

HortiCount

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**FUTURE CONTROL OF PESTS**

As I read through the various production publications that I received last week, I came across two unrelated articles that upon closer thought are actually talking about the same topic — future control of pests in crop production.

The first was an article regarding weed control in vegetables and the second discussed the use of mating disruption to control codling moths in pome fruit.

Vegetables

This year was a difficult year for some farmers to control weeds in their vegetable fields. Our abundant rainfall provided ideal conditions for both the weeds and the vegetables to grow well and we all know which plants are more competitive for available space and nutrients.

The excessive rainfall was also responsible for leaching pre-emergent herbicides out of the upper layers of the soil where they needed to be to prevent weed growth.

What can be done to prevent weed problems from occurring in the next wet growing season? Perhaps not relying on herbicides as the sole method of controlling weeds is the answer.

A recent editorial article in a grower magazine discussed the development of herbicides and the effect it had on weed management procedures in the United States. Initial results with herbicides were so encouraging that many researchers concentrated on developing this new technology to its fullest potential.

Industry concentrated on the use of herbicides because of the profits. This lack of development of alternative methods of weed control has resulted in our present lopsided weed management system.

With the current political environment in regards to the use of chemicals in all agricultural production systems, perhaps now is the time to begin to rethink our approach to weed control and to start developing more of a systems approach.

The term "systems approach"

has been appearing in various publications lately and basically refers to the use of more than one method to solve a problem or prevent crop loss. In the case of weed control, alternatives to herbicides that could be used in a systems approach include preventative, mechanical, cultural, biological, chemical, and integrated strategies. Herbicides are still a part of a systems approach but they are not the sole method of controlling weeds in an alternative or integrated weed management strategy.

Our current political environment, spurred on by our increasingly sensitive measurement techniques for chemical residues, is one factor encouraging this new way of approaching crop production. Environmental standards such as water quality are becoming increasingly important measures

of the impact of farming on the environment.

You should already see the "handwriting on the wall" as far as chemical control of weeds is concerned. Like many insects, some weed species have developed resistance to the herbicides used to control them, such as triazine-resistant lambsquarters. As a farmer, you are going to need to seek an alternative method of controlling herbicide-resistant weeds anyway so you can benefit now from adopting an integrated approach to weed control and maybe prevent some problems — such as resistance — from developing in the first place.

The fact that we have not eliminated weeds as a pest in our vegetable fields should tell you something about their adaptability to surviving our eradication efforts.

The basic premise of an integrated approach is that you use more than one method to control weeds with the more methods used the better. While weeds can develop resistance to herbicides, they will have a harder time resisting crop rotation and mechanical methods of control when integrated with a standard herbicide program.

As a producer, you receive the benefit of a more effective weed control program while at the same time you are being more "environmentally friendly." Depending on how you market your produce, this may be to your advantage, too. I am constantly reading about marketing programs and buyers looking for "earth-friendly" producers. Rather than fighting this trend, why not take advantage of it?

Researchers do not have all the answers to the questions about the most effective integrated weed control strategies. Future technologies may include weed-competitive crops, biological and ecological weed management, reduced tillage crop production, and precision herbicide application. New EPA pesticide registration rulings may result in the loss of a significant number of our current herbicides in 1997.

Do we want to wait until we have fewer herbicides available to develop new technologies? I doubt it.

I suspect many of you have already integrated several weed control strategies into your current vegetable production system and thus you have already developed the start of a systems approach. If you haven't, I'd encourage you to start reading about and experimenting with new weed control methods in your vegetable production system.

Fruit

The use of mating disruption to control codling moths in pome fruit is not a new technology. However, early trials with the use of pheromones met with mixed results.

While these compounds affected only the target species of pests, in many cases they failed to give satisfactory control of fruit damage, especially when compared to conventional chemical controls. But now the traditional method of using broad-spectrum insecticides to control this pest is coming under scrutiny and, as a result, alternative control measures are being examined.

A magazine article recently discussed research being conducted in Washington state combining the technology of mating disruption with traditional insecticide applications to control codling moths. The first generation of moths is controlled with an insecticide timed to coincide with peak moth flight if population levels are too high. Later generations are then controlled with pheromones and overall insecticide use in these orchards is reduced.

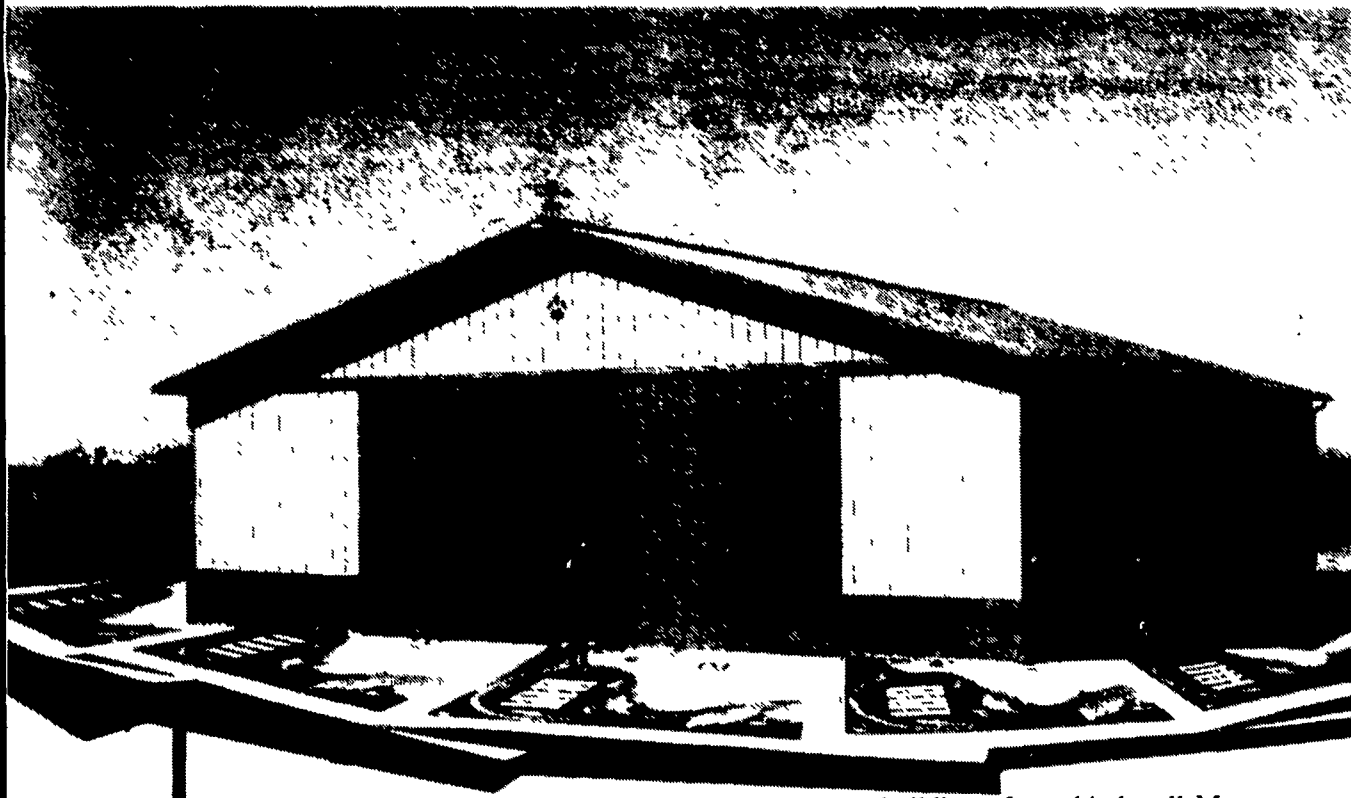
Early failures of mating disruption were frequently linked to high first generation populations of moths. By combining pheromone and chemical control methods, satisfactory control of moth damage is achieved while reducing insecticide applications.

As this research indicates, sometimes the combination of differing methods to control an orchard pest give excellent results with a reduced "environmental" impact. Now is a good time to start looking at combinations of control methods to reduce losses from other orchard pests and the environmental impacts associated with traditional control methods.

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