

September 2001

UPCOMING MEETING

Grower Meeting Notification

Citrus Integrated Pest Management Update and the Glassy-Winged Sharpshooter (GWSS)
in the Citrus-Grape Interface

September 19, 2001

Meeting Location

University of California Cooperative Extension Large Conference Room
1031 S. Mt. Vernon Ave., Bakersfield, CA 93307.

8:00 – 9:00 A.M. Integrated Pest Management Project Update - Dr. Grafton-Cardwell, Entomologist, University of California, Kearney Agricultural Center.

9:00 – 9:25 A.M. Rearing GWSS Parasites - USDA, APHIS Dr. Gregory Simmons, Entomologist, Phoenix Plant Protection Center & Oswell Street Biological Control Facility, Bakersfield

9:35 – 12:00 Noon Bus Tour - Visit to a new experimental test plot in a Bena area orange grove. The object of the experiment is to determine rates and methods of using Admire to control GWSS and the effect of differential GWSS population on citrus yield and fruit size. Dr. Grafton-Cardwell presiding. GWSS and the Grape-Citrus Interface. General Beale Road Pilot Project Area. – Jennifer Hashim, UC Cooperative Extension Grape Farm Advisor/Kern County presiding.

Gibberellic Acid Notes

Many years of research by Dr. Coggins, professor and citrus researcher at UC Riverside, demonstrates that the September - October time period is the best time to apply gibberellic acid to navel orange in the San Joaquin Valley of California for the purpose of reducing puff and crease, maintaining the juvenility of the rind, and thus increasing the period of time that mid-season oranges, like Parent Washington or Atwood, navel oranges may be stored on the tree. Fruit treated with gibberellic acid also appears to be less susceptible to postharvest decay. Applying gibberellic acid two-weeks before color break still remains a handy rule-of-thumb. In previous work Dr. Coggins showed that gibberellic acid was more effective when Silwet L-77[®] was included with the spray as an adjuvant. Applications of gibberellic acid may result in significant leaf drop and an effective adjuvant may increase the chance of this drop.

In some research I conducted a couple of years ago, I mixed narrow-range oil and gibberellic acid together and sprayed it on several navel orange trees with no adverse effects. However, in real-life experiences in the field, applications of narrow-range petroleum oils within a week or two or even longer of a gibberellic acid spray appear to increase the chance of dropping fruit and leaves. Every year at least one grower in Kern County reports a significant drop of fruit and leaves shortly after an application of gibberellic acid or oil. Whether the oil or the gibberellic acid is sprayed first does not appear to matter. The narrow-range oil is usually sprayed in dilute form as a pesticide for control of mites or scale. Most of

the time there is no adverse effect on the tree when gibberellic acid and oil are sprayed relatively close together, but when drop does occur it can be dramatic and devastating to profitability. Many of the incidents have occurred on the hills or ridgetops in the rolling groves in northern Kern County where plant-water relations are often suboptimal due to shallow soils, inadequate irrigation pressure, higher evaporative loss on the south-facing slopes of the hills, and general lack of water availability due to reduced well flow that often occurs toward the end of summer in this area. Monitor soil-water carefully in the fall before gibberellic acid or oil is applied. The temptation is to reduce irrigation too much in response to the first rains of late summer or early fall. Often these rains, especially in Kern County, will not meet the water requirements of citrus, especially that on the hilltops and south-facing slopes. Assuring that trees are not under stress from; lack of water, pests such as mites or heavy scale populations, or have not suffered leaf loss from a previous oil or gibberellic acid treatment should reduce the chance of incurring fruit drop.

Gibberellic acid is typically applied at rates from 20 to 40 grams of active ingredient per acre in a range of spray applications ranging from concentrated [50 gallons/acre to dilute (up to 1000 gallons acre or more)]. Often, 20 grams of gibberellic acid per acre provides nearly as much delay in senescence as 40 grams per acre and I have seen trials where low volume spray applications have appeared to outperform high-volume spray applications and vice versa. Many farming operations have done their own trials to see what rates and timings work best for them. Some blocks of oranges, usually varieties like Parent Washington that are in cooler areas, on heavy soils, and on certain rootstocks such as trifoliolate or Clementine mandarin, are able to hold fruit longer on the tree than other blocks. Usually blocks that hold fruit longer without gibberellic acid will also provide the most favorable response to a gibberellic acid application. Gibberellic acid applied to a block that holds fruit well may increase storage on the tree by 8 weeks, whereas applying gibberellic acid to a block of oranges that does not store fruit well may increase storage time by just a few weeks. For best results, the gibberellic acid spray should be acidic and should not be mixed with lime or sprayed immediately before or after a lime application. Any orchard treated with gibberellic acid should also be treated with 2,4-D (isopropyl ester) to reduce preharvest fruit drop. 2,4-D is typically applied after the gibberellic acid in November or early December. Read and follow all label directions closely when applying these plant growth regulators.

Glassy-Winged Sharpshooter and Pierce's Disease Update

High populations of glassy-winged sharpshooters in some citrus orchards, and the apparent preference of glassy-winged sharpshooters to live in areas that have both citrus and grapes in close association, keeps this insect in this newsletter. Recent findings of high levels of Pierce's disease in at least one vineyard in the General Beale Road area of Kern County appear to confirm the worst fears of plant pathologists about the ability of the glassy-winged sharpshooter to vector this disease. Many of these diseased vines were probably already infected before the General Beale Pilot Project was initiated early this year to reduce the numbers of sharpshooters in the area. Trapping results show that the efforts of the United States Department of Agriculture, California Department of Food and Agriculture, University of California, Kern County Ag Commissioner's office, private citrus and grape growers and others this year have greatly decreased the numbers of glassy-winged sharpshooters within the General Beale Pilot Project area. Parasites of glassy-winged sharpshooter are now being produced to supplement the natural parasites and predators in the area. According to the Kern/Tulare "GWSS Update" newsletter (Contact Don Luvisi, 661-868-6226), as of early August 33,440 *Gonatocerus triguttatus* and Mexican selections of *G. ashmeadi* and *G. morrille* have been released in citrus, grapes, rangeland and urban gardens in GWSS-infested areas of Kern County. Whether these control efforts have been or will be successful enough in preventing the rampant spread of Pierce's disease should be clearer in the next 18 to 24 months.

Citrus growers considering using chlorpyrifos to control overwintering glassy-winged sharpshooters should be aware that this chemical can cause "ridging" of navel oranges, and other citrus fruit, if sprayed at early stages of fruit development. In California, treatment of citrus during the months of December, January and February, for most purposes is contrary to the label because of the ridging it may cause. Additionally, growers should know that tiny developing buds might remain susceptible to

chlorpyrifos treatments made in early March. See an article by Beck, Arpaia, Eckhard, Reints and Lord called, "The effect of chlorpyrifos on flower and fruit development of grapefruit, *Citrus paradisi* Macfayden " in *Scientia Horticulturae* 47 (1991) 35-50 for more details about this ridging phenomenon. Chlorpyrifos, sprayed in late March through November, has been a very safe and effective treatment for glassy-winged sharpshooter and many other harmful insects and is an insecticide that the citrus industry would like to keep it in its protective arsenal.

Citrus Peelminer Update

Mines in the peel of many varieties of citrus, caused by the citrus peelminer, are present in most citrus orchards in Kern County. This pest has been confirmed to be in Kern County since about 1997 and has spread up the San Joaquin Valley since. This pest has done serious economic damage to some commercial pepper plantings this season. It has also been found in the stems and bolls of cotton. Releases of the parasitic wasp, *Cirrospilus coachellae*, have been made in Kern County this summer. Research is underway to determine if, when and what pesticide applications might be used to control this pest in orchards with severe infestations. Citrus peelminer populations had been high in my own backyard for the previous two years with infestations in navel and Valencia orange, lemon, grapefruit, pomegranate, oleander and bell peppers. However, this season I have seen no activity since early May and have not used any pesticides on any of these plants. Why the peelminer is absent from the backyard is unknown, but similar disappearances of the pest have been documented in the Coachella Valley, from where, apparently, our own infestation originates. For current updates on issues related to the citrus peelminer, including pesticide trials, see Dr. Grafton-Cardwell's new webpage on this pest at: www.uckac.edu/citrusent/.

New Chemicals for Control of California Red Scale

Bayer Crop Protection has recently registered two formulations of imadacloprid for use against California Red Scale. Admire 2F[®] is applied through the irrigation system and Provado 1.6F[®] as a foliar spray. Admire appears to be more effective against California red scale than does Provado. Read and follow all label directions. Since Admire is applied through the irrigation system, particular attention must be given to preventing back flow of the material into clean water sources and to the distribution uniformity of irrigation water in the field.

In areas where California red scale is resistant to carbamate and organophosphate pesticides, growers have become increasingly dependent on the new insect growth regulator, pyriproxyfen, to control this pest. Continued use of pyriproxyfen, especially use late in the season, will likely speed the resistance of scale to pyriproxyfen. The registration of imidacloprid will provide growers and PCAs with an alternate chemistry to use against red scale. Admire and Provado also appear to be useful in programs primarily relying on aphid wasps for control of red scale for treatment of flare ups of California red scale and citricola scale. Treating citricola in August with Provado appears to be an effective timing for this pest. Both pesticides are registered for control of glassy-winged sharpshooter in citrus.

Mexican Citrus Tristeza Virus Problems

The World Horticultural Trade and U.S. Export Opportunities August newsletter reports that the Mexican Government is providing support to the Mexican citrus industry to combat economic losses associated with the spread of citrus tristeza virus (CTV) in that country. Funds have been budgeted for the replacement or renovation of citrus groves with plants that are both certified to be citrus tristeza virus-free and resistant. Additionally the program will establish producer lots of virus-free seeds and propagation materials. This program is an important anticipatory effort to reduce spreading of CTV by the brown citrus aphid vector. Yucatan and Quintant Roo in southeast Mexico are reported to have the greatest infestation of CTV. Some of the strains found in Mexico are much more destructive of citrus than those currently found in California.

Ordering Clean Budwood from the Citrus Clonal Protection Program (CCPP)

The next budwood cutting will start on September 17, 2001. Specific information about the varieties in the CCPP Foundation Block may be obtained by visiting "Variety Data" on the CCPP website at: www.ccp.ucr.edu. An order form is available from this office or by requesting one from CCPP at 909-684-8580. Nurseryman and growers wishing to purchase CCPP Foundation budwood should mail or FAX (909-686-5612) their requests on or before September 14, 2001 to:

Citrus Clonal Protection Program
ATTN: Budwood Order
Dept. of Plant Pathology
University of California
Riverside, CA 92521

For those familiar with the procedure and have been following the research of Dr. Semancik at UC Riverside, growth modifying Tsn-RNA inoculums are also available for those that wish to produce a mother tree that will serve as a bud source for large-fruit bearing and/or dwarfed field trees. The mother tree may be of any variety, on any rootstock but the desired tree-dwarfing effects and larger fruit size effects of the procedure have only been shown if the buds from the mother tree are placed in trifoliate orange rootstock. Contact the CCPP for more information on this procedure.

DISCLAIMER: Discussion of research findings necessitates using trade names. This does not constitute product endorsement, nor does it suggest products not listed would not be suitable for use. Some research results included involve use of chemicals which are not currently registered for use, or may involve use which would be considered out of label. These results are reported but are not a recommendation from the University of California for use. Consult the label and use it as the basis of all recommendations.

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