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NEW CITRUS SEASON -----

The 1995-96 citrus season has been underway since about mid-September. The overall supply of oranges is estimated to be about the same as last year, while the total grapefruit supply is forecast to be down about 3 percent nationwide.

In Texas, the orange crop is forecast to be up 18 percent while the Texas red grapefruit crop is projected at 7.5 percent above last season's supply. For oranges, the estimate is 52,000 tons, while the grapefruit estimate is 200,000 tons.

Consequently, Texas markets should have ready availability of Texas oranges and red grapefruit at prices little different from last year. Naturally, the pre-Christmas prices are usually higher than prices after the New Year.

Julian W. Sauls
Professor & Extension Horticulturist

BANKING CITRUS -----

While I have recently E-Mailed a comprehensive write-up on care and protection of citrus trees during the coming winter months, it bears repeating that soil banks around citrus (and avocado or other tropical fruit trees) is the best means

to insure survival of at least the lower trunk of young trees in the event of a serious freeze.

Clean soil from around the tree should be piled around the trunk as high as is feasible (minimum 18 inches) about Thanksgiving, give or take a week, to remain in place until next March. In the event of a severe freeze that kills the exposed top of a citrus trees, a properly constructed and maintained soil bank will preclude the age-old problem of "my citrus tree came back sour after the freeze".

Refer to the aforementioned information for more details and recommendations for citrus cold protection.

Julian W. Sauls
Professor & Extension Horticulturist

RETIREMENT -----

The ranks of Extension horticulturists who support county Extension programs and Texas fruit growers are about to get thinner still. Dr. Calvin Lyons, Professor and Extension Horticulturist for fruits, has announced his forthcoming retirement, effective November 15. Calvin and Sylvia are returning to the Tampa Bay area of central Florida where Calvin will assume the management responsibilities of the family citrus orchards.

I cannot pass the opportunity to relate a story that Calvin's mother told me a couple of years back. It seems that when Calvin was just a wee lad (I know, he still isn't very tall), he decided to bud some citrus trees. Apparently, his budding techniques were quite good, as he got several "takes"—unfortunately, he inserted all the buds upside down!

Julian W. Sauls
Professor & Extension Horticulturist

HORTICULTURE AND YOUR HEALTH -----

According to work by E.G. Miller (and others) of the Department of Biomedical Sciences of Baylor College of Dentistry, certain citrus limonoids have been shown to inhibit oral carcinogenesis significantly. The citrus limonoids are being studied extensively in his lab and others to further delineate the chemistry of their preventive activity in several different animal models.

Miller points out that most of the protective effect in humans has been assumed to be the result of antioxidant activity of Vitamin C—but that at least two

Extension programs serve people of all ages regardless of socioeconomic level, race, color, sex, religion, disability or national origin.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating

epidemiological studies indicate that citrus fruit consumption was more closely linked to risk reduction (than was Vitamin C). Too, the limonoid glucosides are present in commercially processed orange and grapefruit juices in concentrations only slightly below the concentration of Vitamin C.

While the papers and literature review provided by Miller are interesting to read, the take home message is that both fresh citrus and processed citrus juices contain these important cancer chemopreventives.

In Japan, the Wakayama Prefectural Federation of Agricultural Cooperatives plans to extract limonoid glucosides from citrus processing residues in order to produce an orange juice drink that would contain about triple the concentration of limonoid glucosides, with test-marketing scheduled for this season.

Julian W.Sauls
Professor & Extension Horticulturist

CITRUS CANKER -----

The presence of citrus canker in the Miami area of Florida has been confirmed as the Asiatic or A strain. A quarantine of 100 square miles around the Miami finds has been implemented and efforts are underway to delineate and destroy the infestation to preclude any hazard to commercial citrus.

Julian W. Sauls
Professor & Extension Horticulturist

ORIENTAL FRUIT FLY -----

The quarantine on Oriental fruit fly in Pinellas County has been lifted by the Florida Department of Agriculture and Consumer Services, as no further finds have been detected.

Julian W. Sauls
Professor & Extension Horticulturist

COMMON PECAN PROBLEMS AT HARVEST -----

Poorly filled pecans, if recurrent year after year, indicate inadequate soil and management. However, poor filling in some years and not in others usually indicates poor irrigation and/or a particularly heavy crop.

Stick tights usually indicate insufficient irrigation pre-harvest or other stress such as hickory shuckworm damage or disease problems.

Vivipary is the condition that is characterized by pecans sprouting while still on the tree. While there are varietal differences, vivipary is caused by inadequate pre-harvest

irrigation or other stress problems.

Black spots occurring on the kernel of the pecan are the result of stink bug damage.

Julian W. Sauls
Professor & Extension Horticulturist

REFERENCE LIST -----

It's always helpful to know what book or references to use when dealing with problems that show up in your office or on the phone. Here is a list of references that I've found to be useful for plant diagnostics, or just plain head scratching questions that we seem to get a lot of.

Reference	Source
Texas Plant Disease Handbook	Extension publication B-1140
Texas Plant Disease Handbook Chemical Control Supplement	Extension publication B-1140A
Identifying Diseases of Vegetables	Penn State Publications, University Park, PA
Cucurbit Diseases	Petoseed Co. P.O. Box 4206, Saticoy, Calif. 93004-0206
Pepper Diseases: A Field Guide	Asian Vegetable Research & Development Center P.O. Box 205, Taipei 10099
Westcott's Plant Disease Handbook	Chapman & Hall, One Penn Plaza, NY, NY 10119
Ortho Problem Solver	Ortho/Chevron Chemical Co., 575 Market Street, San Francisco, CA 94105
Vegetable Diseases and their Control	John Wiley & Sons, New York
Diseases of Trees & Shrubs	Comstock Publishing Associates, Cornell Univ. Press, 124 Roberts Place, Ithaca, NY 14850
There are several crop compendiums on plant disease from the Phytopath Society	APS Press, American Phytopath Society, 3340, Pilot Knob Road, St. Paul, MN 55121

OSU Extension Agents Handbook of Insect, Plant Disease and Weed Control	OSU Extension Publication E-832, Oklahoma State Univ., Stillwater, Ok
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Lynn Brandenberger
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REPORT FROM THE AFLATOXIN ELIMINATION WORKSHOP -----

The aflatoxin elimination workshop was held in October in Atlanta. This is a gathering of scientists from all over the US who present and discuss recent research results. The bottom line: there is no solution looming over the horizon.

My impression is that the control for aflatoxin in corn will be through the use of resistant cultivars. Resistance can involve selecting for traits that maintain the integrity of the developing seed. The most important factor in aflatoxin contamination is splitting of the kernel, which is favored by high temperature stress during kernel filling. Dr. Gary Odvody (Texas A&M, Corpus Christi) reported on factors that affect silk cut, which is a preharvest lateral split in the kernel. He found that hybrids differ in vulnerability to silk cut. Characteristics associated with vulnerability to silk cut are loose husks and open ear tips.

Cultivars that are better adapted to hot climates may have a lower incidence of aflatoxin contamination. Dr. Jim Dunlap (Texas A&M, Weslaco) reported on trials in south Texas with tropical, heat-tolerant corn hybrids.

Several workers reported that the kernels of some cultivars resist fungal infection and aflatoxin production. This may involve several mechanisms, which need to be characterized further before they can be used in developing resistance. Other workers, including Dr. Nancy Keller (Texas A&M, College Station), are identifying anti-fungal chemicals that are produced by plants. The ultimate goal is to use genetic engineering techniques to incorporate genes for production of these chemicals in crops. This line of research is still in the early stage and faces regulatory hurdles in the future.

Dr. Keller is also studying the factors that regulate aflatoxin production. This research can lead to tools that can more efficiently screen for aflatoxin resistance in cultivars. She developed a color mutant of *Aspergillus parasiticus* that she and others are using to determine the conditions required for toxin production. (I used her mutant in a simple experiment which showed that corn husks used to wrap tamales will not support aflatoxin production by the fungus).

The species of fungi producing aflatoxin are naturally present in soil. Workers

in Iowa reported a relationship between infection of corn and the amount of the fungus originating from the soil, which fluctuates over the growing season. They proposed controlling the soil population. Studies in Arizona showed that populations of the fungus were reduced in soil with cereal rotations and fallowing. Another approach, the inoculation of soil with strains of the fungus that do not produce toxin (i.e. atoxigenic), is being tested on a large scale in Arizona. The atoxigenic strains outcompete toxigenic strains for habitats. These strains persisted one year after inoculation, but it is too early to say whether they actually will reduce the aflatoxin contamination.

There was not much research on detoxification of contaminated food. The USDA laboratory in Fresno is experimenting with vaporized hydrogen peroxide for decontamination.

In most people's mind, aflatoxin is a problem associated with corn and peanuts. This conference emphasized that aflatoxin is also a problem in other crops, including cottonseed, figs, and several tree nuts.

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