

# Weed IPM at the University of Massachusetts

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The weed IPM program in Massachusetts was one of the first in the country, and is still the only one in the Northeast. What is weed IPM? While insect IPM emphasizes counting to determine if insect pest levels are above a certain number, or threshold, which justifies spraying, a different approach is usually taken in weed IPM. As anyone whose ever grown a garden knows, weeds are present in high enough numbers to cause damage almost everywhere, so generally speaking, we know even before we plant a crop that we will have to use some kind of weed control. Weed IPM minimizes herbicide use and impact by using herbicides, when needed, in an environmentally-sensitive manner; and by substituting other means of control when possible.

Projects which can be viewed at the South Deerfield research farm include:

*Soil solarization for weed control* - In soil solarization, clear plastic is placed over the soil, where it traps heat, raising temperatures high enough to sterilize the soil. In New England this technique may be useful for killing weed seeds in the surface of the soil. crops planted into a solarized plot without tillage may grow thus be able to grow with reduced or no weed competition.

*Interseeding cover crops into late sweet corn* - Cover crops have a number of purposes. They may enrich the soil with the plant nutrient nitrogen, add valuable organic matter to the soil, provide weed control, and protect soil from erosion. Growers who plant crops which must be harvested late in the season may not have the opportunity to plant cover crops, unless they plant them while their crop is still in the field. We are experimenting with seeding several different cover crops into standing sweet corn to determine how best to establish these crops, and to determine what effect the herbicides applied for weed control in the corn have on cover crop establishment.

*Night tillage for weed control* - Most weed seeds need light to germinate, and so when soil is cultivated at night, less weed seed germination may result.

*Interplantings of cover crops between plastic mulch* - Cover crops could provide weed control in between strips of plastic mulch. We tried planting white clover, annual ryegrass, and hairy vetch plus rye between rows of peppers grown on plastic.

*Spring and summer cover crop screening* - A number of growers, anxious to increase organic matter in their soil, are willing to take land out of production to plant cover crops. We planted a number of different crops this spring and summer to try to determine which produce the most organic matter and the best weed control.

*Other weed IPM projects* - Projects being done at locations other than this farm include: Vegetables - effects of fertilizer source on the competition between crops and weeds, on-farm trials of techniques for reducing herbicide use, and the use of "smother crops," or crops which may outgrow weeds, to kill spreading perennial weeds. Cranberries - long-term economic analyses of different weed control strategies, biology of dodder (a parasitic weed) and use of cranberry presscake as a weed suppressing mulch in field crops.