

Improve Soybean Yields

Shannon: Several Efforts Can Help Farmers Boost Soybean Yields

BETTY VALLE GEGG-NAEGER
MidAmerica Farmer Grower

PORTAGEVILLE, MO.

Variety selection is among the choices farmers can make to improve soybean yields in this era of \$13 to \$14 soybeans. Dr. Grover Shannon, soybean breeder at the University of Missouri Delta Center, recently discussed different variety features including cyst nematode resistance, flooding tolerance and some management techniques.

"Farmers need to take advantage of these choices because the price is so good and who knows how long this opportunity will last," he said. "There are a lot of varieties out there, with a lot of emphasis on Roundup 2. Roundup 1 is beginning to fade out of the picture and a lot of companies are going to drop their Roundup 1, they're all going to 2s. However, there still are some good Roundup 1s out there and they still do yield well."

Farmers also are interested in conventionals because the seed is cheaper. They can get a premium at the elevator, and farmers already must use conventional herbicides anyway because of resistant weeds.

"A lot of people have the perception that conventional beans don't compete but the ones I'm seeing are some very good ones, and farmers just need to look for them," Shannon said. "There aren't very many out there but in some variety tests where they compare Roundup and conventional in the same test, I've seen conventionals at the top of the test."

Another option is Liberty Link. Liberty Link is a new technology. The breeding has probably not caught up yet, as the yields may be down just a little on the Liberty but with resistant weeds there just are not a lot of options. Farmers just need to be careful how they use them to make sure they're good for them.

"I also covered soybean cyst nematode," he said. "Often people don't pay attention like they should. They probably don't test to know for sure what kind of nematode situation they have. There are two basic nematodes we have down south that really affect us: They are soybean cyst and root knot. I think with all these sandy soils we have, root knot is actually worse. But these are two serious nematodes and people need to pay attention. Instead of making 40 bushels in a field and think they're doing good, they could be making 50 or 60 if they choose the right variety."

"The main problem we're having in the south is that the races have shifted, and all the varieties are traced back to two plant introductions," Shannon said. "They're no longer as effective against the nematodes because the races are 2 and 5. Three and 14 are what most of the varieties are resistant to so they're less effective. We need more Hartwig-type resistance in our cyst nematode varieties. There are some varieties out there but not enough."

Many of these are conventional varieties. In the southern United States, if you do have a multi race problem and you have a root knot problem in the field, there are some varieties that have resistance to both. Even if it's just the old cyst resistance you have, you're better off to choose a variety that has both cyst and root knot if those are both problems in your field.

Multi race resistant varieties are now coming out and there are some promising ones in late group 4s and early 5s. Some of them are Dudley, Progeny 5191, Jake, which have been out there, and Armor 49C3. These are all excellent varieties with multi-race resistance to cyst.

"However, we need more varieties in early maturities," Shannon said. "There are two that are Roundup resistant, there are two that I know of with multi-race resistance to root knot. They are Pioneer 95Y60 and also MPV 5214NRR. They're both Roundup 1, but if people choose a Roundup, they're the only two that I know of. We have a weakness in the group 4s. The University of Missouri is developing some Roundup 2s, 1s, and conventionals that we think are very promising and they have multi race resistance as well as root knot. So this is some of the research supported by farmer checkoff dollars."

Shannon also discussed flooding tolerance, stating some varieties are better than others for flooding.

"We rate them every year, and I like to rate

them three years to know if they're tolerant because one year they can be good and the next not so good," he said.

He rates those that are consistent and lists the data on a sheet that includes 23 lines of group 3, 4 and 5.

"Some of those are more tolerant than others, and none are perfectly tolerant. They all get



Dr. Grover Shannon, soybean breeder at the University of Missouri Delta Center, recently discussed choices farmers have to improve soybean yields including variety features with cyst nematode resistance, flooding tolerance and some management techniques. Photo by John LaRose Jr.

damage, but one thing we're doing in breeding is adding increased flooding tolerance. A lot of these tolerant varieties will lose 30 percent of their yield in a very severe condition, but we're breeding varieties and so far we've found some strains that only lose 5 percent to 10 percent of the yield in a severe flooding situation."

Some of this research is supported by Soybean Checkoff dollars. Some people have said drought is more important, and certainly it is, but flooding is important too in this area where people irrigate and sow rice on some of the heavy soils near zero grade, and that is an issue.

There are some other things farmers can do to increase yields and one of those is bedding.

"If you can bed your ground it improves drainage, it's going to improve emergence, and water flows out better especially under flooding," Shannon said. "If you can just get a bed up, keep those beans out of the water, they're going to do better. Laser leveling also helps. Farmers who level their fields get better drainage. Farmers are doing really well putting their land to grade with these lasers. They're getting three to six bushels more per acre with laser leveling. So if you will be leveling your land, that's going to improve your yield."

Lime is another fruitful input. Some people have ignored lime, but others are getting a full season and double crop while improving their yields at least four bushels per acre with lime. Lime is a very important ingredient, and farmers who keep doing that are going to get increased yields. All these things play a role in improving your yield.

"To summarize, I've discussed many things, but variety especially is something a grower can control," he said. "A farmer needs to know what his situation is in that field. If he knows he has a cyst problem, he knows he has flooding problems, some varieties do better under drought, some of them have more charcoal rot resistance. Know your situation. Choose the right variety for that situation and you'll have a lot better situation on your farm to improve your profits and take advantage of these good soybean prices." Δ

BETTY VALLE GEGG-NAEGER: Senior Staff Writer, MidAmerica Farmer Grower