

## **Summer Fallow Weed Control**

It is much easier to kill weeds when there is no crop in the field and now is a good time to reduce the seed bank of summer annual weeds in fallow fields. Weed seeds are buried at variable depths in the soil, some have hard seed coats and there are other variables that cause them to germinate over a long period of time. If they all came up at the same time, they would be much easier to control. It takes time, therefore, to repeatedly irrigate, germinate and kill weeds with either tillage or herbicides. We have conducted trials that indicate that in most years summer annual weeds begin to germinate in February, reach a peak in June but continue to germinate into October.

Proper timing of tillage to kill weeds can be important with some species. Some weeds like common Purslane are very succulent and can remain viable for several days after cultivation or hoeing. They can reroot at the nodes and continue to grow if they are allowed to get too big before they are uprooted. Growers sometimes allow early emerging weeds to get fairly big in an effort to germinate as many seeds as possible. Incorporating large amounts of organic matter into the soil can also have a negative effect on some preemergent herbicides used in vegetables. Many of the root and shoot inhibitor herbicides like Trifluralin, Pendimethalin, Benefin, DCPA and others can bind to organic matter and be less available to kill weeds.

Tillage has the opposite effect on perennial weeds such as nutsedge and bermudagrass than it has on annual weeds. These weeds are spread vegetatively and repeatedly irrigating and tilling them will spread rather than kill them.

Both contact and systemic herbicides are used during fallow periods to control weeds. The contact herbicides include Paraquat (Gramoxone, Firestorm), Carfentrazone (Aim, Shark), Pyraflufen (ET), Pelegonic Acid (Scythe), Glufosinate (Rely, Liberty) and others. Some of the advantages of these are that they are quick and have no soil residual allowing crops to be planted soon after application. Disadvantages are that they are effective primarily only on small weeds.

The most commonly used systemic herbicide for fallow ground is Glyphosate. It is broad spectrum and has no soil residual. Many of the systemic herbicides registered for fallow use, such as Oxyfluorfen (Goal, Galigan) or EPTC (Eptam) require at least 90 days before planting many vegetable crops. If done correctly, Eptam can be very effective in controlling nutsedge during summer fallow.

Only the fumigants kill weed seeds. These include Chloropicrin, Methyl Bromide, Metam Sodium, Dazomet, Telone and others. Most preemergent herbicides only work after the seed has germinated. Preemergent herbicides are often used for fallow weed

control only when at least 30 to 45 days or longer are available. Fumigants are expensive, can be difficult to use and are often used for disease or nematode control with the added benefit of controlling weeds. Unlike soil active herbicides, Fumigants do not have any residual activity.

Soil solarization and flooding have become increasingly popular in recent years as techniques to control pests during summer fallow. Few regions are as well suited for these techniques as the low desert. They are used primarily to control diseases but have the benefit of controlling some summer annual weeds as well. Summer flooding works better here in the low desert than it does in many places because of the high temperatures and high respiration demands. The availability of oxygen is cut off to the roots when it is most needed. It is necessary to keep the field continuously flooded at a depth of 6 to 8 inches for 3 to 8 weeks. Some species are much more sensitive than others to this technique. Perennial weeds are more sensitive than are many annual weeds. Pigweed, field bindweed and nutsedge survive while many annual grasses do not.