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. Strawberry Spring Market (update from No. Carolina)
I have been seeing some limited supplies of strawberries in the stores this winter from Florida, and the size has been smaller compared to last year. I gather that they are shipping more of the newer Festival variety (good flavor). The Packer indicated that the Florida crop has been "held up" by colder weather in January. But, I would anticipate large supplies coming into the market this February and March. California acreage is up to 27,178 acres (as we learned from Dr. Kirk Larson, UC researcher, who spoke in Savannah, Jan 12) this year. That represents about an 8% jump from last year. But, this amount of acreage increase may not translate into an 8% jump in volume as reports are coming out of California about a “nursery plant problem” (mainly anthracnose). The wholesale prices in early January this year have been very strong ($22/flat to the grower). No doubt, shorter
supplies out of Florida have kept prices high. I don’t think I have seen a 1 lb clamshell in the stores retailing for less than $2.50 all winter, and prices have been as high as $4.00.  
(Barclay Poling, Editor & Ext. Small Fruit Specialist, NC State, NC Strawberry Plasticulture - January 23, 2002, Vol. 3 No. 3)

2.0. Auction in North Carolina, an Update

Editor’s note: Would an auction be a viable alternative to market locally grown produce in Hawaii? For years, people like Dr. Joe DeFrank at CTAHR have commented about the need to develop a feasibility study to establish produce auctions in ag areas such as Hilo. Below is an update on the ‘travails’ of growers and extensionists in North Carolina in their efforts to establish a produce auction there.

Auction Meeting Tonight in Oxford - Other Classes Set for January 31, February 28, March 28, and April 25

Jan. 10  Auction Meeting, 7 P.M. at the Granville County Extension Center, 208 Wall St., Oxford, NC. (contact Carl Cantaluppi, (919) 603-1350)

At the last produce auction meeting held at the Granville County Extension Center on November 29, the 50 people present decided to pursue the produce auction concept further by allowing Billy Yeargin of Yeargin's Tobacco Warehouse in Oxford, NC to house the auction in 2002. tonight’s meeting is mainly organizational.

Here is a list of agenda items for the January 10 meeting:

1. Formation of a growers association (with a name chosen) with elected officers of President, Vice-President, Secretary, Treasurer, and a Board of Directors. These people will be in charge of drafting the by-laws of the association. The by-laws of the Northern Piedmont Fruit and Vegetable Growers Association is on hand, and it can be revised with some minor changes. Under the growers association, a name for the produce auction can be decided upon, and the rules that the auction will follow will be contained in the growers association by-laws. The topic of association dues will also be discussed.
2. The rules and regulations that will govern the operation of the produce auction will be made. These topics will include: starting date, days of operation, time of day to start, hiring an auctioneer, the need to purchase liability insurance, etc.
3. The accounting system will be discussed, including the identification of growers and buyers by number, using tags to be placed on each lot of produce to identify the commodity and the grower, and using sheets to record each transaction by an auctioneer's assistant to be given to the bookkeeper.
4. Identification of the role of the bookkeeper, including accepting money from buyer, and turn around time from when the grower's check is cut until he receives it.
5. Bookkeeper's fee. What percentage of the growers check should the bookkeeper receive? Can the auctioneer's fee come out of the percentage fee? Can he be hired on an hourly basis?
6. Should the prices paid at the auction be posted at the end of the sale day?
7. Use of forklifts and pallet jacks. Who will operate them? Unloading growers trucks and loading buyers trucks.
8. Bulk purchasing of boxes, black plastic, drip irrigation, etc.
9. On-site storage of boxes and other supplies.
10. Upcoming educational classes January 31, February 28, March 28, and April 25 on pertinent topics: *Post-Harvest Handling *Proper Packaging of Produce *Any other topics that are beneficial to growers

For more information, contact Carl Cantaluppi at:
3.0. Sclerotinia on Peppers (Florida)

Scouts from the Palm Beach area report that Sclerotinia has been found infecting pepper plants, which are approaching maturity and has also been found on eggplant and tomato, though to a much lesser extent than on pepper. The infection has been mostly found on upper stems and fruit. Scattered reports of southern blight mostly on tomato have also been received from around southwest Florida.

The fungus, Sclerotinia sclerotiorum, causes a profusion of diseases on more than 360 different host plant species. There are at least 61 different common names that have been used for different Sclerotinia diseases. Some common names for Sclerotinia diseases of important crops in Florida are white mold (beans), watery soft rot (cabbage), drop (lettuce), stem rot (potato and tomato), and nesting (post-harvest disease of bean). Sclerotinia diseases have been reported on many crops in the state and have been particularly damaging in bean, lettuce, cabbage, potato, and tomato.

The best indicator of Sclerotinia disease is the presence of small, black sclerotia (resting structures) of the fungus. Sclerotia vary in size and may be spherical, flattened on one or more sides, elongated, and almost any other shape imaginable. They usually are about 3-10 mm long x 3-7 mm wide, with a black outside covering and usually a white interior. Sclerotia form on the surface of certain plant parts as well as inside the stem cavity of tomato and potato. A ring-shaped sclerotium may develop around the stem of tomato fruit infected by Sclerotinia. Sclerotia enable the fungus to survive from season to season and are the source of inoculum to infect crops. Another common indicator of Sclerotinia diseases is the presence of white, cottony-like mycelium of the fungus when the environmental conditions are favorable, i.e. cool and moist.

Symptoms of Sclerotinia vary for different crop plants. The disease white mold in beans usually does not appear until after blossoming begins. When flower petals senesce, die, and fall from the flower, they may be invaded by the fungus. These fungus-invaded petals serve as an essential, intermediate form of organic matter that allows the fungus to advance into the plant itself. The disease often appears first in leaf axils where flower petals often lodge after falling from the flower. The disease advances into the stem, as water-soaked spots that increase in size, girdle the stem, and kill it above the point of infection. The disease can also enter the bean plant through leaves or pods that lie on the soil surface where sclerotia or infected plant parts act as sources for infection.

In tomato and potato, Sclerotinia diseases begin usually about the time of flowering. Early stages of these diseases are similar to the disease in bean. Infections usually start on the leaf axils or joints of the plant where fallen flower petals lodge. Spores of the fungus light on these flower petals, germinate, invade the petal, and subsequently advance into the stem. Water-soaked spots are usually the first symptom observed, and these are followed soon by further invasion of the stem, girdling, and death of the upper part of the stem that turns a bleached light gray, causing the stems to resemble bones of animals that have been left in the sun. The fungus can also enter plants at the soil line or at other points where plant parts touch the soil or other plants that are diseased. Plants in large portions of the field may become diseased and die, producing large, more or less circular, areas of dead plants. The
hard, black sclerotia of the fungus are often formed inside the stem cavity and tend to assume the shape of the cavity; that is, they are definitely longer in one dimension than in the other. Some may be almost tubular.

Almost all Sclerotinia diseases are field diseases, but when they occur in post-harvest situations they are very damaging. When beans are shipped in containers in which diseased pods are included, a situation called nesting may develop. The fungus grows from the diseased pod to other adjacent pods and produces the cottony-white fungus growth and sclerotia. A mass of diseased pods is created that is stuck together by the fungal growth, resembling a nest (hence, the name "nesting").

Sclerotinia is a fungus that prefers cool, moist weather, causing diseases of great intensity when the temperature ranges from 60 - 70°F (15 - 21°C). High humidity with dew formation supports the spread and increases the intensity of disease.

Small, mushroom-like structures called apothecia develop from sclerotia and bear infectious spores. When the environmental conditions change suddenly, these spores are ejected into the air and carried to healthy plants, where they germinate and produce diseases described here. Spore ejection will occur after sclerotia in soil have been wet or soil moisture is supportive of plant growth (e.g. after several rains or irrigations). When in the soil, sclerotia may germinate to produce a fungus growth that may infect certain plants directly, without first growing on nonliving organic matter, such as senescent or dead leaves of the host plant, or dead leaves and plant parts of other plants. In certain situations sclerotia may germinate and the resulting fungus growth remains on the dead leaves for a short time, after which the plant stem is invaded.

Four to five weeks of flooding of fields that have a history of Sclerotinia diseases may reduce the numbers of viable sclerotia, thereby reducing the amount of disease in succeeding crops. Recycled irrigation water may move sclerotia to fields where sclerotia are not present.

Methyl bromide fumigation has been effective in reducing disease incidence; loss of methyl bromide may result in greater problems with the disease in the future (Gene McAvoy, Univ. Florida, South Florida Pest and Disease Hotline, December 17, 2001).

**4.0. Thiamethoxam (Platinum, Actara) for whitefly management**

**EXPANDED OPTIONS FOR WHITEFLY MANAGEMENT IN MELONS.**

Thiamethoxam is a second-generation chloronicotinyl insecticide that is effective against whitefly, aphids, thrips, leafhopper, and certain beetles. The versatile insecticide can be used as a seed treatment, soil-applied, and foliar spray. Platinum*, the soil-applied formulation, offers flexibility for applications at planting time and sidedress applications after the crop is up and growing. Platinum is registered for use in melons, fruiting vegetables, and tuberous vegetables. Actara*, the foliar insecticide, is labeled for use in cotton, fruiting vegetables, melons, and tuberous vegetables. Platinum is more mobile in the soil than imidacloprid (Admire®) which has been proven effective as an at-planting time preventative application for whitefly control. Platinum might be applied sidedress later in the growing season in a responsive manner as whitefly infestations develop. Actara might be considered as a foliar treatment in response to developing whitefly populations. The addition of the thiamethoxam products to the whitefly management program will require measures for resistance management to preserve the chloronicotinyl insecticide chemistries for the future in vegetables, melons, and cotton. (Kai Umeda, Arizona Maricopa County, VEGETABLES NEWSLETTER, vol 9, issue 1, January 11, 2002)
5.0. White wash to control Insect pests (Texas)?

Excerpts from the Grower magazine, on a report that whitewash may be an effective treatment for insect control: "A relatively new and more economical method of managing insect pests is being tested on south Texas crops that involves spraying a white coating on plants that repels insects and diseases. The method is called particle film technology, and it leaves plants looking as if a light snow has fallen. It's been used successfully for a few years on fruit trees in the North, and the same technology has shown excellent results on Valley crops.

Dr. T-X Liu, a vegetable IPM (integrated pest management) entomologist at the Texas A&M Agricultural Research and Extension Center at Weslaco, and GeMei Liang, a doctoral student from China, recently concluded experiments on melons, the first time this method has been tested on vegetables. Results in the laboratory were so promising, field tests are planned on melons and other crops. "It's amazing how well this new process works against whiteflies on melons," says Liu. "I think it has great potential for other Valley insects and crops, including leafminers and weevils on peppers, thrips on onions, the cotton boll weevil and on citrus pests like mites and even the *Diaprepes* root weevil, which lay eggs on leaves. Florida has reported very good results in controlling *Diaprepes*. Pathogens-like fungi are also repelled because they can't penetrate the coating."


6.0. Nicotinoid Resistance Management Strategies (Florida)

- **Reduce overall whitefly populations by strictly adhering to cultural practices including:**
  - Planting whitefly free transplants
  - Delay planting of new crops as long as possible and destroy old crops immediately after harvest to create or lengthen a tomato-free period
  - Do not plant new crops near or adjacent to infested weeds or crops, abandoned fields awaiting destruction or areas with volunteer plants
  - Use UV reflective (aluminum) plastic soil mulch
  - Control weeds on field edges if whiteflies are present and natural enemies are absent
  - Manage weeds within crops to minimize interference with spraying
  - Avoid U-Pick or pin-hooking operations unless effective whitefly control measures are continued

- **Do not use a nicotinoid on transplants or apply only once 7 – 10 days before transplanting; use other products in other chemical classes, including pymetrozine (Fulfill®) before this time.**
- **Apply a nicotinoid at transplanting and use other products of other chemical classes, such as the insect**
growth regulators Knack® or Applaud® as the control with the nicotinoid diminishes

• Never follow an application (soil or foliar) of a nicotinoid with another application (soil or foliar) of the same or different nicotinoid on the same crop or in the same field within the same season (i.e. do not treat a double crop with a nicotinoid if the main crop had been treated previously)

• Save applications of nicotinoids for crops threatened by whitefly transmitted plant viruses or whitefly inflicted plant disorders (i.e. tomato, beans or squash) and consider the use of chemicals of other classes for whitefly control on other crops.

Growers are urged to follow these recommendations and help assure the continued effectiveness of these important whitefly management tools. To avoid resistance growers are advised to use nicotinoids at transplanting and rotate to other products of other chemical classes, such as Thiodan or the insect growth regulators Knack® or Applaud® as the control runs out. (Gene McAvoy, ed., SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE, November 9, 2001)

7.0. Dump Tank Postharvest Management in Tomatoes

Serious losses due to decay occur periodically in tomato shipments during transit or at destination. Florida research has shown that poor dump tank and wash water management practices can be major contributors to decay problems. Bacteria and fungi present on the fruit when harvested can be spread to uncontaminated tomatoes in the water. Organisms that cause bacterial soft rot (Erwinia carotovora), sour rot or watery rot (Geotrichum candidum), Rhizopus rot (Rhizopus stolonifera), and gray mold (Botrytis cinerea) can inoculate the fruit during dump tank and washing procedures. Decay of inoculated fruit after packaging can spread to other fruit during marketing and increase product losses.

The following is a summary of the suggested dump tank management practices to eliminate these problems:

1. Minimize the depth to which tomatoes are submerged when dumped, to less than 24 inches if possible.
2. Maintain a single layer of tomatoes in the dump tank.
3. Minimize the time tomatoes spend in the dump tank, less than two minutes if possible. Never leave tomatoes standing in the water during packinghouse crew breaks. Modify dump tanks to eliminate "dead" spots.
4. Chlorinate dump tank and wash water to maintain a free chlorine concentration of 100 to 150 parts per million (mg/L). Check concentration frequently (at least twice a day) with a DPD test kit. Chlorine may be added to the water as CL2 gas or the liquid and dry formulations of calcium or sodium hypochlorite labeled for such use.
5. Adjust water pH to about 7.0 (neutral).
6. Maintain the dump tank water temperature 10°F higher than highest fruit pulp temperatures. Water heating requirements can be minimized by keeping harvested fruit in the shade. Temperatures should be monitored with a thermometer.

7. These management practices represent additive control efforts - not alternative methods. Use of a single control parameter (like chlorination) has not proved to be sufficient to prevent post harvest decay during disease-favorable conditions (Gene McAvoy, Univ. Florida, South Florida Pest and Disease Hotline, December 17, 2001).

8. Some "New" Products released in the US last year

**Allegiance-LS, Gustafson LLC**
metalaxyl
- **Action:** systemic fungicide for use on sugar beets, cucumbers, peas, and beans
- **Strengths:** targets pythium and systemic downy mildew
- **Positioning:** 24-hour REI

**Armicarb 100, Helena Chemical**
potassium bicarbonate
- **Action:** for use on strawberries, tomatoes, lettuce, and other vegetables
- **Strengths:** attacks fungi on contact
- **Positioning:** controls more than 20 foliar diseases including powdery mildew and anthracnose; four-hour REI

**Equus, Griffin LLC**
chlorothalonil
- **Action:** for use against vegetable diseases in sweet corn, cucurbits, potatoes, onions, and tomatoes
- **Strengths:** superior chlorothalonil formulation with 40% less viscosity than other brands
- **Positioning:** can be tank-mixed with other products

**Micro Suff, Agtrol International**
sulfur
- **Action:** controls powdery mildew and red spider mite in broccoli, brussels sprouts, cabbage, and cauliflower
- **Strengths:** compatible with Bordeaux mixture and copper fungicides
- **Positioning:** 24-hour REI

**Switch, Syngenta**
fludioxonil and cyprodinil
- **Action:** controls botrytis gray mold in strawberries, and botrytis leaf blight and purple blotch in onions.
- **Strengths:** features two modes of action
- **Positioning:** registration expected this year.
  (Amer. Vegetable Grower, Feb. 2001, pg. 30-31)

9. Trap crop for diamondback moth? (Florida)

"**PROVIDING A HEAPING HELPING** of collard greens may provide relief from the diamondback moth for cabbage, broccoli and other cole crop growers. Everett R. Mitchell, entomologist, USDA-Agricultural Research Service, Gainesville, Fla., is experimenting with collard greens as a trap crop planted around the edge of cabbage fields. "Invading diamondback moths stop and deposit their eggs on the collards rather than on adjacent cabbage plants," he said. "Diamondback populations continue to recycle in collards as long as plants remain green and continue to grow." Tests for two years show minimal cabbage damage
from the moths' larvae. The quantity and quality of cabbage produced equaled that from conventionally sprayed fields. "Cabbage fields surrounded by collards required 75 to 100 percent fewer sprays to control diamondback moths than fields treated conventionally with pesticides," Mitchell said. "That's a huge savings for farmers." (The Grower magazine, June-July 1999).

10.0. Broad Mites (Florida)

In Palm Beach respondents indicate that broadmites continue to be a concern and growers are encouraged to examine plants for broadmites especially as they begin blooming and setting fruit.

**Around Immokalee, broadmites are still active in pepper and some eggplant.** Some growers report good results using maintenance sprays of 30 pounds of sulfur per 100 gallons on a regular basis. Since broadmites can complete mature from egg to adult in as little as 5 days, timing is critical as frequent applications are an essential component of disrupting their lifecycle and gaining control. **A few locations around southwest Florida are reporting problems with spider mites on tomatoes.** These appear to be coming from weeds or cane in sugarcane windbreaks adjacent to the fields. (Gene McAvoy, ed., SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE, November 9, 2001)

11.0. Target spot on cucumbers and tomato (Florida)

In Palm Beach, respondents report finding target spot on tomatoes and eggplant. In one instance, there is a report of one farm having problems with target spot on tomatoes plants since they were transplanted. These fields have now been picked twice. Target spot is still present and has primarily infected the interior of the plant. It is important to note that the traditional copper/mancozeb sprays for controlling bacterial spot will have little affect on target spot. Bravo was used as a rotational product to help keep the disease under control.

**Target Spot is the name often used for vegetable diseases caused by the fungus Corynespora cassiicola.** Target spot has a wide host range, attacking over 60 species of plants. Target spot is a particular problem on cucumbers and tomatoes in Florida.

**On cucumbers, the disease starts as small, yellow leaf flecks that gradually enlarge to about 1 cm (0.4 in) across and become angular.** Individual mature lesions are very light tan with a thin brown margin. Lesions may coalesce, with the development of large circular areas of dead tissue that dries up and tears out. Small, elongate target spot lesions may occasionally occur on cucumber petioles and stems. Target spot, especially in the early stages, is difficult to distinguish from angular leaf spot and downy
mildew, two common foliar diseases of cucumber. In late stages, the disease can be confused easily with anthracnose of cucumber. Microscopic examination of lesions in the lab for signs of specific pathogens is necessary to make an exact diagnosis.

On tomato leaves, the disease first appears as small necrotic lesions with light brown centers and dark margins. Some varieties show a pronounced yellow halo around these leaf spots. Later, somewhat circular lesions about 1 cm in diameter develop with sunken tan to light brown centers. Individual lesions often coalesce and cause a general blighting of leaves. Symptoms also occur on flower and fruit stalks and stems.

On tomato fruit, a succession of symptoms is observed. Small, brown, slightly sunken flecks are observed first. As fruits mature and the disease progresses, lesions become larger and darker. Coalescence of lesions result in large pitted areas. Advanced disease on fruit appears as large and deeply sunken lesions, often with visible dark gray to black growth of the fungus in the center. A recessed zone of healthy looking tissue will usually surround the zone covered with fungal growth.

In artificial inoculation trials conducted at the Tropical Research and Education Center in Homestead, very slight wounding (as from fine sand particles abrading the fruit surface) was essential for reproduction of the fruit symptoms observed in the field. It is likely that wind-blown sand is important in outbreaks of target spot on tomato fruit in the field.

Target spot symptoms, especially in the early stages, can be readily confused with two other tomato diseases, bacterial spot and early blight.

Early blight produces a wide range of symptoms at all stages of plant growth. It can cause damping-off, collar rot, stem cankers, leaf blight, and fruit rot. The classic symptoms occur on the leaves where circular lesions up to one-half inch in diameter are produced. Within these lesions dark, concentric circles can be seen. The leaf blight phase usually begins on the lower, older leaves and
progresses up the plant. Infected leaves eventually wither, die, and fall from the plant. On the fruit the black spots are ridged, sunken, starting around the calyx scar.

**Microscopic examinations of tissue samples for spores of the Corynespora fungus is needed for proper disease identification.**

**Use of plant resistance in cucumber to control target spot has been a long-standing control practice in Europe for over 15 years.** Due to the sporadic occurrence of target spot in Florida, however, breeding efforts for vegetable cultivars have not concentrated on this particular pathogen. Currently, target spot is controlled primarily by periodic applications of protectant fungicides.

**It should be noted that tank-mix sprays of copper fungicides and maneb do not provide acceptable levels of target spot control.** In the past, several outbreaks of target spot of tomato have been correlated with frequent use of copper/maneb tank-mixes, primarily for bacterial spot control, to the almost total exclusion of other fungicides. Correct diagnosis of the cause of tomato foliar lesions obviously is needed if proper fungicide choices are to be made. (Gene McAvoy, ed., SOUTH FLORIDA VEGETABLE PEST AND DISEASE HOTLINE, November 9, 2001)

**12.0. Microbes increase yields of tomato and peppers**

"This fall tomato and pepper farmers can add microbes to their transplant mix to help reduce yield losses caused by soilborne pathogens, including rootknot nematodes. The transplant mix, called BioYield 213, is amended with two naturally occurring soil microorganisms: *Paenobacillus macerans* and *Bacillus amyloliquefacien*. Agricultural Research Service scientists at the U.S. Horticultural Research Laboratory in Fort Pierce, Fla., in cooperation with Gustafson of Plano, Texas, are developing the mix.

The mix provides the microorganisms with the environment they need to grow on the root surface of seedlings. Once this occurs, the microbes stimulate vigorous growth and improve the health of the transplanted seedling by triggering the plant's resistance mechanisms.

Researchers have observed benefits to seedlings in the field. Greenhouse producers can expect to grow seedlings in a shorter time period. And growers can anticipate 5 percent to 20 percent yield increases in tomatoes, bell peppers and strawberries. The mix will be available commercially to producers after grower trials are concluded.
This research is part of an ongoing ARS effort to provide farmers with alternatives to the use of methyl bromide, which is being phased out by 2005." (CROPS PRODUCTION MAGAZINE Sept. 2000, pg. 4)

13.0. Rural Projects to develop small business and protect the environment

BOOK NOW AVAILABLE -- "RENEWING THE COUNTRYSIDE" The Institute for Agriculture and Trade Policy announces the release of "Renewing the Countryside," a full-color bound volume that "tells 43 stories of Minnesotans protecting the environment and promoting our rural communities through innovative businesses and community projects." The book describes the ways in which residents of rural Minnesota are re-inventing their farms and communities: transitioning to organic and sustainable farming, forming independent marketing cooperatives, expanding local value-adding enterprises, revitalizing communities, generating renewable energy, and restoring local land and wildlife habitat. "Renewing the Countryside" is available for $39.95 hardcover or $29.95 paperback. You can order the book, or browse case studies and resources, at:
http://www.mncountryside.org/index.cfm?mthd=sprt (Defenders Rural Updates! E-newsletter, January 8, 2002)

14.0. Vegetation Strips and Insect diversity

Vegetation strips and insect biodiversity in vineyards Research carried out by the University of California Cooperative Extension has shown that the presence of riparian habitats enhanced predator colonization and abundance on adjacent vineyards. Although limited by the distance to which natural enemies dispersed into the vineyard, the corridor amplified this influence by enhancing timely circulation and dispersal movement of predators into the centre of the field.

The study was carried out during 1996 and 1997 in two adjacent 2.5-ha organic vineyard blocks (A and B) which were monitored to assess the distributional and abundance patterns of the Western grape leafhopper Erythroneura elegantula and its parasitoid Anagrus epos, Western flower thrips Frankliniella occidentalis and generalist predators. The main difference between blocks was that block A was cut across by a corridor composed of 65 flowering plant species which was connected to the surrounding riparian habitat, whereas block B had no plant corridor.

In both years, leafhopper adults and nymphs and thrips tended to be more numerous in the middle rows of block A and less abundant in border rows close to the forest and corridor where predators were more abundant. The complex of predators circulating through the corridor moved to the adjacent vine rows and exerted a regulatory impact on herbivores present in such rows. In block B, all insects were evenly distributed over the field, no obvious density gradient was detected from the edges into the centre of the field. Although it is suspected that A. epos depended on food resources of the corridor, it did not display a gradient from this rich flowering area into the middle of the field. Likewise no differences in rates of egg parasitism of leafhoppers could be detected in vines near the corridor or in the vineyard centre.

15.0. Organic methods to control pests in tomato

Organic methods do not increase pest damage in tomatoes

The common assumption that reduction in agrochemical use on organic farms allows the conservation of biodiversity but has some cost in terms of increased pest damage is challenged by research carried out in tomatoes in California.

The researchers compared arthropod communities and pest damage levels to fresh market tomatoes on 18 commercial farms in California. These farms represented a range of management practices, with half of them operating as certified organic production systems and half as conventional operations.

Purported drawbacks to the adoption of organic farming include an increased incidence of pest damage and higher risk of pest outbreaks. Although insect pest damage levels varied across the spectrum of farm management practices, they were not associated with whether the farming operation was organic or conventional; organic and conventional farms did not differ significantly for any type of damage to tomato foliage or fruit.

Although conventional and organic farms shared a similar range of arthropod damage levels to tomato, a significant difference between the actual community structures of arthropods associated with the crop was detected. Using canonical discriminant analysis, it was found that whereas herbivore abundance did not differ, higher natural enemy abundance and greater species richness of all functional groups of arthropods (herbivores, predators, parasitoids and other) distinguished organic from conventional tomato. Thus, any particular pest species would have been associated with a greater variety of herbivore species (diluted) and subject, on average, to a wider variety and greater abundance of potential parasitoids and predators, if it occurred in organically grown tomato.

Trophically based community parameters, specifically species richness and relative abundance of functional guilds, were clearly associated with farm management category (organic vs. conventional). However, the abundance patterns of prominent pests and natural enemies were associated with specific on farm practices or landscape features. Fallow management, surrounding habitat and transplant date of the crop field were strongly associated with arthropod species that explained the major variability among farms. Insecticide intensity was a weaker factor. Other factors, such as distance to riparian habitats and tissue nitrogen levels, did not emerge as indicators of pest or natural enemy abundance.

The researchers concluded that their comparative study of active commercial farms does not support predictions of increased crop loss in California tomato when synthetic insecticides are withdrawn. They add it highlights the importance of large-scale on-farm comparisons for testing hypotheses about the sustainability of agro-ecosystem management schemes and their effects on crop productivity and associated biodiversity.


16.0. Household bleach- an update

It seems that the new household bleach is now 6% sodium hypochlorite instead of the 5.25% we are used to. If you use bleach as a portion of your chlorination program you should consider the difference and change the recommendation accordingly. It may not
make much difference for our uses, but a "heads up" may help prevent problems down the road. (Bryan Smith, e-mail Dec. 31, 2001)

"Household Bleach" in Extension Recommendations
An FYI on "household bleach":

SUMMARY
There has been a relatively recent change in the formulation of "household bleach". Bleach products (Clorox and other brands) now on retail shelves are more concentrated. Extension makes several recommendations to use household bleach that may be affected by product formulation changes.

BLEACH IS A PESTICIDE
The US EPA registers bleaches and other disinfectants, known by the regulatory community as "anti-microbials", as pesticides. These products have uses in the home, on the farm, in nurseries and greenhouses, and other sites.

NEW FORMULATION, PACKAGING
The industry has changed how it packages bleach. For a lot of years household bleach was a 5.25% solution of sodium hypochlorite. Now bleach is sold in what some brands call "Ultra" formulations. Household bleach is now sold as a 6.0% solution of sodium hypochlorite. I have personally not been able to locate any of the old 5.25% formula.

Note that the term "Regular" on some product labels refers to the fact that the product does not contain scents, such as lemon or flora, etc. and that it is NOT the old formula.

The container size has also changed. The familiar white one gallon (= 4 qts. = 128 oz.) jug is now a white 3 quart (96 oz.) jug. The dollar savings to the industry in terms of savings in plastic for containers, unit & weight/volume shipping costs and the sales advantage of having the ability to place more product units on the same amount of retail shelving has to be enormous.

EXTENSION RECOMMENDATIONS
Extension has a number of disinfection / sanitization recommendations that include "household bleach" (Clorox brand, store brands, and other brands), for needs that may include removing stains from clothing (and other laundry uses), household surface disinfection to kill household germs (and other household uses), home and commercial food preparation surface and utensil sanitizing, livestock housing, feeding and watering equipment disinfection, disinfecting farm boots and equipment, disinfecting pet equipment, disinfecting plant pruning tools, etc., cleaning mildew from painted exterior surfaces, and more. These recommendations appear in brochures, leaflets, factsheets, booklets, web sites, and other media routinely used by Extension. If you provide any recommendations that include household bleach you may need to revise these.

GET THE NUMBERS RIGHT
So, for instance, where one formerly may have recommended using 'one cup of household bleach in...', the recommendation should now be '3/4 cup of household bleach in...'. Using the old volume amount but using the new formula may cause damage to surfaces, clothing, etc.

Also, anywhere you may provide instructions on making up certain percent solution, not only will you need to adjust for the change in the percent of sodium hypochlorite in bleach, again now 6%, but be sure the formula or proportions you provide are correct to begin with.
I just noted in a publication that to make a 3% solution the user was told to "Mix 3 gallon of bleach with 2 gallons of water."

"DANGER"
Remember that bleach contains a strong oxidizer. Household bleach products carry the signal word DANGER on the label as a corrosive. Bleach can cause severe irritation or damage to eyes and skin. You should protect your eyes when using bleach, even though some new products advertise that their new formula is safer to use because is splashes less.

NEVER mix bleach with other household chemicals such as toilet bowl cleaners, rust removers, acids (including vinegar), or any products containing ammonia. Mixing bleach with other products may produce hazardous irritating gases. Bleach should only be used in a well ventilated area.

When you use bleach or any other pesticide read the label and follow the directions exactly. Bob Bellinger, Extension Pesticide Coordinator, Entomology (via Brian Smith, Area Extension Agent for Clemson University, e-mail, Dec. 31, 2001).

17.0. Tropical Fruit tree Corner: Carbaryl use in Hawaii
[Message from UH's Charlie Nagamine]:
Greetings,

The Pesticides Branch, HI Dept. of Agriculture issued a renewed 24(c) registration for:
Non-bearing tropical fruit trees

Clean Crop Carbaryl 4L Insecticide (Platte Chemical; 34704-447)

May be applied up to 1 year prior to initial bearing of fruit. Do not apply to fruit trees any time after they have borne fruit. Test for phytotoxicity on small number of plants prior to making field-wide applications. Mix dosage specified for one acre in 20-250 gallons water. I am attaching pdf file which contains a copy of the 24(c) labeling and supporting documents. The 24(c) is on p. 3. Yesterday I mailed some of you a photocopy of the 24(c) labeling as I've been doing for the past 3 or 4 years. Starting with the next notification, I will not be sending PRINTED copies through the mail anymore. I will only distribute copies via email as pdf files.

Disclaimer 24(c) Labeling List (above):
***At the time of application, the applicator must have a copy of the 24(c) labeling in his or her possession. The List (above) is not a substitute for any 24(c) labeling.
***The 24(c) labeling specifies an expiration date and is not valid after this date. ***A 24(c) labeling issued for Hawaii is valid only in Hawaii.
***The applicator must comply with all instructions and restrictions specified by both the 24(c) labeling and the container label. The instructions and restrictions may discuss any or all of the following:
•crop, object, or site that may be treated
•application method
•application timing
•preparing the crop, object, or site for treatment
•wearing protective clothing (for example, a long-sleeve shirt) and personal protective equipment (for example, a respirator)
•measuring, mixing, and loading pesticide into application equipment
• dosage or dilution of pesticide
• setting up, adjusting, and calibrating application equipment
• restricting entry by others into a treatment area
• cleaning up or securing treated area, notifying other persons of hazards (for example, by training them, warning them, or by posting signs)
• storing, locking up, or disposing of the pesticide container
• washing up himself or herself after the treatment
• making and keeping records.

Charles Nagamine
Pesticide Risk Reduction Education Program
Plant & Environmental Protection Sciences Dept.
3050 Maile Way, Gilmore 310, Honolulu, HI 96822
Ph. 808-956-6007, Fax 808-956-9675
(e-mail message Jan 17, 2002).

18.0. FDA GUIDELINES TO SAFEGUARD FOOD SUPPLIES.
Caution should be exercised by all growers, packers, and shippers of fresh and processed produce. Beware of suspicious behavior and activities by visitors as well as employees. Prevent and restrict access to food handling, processing, and storage areas. Regularly inspect ingredients and products for tampering. (Kai Umeda, Arizona Maricopa County, VEGETABLES NEWSLETTER, vol 9, issue 1, January 11, 2002)

19.0. Tropical Fruit Tree Conference-Thailand 02
For information: Hort@doa.go.th, hort@doa.go. Wep Site: http://www.disc.doa.go.th

20.0. WEB Site, Transition to Organic Farming
The Organic Transitions Program (ORG) supports projects that assist farmers and ranchers in successfully adopting organic practices by conducting systems research on organic farming combined with outreach and education programs. Here is a direct link to the longer program description and contact link. http://www.reeusda.gov/agsys/pestmgmt/organic.htm

21.0. WEB Site National Pesticide Information Center
National Pesticide Information Center provides objective scientific information on wide variety of pesticide related topics. Visit the site at http://npic.orst.edu or you can call toll free -1-800-858-7378. CDMS Label and MSDS Database - The Crop Data Management Systems website provides a searchable crop protectant database that allows users to access the full labels and MSDS for hundreds of crop protectant materials from over 80 manufacturers. Potato School in New England, March 2002

22.0. VERMONT / NEW HAMPSHIRE POTATO SCHOOL
- Thursday, March 7, 2002. Fireside Inn and Suites, West Lebanon, NH (603) 298-5906. Directions: From I-89 take Exit 20. From the south, take a left off the ramp. Go under the bridge, through lights, then turn left onto airport Rd. Hotel driveway is first left. From the
north, cross into NH, turn right off the exit ramp. Airport Rd. is first left, driveway to Inn is first left off that. For more information or to request special accommodation please call 802-257-7967 ext. 13.

23.0. SUSTAINABLE GREENHOUSE DESIGN WORKSHOP, NY
SUSTAINABLE GREENHOUSE DESIGN AND YEAR ROUND FOOD PRODUCTION WORKSHOP MARCH 22-23, 2002, NEW YORK
Learn how to design, build and grow in a passive solar greenhouse-the mistakes and triumphs of years of growing experience condensed into a two-day course. Harmony Essentials: Dedicated to the Vision and Practices of a Sustaining Food System, Steve and Carol Moore, 1522 Lefever Ln, Spring Grove PA 17362, Phone 717 225 2489, FAX 717 225 6007, E-mail sandcmoore@juno.com

24.0. Ohio Ecological Food and Farm Conference
23rd Annual OEFFA Conference "Farms of Tomorrow...Food for Today" March 9 and 10, 2002 Johnstown, Ohio Over 50 workshops on organic and sustainable food system issues for farmers, consumers, and everyone who eats, Plenary sessions by Dr. Bobby Moser, Joan Dye Gussow, Andy Fisher, and Donita Anderson. For more information contact Sean McGovern at 614/421-2022 or email <conference@oeffa.com>