

Weeds are big crop yield-robbers

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NEWARK, Del. — Even light to moderate infestations of certain weeds in a field of soybeans can drastically reduce yields. So said University of Delaware extension crops specialist Frank Webb at last winter's Delmarva Corn and Soybean Conference. He and University of Maryland extension pest management specialist Betty Marose talked about the chemical costs of controlling escaped weeds, and what it costs growers to ignore them.

Take cocklebur, for instance. Infestations of this pest have been on the rise on Delmarva. When Marose studied the effects of it and several other broadleaf weeds on soybean yields in trials at the Wye Institute last summer, she found that only four cocklebur plants in a 20-square-foot area (four feet of two conventional soybean rows) were enough to reduce yield 40 percent. Under commercial conditions, actual loss will vary depending on planting date, variety, row width, soil type, weather and other factors, but could range from 10 to 50 percent.

"A 10-percent loss will just about pay for an herbicide treatment," she said. "So if you have even one cocklebur plant in 20 square feet of soybeans, it's time to get out and spray." Webb recommended using Basagran at the 1½ pint rate on weeds less than 6 inches high. "If they get taller than that, you'll have to increase the rate to 2 pints per acre," he said.

At these rates, a broadcast treatment would cost roughly \$20 an acre. The specialists said this could be reduced to just under \$16 by treating only the soybean row, then cultivating middles. Combining both steps in one operation with a sprayer mounted on the cultivator would lower costs to about \$12.

Given the current economic picture, broadcast treatment is expensive. "That's the only choice in narrow rows or solid seeded beans, but if you have row beans, it may pay to go the other route," Webb said.

In fields where both cocklebur and morningglory are a problem, he recommended a combined treatment of 1½ pints each of Basagran and Blazer. "Don't try to reduce the rates or there's likely to be some weed regrowth," he cautioned.

Morningglory is another serious pest in soybeans. Though not as competitive as cocklebur, it reduces yields and may cause dockage when beans are sold. In her field trials last summer, Marose said two morningglory plants in 20 square feet reduced yields between 5 and 15 percent. With eight plants, the loss could be as high as 25 percent.

For a morningglory problem — particularly in solid planted soybeans — Webb recommended using 1½ pints of Blazer. If weeds are larger or weather conditions unfavorable, it may be necessary to go up to the two-pint rate.

The specialists estimated a broadcast application would cost \$16.57 an acre. In conventional tillage with wider rows, banding and cultivating would cost \$14.28 an acre — \$10 if done in one operation.

Timing is as critical as herbicide selection in controlled escaped weeds in soybeans. "Many of us get busy and don't return to our fields quite soon enough," Marose said. "Maybe we're still planting beans and postpone treatment a little later than we should." The delay can be costly.

In a two-year study at 15 eastern shore sites with an average of four or five morningglories per 20 square feet, she compared soybean yields under various control

treatments. Where only a preplant incorporated or pre-emergence herbicide was used, yields averaged 27 bushels an acre. Hand-weeded plots yielded 37.9 bushels.

"No chemical is going to give you quite that good control," she said, "but Blazer applied when recommended — three weeks after planting when soybeans had one trifoliolate fully expanded and morningglories were still less than 4 inches tall — increased yield by 5.6 bushels an acre. Even at an application cost of \$16.57 an acre, \$5.75 bushel soybeans would give a net profit per acre of \$15.63 after treatment. When we waited until five weeks after planting, even though it was only two weeks later and yield still increased 3.3 bushels, our profit was down to \$2.40 an acre. That makes you wonder if you're really doing the best job you can."

Delaying two more weeks before controlling the morningglories resulted in only a 2.3-bushel increase, and their profit was completely wiped out. In fact, they actually lost \$3.35 an acre when all costs were calculated. "This shows the value of proper herbicide timing," Marose said. "You've got to get in there early, recognize the problem, and treat when you can

get the most value from the product."

Another chemical effective against morningglories in row soybeans is 2,4-DB — providing it can be post-directed. At an estimated cost of \$5.38 per acre (including \$4 for application), Webb said it does a cheap, effective job. It can be combined with Lorox where grasses and other broadleaf weeds are part of the problem. In this case, the grasses must be short enough for the spray to go over the tops. The specialists estimated that the combined cost of applying both herbicides in this case would be a modest \$9.53.

Several new types of shield equipment are available for post-directing. Whichever kind is used, Webb said the point is to keep herbicides off all but the lower third of the soybean plant. Generally, soybeans must be 12 to 14 inches tall to do this. The herbicide should go over the top of weeds, except for morningglory. Providing part of the vine is sprayed with 2,4-DB, control should be good. Most other broadleaf weeds require total contact. Post-directed sprays can be used only on row soybeans, not solid seeded ones.

Where both cocklebur and

morningglory are a serious problem, a combined treatment of Blazer and Basagran may be the only solution, but it's expensive, he said. "At the recommended rate of 1½ pints each, you're looking at a cost of \$32.46 an acre, applied. Again, if you have the option of banding and cultivating, you can reduce this price to about \$19."

Jimsonweed is another escaped weed which can cause serious losses in soybeans. Marose said it is similar to morningglory in the amount of loss it causes. "If you have two plants in 20 square feet, you'll get an average loss of 10 percent," she said. "Beyond that, yield losses will increase. We have a beetle that feeds on Jimsonweed in this area, but you can't rely on that to reduce populations adequately. You still need chemical control."

Webb said either Blazer or Basagran gives good control of even fairly large Jimsonweed plants. The choice of material depends on other weeds present. Go with Blazer, if morningglory is present. With cocklebur, use Basagran.

Buttonweed or velvetleaf is a deep seeded broadleaf weed which is hard to control, and which also reduces soybean yields. It competes for moisture, nutrients and

light. Some seedlings emerge from as deep as 6 or 7 inches in the ground, which means pre-emergence materials can't control them adequately.

Velvetleaf is less widespread than some other problem weeds, but if present, it should be controlled early. Marose had no competition figures, but said one or two plants per 20 square feet would probably reduce yield enough to justify treatment. At the 2- or 3-inch stage, she and Webb said 1½ to two pints of Basagran alone would do a fairly good job. At the 6-inch stage, use 1½ pints each of Basagran and Blazer.

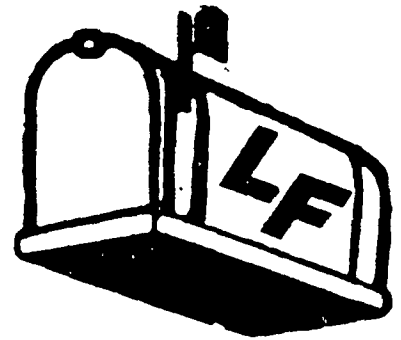
Though less information is available on competition by grassy weeds in soybeans, one or two every square foot can reduce yield substantially. When grasses are very small (less than three leaves), Webb said they can be treated with Hoelon at labeled rates. This material also controls volunteer corn. The trouble is, once a grass emerges, it quickly develops three leaves, so it is difficult for a busy farmer to scout fields often enough.

Two nearly registered chemicals — Poast and Fusilade — should solve this problem, he said. They

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