

Weed control with Metam

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SECTAGON 42® will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when SECTAGON 42® is applied to weeds that are actively growing.

Overview

- ◆ **Weed control with fumigants**
 - Hard Seed coats
 - Effect of moisture
 - Effect of temperature
- ◆ **Nutsedge control with fumigants**
- ◆ **Ideas for improving weed control with metam sodium**

Weed life cycle

Preemergence



Post emergence

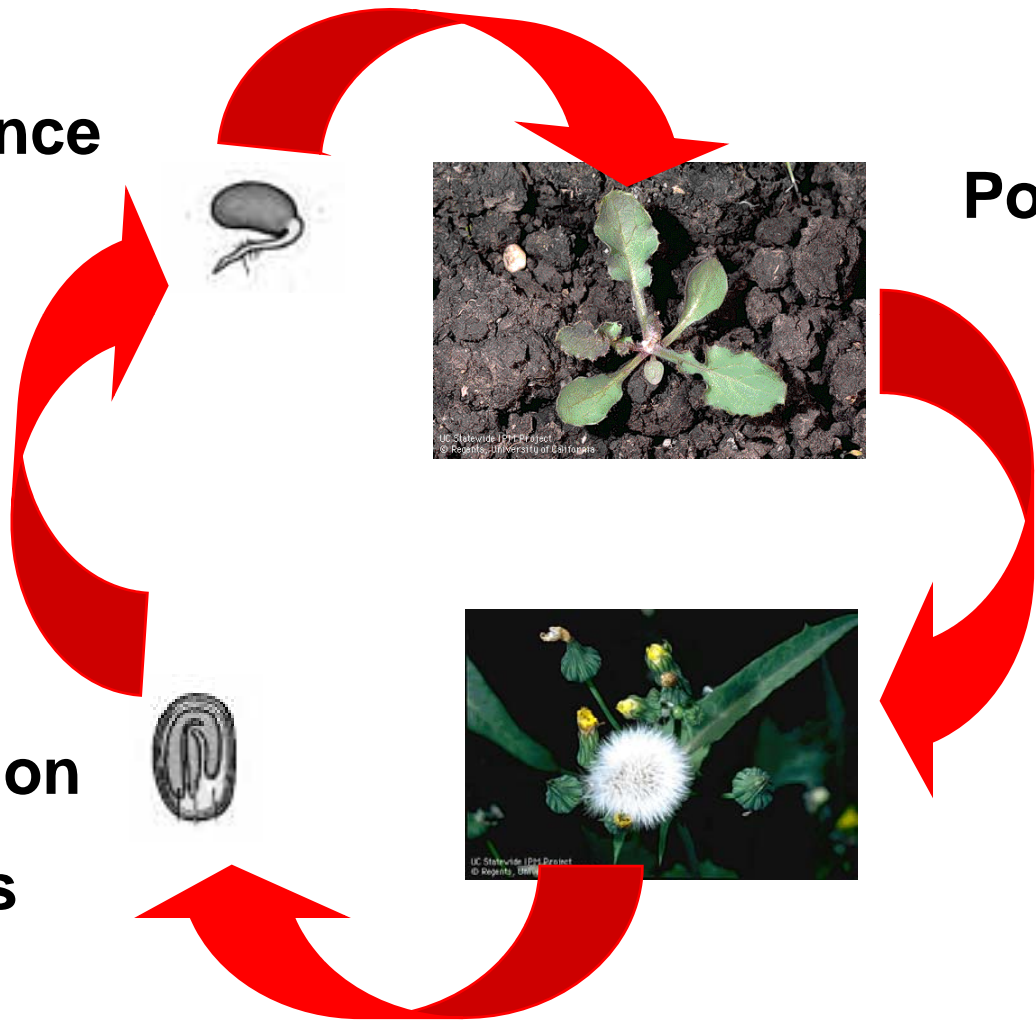
-Herbicides

-Hoes

-Flaming

Solarization

fumigants



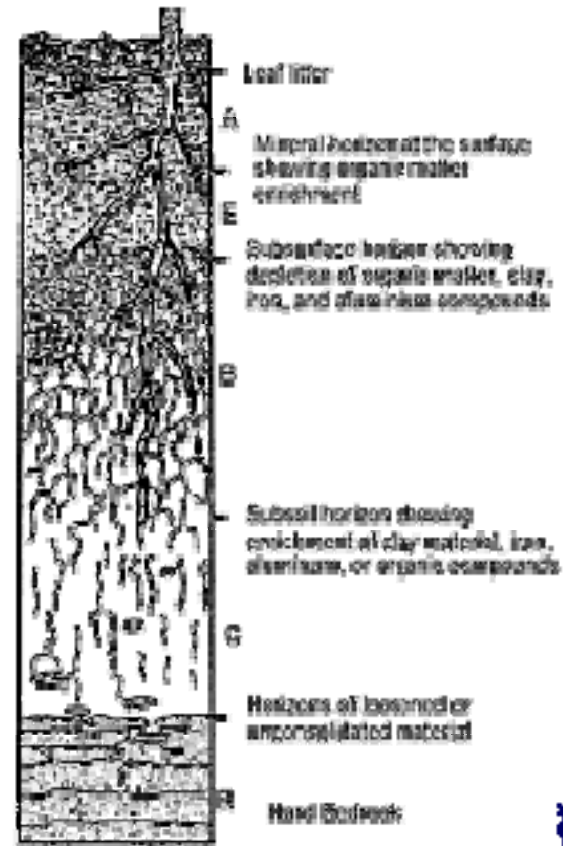
Soil disinfestation

- ◆ Preemergence herbicides act only on germinating seeds
- ◆ Soil fumigants and heat can kill dormant & germinating seeds
- ◆ Soil fumigants interfere with respiration
 - BUT the fumigant must get to the seed!

Where are the weeds?

Soil Profile

Perennials Annuals



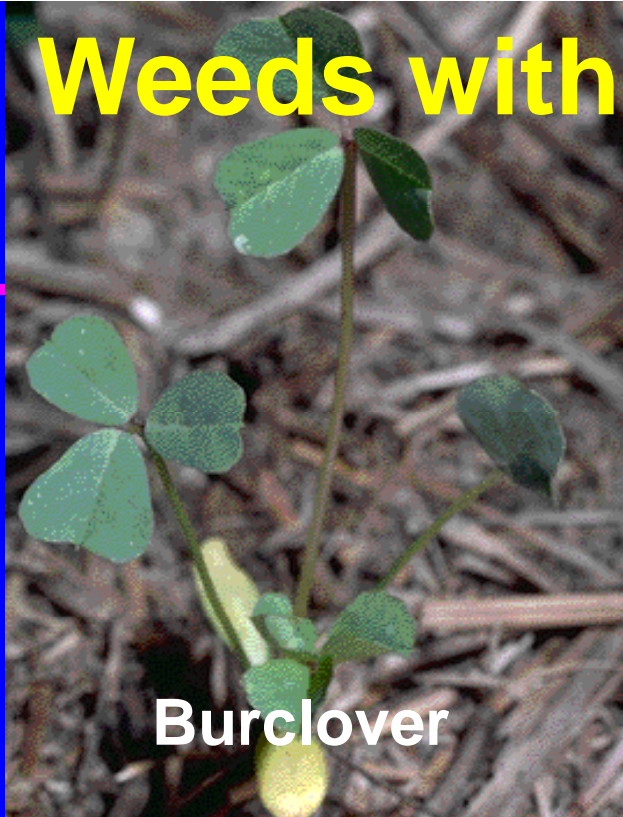
Killing weed seeds with soil fumigants

- ◆ **Seeds with permeable seed coats can be killed**
 - annual bluegrass
 - Common chickweed
 - Shepherd's-purse
 - Many others
- ◆ **Seeds with hard seed coats are difficult to kill**
 - burclover
 - filaree
 - little mallow
 - sweet clover

Weeds with soft seed coats



Weeds with hard seed coats



Burclover



Redstem filaree

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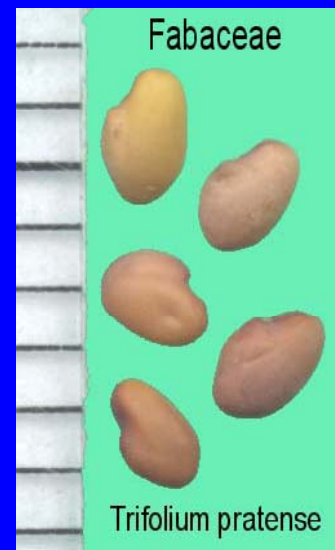
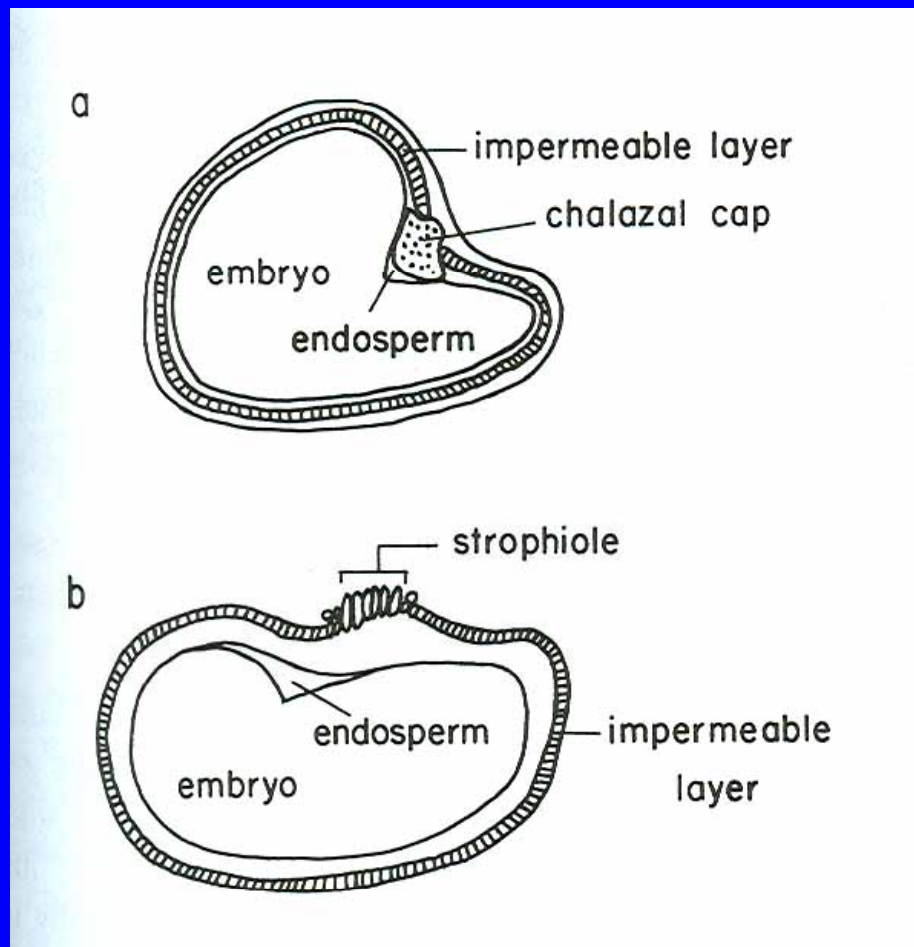
Sweetclover



Little mallow

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Hard coated weed seeds



Weed control with fumigants

- ◆ Importance of soil moisture for weed control

Dormant seeds and fumigants

- ◆ You can kill dormant weed seeds with fumigants.
- ◆ Soil moisture is a key factor that regulates the effectiveness of weed control.

Seed moisture

Measuring the Soil Moisture

Application should be made under “good seed bed moisture condition”, that is, the soil moisture should be about 50-80% of field capacity. As a simple field test, squeeze a handful of soil into a ball and then gently try to break it apart with your fingers. If it breaks easily, the soil moisture content is sufficient. If it will not break apart or if water can be squeezed out, it is too wet. When necessary, 1 to 2 weeks prior to treatment sprinkle or flood irrigate the soil to increase the moisture content. The soil must be moistened to at least the desired treatment depth.

Killing dry weed seeds

- ◆ Dry common purslane seed will tolerate at least 1000 lb/A of chloropicrin in the lab
- ◆ Wet common purslane seed were killed by <10 lb/A of chloropicrin in the lab

Seed moisture and fumigant efficacy on weeds

- ◆ Why is seed moisture critical for effective control of weed seeds with fumigants?

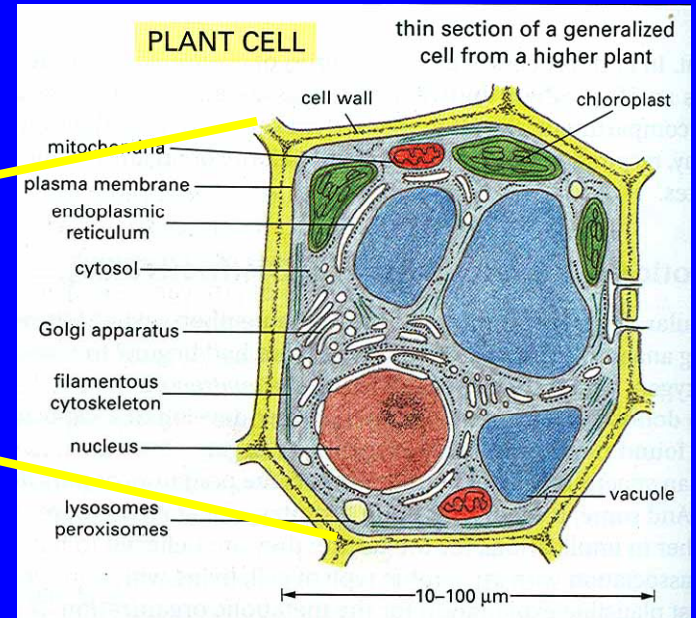
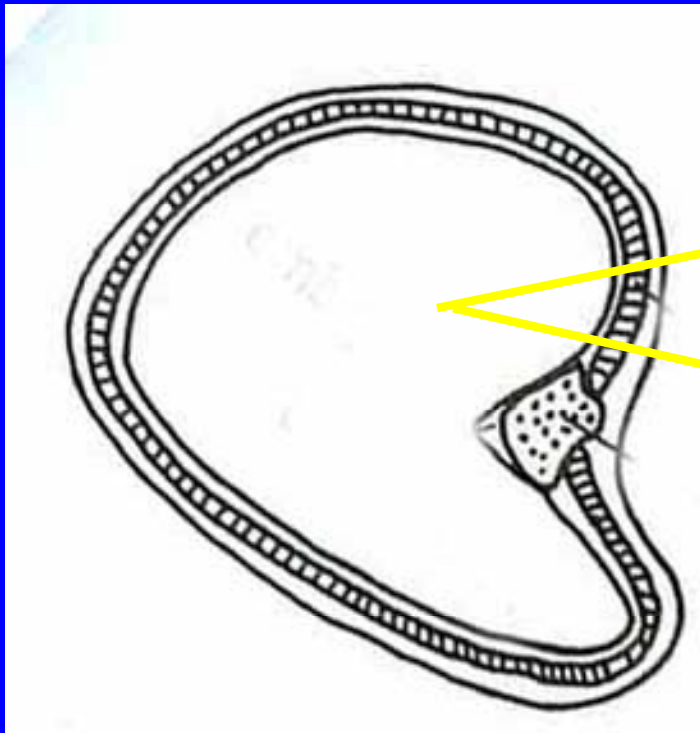
Dry and wet burclover seeds



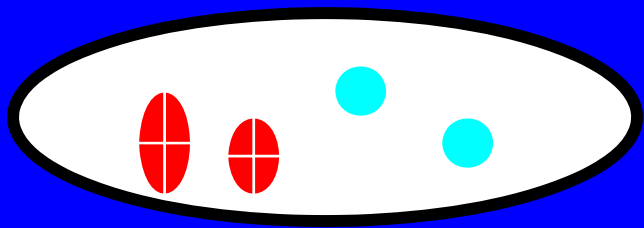
Seed moisture

- ◆ Why is seed moisture critical for effective control of weed seeds?
- ◆ Because it is too difficult to get a lethal fumigant dose into the target weed seed.
- ◆ Why are dry seeds so difficult to kill?

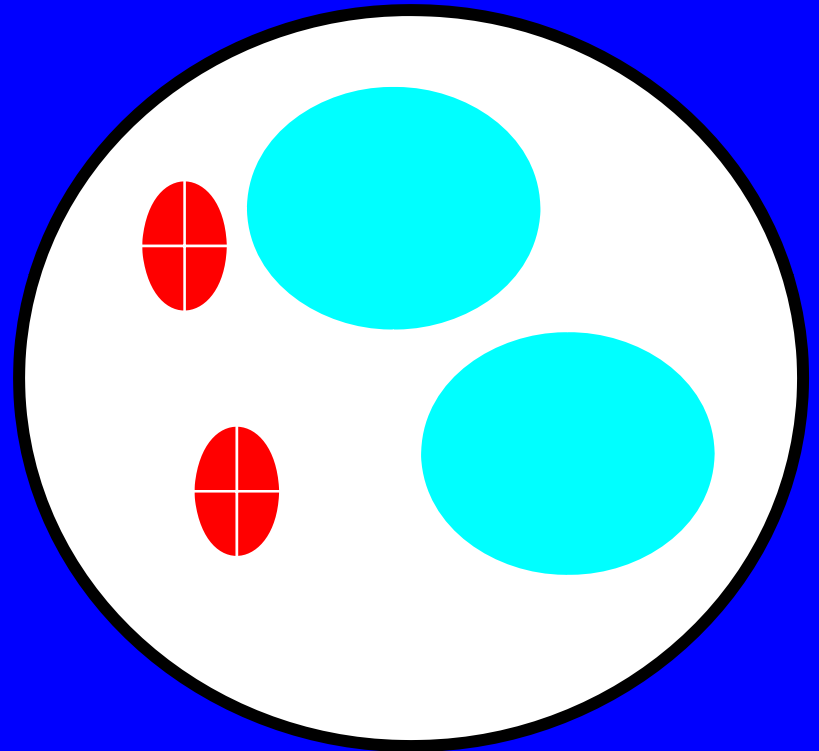
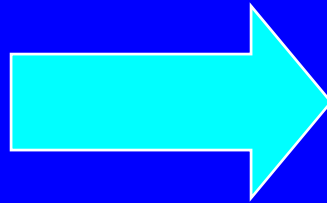
A wet seed embryo cell



A plant embryo cell



DRY



WET

Seed moisture

- ◆ It is difficult to kill dry seed because the fumigant can not penetrate quickly to the embryo

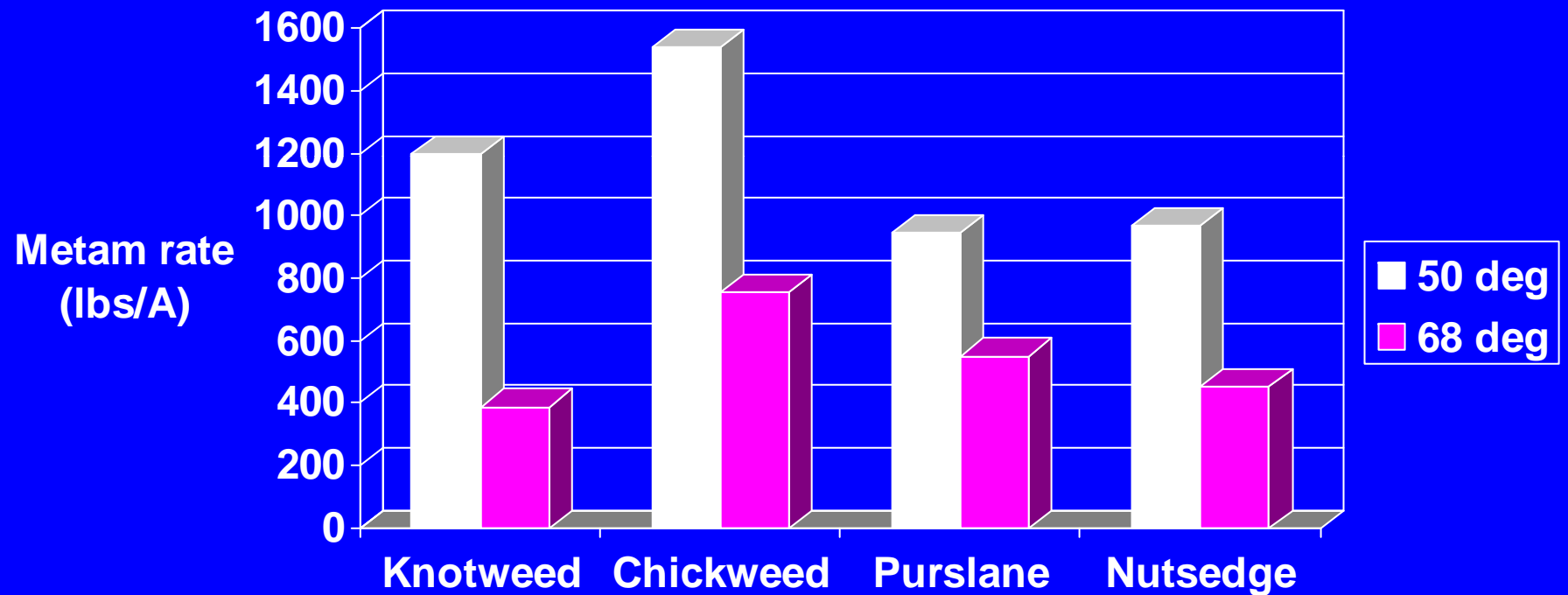
Temperature effects on weed control

Soil Temperature During Treatment

At the time of fumigation, the soil temperature should be in the range of 40°F-90°F (4°-32°C) at a depth of 3 inches.

To prevent rapid evaporation of the product from the soil avoid treating soil during times of the day when soil temperatures exceed 90° F (32° C). Instead, make the application during the early morning hours when the soil temperature is coolest.

Metam sodium GR₅₀ rate required for 50% control at 50 and 68 deg F



Temperature effects

- ◆ Generally weed control is better at higher temperatures than a lower temperatures.

Summary

- ◆ You can kill soft coated weed seeds whether they germinate or not, if you have good soil moisture.