ALTERNATIVES TO METHYL BROMIDE: SELECTED CANADIAN CASE STUDIES

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Soil Uses

Case Study 1: Alternatives for Sod Production

Canada supports a large sod industry. As the value of sod depends on the hardiness of the sod, the species of grass and the absence of weeds, methyl bromide has been used extensively by the industry as a pre-plant fumigant.

Bentgrass production *The company wishes to remain Anonymous.)*
The company produces Kentucky bluegrass and bentgrass and has never used methyl bromide. Prior to planting, fields are treated with glycophosate and tilled. The cold winter climate and occasional use of herbicides controls weeds. As sod for golf courses must be 100% *Poa annua* free, metam sodium ia applied three weeks prior to planting. The remaining *Poa annua* is picked or burnt out with a propane torch.

Anderson Sod Farm
Anderson specializes in high-quality *Poa annua*-free sod for specialty markets. They have adopted and developed a number of cultural practices that reduce the frequency, and will eventually replace, methyl bromide fumigations. They use four common methods of cultural control; crop rotation, winter fallow, germination cycles and sanitation, and a novel technique involving washed sand. Washed sand involves spreading a 1 ¼-inch layer of washed sand on top of the soil and seeding the crop into that layer. These practices provide 90 to 100% control.

Case Study 2: Alternatives for Strawberry Nurseries

Methyl bromide has been the fumigant of choice to control a broad spectrum of weeds for strawberry nursery fields.

C.O. Keddy Nursery Ltd.
Keddy stopped using methyl bromide in 1994-95. Now, crops are rotated on a three-year cycle (nursery crop, rotation crop, green manure crop) to control disease, improved soil-health and reduce the accumulation of weed seed stock in the soil. 11,3-dichloropropene is applied at rate of 38 gallons per acre. Two to three weeks after treatment, a winter cover crop (rye or wheat) is direct drilled into the soil. In the springtime they kill the cover crop with glyphosate and then harrow the fields and plant nursery stock again.

Space Users

Case Study 1: Pillsbury Canada Ltd.

Pillsbury has never used methyl bromide. In 1997, IPM practices were implemented. Staff was trained to be more aggressive in their approach to cleaning. Empty spaces are injected with diatomaceous earth (DE). Infestations are controlled by conducting a thorough cleaning, identifying the root cause of the problem and adjusting the sanitation program to prevent re-infestation. Weekly pest prevention inspections and a reporting system we implemented. The savings result from having no fumigation and associated plant shut-down.

Case Study 2: Rogers Foods Ltd.

Rogers conducts a major fumigation once every summer. They found that phosphine provided better pest control, than methyl bromide, for their mill. Their current Pest Management system has four key elements: sanitation, monitoring, residual insecticides and fumigation. Every employee is trained to identify problem areas and report any and all insect finds. A pest management expert conducts weekly inspections of the facility. The facility is fogged, with pyrethrins every month in the summer, and every second month in winter. DE is blown into spaces and a major fumigation is conducted using phosphine once very summer.

Case Study 3: Pest Management Professionals

Tepeco Consultants Inc. believes in good beyond pest management to pest avoidance and prevention, by applying three major principles: exclusion, harbourage removal, and structural and equipment modification. Two of Tepeco's clients are used as examples.

A mix producer: Prior to Tepeco's involvement, in 1982, there was one or more methyl bromide fumigation per year. Tepeco's solution was to: eliminate harbourage, modify equipment, implement a HACCP program and develop regular cleaning and maintenance schedules for the equipment. Chemical treatment is largely limited to occasional bin fumigation with phosphine and occasional use of small quantities of methyl bromide, if limited time is available. The facility has not required a general fumigation since 1982.

Flour mill: In 1976, Tepeco began working with a 100-year-old, five-story stonewall building flour mill that had an annual facility-wide fumigation with methyl bromide in the summer. Maintenance, regular cleaning and inspection, and equipment modification have eliminated the need for spot and general fumigation, and residual spraying. Chemical treatment, typically triggered by infested wheat, is now limited to ULV fogging with pyrethrins, as needed during long weekends (up to four times per year). Since 1978, the mill has conducted a single methyl bromide fumigation.

A full copy of this report may be found at http//www.agr.ca/policy/environment of by contacting Dale McKeague at mckeagued@em.agr.ca.