Growers Seeking Alternatives To Methyl Bromide Fumigation

COLUMBUS,Ohio — The loss of methyl bromide as a soil fumigant has many high-value fruit and vegetable growers worried, but the solution could be a simple switch, said Ohio State University processing vegetable specialist Mac Riedel.

There are several soil fumigants available or being developed that serve purpose as methyl bromide, and genetic resistance, crop rotation, organic amendments, nonfumigant fungicides, steam, solar heating, plant breeding and other cultural practices are possible replacements, Riedel said.

Riedel will discuss fumigation and alternatives at 10:45 a.m. Thursday, Feb. 5, as part of the Strawberry Short Course at the 1998 Fruit and Vegetable Growers Congress in Toledo.

Methyl bromide is a pesticide used to control fungi, weeds, nematodes, insects, pathogens and rodents in agriculture, stored and transported commodities, quarantined commodities imported to a country, and fumigated buildings. In the United States, about 27,000 tons of methyl bromide are used annually, with 87 percent of that amount used in agriculture, primarily as a soil fumigant. U.S. crops that use the most methyl bromide are tomatoes (24 percent of total use) and strawberries (16 percent of total use).

As a soil fumigant, the chemical is injected 12 inches to 24 inches deep to sterilize the soil before a crop is planted. This practice eliminates nematode, fungi and soil disease threats and allows for higher yields and more uniform crops, Riedel said. However, 50 percent to 95 percent of the methyl bromide injected into the soil eventually enters the atmosphere and is believed to be responsible for 5 percent to 10 percent of the current worldwide ozone depletion.

As a result, in 1994 as part of the Clean Air Act, the U.S. Environmental Protection Agency prohibited the production and importation of methyl bromide in the United States beginning Jan. 1, 2001.

High-value vegetable and fruit crops – tomatoes, peppers, strawberries, raspberries, and vineyard or orchard replants of grapes, apples and pears – are the most affected by the phase out of methyl bromide. Methyl bromide fumigation is expensive, often costing at least $2,00 per acre, so fumigation hasn't been an economical option for lower-valued crops such as corn, soybeans, potatoes, wheat or others, Riedel said.

"But depending on the type of organism a grower is trying to control, finding an alternative to methyl bromide could be easy," he said. "The practicality of alternatives all depends on the operation."

A good crop rotation scheme can control fungi and nematodes. For example, radishes are toxic to the root knot nematode, which would benefit a crop following it in rotation. Different crops included in the rotation will control different problems, Riedel said.

"I'd recommend using cultural practices to replace methyl bromide use, but if they don't work there are chemical alternatives," he said.

Chloropicrin, also used as tear gas, is a fumigant that will remain available after methyl bromide is phased out. Soil fumigation with Chloropicrin also costs about $2,000 per acre.

Scientists are experimenting with non-ozone threatening methyl bromide replacements that, if approved, could be fairly simple alternatives. Methyl iodide has looked good controlling pathogens in tests, but its cost to growers is still unknown, Riedel said. In 1995, the United Nations Methyl Bromide Technical Options Committee concluded that alternatives exist or are at an advanced state of development for more that 90 percent of methyl bromide use.

The 1998 Fruit and Vegetable Growers Congress is being held Feb. 4 to Feb. 6 at the Toledo SeaGate Centre in conjunction with the Roadside Marketing Conference and, for the first time, with the Ohio Grape-Wine Short Course.

For registration or additional information about the Congress or Roadside Marketing Conference, those interested should contact the Ohio Fruit and Vegetable Growers Association at (614) 249-2424. For information on the Ohio Grape-Wine Short Course, contact the Ohio Wine Producers Association at (440) 466-4417.

USDA Fruit Researcher Featured

GLASSBORO, N.J. — Dr. Steve Miller, fruit researcher at the USDA Appalachian Fruit Research Station in Kearneysville, W. Va., will discuss management practices that improve fruit tree efficiency at the southern New Jersey fruit meeting on Feb. 18.

Miller, who will also discuss tree fruit research activities at the station and how they can help New Jersey tree fruit growers, will be one of 15 speakers at the one-day program at Masso's Crystal Manor in Glassboro, N.J., accordiong to Jerome L. Frecon, chair of the program.

"Researchers for Rutgers Cooperative Extension of the New Jersey Agricultural Experiment Station will focus on integrated pest management," Frecon said. "Dean Polk will review key tree fruit pest issues with his colleagues and discuss the cost of damage by pests and control practices. Dr. Norman Lalancette will address management strategies to control brown rot in peaches, and Dr. Peter Shearer will bring growers up to date on the status of registrations and use of organic phosphate and carbamate insecticides."

Research on ground cover management in peach orchards will also be discussed by Polk. A unique integrated pest management marketing program studied by Polk in Italy will be discussed.

Dr. Bradley Majek will bring growers up to date on weed and groundcover management in orchards while Dr. Joe Heckman will discuss the importance of orchard liming on tree fruit production.

Pesticide applicators for New Jersey will receive units in core and the categories PP-2, 1A and 3A. Dr. George Hamilton will discuss adjuvants and spreader stickers and their role in pesticide application.

Other topics of interest will be topics on chemical thinning by Dr. Robert Belding, and presentations on new and exciting peach and apple varieties by Dr. Joe Goffreda and Frecon based on research and evaluations. Progress reports will be presented on the activities of the New Jersey Promotion Council and the New Jersey Peach Council.

A registration fee will be charged for the full day program which will include a buffet luncheon and apple variety displays and other displays by commercial exhibitors. Information can be obtained by contacting the office of Rutgers Cooperative Extension, 1200 North Delsea Drive, Clayton, NJ 08312, (609) 863-0110, or the New Jersey Horticultural Society, P.O. Box 116, Clayton, NJ 08312.