

# Replacements for Methyl Bromide

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**Question?** *What is the status of methyl bromide for fumigation and what are the latest possible replacements for it?*

**Answer.** Beginning in 2001, the phaseout program went into effect which is suppose to be completed by 2005. Several alternative materials are being examined which addresses one or more components of the insect/fungus/weed seed complex. Unfortunately, these studies rarely address replacing or killing vegetative materials such as common bermudagrass rhizomes prior to planting with a hybrid bermudagrass but rather, focus on soil borne diseases, insects, nematodes, and weed seeds.

The most promising replacement agent currently is methyl iodide. This material appears the most effective in terms to efficacy as methyl bromide. However, methyl iodide is a liquid, so it has to be soil injected. Its ozone-depleting potential is minimal but costs are currently high (10 to 14 times greater than methyl bromide). However, this cost should come down substantially once it is mass produced commercially. A second possible alternative is propargyl bromide, which diffuses rapidly in the soil, degrades quickly, and is as efficacious as methyl bromide.

Other current alternatives include InLine, a 60% combination of 1,3-dichloropropene (Telone) plus 35% chloropicrin. InLine is applied through drip irrigation lines. However, another material is usually necessary with it to provide satisfactory weed seed germination control. Metam sodium (Vapam), a liquid, or Dazomet (Basamid), a granular formulation, can be used in a soil till, wet and sealed method. Another formulation of 1,3-dichloropropene (Curfew) currently is being evaluated in Florida and South Carolina as a nematicide in established bermudagrass fairways.

Other synthetic chemicals include Plantpro 45 and fosthiazate. Plantpro 45 is an iodine-based compound with good disease control. Fosthiazate is an organophosphate nematicide so its future in the USA may be limited.

Several "natural" products are also being examined. BioFume, a material made from Mediterranean herbs is supposedly effective. Microbial products from *Myrothecium* spp. marketed as DiTera by Abbott Labs, and from species of *Myxobacteria* also show potential as a nematicide and fungicide, respectively.

Other naturally occurring plant products from members of the brassica family, such as cabbage and broccoli, being investigated include benzaldehyde and glucosinolates. Benzaldehyde has activity again several soil borne diseases while the glucosinolates are thought to break down into compounds that kill microorganisms (source: USDA ARS Ag. Research, January 2001 and Farm Chemicals).

As new developments occur, I will update this column.

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