consumers Step Back from More Packaging

David Mitchell

The Packer / January 2007

A PMA study says more lean toward bulk or loose than did two years ago.

In 2004, the Newark, Del.-based Produce Marketing Association released a study based on a consumer survey that showed companies how they could make packaged product more appealing to retail shoppers.

Apparently, few noticed.

"The industry didn't really pay attention to what consumers wanted," said Gina Jones, PMA's manager of product development. "In 2006, consumers are still saying the same things."

PMA's packaging council commissioned a follow-up study last year, and Cambridge, Mass.-based Opinion Dynamics Corp. produced a report based on a telephone survey of 500 respondents. The results are available at www.pma.com. The survey has a 4.38% margin of error.

Much like two years ago, consumers said they wanted packaging that was safe and sanitary, allowed for consumer inspection, featured sell-by dates and nutritional information, provided functionality and was environmentally friendly.

LOSING GROUND: Despite new innovations in packaging and a wide selection of items, 44% of those surveyed said packaged product (excluding bagged salads) accounted for 15% or less of their fresh fruit and vegetable purchases. That number was up slightly from 42% of respondents in 2004.

Meanwhile, 41% of those surveyed said bulk or loose product accounted for 76% to 100% of their produce purchases. That was a 6% increase from two years ago. Furthermore, 78% said loose product had better quality and taste than packaged product, another 6% increase.

The news for packers and packaging companies isn't all bad.

"One of the nice things about this study is that it shows you things consumers are willing to pay more for," Jones said.

For example, 78% of those surveyed said they were willing to pay more for a package that preserves quality and freshness. Though there are many such products on the market, the study said packers need to do a better job of conveying that feature to the consumer.

More than half of the respondents said they would pay a premium for products in packages that are resealable, microwaveable, environmentally friendly or contain fresh-cut items. The majority of consumers also said they prefer small packages rather than large, and flexible rather than rigid.

Effects on Nitamin 30L and Nitamin 43G Fertilizers on Crop Growth and Yield in Cantaloupes

by
Dr. Russ Wallace, Extension Vegetable Specialist, TAMU AREC at Lubbock

A study was conducted to evaluate the effects of Nitamin fertilizer products applied at two rates on the yield of direct-seeded cantaloupes grown on the Texas High Plains.

The trial was conducted at the Texas A&M University Agricultural Research & Extension Center located in Lubbock on an Acuff clay loam soil with an average pH of 7.7 and 1.1% organic matter. The trial site was plowed in the fall, and in the spring the soil was listed into 40" beds for the planting of cantaloupes (var. "Hales Best Jumbo"). The soil was sampled prior to the test to determine nitrogen levels within the soil zone, and these showed that NO_3 levels averaged 3.5 ppm or "very low" according to the standardized soil tests from A & L Plains Agricultural Laboratories. Nitamin 30L was applied at 50 and 100 lbs N/A using a CO_2-charged backpack spray rig equipped with a single nozzle that delivered the product at 35 psi into narrow furrows centered 3" below the transplant zone. Nitamin 43G and urea (45-0-0) were weighed out at rates of 50 and 100 lbs N/A, and the fertilizer granules were spread uniformly by hand on the soil surface and raked into the top 3" of soil. Fertilizer treatments were applied on May 23, and cantaloupes were seeded the same day into plots measuring 13.3' x 30'. The cantaloupe crop was monitored weekly for optimal growth, as well as for diseases, insects and weeds. The crop was irrigated regularly as needed. The growing season had unusually high air and soil temperatures during June, July and early August, but this did not seem to impact crop growth as it did with the other fertilizer trials. Cantaloupe yields were recorded by harvesting ripe fruit from each of the individual treatment plots, and plots were harvested a total of seven times during the study. Harvesting data was combined by week to facilitate yield analysis. The trial was conducted as a RCB design with treatments replicated 4 times. All data were analyzed using SAS procedures and means separated using Fisher's Protected LSD at the 5% level.

Yield analysis over the first 6 harvests (3 weeks) showed that there were no significant differences in fertilizer treatments for cantaloupe weights, including the untreated control. Cumulative yields to date (CYTD) were also not different between fertilizer treatments within this study. Differences in cantaloupe yields were observed for the final harvest (week 4), and showed that significantly higher yields were obtained in plots fertilized with Nitamin 43G at 50 lbs N/A compared to all other treatments, except the untreated control. Total yields, cumulated for all seven harvests, showed that yields were highest in the Nitamin 43G 50 lbs N/A treatment when compared only to Nitamin 30L applied at 100 lbs N/A, which were 27% less. A trend did exist within the Nitamin formulations in that the average total yields for the 50 lb N/A rate was 20% higher when compared to 100 lbs N/A. When averaged across formulations, Nitamin 43G increased yields by 4 and 9% over urea and Nitamin 30L, respectively. Average cantaloupe fruit weight did not differ significantly between any of the treatments, and ranged from 3.92 to 4.09 lbs/fruit. There were no differences in weekly or cumulative number of fruit/plot for any fertilizer treatment during any of the first three weeks evaluated. By Week 4, there was a difference between the numbers of cantaloupe harvested in the Nitamin 43G 50 lb N/A rate and both Nitamin 30L rates, as well as Nitamin 43G at 100 lbs N. It is unclear why this response occurred in this test. Finally, total number of cantaloupes/plot was not different from the untreated control for any of the fertilizer treatments, though there were differences between individual fertilizer treatments. The number of cantaloupes harvested in plots treated with Nitamin 30L were significantly lower then those harvested in plots treated with Nitamin 43G at 50 lbs N. Those plots treated with either Nitamin product at 50 lbs N had higher numbers of fruit (18%) than those treated with 100 lbs N. The results of this test for 2006 are inconclusive, and no definitive response to increased N levels was apparent. There are perhaps differences between Nitamin formulations, with Nitamin 43G enhancing yields over plants treated with Nitamin 30L in this study, though this response is also unclear.

Check for updates on our web site:
http://aggie-horticulture.tamu.edu

Human Resource Management:
Motivate workers with proper performance reviews

Mark Wade

The Grower / June 2006

Motivating employees and evaluating employee performance go hand in hand. Proper motivation requires a productive, meaningful and fair way to evaluate an employee's performance – not just in terms of output but in contributions to your company's objectives.

Employees have both the right and the desire to know how well they are performing and how they can improve.

The evaluation interview is a developmental exchange between supervisor and employee aimed at reinforcing appropriate performance or correcting unsatisfactory performance.

A performance appraisal, also called an employee evaluation, typically can be defined as evaluating an employee's current or past performance relative to his or her performance standards. The process involves setting work standards, assessing the employee's actual performance relative to these set standards and providing feedback to motivate the employee to eliminate performance deficiencies or to continue to perform above par. The objective of the evaluation process is not to blame, reward or praise, but to develop.

When conducting an evaluation interview, consider the following approach:

1. **Set a time and prepare**
   Give advance notice, prepare the employee and yourself, and explain the evaluation purpose and procedure.

2. **Ask for self-assessment**
   Keep the interview relaxed and friendly. Allow enough time to properly conduct the evaluation. Sit next to the individual being evaluated, as opposed to across a table or desk. Ask, "How do you think things are going?"

3. **Recognize work well done**
   Always start appraisals by discussing the progress made and success achieved. Emphasize what the individual has done well.

4. **Review past performance**
   Compare accomplishments with specific objectives. Make sure that job duties and standards match the stated job responsibilities. And make sure to include both objective (hard facts and measurable results) and subjective (opinions such as those about attitude, adaptability and initiative) points in the reviews.

5. **Review elements that were not accomplished or need improvement**
   Don't hold employees responsible for things outside of their control. The emphasis should always be on what needs to be improved rather than what was done wrong. Use specific examples of past behavior and the new desired behavior. Solicit feedback to ensure that what you said has been fully understood. Offer constructive criticism.

   Discuss the employee's weaknesses, but only for improvement's sake. Focus on one issue at a time. Discuss the implications of failure to improve.

6. **Establish future goals and objectives**
   Always ask for and suggest possible solutions to problems. Ask, "How can I help you?" or "What can I do to help improve you performance?" Take an active role in improvement activities. Use the chance to improve yourself by asking the employee to appraise you, too.

   Give employees the chance to develop and use their expertise by providing training to improve weaknesses. Ask, "Where do you see yourself one, three and five years down the road?"

7. **End on a positive note**
   Always end the evaluation interview on a positive note. Be supportive and express appreciation.

   There should be no surprises during the evaluation. Don't save up complaints – or praise – specifically for the evaluation.

   Supervisors should be able to explain the difference between effort – how hard employees are working – and quality results – whether the results of those efforts are contributing significantly to business objectives.

   At first glance, it may seem that performance evaluations are used for a rather narrow purpose – to evaluate who is and who isn't doing a good job. In truth, evaluations encourage good behavior, allow for correcting below-standard performance and provide an opportunity for skill development. Employee evaluations are an important tool for motivating employees, maximizing performance and retaining quality team members.