Weed Control Strategies after Methyl Bromide

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The pending loss of methyl bromide has initiated the research into alternative methods of controlling the many pests that are now controlled by the fumigant. This also includes the control of weeds. In operations where methyl bromide is used under mulch, there are still weeds that escape in the row middles and alternative weed management practices are needed to reduce the population of certain weed species. A major weed escape is nutsedge. In addition, there is no single broad spectrum alternative soil fumigant that is as affective as methyl bromide in weed control. Alternative strategies are going to be needed post methyl bromide.

Methyl bromide has allowed growers to plant monocultures of a single vegetable, season after season. This has led to weed shifts. Double cropping on the same mulch has slightly reduced the weed shifts, but double crops such as cucurbits or crucifers has not contributed much to the weed control due to the lack of herbicides labeled on those crops.

**Rotation.** Producing alternative crops in rotation is a tried and true method of eliminating weed shifts and can reduce hard to control weeds in one crop by the use of selected labeled herbicides in a previous crop. Nutsedge can be reduced significantly in beans and sweet corn with the use of both pre emergent and post emergent labeled herbicides. This is true with these and other crops in the control of other serious weed problems in fruiting vegetables, such as nightshade and pigweeds (amaranth).

**Fallowing.** Another alternative strategy is fallowing. Fallowing in Florida is a summer fallow in most of the state. Fallow treatments to control weeds can be mechanical, chemical, biological or cultural. One cultural method is flooding as is accomplished in
the Everglades Agricultural Area (EAA). Some biological agents have been identified to control weeds, but these are species host specific and do not perform well under a wide range of conditions. Mechanical tillage is the oldest and most common form of fallowing. Until recently, it was considered to be the least expensive weed control method. Mechanical tillage is very effective in reducing a large percent of many annual weeds in the soil weed bank. Destroying emerged weeds and then allowing others to germinate and emerge and then destroying them is very successful. There is a draw back to only using disking for fallowing if there are certain perennial weeds in the field. Certain weeds such as torpedo grass, Bermuda grass, and spiderworts can be spread by cutting with sections rerooting. Research has also shown that nutsedges are not significantly reduced by tillage alone.

Chemical fallowing is another method that has been used successfully in reducing weeds in a field. The standby method has been the use of glyphosate. Glyphosate is a non-selective systemic herbicide that has no residue in the soil. The use of glyphosate followed by disking to allow new weeds to emerge and a second spray has been used successfully in reducing weeds and reemerged crop plants in the field before the next season.

Several questions have been raised on chemical fallowing: 1). Does a disking need to be done between applications? 2). Will the addition of another herbicide, such as halosulfuron enhance nutsedge control and some control of other broadleaves? 3) Will incorporating a pre emergent herbicide in the spray mix enhance the control?

A graduate student at the University of Florida (Teddy McAvoy) is working with experiments at 3 locations around the state to hopefully answer these questions. In the years to come, production systems are going to change. The herbicides for each of the crops grown using methyl bromide are not sufficient for adequate weed management at the near future.