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UPDATE ON IPM IN SCHOOLS -----

As the school year draws near, there is more and more interest in materials for IPM in schools. Materials available from A&M include two videos (\$7.95 each or \$15.00 for both) and a training manual (\$10.00; should be finished by the end of July). I believe the videos are tapings of the earlier satellite conferences, but I have not seen the final versions and do not know for sure. The training manuals will likely cover basic IPM as well as the specific requirements of the law, but again I can not be certain of this. Despite the uncertainties, I feel confident that this material will be useful to anyone requesting information on this subject. The videos and manual can be ordered from:

Ag. and Environmental Safety
P.O. Box FS
College Station, TX 77841
(409) 845-3849

They will need a PO number or check in order to process any request for these materials. I was told that a similar training provided by the private sector was \$100 registration per person (included a training manual, but videos were \$25.00 each; these may have been different materials). Other materials (copy of the law, etc.) can also be obtained from:

Structural Pest Control Board of Texas
9101 Burnet Road, Suite 201
Austin, TX. 78758
(512) 835-4066

Stormy Sparks
Assistant Professor & Extension Entomologist

SOURCES OF INFORMATION ABOUT DRIP IRRIGATION -----

I know I shouldn't dwell on this, but since it's hot and dry this time of the year, it's difficult not to. What I'm talking about is the need to irrigate vegetable crops and do it efficiently. Man has been irrigating crops for thousands of years, but only recently (the last few decades) did we become aware of some new technology and methods that have helped agriculture to become a much more efficient user of water, namely drip irrigation.

Information on drip irrigation is available in a number of places, most years there are short courses carried on within the state and there are also some written references available that can bring someone new to the game of drip irrigation up to speed. Here are a couple of printed references to get you started:

1. Vegetable Growers' Handbook, Texas Agricultural Extension Service, Chapter five by Dr. Guy Fipps gives a good run down on general irrigation principles with some additional information on drip irrigation.
2. Proceedings of the Short Course, Drip Irrigation of Vegetable Crops, HortTechnology, Vol. 2(1), Jan/March, 1992, provides 40 some pages of text, pictures and figures about the details involved in drip irrigation.

Lynn Brandenberger
Associate Professor & Extension Vegetable Specialist

PECAN CROP FORECAST -----

While the USDA Pecan Crop Estimate won't be released until September, there are some forecasts already available from the Louisiana and Texas pecan growers associations. Those forecasts indicate a potential crop of 225 to 250 million pounds for 1995—which isn't a particularly large increase over last year's crop.

For Texas, the forecasts are for around 67.5 million pounds, which number could admittedly be higher or lower than actual.

If these numbers hold reasonably close to actual production, prices should be good.

Julian W. Sauls
Professor & Extension Horticulturist

IRRIGATION EMITTER OUTPUT -----

During a multi-county program near Yorktown last month, there was considerable interest in microsprayer and drip irrigation systems for pecans. One question that came up several times was that of how to check emitter output to be sure the system is delivering the water it should.

The simplest way to check output is to bring the system up to speed and check the pressure at several places in the orchard. For this, a regular pressure gauge can be fitted appropriately to insert into the end of polyethylene laterals or into the microsprayer delivery tubes. Any supplier of irrigation equipment should be able to outfit such a pressure gauge for you—just take him one of your microsprayers (with tubing) or a small piece of your polyethylene lateral line so that he can make an exact fit.

Another way to check output is measure it at several emitters in different parts of the orchard. All you need is a watch with a second hand, a pocket calculator and a measuring device that is marked in ounces or parts of an ounce.

The amount of water (in ounces) collected in one minute at any given emitter can quickly be converted to gallons per hour—multiply by 60, then divide by 128. A microsprayer that is supposed to deliver 16.2 gph at 20 psi should put out 34.56 ounces per minute.

If your result is sufficiently different (usually lower) than what it should be, assuming that pressure in the field was optimal when the system was installed, then the system is becoming clogged over time.

Clogging can be caused by any number of factors such as mineral deposits in the lines, sludges caused by microorganisms reacting with certain elements in the water (sulphur or iron, for example) or algae. Clogging is treatable, but the cause of the clogging must be determined first.

Julian W. Sauls
Professor & Extension Horticulturist

ASIAN CITRUS LEAFMINER -----

The phones have been ringing loud and long over the last 2 months as home gardeners encounter the damage to their citrus trees caused by the Asian citrus leafminer. Most callers aren't really happy with the information that we give them,

i.e. that control options for homeowners are very limited.

To restate what is currently known about this new pest and its damage, it hits only new flushes of growth as it emerges, so the attack comes when the new leaves are about an inch or so long. The spring flush doesn't get hit nearly so hard as do those flushes which start in May through September or October—mainly because of low leafminer populations coming through the winter.

Young trees are damaged more than mature trees—primarily because new-flush leaves make up a larger proportion of the total leaves on a young tree. In this sense, "damage" means potential growth reduction, as any leaf affected by leafminer is damaged, regardless of tree age.

Despite assurances that we know of no trees, young or otherwise, that have been killed as the result of leafminer damage, most callers still want to "do something" for their trees. The normal insecticides with which most home gardeners are familiar do not control leafminer—in fact, these products may encourage leafminer populations (and damage) by killing off some of the beneficial insects and spiders that attack the leafminer, of which there are several such predators.

Commercially, there are only about five products that can be used for leafminer control—with varying degrees of success. For the home gardener, however, the choices are limited to insecticidal soaps, citrus spray oil and possibly Neemix (I am not sure if Neemix is available for home use).

Any control will depend upon timing of the growth flush to spray when the new leaves are about an inch long—one time only per flush. Spray oils are potentially damaging to citrus trees under conditions of low humidity (typical of the Valley and Coastal areas) and temperatures above 95° (typical of our summers). Moreover, spray oils have a tendency to separate from the water in a sprayer, thereby resulting in a spray of water alone followed by oil alone—the first doing no good and the latter causing extreme defoliation and dieback of the citrus tree.

Because of the potential damage from spray oils, I prefer not to recommend their use to homeowners. Not only that, many home gardeners are familiar with dormant spray oils and may think those could be used on citrus—they cannot, as dormant oil will certainly cause extensive phytotoxicity to citrus. Only oils that are formulated specifically for citrus can be used on citrus.

In summary, homeowners should probably be told to: 1) do nothing, 2) use insecticidal soap (and/or Neemix, if it's available).

Julian W. Sauls
Professor & Extension Horticulturist

WISE WATERING -----

With the prolonged drouth and heat in South Texas, water use for plants is a major priority for home gardeners. Evapotranspiration losses for established plants are probably close to 80 to 90 percent of Class A pan evaporation, in some cases being 1.5 to 1.75 inches of water weekly.

In watering established plants, whether they be lawn grass, fruit trees or ornamental trees and shrubs, bear in mind that the overwhelming majority of the feeder roots are in the upper foot or foot-and-a-half of soil—and that tree roots extend at least half again or more beyond the canopy width. Too, for older trees and shrubs, the bulk of the feeder roots occur some distance away from the trunk.

The best watering time is very early morning, principally to minimize evaporation losses. Usually, winds in the early morning are at their calmest, picking up soon after sunrise to mid-morning, becoming strongest in the afternoon and evening.

Regardless whether you have a permanent sprinkler system or must use drag-hose sprinklers or even open hoses, apply water only as fast as the soil can absorb it. Also, check and reset sprinklers, if necessary, to preclude throwing water onto the driveway or the street, as such waste does no good.

Finally, try to water deeply when you do water. A piece of half-inch rebar (reinforcing rod) can readily be pushed into well-irrigated soil to the irrigated depth—but no deeper, so use that to check how deeply you've irrigated.

While this is just common sense, few people seem to be aware that following such watering practices results in healthier plants, better water efficiency, less frequent need for watering and lower overall water bills.

Julian W. Sauls
Professor & Extension Horticulturist

TEXAS PRODUCE CONVENTION -----

For the first time ever, several Texas horticultural commodity groups will be meeting together as the Texas Produce Convention and Trade Show. The date: September 20-23, 1995, at the San Antonio Municipal Auditorium and Holiday Inn Riverwalk North.

While a number of general sessions and workshops are planned, each participating commodity group has scheduled separate, concurrent sessions, for topics of interest to such groups, and there will be separate business meetings for those associations.

Registration prior to August 18 is \$135 for members of any of the host

groups, \$185 for non-members and for everyone after August 18. Current members should have received registration information already, others should contact one of the following groups:

Texas Association of Apple Growers
Texas Blueberry Growers Association
Texas Citrus Mutual
Texas Citrus & Vegetable Association
Texas Fruit Growers Association
Texas Vegetable Association

Julian W. Sauls
Professor & Extension Horticulturist

JULIAN W. SAULS, Ph.D.

Professor & Extension Horticulturist
2401 East Highway 83
Weslaco TX 78596

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