**July/August 1999**



## Coumaphos Strips

Not much has changed, but a little clarification is necessary. CheckMite+® strips (10% coumaphos) are now available to California beekeepers on a "Section 18." They can be purchased in 10-packs (at $28 per pack) or 100-packs (at $151 per pack) from Mann Lake Ltd. in Minnesota [(800)233-6663]. Only Dadant has a license to sell restricted chemicals to beekeepers in California and they have opted not to handle CheckMite+.

You don't need a permit or license to buy the strips, but you do need to visit the County Agricultural Commissioner to get the "labeling" and permit that you must have in order to USE the product.

It is true that there is not (and probably never will be) a tolerance (acceptable amount of residue) for coumaphos in honey. The product is registered for non-food" use and, therefore, should never occur in the product. Technically, this is a bit different from a "zero tolerance" which is used with extremely dangerous materials.

As with Apistan®, CheckMite+ can be used only when there isn't any honey for human consumption being produced by the bees. Be careful of cases where bees were bringing in nectar loads and making honey in the brood nest while the strips were in the hive. Moving the honey out of the brood nest, to relieve congestion, may put the frames in locations where honey is harvested at another time of the year. You do not want to accidentally harvest the honey produced while the strips were present.

Washington State Apiarist Jim Bach asked a similar question about moving brood combs around while using the Demaree system of swarm control. The answer for Apistan was that, "Treated brood nest combs should only be used as brood combs and should never be used for containing honey destined for human consumption or, beekeepers should keep brood nest supers and combs separate from surplus honey combs."

Small Hive Beetle

Here is what Dr. Keith Ddaplane had to say about Aethina tumida in Georgia this year, from the Georgia Bee Letter, August 1999. "There is good news and bad news in 1999 concerning the small hive beetle. The bad news is, it is still here and still a serious problem in certain operations. The good news is that controls are working and it has not spread much outside of the areas in which it was most damaging in 1998. We cannot predict the ultimate effects of this pest on beekeeping in the Southeast. But from a distance of 15 months since its first Georgia detection in May 1998, we can point out some trends.

The most notable trend is that beetle problems seem worse in coastal areas and areas with sandy soils. This is clearly the case in Georgia and South Carolina. Florida, with its sandy soils and gulf climate, remains the most seriously affected area. At the same time, beekeepers in the Piedmont who have had beetles as long as anybody are experiencing only minor problems. It is easy to speculate that heavy clay soils may not be as conducive to successful beetle pupation.

A second trend is that available controls are working reasonably well. The combined use of coumaphos strips (CheckMite+ Bee Hive Pest Control Strip) with the soil insecticide Gard Star® has kept beetle numbers manageable.

The third trend has been the restriction by certain states against package bees and queens from Georgia. In spite of this, most package producers in Georgia are reporting a good season.

A fourth trend is the realization that the beetle is somewhat independent of honey bees. Tests by USDA have shown that the beetle can complete its life cycle on decaying cantaloupes and other fruits. The adults are vigorous flyers and can move independent of migratory beekeeping. This makes targeted control more difficult.

A fifth trend is a growing paranoia among beekeepers about the increasingly chemical-intense nature of modern beekeeping. The addition of coumaphos, a

member of the relatively old class of organo-phosphate insecticides, to the hive environment has renewed concerns for honey contamination and handler safety. EPA still recognizes a zero tolerance for coumaphos in honey. Thus, beekeepers must follow label instructions explicitly to avoid honey contamination and a public relations fiasco.

The USDA has taken responsible steps to study and control the small hive beetle. It is sending a team of scientists this autumn to South Africa to study the beetle in its native habitat and search for natural predators and parasites. Tests continue for an adult trap and pheromone lure. University studies are examining sampling methods, in-hive adult traps, and other control options. The beekeeping industry has proven itself resilient, and we must remain optimistic that this challenge too will be met."

## Tank Contamination

Without including all the background and details, I wish to relay the information from an article in Vol. 13, August 1999 Agronomics published by Madera and Merced County Farm Advisors. The article deals with three cases of accidental injury to crops (cotton twice, grapes once) when a spray rig was used to apply another agrochemical after it had been used to apply 2,4-D.

As early as 1955 2,4-D residues in spray rigs were deemed to be a problem and studies were done on zinc, copper, tin, iron, aluminum and glass to see what it took to rinse off the residue.

Nearly all the loose residue was rinsed off in the first of four consecutive water rinses. However, soaking the strips in water for 24 hours showed that more 2,4-D is released over time. Iron and zinc (galvanized iron) released the most. Cooper and glass had trace amounts and tin had none.

The conclusion of the study stated, "It may be stated that the only really safe way to avoid 2,4-D contamination in sprayers is to maintain separate sprayers for sensitive plants". The Farm Advisors recommend that, "... any sprayer previously used to apply 2,4-D not be used on these sensitive crops. If such a sprayer must be used, it should be washed thoroughly before spraying cotton or grapes."

Perhaps this mechanism is involved when beekeepers experience bee kills following nearby applications of agrochemicals that should be harmless to bees.

## New Bee Virologist

The honey bee lab at Penn State University has added a

new scientist to its staff. Virologist, Dr. Joachin De Miranda, has set his sights on "deformed wing," "black queen cell," or any other identifiable virus that can be studied in depth. If you think that you see something odd going on in your bees, contact Dr. De Miranda and see if he wants a sample. His e-mail is jrdemiranda@hotmail.com. If you wish to speak to him, the lab phone number is: (814) 865-2810.

Resistant Varroa?

If you have Varroa mites that can walk around for hours on a fresh Apistan strip without dying, Dr. Zachary Huang wants your mites. The best bet would be to find young, infested drone pupae, cut out a chunk of comb, wrap it in paper towels, and send to: Dr. Zachary Huang, Department of Entomology, Michigan State University, East Lansing, MI 48824. If you wish to speak to Dr. Huang call: (517) 353-8136.

Starthistle, Again

"Can Integrate Methods Stop Starthistle?" read the headline of an editorial in the March-April issue of California Agriculture. A picture of the false peacock fly on a starthistle head adorns the cover. The editorial covers many studies in general terms; the details are in the articles.

Yellow starthistle may be California's "thorniest" problem, currently infesting up to 22 million acres or about 22% of the state, according to Food and Agriculture (CDFA).

Once a minor annoyance, it is now the state's most widely distributed weed. It quickly dominates any area it infests, making ranchland unusable, hiking trails impassable, and wildlands uninhabitable for a wide range of native plants and animals. It can be fatal to horses if ingested in high doses.

But now, thanks to years of scientific research and a recent lucky accident, scientists may be turning the corner in their quest for control of this noxious pest.

In this issue of California Agriculture, UC, CDFA and U.S. Department of Agriculture scientists report on a newly registered growth control herbicide, mowing as a cultural control, and biological control agents.

Biological control efforts were recently boosted by the accidental introduction of the false peacock fly. Although six other biocontrol agents had previously been released, this seventh, uninvited guest was the first to sharply reduce late-season starthistle seed.

Starthistle is a prodigious seed-producer, and

remarkably, 95% of its seeds germinate. What's more, its flowering and germination continue from May through September.

"Unlike the other biocontrol established here, false peacock fly has multiple generations per year, and its attack is sustained throughout yellow starthistle's lengthy flowering period," says Joe Balciunas, USDA research entomologist and Yellow Starthistle Biocontrol Project Leader. "None of the other approved and establish agents attack these late-blooming flowers."

Scientists have found that false peacock fly has attacked from 36% to 50% of starthistle seed heads at sites where it has recently established; seed heads containing the fly's larva have 78% less seed. By contrast the true peacock fly - which is physically almost identical to its "false" counterpart - has never been observed to attack more than 5% of starthistle seed heads.

While the false peacock fly has managed to establish itself at many locations throughout the state, its use cannot yet be recommended because it has not been approved for release. Its host range is now being tested; early results suggest is does not adversely affect commercial crops.

Also in this issue, UC Cooperative Extension weed scientist Jose DiTomaso and colleagues report on trials using a newly registered growth-control herbicide clopyralid (tradename Transline). They have developed guidelines for its use, as well as for the most effective use of a cultural control, mowing.

Due to environmental concerns, few herbicides are registered for use on rangelands and wildlands. Of those that are, few are active in the soil against seeds that may germinate for months.

The new growth regulator clopyralid, however, controls starthistle by arresting its development at the growing point both on the plant and on the seedlings that germinate in the soil. It provides better than 95% control with residual activity throughout the starthistle season.

Clopyralid is selective, affecting only a few plants. (These plants include not only noxious thistles but some legumes such as clover, alfalfa, and vetch.) Because of clopyralid's relative safety, it can also be used in combination with livestock grazing.

DiTomaso, in collaboration with CDFA entomologist Michael Pitcairn, is examining joint use of biological control agents and the new growth regulator

herbicide. DiTomaso and UC colleagues are also studying combinations of burning, reseeding, herbicide use and biocontrol.

"In addition to managing yellow starthistle, our goal is to develop a healthy and sustainable system," says DiTomaso. "No single control method is enough to do this, but a combination of methods may."

"The specific plan you may develop for any particular infested area would depend on your goals. For instance, if you want to restore perennial grass forage to a thistle-infested grazing area, you could use clopyralid, or clopyralid plus glyphosate, in the first year, then reseed with a desirable perennial grass, and use clopyralid a second year. In subsequent years, the combination of competitive perennial grass and the biocontrol agents would be expected to maintain low levels of starthistle."

If you are interested in obtaining a free subscription to California Agriculture, just call (510) 987-0044 or e-mail calag@ucop.edu.

1999 Almond Crop

This year's almond crop appears to be a big one. Current estimates, published in the August 1999 Nut Grower Magazine, are 830 million meat pounds. Comparatively, forecasts for the years 94-98 at this time of the year were 640, 310, 530, 680, and 540 million pounds. Obviously, this years crop could stimulate a drop in wholesale meat prices. Apparently this is already happening to a certain extent. However, the Almond Broad of California has voted to hold 22.36% of this year's crop in "reserve," thus reducing the supply in the hope of maintaining prices. Will this whopper year be followed by more like it? If so, a whole bunch of people had better start eating a lot more almonds.

In the July 1999 issue of Nut Grower there was an article on almond plantings. A table showed that there are currently 420,483 bearing acres of almonds in California. There are an additional 80,632 acres of non-bearing almonds totaling 501,115 that will require honey bees over the next decade.

Gary Nelson, Agricultural Statistician, for California Agricultural Statistics Services, states that non-reported and underreported acreage (voluntary data from 5,234 growers) probably pushes the numbers up to 573,000 acres in the ground with 480,000 in production. Kern and Merced Counties each have about 72,000 acres (17% of the total each) in production, but Kern County has another 25,276 acres planted and will have nearly a fifth of the states bearing

acres before long.

## USDA Public Lands Guidelines

Washington State's Apiary Advisory Committee, the Bee Pasture Subcommittee and the Washington State Departments of Natural Resources and Fish and Wildlife worked out a suggested set of guidelines for using public and private lands for apiary locations. The guidelines are four pages long - too much for regurgitation in this newsletter. However, I would be happy to send a copy upon request, or you can get one from Jim Bach, Washington State Apiarist at (509) 225-2607 or at jbach@agr.wa.gov.

## Insecticidal Chalk

I remember a beekeeper asking me a long time ago if I knew where he could obtain some more insecticidal chalk for ant control around his hives. At that time, I had never heard of it. Since then, I actually have seen it in a few locations, but didn't think much about it.

The California Department of Pesticide Regulation just sent me a thick packet of material pertaining to insecticidal chalk and they want to get rid of it. Unfortunately, the products do not move through the normal pesticide channels and Miraculous Insecticide Chalk and Chinese Chalk show up in ads on the Internet, flea markets and ethnic grocery stories. The packaging does not carry a list or amount of active ingredients and in fact, contains high levels of lead and other heavy metals, itself.

The greatest fear is that children will get their hands on the chalk and eat it. That has happened a number of times. Secondly, you have no idea of what poison is there and how safe or unsafe it is just to touch the product. (You are instructed to draw a line and the insects that cross the line will be killed.)

If you happen to notice the availability of such a product, report the source to your County Agricultural Commissioner and Sealer of Weights and Measures. Or, call George Farnsworth in Sacramento, at (916) 445-3873.

## Pesticide Use Modeling

The following article, from the July 1999 issue of Sacramento Cooperative Extension's Tree and Vine Newsletter, explains how California's vast pesticide use database can be put to constructive use.

Pesticide Use and Residue Modeling in California by Debbie Browning. "As the agricultural community moves into the next century, we as growers, farm advisors, integrated pest managers, consumers, pesticide

manufactures, scientists and regulators are challenged with updating the way pesticide residue risks are determined in the state of California and across the country. These determinations could potentially change pesticide availability, value, cost and use practices.

In response to consumer concern over dietary exposure to pesticide residues, the Food Quality Protection Act was enacted in 1996. The act establishes a single standard for all pesticide residue tolerances in processed food and raw agricultural commodities. The Environmental Protection Agency (EPA) is tasked with determining whether tolerances are "safe", defined as "a reasonable certainty that no harm will result from aggregate exposure." The EPA must additionally consider cumulative risks from pesticides possessing a common mechanism of toxicity and determine if additional protection is required for infants and children. The EPA must also reevaluate all its past decisions about pesticide levels in food, using best possible science in risk assessment decisions.

This reevaluation process presents the opportunity to update the way pesticide residue risks are determined. As a graduate student at U.C. Davis, my challenge is to optimally utilize the wealth of pesticide use and residue data available in California. Consumers living in California are fortunate in that the state produces a large variety of fruits and vegetables with extensive pesticide use reporting requirements. California requires that all commercial agricultural pesticide applications be reported. As a state, California has been the nation's leader in the production of food and agricultural products for 50 years; it grows 55% of the nation's fruits, nuts and vegetables and produces nearly every product of the food alphabet. From this large and diversified crop region comes a variety of inexpensive produce and equally important, data ideally suited to pesticide residue modeling. No other state within the nation can boast such a large, extensive and comprehensive database that can be correlated with residue data gathered and reported by the Food and Drug Administration and the United States Department of Agriculture.

Initial correlation of use data to weather patterns, pest threats, application patterns, production requirements and historical knowledge develops a means of equating seasonal conditions with expected residues. Because weather, pests, machinery, and production requirements change year to year, modeling efforts

quickly become complex but simplification to a single commodity, single geographic location and single pesticide system is a reasonable starting point."

Sincerely,

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