May 2002

Note: The information provided on products/pesticide use below, is from other states and thus the products may have no current Hawaii registration. Always read the label before making any product/pesticide applications. Due to environmental effects the effectiveness of particular products may also vary across locations.

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1.0. Opportunity for Native Hawaiians to attend UHM 2 wk summer program and receive scholarship

Aloha CTAHR Ohana!

We are presently accepting applications for students of Native Hawaiian ancestry that are presently high school juniors and seniors for a 2-week summer program highlighting experiences leading to careers in the food and agricultural sciences and technology. Seniors accepted to this program must also be accepted to UHM and major in a program at CTAHR. They will each receive a $5000 scholarship to CTAHR for the 2002-2003 academic year. The program is sponsored by a USDA grant for Native Hawaiian serving institutions.

Attached please find a flyer giving details. Please encourage any student you know that may qualify to apply.

Mahalo and aloha, Marlene Hapai Phone: (808)956-6997 FAX: (808)956-3706 email: hapai@hawaii.edu Academic and Student Affairs Website: http://www2.ctahr.hawaii.edu/acad/ (Marlene Hapai, e-mail, April 9, 2002).

2.0. Sandea Herbicide SLN for cucurbits in Ohio

Ohio 24c, Sandea for Weed Control in Cucumbers, Pumpkins, Winter Squash, Cantaloupes, Honeydew Melons and Crenshaw Melons (R. Precheur)

A special local need registration for SANDEA (Halosulfuron- methyl) has been issued in Ohio. Sandea is a selective herbicide for the control of listed broadleaf weeds and nutsedge.
Sandea Herbicide may be applied to cucumbers, winter squash, pumpkins, cantaloupes, honeydew melons and crenshaw melons, however the user assumes responsibility for such use. All hybrids/varieties have not been tested for sensitivity to Sandea Herbicide. Any plant injury arising from the use of Sandea is the responsibility of the user.

This label must be in the possession of the user at the time of pesticide application. You can download this label, see information below.

WEEDS CONTROLLED BY SANDEA with a Pre-emergence application only of 1/2 to 1 oz/Acre include: Common Cocklebur, Galinsoga, Jimsonweed, Kochia, Common Lambsquarter, Wild Mustard, Redroot Pigweed, Smooth Pigweed, Wild Radish, Common Ragweed, Pennsylvania Smartweed, Common Sunflower, and Velvetleaf. Suppression only of Yellow Nutsedge and Purple Nutsedge.


Note: control is dependent on height of weeds and rate applied at time of application. See the label for specific details. Heavy infestations of nutsedge may require sequential applications. An earlier treatment maybe required to prevent nutsedge from competing with the crop. See the label for specific information on application rates and timing for each crop.

USE PRECAUTIONS include: (see label for complete list)
Do not apply Sandea using air assisted (air blast) field crop sprayers.
Do not apply this product through any type of irrigation system. Heavy rainfall and/or excessive irrigation soon after application may cause crop injury. This potential injury can be enhanced if seeding depth is too shallow.
Under cool temperature conditions that can delay early seedling emergence or growth, Sandea can cause injury or crop failure. Be
especially cautious during first planting of season when this condition is likely to occur. Sandea may delay maturity of treated crops. Follow all recommended crop rotation intervals as listed in this label. Sandea should not be applied if the crop or target weeds are under stress due to drought, water saturated soils, low fertility (especially low nitrogen levels) or other poor growing conditions.

Do not apply Sandea to crops treated with soil applied organophosphate insecticides.
Do not apply an organophosphate insecticide within 7 days before or 3 days after any Sandea application.
PHI's range from from 30 to 57 days depending on crop. Time Intervals Some time intervals before planting in months after treatment with Sandea are listed below. A complete list is provided in the label.

Normal Field Corn 1, Barley (winter) 2, Forage Grasses 2, Grass Grown for Seed 2, Oats 2, Proso Millet 2, Rye (winter) 2, Seed corn 2, Sorghums 2, Spring cereal crops 2, Wheat (winter) 2, Popcorn, Sweet corn 3 Tomato (transplant) 8 Alfalfa 9, Clovers 9, Dry Beans 9, Field Peas 9, Peas 9, Potatoes 9, Cucumbers, Pumpkins, Squash 9, Snap Beans 9, Soybeans 9 Peppers 10 Eggplant 12, Radish 12. Cabbage 15, Canola 15, Carrot 15, Mint 15 Broccoli, Cauliflower, Collards 18, Leeks, Onions 18, Lettuce crops 18, Sunflowers 18 Sugarbeet (Ohio only) 21, Sugarbeet and Red Beet 24, Spinach 24 (Robert Precheur, ed, Ohio State University Extension Vegetable Crops, VegNet, Vol. 9, No. 4. April 11, 2002)

3.0. Pepper fungicide update (Ohio)

Pepper Fungicide Update (Sally Miller)
There are relatively few fungicides labeled for use on peppers. As a minor crop, peppers have not presented a terribly exciting commercial opportunity to the major chemical companies. Since the EPA is now labeling reduced risk fungicides based on "crop groupings", some fungicides are being labeled for peppers along with tomatoes and other members of the "Fruiting Vegetable" grouping. Below is an update on fungicides labeled for use on
peppers. Please be sure to check the label for specific applications on your farm. A very good source for pesticide labels and MSDS information is http://www.cdms.net/pfa/LUpdateMsg.asp. Before using any of these products in the greenhouse, check the label. Some, such as Flint(r), are expressly NOT permitted to be used in the greenhouse.

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Manufacturer</th>
<th>Diseases Controlled (C) or Suppressed (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*,+ Quadris(r)</td>
<td>Syngenta</td>
<td>Powdery mildew(C), Flowable Crop Protection Anthracnose(S)</td>
</tr>
<tr>
<td>*,+ Flint(r)</td>
<td>Bayer</td>
<td>Powdery mildew(C) Crop Protection Anthracnose(S)</td>
</tr>
<tr>
<td>Microthiol Disperss(r)</td>
<td>Cerexagri, Inc.</td>
<td>Powdery mildew(S)</td>
</tr>
<tr>
<td>* Cuprofix</td>
<td>Disperss(r) Cerexagri, Inc.</td>
<td>Bacterial leaf spot (BLS)(S)</td>
</tr>
<tr>
<td>Maneb 75DF/80WP</td>
<td>Cerexagri, Inc.</td>
<td>Anthracnose(S), Cercospora, Phytophthora blight(S), combine with copper formulations for BLS (S)</td>
</tr>
<tr>
<td>Manex(r)</td>
<td>Griffin L.L.C.</td>
<td>Anthracnose(S), Cercospora, Phytophthora blight(S), combine with copper formulations for BLS (S)</td>
</tr>
<tr>
<td>Ridomil Gold(r)EC</td>
<td>Syngenta Crop Protection</td>
<td>Phytophthora blight(S),</td>
</tr>
<tr>
<td>Ridomil Gold(r)</td>
<td>&quot;</td>
<td>Pythium damping-off and root rot(C)</td>
</tr>
<tr>
<td>Other copper</td>
<td>Various</td>
<td>BLS(S), others(S) formulations</td>
</tr>
</tbody>
</table>
4.0. ASSAIL New Insecticide (Ohio)

New Insecticide (C. Welty)

Aventis CropScience has announced the federal registration of Assail, a new insecticide for control of aphids, whiteflies, and Colorado potato beetle in fruiting vegetables (tomato, pepper, eggplant), cole crops (cabbage, broccoli, collards, kale, mustard greens), and leafy vegetables (leaf lettuce, endive, parsley, spinach), as well as apples. The pre-harvest interval is 7 days and the re-entry interval is 12 hours. It is a general use product, not restricted use. The active ingredient in Assail is acetamiprid. This AI is in the neonicotinoid family, which also includes Provado and Admire. Assail is formulated as a 70 WP and use rates are 0.8-1.7 ounces of product per acre. (Robert Precheur, Ohio State University Extension Vegetable Crops, VegNet, Vol. 9, No. 3. March 27, 2002)

5.0 New crops labelled for use of MUSTANG

New Crops for Mustang Insecticide (C. Welty)
FMC Corporation has a revised label for Mustang that shows new registration on fruiting vegetables (tomato, pepper, eggplant) and legume vegetables (beans, peas), as well as soybeans and wheat. Mustang is a pyrethroid that has the active ingredient zetacypermethrin. Target pests on fruiting vegetables include European corn borer, corn earworm, cutworms, cabbage looper, Colorado potato beetle, flea beetles, and stink bugs. Target pests on legume vegetables include bean leaf beetle, Mexican bean beetle, and potato leafhopper. The pre-harvest interval is 1 day on fruiting vegetables, 1 day on succulent beans and peas, and 21 days for dried beans and peas. The re-entry interval is 12 hours. The formulation is 1.5 EW (emulsion in water), which is a water based formulation with no solvents in it. The use rate for most pests is 2.4 to 4.3 fluid ounces per acre. (Robert Precheur, Ohio State University Extension Vegetable Crops, VegNet, Vol. 9, No. 3. March 27, 2002)

6.0. Manure, fertilizers and water pollution

Animal Waste and Fertilizer from Large Farms Are Polluting City Waters, Oceans
Animal waste and fertilizer from large farms are polluting urban and suburban waterways, drawing new scrutiny to the farm bill, according to The New York Times (February 10, 2002). Huge livestock feedlots and farm fertilizer runoff are also among the fastest-growing sources of pollution in oceans. "Across the country, metropolitan water agencies are battling increasing pollution from the countryside," the article said. "As a result, the $171 billion, 10-year farm bill, once seen as a parochial issue for rural lawmakers, has been scrutinized by members of Congress from urban and suburban districts who realize that...agriculture has implications beyond the grocery store." (Henry A. Wallace Center for Agricultural & Environmental Policy at Winrock International, Alternative Agriculture Newsletter, March 2002).

7.0. Good Agricultural Practices

GAP'S. The most important habit to pick up or improve upon is to document "good agricultural practices" on the farm. Record
Keeping is critical to ensuring food safety in today’s complex food production, handling, transportation, and marketing system. Potential sources of microbial contamination of fresh produce include soil, water, animals (wild and domestic), manure, and poor worker hygiene. Regular soil and water test results help to provide proof of detectable levels of microbes. Records that exhibit physical habitat modification to prevent or exclude rodent, bird, or other animal invasions will facilitate audits. Employee training sessions about food handling and behavior to ensure proper hygienic practices should be documented. These critical practices can be recorded on a spreadsheet on a desktop or portable laptop computer or "pocket rocket" handheld computer or written manually in a daily calendar that can be saved and filed. More information about GAP’s are at: http://www.gaps.cornell.edu/index.html . (Kai Umeda, Arizona State Univ, CES Maricopa County VEGETABLES NEWSLETTER, vol IX, issue no. 3, March 8, 2002)

8.0. Stimplex Growth Regulator

(Article from Veg West Magazine)
Agtrol International has added a new class of plant growth regulators to its line of gibberellic acid-based plant growth regulators (PGR), cytokinins. Agtrol has acquired from Acadian Seaplants Limited of Nova Scotia, Canada, the exclusive U.S. marketing and development rights to Stimplex Plant Growth Regulator. The active ingredient in Stimplex is a family of plant growth hormones called cytokinins. Cytokinins impact critical cellular processes such as cell differentiation and division, and are essential to all stages of plant growth from root and bud formation to stem and leaf development. Stimplex is currently registered for use on over 80 crops with further additions pending. Stimplex can be used on fruits, vegetables, field crops, cotton, turf, ornamentals and other specialty crops. Stimplex benefits plant growth and development at the cellular level helping produce healthier, more productive plants. Increased yields, earlier maturity, enhanced fruit size and overall improved quality are just a few of the crop benefits Stimplex provides.
Acadian Seaplants and Agtrol International have joined forces to expand marketing resources and opportunities. Agtrol will assume sales and marketing responsibilities for Stimplex sales in the U.S., and the two companies will work together on the development of new E.P. A.-registered products. Agtrol's gibberellic acid expertise combined with Acadian's cytokinin innovations present several areas of opportunity. In addition to PGR responses, Stimplex also enhances Systemic Acquired Resistance (SAR) properties demonstrated by the plant's improved resistance to environmental stress (as indicated on the Stimplex product label). Agtrol International and Acadian Seaplants plan to investigate this area further with extensive field trials slated for this year.

Since 1989, Acadian Seaplants has conducted research on the PGR and SAR properties of their unique cytokinin products in cooperation with leading international research institutions and universities in over 20 countries around the world including the National Research Council of Canada. Acadian Seaplants has received industry and government recognition for its achievements in these areas, including a National Citation for Excellence in Technology and Innovation from the Canadian Entrepreneur of the Year Institute and a Canada Export Award. In recognition of the company's exemplary ecological and resource management practices, Acadian Seaplants was presented with the Nova Scotia Environment Award.

Acadian Seaplants is a diversified, technology-based manufacturer of natural, specialty fertilizers, crop biostimulants, feed, food and food ingredients with exports to over 65 countries throughout the world. Agtrol International is a privately held growth company with business operations in the U.S., China, France and Latin America. Global revenue in 2000 was approximately $75 million with superior earnings for the segment of which it operates. Its primary focus is in fungicide and plant growth regulator products in the high-value fruit, citrus, potato and vegetable markets (Vegetables WEST Magazine, August 2001, pg. 19).

9.0. Knack for whitefly control
Growers of fruiting vegetables will no longer need to wait for relief from whitefly infestations. The EPA has approved the use of Knack insect growth regulator, a Valent U.S.A. product, for use on tomatoes and peppers. Knack was put to the test under Section 18 emergency use exemptions in Florida in 1998 and 1999. The Florida Department of Agriculture and Consumer Services has approved a Special Local Needs registration for the current growing season.

"Knack is a totally different chemistry from what growers have been using for control of whitefly in tomatoes and peppers. The effectiveness of Knack from the Section 18 usage probably contributed to the EPA's Section 3 registration process taking only 15 months," says John Aleck, product development manager for Valent U.S.A. Corporation. Knack attacks whitefly nymphs before they can mature by manipulating their growth system, keeping them immature. In addition, Knack prevents egg hatch by direct contact with the egg and also through sterilization of the female adult when she comes in contact with or feeds on treated plant material. Pyriproxyfen, the active ingredient in Knack, interrupts embryogenesis reproduction and larval development. "Immature whiteflies die when they reach their final nymphal stage, and the female whitefly lays sterile eggs that don't hatch-all because Knack was used," Aleck says. Knack can be tank mixed with other insecticides if pests other than whiteflies exist. According to Aleck, "Knack is toxicologically a relatively safe compound with a reduced-risk classification." For more information about Knack, visit the Valent Web site at http://www.valent.com. (Crop Production Magazine July 2000, pg. 6.)

10.0. Platinum, Actara, Assail, Calypso insecticides (Arizona)

NEW CHEMISTRIES FOR X-COMMODITY PEST MANAGEMENT. The development and introduction of new insecticides for desert vegetable and melon production presents new challenges for integrating these new products into cost effective pest management strategies. Compounds can be described as reduced risk and/or organophosphate alternatives that present favorable ecological and toxicological profiles. Products that target sucking insects (e.g. aphids and whiteflies) include the chloronicotinyl chemistry related
to Admire*. Thiamethoxam is effective against aphids, whiteflies, thrips, leafhoppers, and some beetles. It can be applied to the soil as Platinum* or to the foliage as Actara*. Assail* is effective against aphids and whiteflies when applied foliarly on cotton, leafy vegetables, fruiting vegetables except cucurbits, cole crops, and some citrus and pome fruits. Thiacloprid (Calypso*) is another aphid/whitefly product that has pending registrations on melons, vegetables, and cotton. For desert whiteflies, the use patterns for these similar chemistry products will need to be coordinated to avoid overlapping and multiple applications on adjacent or subsequent crops on multiple generations of whiteflies and aphids. (Kai Umeda, Arizona Coop. Ext. Serv, Maricopa County, VEGETABLES NEWSLETTER vol IX, issue no. 4, April 12, 2002).

11.0. Worms in cucurbits (Florida)

Melonworms and pickleworms are widely present on cucurbits around Immokalee. Melonworms are being seen widely on cucumbers, squash and cantaloupe while pickleworms are causing serious damage to squash in some places.

Growers and scouts in Palm Beach report problems with pickleworms in young cantaloupe and squash.

Reports from Homestead indicate high populations of melonworm on squash and cucumbers.

Both caterpillars attack only cucurbits. Although the pickleworm prefers summer squash, it may severely damage cucumber and cantaloupe also. The melonworm prefers foliage of muskmelon, squash, and cucumber. It very rarely attacks watermelon.

The pickleworm (Diaphania nitidalis) moth has pale yellow hind wings with a wide, dark brown border and a large, pale yellow spot near the center of each dark brown forewing. A cluster of dark brush-like hairs is present on the tip of the abdomen. The newly hatched pickleworm larva is almost colorless except for slightly darker jaws and a black spot on each side of the head. Third and
fourth instar larvae are about 6 to 12 mm long and pale yellow with dark spots, each spot containing a large bristle. The dark-headed fifth instar larva has a yellow-green body with no spots and may be 1 – 1/2 inch long.

**The melonworm** (*Diaphania hyalinata*) moth has a brown head and a white-tipped abdomen with bushy hair-like scales. Its white wings have a narrow dark band around the margin and span up to 43 mm. The larval stages have two dorsal white stripes running the length of the body otherwise; they resemble the pickleworm larvae can grow 1 inch long.

**The most important economic damage caused by the pickleworm is to the fruit.** Young pickleworms usually feed for a time among small leaves at the growing tips of vines or within blossoms. A favorite place is the large staminate flowers of cucurbits where larvae hide under the ring of stamens at the base of flowers. When about half grown, pickleworms normally bore into the sides of fruits or stems and continue to feed there, causing internal damage and producing soft excrement. Both young and old fruits are attacked, but they prefer young fruits before the rind has hardened. After the rind has been punctured the fruit soon becomes "sour".

**Insecticide applications should begin immediately when pickleworms or their damage appears.** More frequent applications may be needed if populations and temperatures are high. Apply in early evening to minimize bee kills.

**Application equipment that ensures good spray coverage** (hollow cone nozzle with drops and high-pressure 200+ psi) to developing fruit will improve control.

**In North Carolina, experiments in the field have shown very distinct differences in the susceptibility or resistance of squash varieties to pickleworms.** The more resistant varieties were Butternut 23, Summer Crookneck, Early Prolific Straightneck, and Early Yellow Summer Crookneck. The more susceptible varieties are Cozini, Black Zucchini, Caserta, Zucchini, Short Cocozella and Bennings Green Tint Scallop. Many other varieties tested fall between these groups.
Reports from Homestead indicate that pressure from 
worms of all types is heavy now, melon worms on 
squash/cukes, loopers, armyworms, etc. on other crops.

Respondents in Palm Beach indicate that worm 
infestations, namely loopers, beet armyworms, and 
Southern armyworms, have begun to increase. Scouts report 
seeing an increase in egg masses and increases in larvae up to the 
2\textsuperscript{nd} and 3\textsuperscript{rd} instar.

Around southwest Florida, worm pressure remains fairly low with 
scattered reports of mainly southern armyworm activity in some 
places.

Some pinworm activity is being reported around southwest Florida. 
At present, numbers remain low and most activity is confined to the 
edges of fields.

On the east coast, scouts are reporting a few spotty infestations of 
pinworms in eggplant and tomato. Growers are advised to begin 
applying controls once thresholds of 5 adults per trap per night are 
observed. (Gene McAvoy, Univ. Florida, SOUTH FLORIDA VEGETABLE 
PEST AND DISEASE HOTLINE, April 1, 2002)

12.0. Fruit Corner: Fire ant control in citrus (Florida)

Citrus growers have an effective tool for controlling red imported 
fire ants (Solenopsis invicta). Clinch ant bait from Novartis Crop 
Protection is registered in Florida for use on both bearing and non-
bearing citrus. Clinch is a formulation of abamectin on pregelated, 
defatted corn grits.

Clinch offers long-term control in two ways. First, it acts as a 
stomach poison on worker ants. Second, the worker ants spread the 
active ingredient throughout the colony and to the queen. After 
ingesting the poison, the queen is unable to produce viable eggs. 
With no new worker ants, the colony soon collapses.
Clinch should be applied under dry conditions when ants are actively foraging. A reduction in the colony should be observed in three to five weeks with a single application. Total elimination of the colony may require four to six months.

For more information about Clinch, contact your crop consultant, extension agent or local Novartis Crop Protection representative, or visit the company's Web site at http://www.cp.novartis.com/. (Crop Production Magazine July 2000, pg. 6.)

13.0. Thrips (Florida)

Respondents in Palm Beach report that flower thrips are on the increase and are being found in pepper and tomato blooms. Some reports indicate that populations had reached 2 - 3 per bloom but were knocked down with a single application of SpinTor. Growers are seeing some dimpling and minor scarring on young fruit. A few T. palmi have been found in pepper with some noticeable foliar distortion in pepper at or near first and second pick.

Growers and scouts in southwest Florida report that thrips activity has been on the rise, especially in the past two or three days. Several farms have very high numbers of flower thrips blowing around and have reported counts 5 - 10 per bloom in both pepper and tomato. There have been few reports of crop damage so far but high numbers can cause bloom drop.

Reports from Homestead indicate that Thrips palmi remain high on most crops, especially beans, pepper, and eggplant. Thrips infest damage on vegetable crops when feeding and laying eggs. Damage from egg-laying is most common in species that infest blooms such as Florida flower thrips Frankliniella bispinnosa. When the eggs are inserted into the pistil walls, scars develop when the fruit expands. In some fruiting vegetables dimple scars develop when the fruit are fully matured. In tomatoes, such scars may result in uneven color development at maturity. Feeding injuries occur on both fruit and foliage. Thrips infesting blooms typically lay their eggs in the pistil or other
flower parts. By the time the larvae hatch, the petals and anther have often dried and fallen. Larvae in such circumstances seek shelter under the fruit's calyx. Several generations of thrips can feed and develop under the calyx of pepper fruit, damaging immature tissues that develop corky or leathery blemishes with maturity. Melon thrips tend to utilize more of the host plant than other species that occur primarily in the blooms. In peppers and eggplants, Thrips palmi affects both fruit and foliage. The greatest damage occurs when thrips become established in the blooms, and lay eggs around the calyx. Thrips feeding under the calyx of the expanding fruit cause the characteristic scars, which may affect a sizable part of the fruit wall. In crops, such as snap beans and most of the vine crops, feeding on the foliage causes damage. Foliar feeding often begins inside the tightly rolled leaves at the growing points of the plant. Larvae and adults soon appear on the undersides of the expanding leaves. The combined effect of feeding damage in the growing point and on young leaves can severely stunt and distort sensitive crops, such as peppers. (Gene McAvoy, Univ. Florida, SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE, March 15, 2002).

14.0. Late Blight (Florida)

Late blight has moved out of Devils Garden and is now widespread on tomato east of Highway 29 in Hendry and Collier Counties. Incidence and severity is low to moderate. There have been no finds of late blight on potato in southwest Florida nor has any late blight been reported in Palm Beach or Homestead. Reports out of the Manatee/Ruskin area indicate that late blight is widespread. Preliminary diagnostic testing indicates that samples taken from Devil’s Garden and around Immokalee is likely the US-17 strain. Dr Pete Weingartner: Plant Pathologist with UF/IFAS reports that US-17 is usually quite aggressive on tomato and also attacks potato, but less aggressively than tomato. Although a few growers have indicated that the late blight situation appears to be in check, Dr Weingartner advises that even if late blight appears to be "in check" this could simply be a short-term
lull in the storm. He indicates that we have ideal conditions for the development after dark nearly every night in southwest Florida... nighttime temperatures in the 60's, high humidity, and heavy dews. He writes that in a sense, bacterial spot might be a salvation because spraying for it is probably inadvertently controlling late blight. Since late blight symptoms may be confused with symptoms of other diseases, the following diagnostic pointers may help growers distinguish between the late blight and other diseases. Late blight symptoms on leaves appear as irregularly shaped brown to purplish lesions with indefinite border lesions can span veins. The lesions may be seen any time of day, on any stage of plant growth and on leaves of any age. Velvety, white fungal growth may appear on the lower surface of affected leaflets early in the morning before leaves dry and/or in the lower canopy. On stems, purplish lesions may be seen any time of day and may be found anywhere on the stem. Cottony, white growth of fungus on stems with lesions can often be seen early in the morning and/or in the lower canopy. Stems with lesions are brittle and break easily. Lesions are confined to epidermis and cortex. Leaf rolling and wilting is often associated with stem lesions and purpling of leaflets may occur in some varieties. Currently fungicides are the most effective means of controlling late blight and will remain the primary tool until cultivars with resistance to this disease become available. Trials at UF and elsewhere have shown that products like Mancozeb and Bravo are as effective on late blight as anything else. Fungicides slow the rate at which the disease develops in the field by creating a protective barrier on the foliage. Just applying a chemical, however, does not necessarily equate with effective disease control. The relative effectiveness of a product, coverage, and timing must be factored into the equation for maximum benefit. Although growers have been able to effectively control late blight by sanitation, cultural methods and judicious use of fungicides. This situation became more complicated in recent years by the development of resistance to certain fungicides such as metalaxyl. Dr Weingartner notes that all the late blight isolates we have tested from Immokalee in the past couple of years have been resistant to Ridomil. Growers should be aware of this problem and be careful to incorporate
fungicides with diverse modes of action into their spray programs. (Gene McAvoy, Univ. Florida, SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE, March 15, 2002).

15.0. Organic Insecticide: Garlic Extract

"Both the U.S. Environmental Protection Agency and Cal-EPA have approved Allityn, a new concentrated garlic extract product from Helena. Compared with other garlic products that contain from 5 percent to 20 percent garlic extract, Allityn contains 50 percent. Each gallon contains 4.25 pounds of garlic extract. The new concentrated formulation means that growers now have an efficient, economical source of garlic that requires fewer containers and less storage, according to Helena. Allityn is produced using the latest extraction and separation technology, which results in a uniform, reliable formulation. Allityn is registered as an insect repellent. It can be applied alone or in a tankmix with insecticides or nutritional products to improve pesticide performance and nutrient uptake. It contains no synthetic chemical active ingredients or inerts, is completely biodegradable and is approved by the Organic Materials Research Institute. It can be used to repel a variety of insects on most vegetables, field crops, tree crops, stone fruit, small fruits and berries, and ornamentals" (from: Chemical Updates, The Grower Magazine, October 2000, pg. 26).

16.0. Heirloom Tomatoes Cultivars (Vermont)

HEIRLOOM TOMATO VARIETY TRIAL Heirloom tomatoes are increasingly popular. Here is a summary of a variety trial conducted by Jeremy Plotkin, who evaluated 38 varieties in western Mass, with funding from Northeast SARE and Mass NOFA. Contact me for a copy of the full report with tables showing all yield results.

The black tomato varieties had the best flavor of any of the tomatoes, but for some reason they performed well at one location but not the other. Cherokee Purple and Black Prince both had good flavor and uniformity. Black Plum and Russian Black both had high yields but small fruits and unremarkable flavor.
Among the yellow to green tomatoes, Green Pineapple had beautiful fruit, great flavor, and high yields. Tasty Evergreen and Green Zebra were dependable and flavorful. Garden Peach and Plum Lemon had distinctive appearance though flavor was not the best. Yellow Brandywine and Aunt Ruby's Green were low-yielding and inconsistent in appearance.

The yellow-orange tomatoes Nebraska Wedding, Moonglow, Russian Persimmon, and Amana Orange were all similar in appearance, being relatively round, defect-free, and a nice bright orange color. Golden Sunray was a strange off-orange color, and inconsistent shape. Elberta Girl was supposed to be a striped tomato, but came out practically identical to Garden Peach: pale yellow, small and fuzzy, with pleasant but not dramatic flavor.

Striped tomatoes were the highest yielding tomatoes, but the large fruits can be hard to sell at a premium retail price. Marizol Gold, Striped German, Northern Lights, Hillbilly and Pineapple were similar in flavor and appearance. Georgia Streak turned to be an orange tomato with no stripes and inconsistent appearance. Gold Medal had less distinct stripes than the other varieties, but had a uniform appearance.

Pink tomatoes were less affected by the drought than other types. Eva's Purple Ball had good flavor and yield and was very consistent. Caspian Pink was also free of defects, and had the highest yield, but less flavor. Pruden's Purple was the best of the pink beefsteaks.

Tomatoes of several colors were also grown an unheated high tunnel. First harvest was 3 weeks earlier than field tomatoes, and the early harvests were heavier than in the field. Fruit quality was higher and cull rates lower than in the field. Most varieties did well in the hoophouse, with yields as follows (lb/100 sq ft): Persimmon (135), Marizol Gold (119), Black Plum (113) Nebraska Wedding (111), Green Zebra (100), Moonglow (94), Gold Medal (79). Tigerella had decent yields (94) but was uninteresting in appearance and flavor. Cherokee Purple (50) and Black from Tula (48) were lower-yielding than they had been in previous seasons. (Vern Grubinger, ed. VERMONT VEGETABLE AND BERRY NEWS, April 1, 2002)
17.0. Herbicides can contaminate compost

HERBICIDE RESIDUES CAN CONTAMINATE COMPOST  (adapted from Washington State Univ. press release)

In 2001, a new source of contamination, clopyralid, was discovered in compost in Washington and Pennsylvania. This is the active ingredient of an herbicide sold as Confront for use in turf, Curtail for use in cereal grains, Stinger for use in sugar beets, mint, and asparagus, Lontrel (Canada) for use in strawberry, blueberry, and balsam fir Christmas trees, and other formulations. This chemical is persistent and can pass through animals and through the composting process with little breakdown. Warnings on the label say not to use treated crops for mulch or compost in the year of application. Studies indicate the toxin can remain active after two or more years of aggressive composting. So, be careful if you make compost using grass clippings, grass hay or straw from unknown sources. Contamination can also occur from livestock bedding that includes treated material or from manure if treated crops have been fed to livestock.

Clopyralid is extremely toxic to legume crops such as peas and beans, tomatoes, potatoes and sunflower at levels of about 10 parts per billion (ppb) or less. This level is 100 times lower than the tolerance allowed on asparagus, 50,000 times lower than the tolerance allowed on grasses, and 300 times lower than allowed on barley grain. These tolerances are seldom seen in the real world, but these allowable levels point out the potential for inadvertent contamination to sensitive crops. Because of the relatively high tolerance allowed for human safety, most labs do not routinely measure clopyralid below 50 ppb. Consequently, potentially-injurious levels in straw, hay, compost, and other residuals are often not detected. The simplest way to know if your compost is safe for crops is to test it ahead of time by growing several sensitive species in 'bio-assay' plantings. For more information see links from: www.grrn.org/dow/background.html (Vern Grubinger, ed., University of Vermont Extension, VERMONT VEGETABLE AND BERRY NEWS, April 15, 2002)
18.0. LEGUME INOCULANTS - SOME ARE GMOs

(adapted from Tails and Tassels, New York Certified Organic, Inc. newsletter)

To assure good nodulation and nitrogen fixation by legumes, it is a good practice to mix the appropriate inoculant in with the seed before planting. But make sure to use a Rhizobium strain that is appropriate for the crop you are growing. For example, a soybean inoculant will not be of benefit to clover or alfalfa. And if you are an organic grower, beware: some Rhizobium inoculants are genetically modified organisms and are NOT allowed under organic standards, such as Dormal Plus/PC2 (Urbana labs) for use on alfalfa and clover. The following inoculants do appear to be non-GMO, (but to be sure, you should get a statement from the company): HiStick, HiStick 2, MicroFix, HiStick L, HiCoat, Dry-Coat, HiStick N/T (manufactured by MicroBioRhizoGen Corp., Helena Chemicals is a distributor). All Urbana products EXCEPT Dormal Plus are not genetically modified, this includes NOD+, Dormal, RhizoStick, MegaPrep, and Traditional Humus. Cell-Tech, NitraStik, Soil Implant, and Nitragin Gold (manufactured by LiphaTech) are also non-GMO. (Vern Grubinger, ed. VERMONT VEGETABLE AND BERRY NEWS, April 1, 2002)

19.0. Cover Crops in West Africa

20.0. Directory of Nutrient Content in Plants on the WEB

Scientists with the ARS Nutrient Data Laboratory (NDL) in Beltsville, Md., recently launched an online directory where users can look up the amount of a specified nutrient within any one of 1,147 food items.

To access the database, go to http://www.nal.usda.gov/fnic/foodcomp. Click on "Reports by Single Nutrients"--the link is on the left about 10 lines from the top. The resulting page has a table listing nutrients such as protein, calcium, fiber, carbohydrate, cholesterol or fats. By clicking on the button by each nutrient's name, a web visitor can sort the 1,147 food items in the directory according to the content of that nutrient.

21.0. Allergens WEB site

The Food and Drug Administration has been moving aggressively concerning allergens. To access information about FDA activities, go to: http://www.cfsan.fda.gov/~dms/wh-alrgy.html For a 12-page backgrounder on allergens from the National Institute of Allergy and Infectious Diseases, go to: http://www.niaid.nih.gov/factsheets/food.htm

22.0. Food Labeling 101 on the WEB

This document is a PowerPoint presentation used as a learning tool, by the Food Safety and Inspection Service's Labeling and Consumer Protection Staff, at food labeling workshops in various locations throughout the U.S. http://www.fsis.usda.gov/OPPDE/larc/Label101/index.htm

23.0. Medicinal plants web site
MEDPLANT the Global Information Network on Medicinal Plants was created in 1999 as a support to the existing medicinal plant networks. Over the last several months MEDPLANT has been working with its partners to develop a communication tool for sharing information and facilitating discussions. Thanks to support from IDRC and Bellanet, MEDPLANT is proud to announce the creation of an interactive website at http://source.bellanet.org/medplant/.

http://www.idrc.ca/reports/read_article_english.cfm?article_num=1057

24.0. Upcoming Meetings, International

August 12-15, 2002. 22ND BRAZILIAN WEED SCIENCE CONGRESS, Porto Alegre, BRAZIL. Contact: ERoman@cnpt.embrapa.br

August 14-21, 2002. 17th WORLD CONGRESS OF SOIL SCIENCE. Bangkok, Thailand. THEME Soil Science: Confronting New Realities in the 21st Century. Email:o.sfst@nontri.ku.ac.th

September 24-28, 2002. LANDUSE MANAGEMENT, EROSION & CARBON SEQUESTRATION. Montpellier, 24-28 September 2002 Dr Eric Roose, Fax: (33)(0)467.41.62.94 Email: roose@mpl.ird.fr


November 16-21 November, 2002. BRIGHTON CROP PROTECTION CONFERENCE 2002, Brighton, UK. eventorg@event-org.com

* November 17-20, 2002. 17th SYMPOSIUM OF THE INTERNATIONAL FARMING SYSTEMS ASSOCIATION. "Small Farms in an Ever-Changing World: Meeting the Challenges of Sustainable Livelihoods and Food Security in Diverse Rural Communities". Lake Buena Vista, USA. http://conference.ifas.ufl.edu/ifsa; or Peter Hildebrand peh@ufl.edu.
April 27 - 2 May, 2003. 11TH SYMPOSIUM ON BIOLOGICAL CONTROL OF WEEDS, Canberra, AUSTRALIA. Contact: S. Corey, Fax: 61-02-6246-4177. E-mail: Sharon.Corey@ento.csiro.au

June 19-25, 2004. 4TH INTERNATIONAL WEED SCIENCE CONGRESS, Durban, SOUTH AFRICA. <S Duke@olemiss.edu>.