RESEARCH AND INDUSTRY NEWS

Diamondback Moth Outbreaks
Up to 100% losses have been reported in Chinese and head cabbage in Kamuela. Heavy losses are also occurring in Maui, and in other areas of the State. Diamondback moth, the most serious pest of crucifers in both the temperate and tropical regions, is now resistant to most chemicals used for its control. The moth has last acquired resistance to the pyrethroids, and in one reported case at Kamuela, to Bt insecticides. Research entomologists, extension agents and specialists met on Nov. 8 with CTAHR Extension Assistant Directors to evaluate options available to the growers, and possible research avenues. Parasites of the DBM, introduced in 1972 by DOA in Hawaii, are well established, and parasitism levels are high in cabbage fields where pesticides have not been applied. Parasite management, is however, only one tool, and has to be conducted along with rotations (perhaps with celery and lettuce), monitoring, proper fertility management, and proper application of "cocktail-free" Bt applications. A survey is currently being conducted in several areas to evaluate population levels. Follow-up studies will determine the extent of Bt resistance in the major crucifer production areas.

Meanwhile, tomato and cantaloupe acreages have been cut down drastically in Texas due both to the sweetpotato and poinsetta whiteflies. Growers there are planning on increasing carrot (non-host to the whiteflies) acreage. Sweet Potato Whitefly Research Taskforce programs have been established in Florida, Texas, Arizona, and California (Packer, Sept. 21 and Oct. 5, 1991).

Terminator II: Poinsetta Whitefly Hits California, Texas
An outbreak of a new strain of the sweet potato whitefly (same genus), occurred in California in late Summer 1991. The so called Poinsetta Whitefly is affecting the Imperial Valley muskmelon Fall production. Other vegetables affected by the insect include green onion, lettuce, broccoli, and cauliflower. Chemical control has been effective in cases but the $300 to $400 per acre control cost may be raising the control efforts above the economic thresholds.

Whitefly Chemical Control in Greenhouse Tomatoes
Insecticides recommended for whitefly control on greenhouse grown tomatoes include: dichlorvos (DDVP, Vapona) fog or mist; Thiodan WP or EC; malathion WP or EC; and naled (Dibrom EC, fog). Optimum results are obtained between 70-80F with applications every second day. Applications may be necessary for 21 days to break the life cycle of the whitefly. Alternate insecticides to prevent development of resistance, and read the pesticide label and its precautionary statements before application (Joseph Harris, Vegetable Press, Sept. 91).

PetoSeed to Evaluate TSWV Resistant Lines
PetoSeed has determined that tomato spotted wilt virus (TSWV) resistant lines have met company standards. Petoseed will now conduct marketing feasibility studies to evaluate the market potential of this TSWV resistant line. Commercial seeds should become available by October 1992 (Ron Mau and John Cho, Oct. 29, 1991).
Convention Fever Trivia
Looking for something to do? More than 12,600 trade shows and conventions are held each year in the United States. These were held at over 300 convention centers around the country, and were attended by 13.5 million delegates and 5.5 million of their spouses. The average visitor spends an average of $900 on a typical trade show (Economist April 20, 1991).

Manure Treatment Efficiency Affected by Soil Type
Frequent manure applications decrease soil particle and bulk density, increases the diameter of water-stable aggregates along with hydraulic conductivity and soil water intake. However excessive manure applications may lead to harmful salts and nitrate accumulation in the soil. A recent study with chinese kale in NE Thailand, showed that a low fertility coarse soil had a greater response to cow manure treatments than a heavy high fertility clay soil, with respect to increased pH (a plus in acid tropical soils), N, P, and organic matter content. The high fertility soil responded to initial manure treatments, but the effects of manure on pH and nutrient levels leveled off and did not respond to further increased manure application levels. Both foliage (see figure below) and root yields, however were greater for the more fertile clay soil compared to the coarse soil. Apparently the greater microbial activity in the clay soil decomposed the organic residues, hastening nutrient availability for plant growth. Manure treatments, of less fertile soils with a low microbial population, should therefore be made well in advance of planting, to allow for the slower manure decomposition rates (Vityakon et al., Kasetsar J. Nat. Sci. 22:245(1991)).

Pesticide Registration- Cal-EPA
The recently created California's Environmental Protection Agency is taking action to ban 14 chemical ingredients of pesticides used in the state. These ingredients will be removed because manufacturers have not conducted health tests on them. Pending legislative action may require studies on about 200 ingredients used in California's pesticides to prevent removal of these products from the market (The Packer Aug. 24, 1991).

Veggies and Health Pointers
Part of the marketing efforts of the vegetable industry is increasing the awareness to the public of the great health benefits involved in vegetable consumption. Here are a few pointers: Celery may help to reduce blood pressure and cholesterol levels; Broccoli contains indole carbinol, a substance which may prevent the development of breast tumors; Broccoli also contains beta carotene, which may lower risks of lung, throat and bladder cancer; Sulfur compounds in garlic may reduce development of stomach cancer; Garlic may also contribute to lower blood pressure and to reduce blood clotting (The Packer, Sept. 7, 1991).

Opportunities for Direct Marketing to Restaurants
The market for gourmet stores, tourist resorts and restaurants is very limited. However direct sales to this market may be profitable for those highly specialized growers which can supply a consistent volume of high quality produce throughout the year. Small-growers have the ability of taking greater care of their product, and of producing and handling specialized products which are demanded by the upper-scale vegetable market. To succeed in this market the prospective grower should be familiar with the needs of chefs. As part of the market feasibility study make
appointments with chefs or produce buyers and take samples of the produce which you can supply.

Costs of Organic vs. Conventional Production
After the Alar scare with apples, organic pear production in the Pacific North West has increased to 4 million pounds for the 1991 season. Organic pears sold for about 40% more than conventional pears, but apparently these higher prices were necessary to offset the higher costs of organic production. According to a grower in Cashmere, Wash. "One of our growers farms both organically and conventionally, and his costs in the organic are practically double those in the conventional." The higher costs are due to the amount of work, and to the greater spraying frequency (of the less effective "natural" pesticides) (The Packer, Sept. 28, 1991).

Nitrogen Source in Onion
The effect of N form on 'Granex 33' was recently evaluated in Athens, Georgia. An optimum N supply is required to maximize yields in onion. Excess N fertilization in onion may result in yield reductions, decreased shelf-lifes, and in underground water nitrate contamination. In this greenhouse study NO₃ (nitrate-N) alone or in combination with NH₄ (ammonia-N) increased leaf, root, and bulb dry weight. Bulb fresh weight (for marketable yields) was greatest with NH₄:NO₃ ratios of 1:3 and 3:1. Pungency in onion is correlated with pyruvate concentration, and with sulfur fertilization. In this study pungency was greatest when NO₃ was part of the N form, despite the fact that NH₄ was in the sulfate form. This indicates that N-form has an effect either on S uptake or in S metabolism. The N form had no effect on onion sucrose nor fructose content (HortScience 26:1061(1991)).

Environmental Facts About Conventional Agriculture
◊ About 3 calories of fossil energy are used to produce one calorie of food.
◊ It requires 170 gallons of water to produce one pound of corn.
◊ Corn fields of Iowa lose 2 bushels of soil for every bushel of grain produced.
◊ One billion pounds of pesticides are applied annually in the US.
◊ About $1.2 billion are spent annually to monitor wells and groundwater for pesticide contamination.
◊ About $18 billion are lost in fertilizer nutrients eroded with the soil.
◊ Since 1945, the use of synthetic insecticides has grown 10-fold while crop losses due to insects has nearly doubled.

RESOURCES AVAILABLE
Frieda's Newsletter. Exotic and specialty products newsletter published 6 times a year. Send $6 to Frieda's Finest, POB 58488, Los Angeles, CA 90058.

Hydroponic Society of America. $30 annual membership. Publications received by members: a directory of sources of equipment, a bi-monthly newsletter, current conference proceedings. For information or for a list of available publications contact: HSA, POB 6067, Concord, California 94524.


UPCOMING EVENTS

"Organic '92" Jan. 22-23, 1992. Will be held at Asilomar Conference Ctr., CA. Contact the Center, University of California, Davis, CA 95616; (916)757-8910.


Participatory On-Farm Research and Education for Agricultural Sustainability, Champaign, Ill.,
July 30-Aug. 1, 1992. Farmers, researchers, and extensionists will discuss on farm-research and ed, to acquire and share knowledge through partnership-based ed programs. Audience: innovative farmers, consultants, researchers and extensionists. Contact: J.M. Gerber, UI Ag. Expt. Stat., 211 Mumford Hall, 1301 W Gregory Dr., Urbana, IL, 61801 (217) 244-4232

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