

Saying Goodbye to Soil Fumigants:

An Effective and Responsible Approach

While the routine use of pre-plant soil fumigants has become standard practice for many growers over the years, problems with product availability, safety restrictions, ecological concerns, and soil sustainability have begun to call the practice into question. Growers are now faced with a dilemma: Fumigation has been an easy solution to many causes of decreased crop yields, but what options are available that are as effective to protect yield yet still responsible when it comes to health, safety, and environmental impact?

This article highlights sustainable alternatives to soil fumigation, including the combination use of two specific Huma Gro® products, Promax® and Zap®, that provide effective nematicide/fungicide actions while building a vigorous soil biology for the natural improvement of soil health.

Soil fumigation has been routinely used on sensitive annual crops such as strawberries, carrots, bell peppers, tomatoes, cantaloupes, and potatoes since the 1960s. Soil fumigant products are typically applied in the fall after harvest or in the spring as a pre-plant soil preparation. The process involves having trained/certified operators inject a gas—usually with an active ingredient of chloropicrin; dazomet; 1,3-dichloropropene; metam sodium; metam potassium; and/or methyl bromide—into crop soil that has many times been covered with a tarp to prevent the gas from escaping into the atmosphere. As this gas works its way through the soil it kills many types of pests, including organisms such as nematodes, various soil-disease pathogens, and some weed seeds.

Over the years, the U.S. Environmental Protection Agency (EPA) has implemented increasingly stringent restrictions on soil fumigation to protect the health of farm workers and the populations of nearby communities. These restrictions include requiring protective clothing and breathing protection for fumigant handlers and applicators; creating buffer zones around fumigated fields to protect occupants of nearby homes, schools, and businesses from drifting poison fumes; and establishing safe re-entry intervals for when farm workers can come back into the fumigated fields. Immediate symptoms of fumigant exposure can include burning eyes, nausea, headaches, asthma attacks, and throat irritation. Long-term exposure to soil fumigants—including through groundwater contamination—can possibly lead to cancer, reproductive harm, and developmental delays in children, among other claimed side effects.



In addition to EPA restrictions due to health concerns, the widely used fumigant ingredient methyl bromide has been singled out as an ozone-depleting chemical. The Montreal Protocol, an international treaty signed by the United States, required that methyl bromide be completely phased out as an agricultural pesticide by 2005. As alternatives have been difficult to identify, these phase-out dates have been pushed out year by year through EPA action.

Some growers, particularly potato growers, have been avid users of soil fumigants to prepare their fields for new plantings. In the past, as much as 90% of potato acres in the state of Washington were fumigated, along with 82% of the potato acres in Oregon and 50% of the Idaho



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