

Fumigation

✦ The option of last resort.

✦ Can I control these after planting?



Fumigation

- ✦ Fumigants kill weed seeds and vegetative propagules
- ✦ They are the only herbicides that affect weed seeds
- ✦ Chemical fumigants are TOXIC
- ✦ Good site preparation is critical to obtaining good results – regardless of which fumigation method that is chosen

Fumigant options

✠ Chemical Fumigants:

- Metham Sodium (liquid)

- Basamid (granules)

✠ Steam pasteurization

✠ Solarization

For Best Results:

- ✦ Cultivate to 8 inches
- ✦ Soil should be free of debris and clods
- ✦ 55 F at 6 inches
- ✦ Moist, not wet
- ✦ Add amendments before fumigation

Before fumigation – bed preparation is critical



✦ It should be like a seedbed ready for planting

Chemical Fumigants

✦ Methyl Bromide

✦ Metham Sodium

✦ Basamid

Methyl bromide

✦ The quickest, most versatile & effective

✦ The most hazardous

✦ **NO LONGER AVAILABLE**

Metham sodium (formerly Vapam)

- ✦ Liquid application

- ✦ Tarp helps but can be “sealed” with irrigation

- ✦ Time: 7 days, then shallow cultivate, then wait another 7 to 14 days



- ✦ Inject liquid fumigant
- ✦ Incorporate
- ✦ Seal surface
- ✦ Moisten – 7 days



Basamid (dazomet)



✦ Granular formulation

✦ Rototill, then seal surface & irrigate

✦ Time: 7 days, then shallow cultivate, then wait another 7 to 14 days



1. Apply granules
2. Rototill into soil
3. Seal surface



For best results, cover with plastic



- ✦ Leave on for 7 days
- ✦ Shallow cultivation
- ✦ Let soil “air out” for at least 2 weeks

For best results with Metham or Basamid

✦ Use a tarp

✦ If not, keep soil surface moist for 7 days. (This seals the surface and traps the vapors)

**Even fumigants don't
kill everything.**

Hard-seeded weeds like
clover, red-stem fillaree
and Carolina geranium
will survive



Common reasons fumigants don't work

- ✦ Soil too wet or too dry
- ✦ Soil too cold
- ✦ Heavy soils not cultivated to adequate depth
- ✦ Some hard-seeded weeds are not controlled (clover, Car. geranium)

Alternatives to Chemical Fumigants

☀️ Steam

☀️ Solarization



Steam Pasteurization

- ✦ Maintain 180 F for >30 minutes
- ✦ Will kill most pathogens
- ✦ Many weed seeds will escape



Must use a
canvas tarp –
plastic will melt

Solarization

- ✦ Cover soil with clear plastic
- ✦ Solar energy is trapped. Soil is heated.
- ✦ Try to reach at least 140 F for several days
- ✦ Only works in summer
- ✦ Generally takes up to 6 weeks
- ✦ Works on small-seeded annuals, but generally not very effective on perennials or large-seeded annuals

Solarization is generally not as effective as chemical fumigants



Methyl
bromide

Solarized then
sprayed with
glyphosate

Regardless of which method is chosen – Site Preparation is Critical. For Best Results:

- ✦ Cultivate to 8 inches
- ✦ Soil should be free of debris and clods
- ✦ 55 F at 6 inches
- ✦ Moist, not wet
- ✦ Add amendments before fumigation



After fumigating -- Sanitation!

- ✦ Inspect nursery stock
- ✦ Add top soil and organic amendments before fumigation
- ✦ Use weed-free mulches

Don't introduce weeds to
a clean bed