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Note: The information provided on pesticide use below, is from other states and the pesticides may have no current Hawaii registration. Always read the label before making any pesticide applications.

1.0. Avaunt Insecticide (Florida)
Dupont Agricultural Products has received state and federal labels for its new reduced risk insecticide Avaunt. Avaunt offers growers broad-spectrum residual worm control with a unique mode of action. Worms exposed to Avaunt stop feeding in 0 - 4 hours providing excellent plant protection.

The product is labeled on broccoli, heading cabbage, cauliflowers, sweet corn lettuce, pepper and tomato for control of a variety of worms. It has a 12-hour REI and a 3-day pre-harvest interval. The complete label can be seen on the web at http://www.dupont.com/ag/us/prodinfo/prodsearch/information/H63941.pdf (Gene McAvoy, ed. Southwest Florida Pest and Disease Hotline, February 9, 2001)

2.0. Capture for peppers in Florida.
FMC is excited to announce that Capture 2EC insecticide/miticide provides a new tool is available for bell and specialty pepper growers. Capture 2EC is said to provide excellent pepper weevil control as well as worm and thrips control at 4.2 oz/acre. Broad and spider mites can be controlled at the 5.12 - 6.4 oz rate. Capture has a 24 hour restricted entry interval and cannot be applied within 7 days of harvest. The label permits application of no more than 12.8 oz per crop. Several growers have indicated good results on pepper weevil. (Gene McAvoy, ed. Southwest Florida Pest and Disease Hotline, February 9, 2001)

3.0. REIs for Roundup
4.0. Hungry, Helpful Insects Thrive on Special Fast-Food

Beneficial insects like green lacewings and big-eyed bugs are now easier and less expensive to rear indoors—thanks to a special fast-food recipe developed by an ARS scientist. The research-based formula for what's known as artificial diet is now being described as the most successful ever developed for indoor production of these helpful insects.

When set free in fields of corn or other crops, laboratory-reared lacewings and big-eyed bugs will find and make a tasty meal of whiteflies, bollworms, mealybugs and other notorious crop pests. By augmenting naturally occurring populations of their counterparts, the lab-reared insects can help reduce growers' reliance on chemical insecticides. That's according to the formula's developer, ARS entomologist Allen C. Cohen. And, because they rely on technologies other than chemical insecticides, the research is a boon to organic farmers, as well.

Beneficials reared on the Cohen cuisine are healthy and vigorous and produce more offspring than their counterparts too. They are up to 50 percent larger, and they typically mature earlier. Those are assets in outdoor living. Cohen, now based at the ARS Biological Control and Mass Rearing Research Unit at Mississippi State, Miss., did the research while with ARS at Phoenix, Ariz. Four U.S. companies currently hold licenses to use the patented concoction. They are Beneficial Insectary, Redding, Calif.; BioLogixs, Denver, Colo.; Buena Biosystems, Inc., Ventura, Calif.; and Oregon Freeze Dry, Inc., Albany, Ore. Cohen's formula resulted from his pioneering investigations of the beneficial insects' feeding biology and of the nutrient composition of their typical menu—eggs or innards of their hapless prey. Cohen's fare has a liverwurst-like texture and is a blend of meat paste, sugar, yeast and specially cooked chicken eggs. Though designed primarily for green lacewings and big-eyed bugs, the recipe can be slightly modified to nourish two other important beneficials—minute pirate bugs and ladybeetles.

Scientific contact: Allen C. Cohen, ARS Biological Control and Mass Rearing Research Unit, phone (662) 320-7524, fax (662) 320-0478, acohen@bcmrru.ars.usda.gov - ARS News Service, February 5, 2001

(Gene McAvoy, ed. Southwest Florida Pest and Disease Hotline, February 9, 2001)
5.0. Florida Agsafe Network - Safety Information for Florida’s Agricultural Safety and Health - Historically agriculture has had one of the highest injury and death rates among any of the major industries in the United States. This University of Florida site provides educational information for making agriculture a safer and healthier workplace. http://www.agen.ufl.edu/~clehtola/agsaferef.htm (Gene McAvoy, ed. Southwest Florida Pest and Disease Hotline, February 9, 2001)

6.0. MANAGING WESTERN FLOWER THRIPS (Arizona). The recent introductions of target specific insecticides for lepidopterous or aphid pests has given rise to thrips as a major economic pest in vegetables. Thrips become abundant in the spring when temperatures begin to warm up. On lettuce, thrips cause cosmetic damage to the cap leaves by scarring or giving a scorched or speckled appearance. Chemical control using Lannate* or Warrior* maintained thrips population levels without any significant reduction or causing flare-ups. Among the new products, Success* demonstrated efficacy nearly similar to Lannate or Warrior. On-going field tests are being conducted by J. Palumbo, UA Research Entomologist, in Yuma. (Kai Umeda, February 12, 2001, VEGETABLES NEWSLETTER Arizona, Maricopa County, vol. 8, issue 2,)

7.0. Herbicide Potpourri (Florida)

Several people have asked about specific herbicides in vegetables, and where they are in the labeling process. I will try to explain the situation on several herbicides as I understand them. You should keep in mind that the situation changes constantly.

DCPA. AMVAC now has the rights to Dacthal. They have told me that the new materials and labels will be in Florida by this coming Fall. I don’t know of any label changes for the old product.

Halosulfuron. Permit, Sempra, Sandea. Monsanto is marketing Permit and Sempra in Georgia, but only Sempra in Florida. It is labeled on sweetcorn, field corn, sugarcane, fallow land and turf. Gowan is labeling Sandea for use in vegetables. The cucumber and squash tolerance is approved. I would not recommend POST (emergence) applications on squash, due to phyto. The PRE label and plant-back tolerance, however, is there. The melon (muskmelon and watermelon) tolerance is at EPA as is the fruiting vegetable (tomato, pepper). The POST watermelon application for nutsedge control may have to be a third-party registration due to timing concerns.
Rimsulfuron. Matrix is labeled on potatoes and shadeout on processing tomatoes. DuPont is still not considering a fresh market tomato label.

Carfentrazone. Aim just received a sweetcorn label. It is a burn down product with only small residual control. FMC is assisting IR-4 in obtaining a tomato-pepper row middle label. Aim will control parathquat resistant nightshade as well as Eclypta and purslane. Carfentrazone is on a fast track with IR-4 and EPA.

Clopyralid. Stinger will soon receive a tolerance in matted row strawberries. The PHI (preharvest interval) will be 30 days. Dow is now talking to us and IR-4 to allow new residue trials to look at residue at 3 and 7 days PHI. Stinger may have to be a third-party registration in Florida.

Stinger is also at EPA for labels POST over all crucifers. Cabbage, collards and mustard tolerate applications very well.

Ethalfuralin. UAP is looking at a premix of curbit with clomozone. This combination should be safer on cucurbits as well as having a wider weed control range.

Oxyfluorfen. Goal is at IR-4 for application in strawberry row middles. Goal will burn down many broadleaf weeds as well as having good preemergence activity.

Clethodim. Labels should be coming from Valent for Select or Prism on a wider range of vegetables. Clethodim is a post-grass material.

Terbacil. Dupont is considering labeling Sinbar for pre-transplant under mulch in strawberries. A section 18 is in place for Sinbar use under mulch in transplanted watermelons in Delaware. This use is very safe on watermelons but not safe in any of the other cucurbits. The tolerance for this use is at EPA.

S-metolachlor. Metolachlor (Dual) labels and product are being replaced by the isomer S-metolachlor (Dual Magnum). Lower application rates should be used with Dual Magnum. With a little more testing, Dual Magnum is a candidate for a third-party label under mulch in pepper as a methyl bromide alternatives addition.

Glyphosate. Monsanto is applying to EPA to expand the Roundup label to include hooded sprayer application to row middles of several mulched vegetable crops.

With the consolidation of several herbicide manufacturers, the answers on labeling of herbicides on vegetables is very
speculative. Just remembering which product is owned by which company (if they have not sold it) is confusing.

Also, we have to watch and see how the new administration is going to handle the "pesticide" situation.

If anyone has heard any other good rumors on what is happening, I would be glad to hear from you.

(W.M. Stall, Univ. Florida Vegetarian Newsletter, Feb. 2001)

8.0. Disease Control – General Principles

For a vegetable plant to become diseased, several conditions must be present: a susceptible host plant, a pathogenic organism, a method of distributing the organism and the proper environment for the organism to exist, enter the plant and thrive. When all these conditions are met at the same time, infection can occur, and a disease agent can become established.

The choice of disease-control measures must be based on accurate knowledge of the disease, its life cycle and the time of infection, as well as the part of the plant involved, the method of agent distribution and certain economic considerations.

Effective control methods include:

Resistance: Many vegetable varieties are resistant to certain diseases. Use them whenever possible.

Avoidance: Avoid introducing plant pathogens into the field. Use certified, disease-free seeds and transplants. Do not transport soils or tools from diseased areas to disease-free areas. Rotate crops to disease-free fields to avoid buildup of pathogens in the field.

Eradication: The removal or plow down of diseased plants from the field, if practical, can help prevent the spread of some diseases to healthy plants.

Sanitation: Removal or plow down of old plant parts, weeds and trash is important to eliminate inoculum for the spread of the disease and new places for its development.

Pesticides: Approved disease-control pesticides should be applied, following label directions, for specific diseases. Applications should be directed at the plant parts attacked and must be applied at the proper time.
Insect and weed control: Many disease organisms persist in weed hosts or are spread by insects. Effective control of these pests also is an important part of a good disease control program.

In order to initiate timely disease-control practices, crops should be routinely inspected for developing diseases.

Growers should consider using integrated pest management (IPM) systems where appropriate. (Gene McAvoy, Southwest Florida Pest and Disease Hotline, March 9, 2001)

**Pest and Disease Detection**

The most critical part of any management program is detecting and identifying problems before they have a chance to cause serious injury. For insects and mites, this can be done by inspecting plants on a regular basis and/or using traps, sweep nets, or shaking to detect flying insects.

Different types of traps are available for different target pests. Yellow sticky traps may be used to detect winged aphids, thrips, and other pests, and. Pheromone traps that lure the males of specific pest species may be used in some field-grown vegetable crops; pheromone traps may be used to monitor pinworm populations in tomato fields, and are also used to monitor armyworm and tomato fruit worm populations.

Traps are usually placed just above the top of the crop canopy. The number of traps to use will depend upon your objectives and ability to inspect them. Traps should be inspected at least once per week, and counts or estimates made of pest numbers. Number the traps and keep records of trap locations and insect infestations. Once trapped, the pest insects must be identified. Recognition of these pests may take some training and a 10 or 15X hand lens for magnification, but it is very important to learn the general shape, size, and colors of the different pest groups. There are publications available that can help with the identification task. Plant inspection or scouting is more important than traps for most crops. Inspect plants in all areas of the field looking underneath leaves near the top, middle and lower parts of plants. The same hand lens used for trap inspection can be used for plant inspection. Keep records of the type of pests found, the number of plants infested, and the severity of infestation. The Florida Tomato Scouting Guide is an excellent reference and contains a sample of a general scouting form. It can be seen on-line at HTTP://FTSG.IFAS.UFL.EDU/

9.0. Flint use on cucurbis

Flint in Hawaii
Memo from Bayer from March 28, 2001: Memo to advise users that Flint WG is not registered in Hawaii. Preliminary reviews by the Hawaii DOA requests that Flint needs to be listed as a Hawaiian Restricted Product. However, worldwide and all other US markets, Flint is currently registered and sold as a Non-restricted pesticide. Bayer desires to maintain the Non-Restricted category for Flint and is corresponding with the Hawaii Agricultural Department. If you have a need to obtain Flint fungicide for disease control on cucurbits and tomatoes in Hawaii please contact myself (Ed Ishida at 805-647-6623, fax, 805-647-2447, e-mail edishida@pacbell.net) and the Hawaii Agricultural Department (Ed Ishida, memorandum from Bayer, March 28, 2001).

Flint in New York
I have evaluated Flint for mildew on cucurbits, and have read several University efficacy trial reports. From what I've seen, it is either as good or better than Quadris (the first strobilurin fungicide registered on veggies). It is cheaper. However, it is not as broadspectrum as Quadris, which is also efficacious for gummy stem blight, anthracnose, and Alternaria leaf spot. I have been suggesting to growers that they use Flint when other diseases aren't a concern to save some $. Both materials will move to the underleaf surface so coverage is not a problem. For anyone who's interested, I have written for a grower audience a guidelines on managing mildew on cucurbits (assuming this is preferred to filling up everyone's mailbox with unwanted attachments!). This will soon be put on the Veg MD web site (http://vegetablemdonline.ppath.cornell.edu/Home.htm). (Meg McGrath <mtm3@cornell.edu, e-mail, Fri, 9 Mar 2001)

Early article on Flint, Florida 1999
Another new strobilurin in the registration process is trifloxystrobin (CGA-279202), developed by Novartis and now under the trade name Flint. (Flint is not currently registered for use in the U. S.) This compound has activity against powdery mildews, anthracnose, alternaria leaf spot and gummy stem blight on cucurbits, and against early blight, late blight and anthracnose on fruiting vegetables. (Gene McAvoy, South West Florida Pest and Disease Hotline, Hendry County CES, January/February 1999)

Flint, New Fungicide for Cucurbits (Ohio)
Flint is a new broad spectrum fungicide for control of Powdery Mildew and Downy Mildew in cucurbits (chayote, Chinese waxgourd, citron melon, cucumber, gherkin, edible gourds, muskmelon, pumpkin, summer squash, winter squash and watermelon). Flint may be applied up to the day of harvest but do not apply more than 16 oz of Flint per season. Do not exceed more than 4 total applications. Quadris and Flint are fungicides of similar chemistry and they are to be rotated with other fungicides of different chemistry to control development of fungicide resistance to their family of
NEW FLINT FUNGICIDE REGISTERED FOR USE ON GRAPES, POME FRUIT AND CUCURBIT VEGETABLES

A. H. Tally, Novartis Crop Protection.

FLINT™, a new foliar fungicide from Novartis Crop Protection, Inc., has been registered by the Environmental Protection Agency for use on grapes, pome fruit and cucurbit vegetables. Registration is pending in California and New York, and Novartis anticipates registration in California in time for the 2000 use season. On pome fruit, FLINT will offer both preventive and curative control of fruit and foliar scab, preventive control of sooty blotch and flyspeck, and suppression of bitter rot and white rot. Trials show FLINT gives pome fruit growers more disease control, including up to 100 hours of post-infection control of foliar and fruit scab, and seven- to ten-day residual control of scab and other diseases. On grapes and cucurbit vegetables, FLINT will help growers reduce the number of applications needed to protect the value and quality of their crop. FLINT is registered for control of powdery mildew and black rot on grapes, and control of powdery mildew on cucurbits. Trifloxystrobin, the active ingredient in FLINT, works several ways to help protect yield and quality because of a unique activity that Novartis calls mesostemic, or "locked-in." Locked-in means the fungicide has a high affinity for the plant surface and is absorbed by the waxy layers of the plant. It redistributes at the plant surface by superficial vapor action and redeposition. It also penetrates plant tissue with translaminar activity, but there is little or no movement within the vascular system of the plant. This locked-in activity combines key attributes of both protectant and systemic products, locking in long-lasting disease control. FLINT is highly effective in controlling spore germination, but where germination is successful FLINT will arrest fungal growth at later stages of the disease cycle. This dual level of activity facilitates effectiveness and duration of control. FLINT has been designated as a Reduced Risk compound. The fungicide fits with Integrated Pest Management programs due to its low use rates, excellent crop safety and the fact that it is harmless to a wide range of beneficial organisms. FLINT also provides excellent resistance-management potential, and shows no cross-resistance with fungicides of other chemical classes. And the fungicide has very favorable human and environmental safety profiles. For more information about FLINT, contact your pest control advisor, extension worker or local Novartis Crop Protection sales representative. Important: Always read and follow label directions before buying or using this product. FLINT is not currently
registered for use or sale in California and New York. FLINT and the Novartis logo are trademarks of Novartis.

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