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Virginia Soybean Update

Volume 10, No. 1 **March 2007**

Dear Reader,

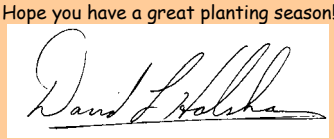
Welcome to a new year and volume of the Virginia Soybean Update. Everyone seems excited about the year. Corn prices are excellent due to the ethanol boom. Soybeans aren't doing bad either with prices above $7 and Nov. future prices well above $7.

Even with these good prices, reducing costs is still important, as long as it doesn't affect yield. A bit of good news is that I've lowered my full-season plant population recommendations. Reducing your seeding rates can save you around $5 per acre. It's not as much as the $2 more per bushel you're getting for your beans, but it's something. But, don't lower your double-crop seeding rates. Our current recommendation of 180 to 200 plants per acre seems to be right on target. Remember, yield is something you don't want to sacrifice this year.

I've reviewed steps in selecting varieties, specifically selecting the right variety for a specific farm or field. I think that a few more bushels of yield can be obtained if you farm a little more field-specifically.

There was some news just this week about soybean rust being found in a grain bin in Iowa. I've included the latest on this, but I'm sure more information will follow.

It's warming up. Feels like spring. Hope you have a great planting season!



Extension Soybean Specialist

In This Issue

New Full-Season Seeding Rates for Virginia

Glyphosate-resistant varieties have made soybean weed control much easier and in many cases, much better. However, good things do not come without cost. The price tag for a bag of Roundup-Ready seed is now averaging around $30. So, planting 125 to 150 thousand seed per acre in May could be costing you between $25 (small seed) and $35 (large seed) per acre.

In response to these escalating costs, we conducted research over the past four years to determine if seeding rates could be lowered in Virginia's full-season and double-crop plantings. Sixteen full-season and 21 double-crop experiments were conducted with maturity group 4 and 5 varieties. Plant populations ranged from 25-200 thousand plants per acre in the full-season tests and from 50 to 300 thousand plants per acre in the double-crop tests.

We found that double-crop seeding rates should not be lowered; keep planting enough seed to give a final plant stand of 180 to 200 thousand plants per acre.

A summary of the 16 full-season tests revealed the following. Note that I'm talking about soybean plants and not seed. You will need to adjust these population numbers upward in regard to your anticipated emergence percentage.

- 5 tests showed no response
- 7 tests showed an optimal population of 75 to 100 thousand plants
- 4 tests showed an optimal population of 100 to 140 thousand plants
- Maturity group did not affect the results
- There was some correlation with yield potential
  - 30-40 bushel: 3 of 7 tests required greater than 100 thousand plants to maximize profit; 1 required ~80 thousand plants; 3 showed no response
  - 40-60 bushel: 3 of 4 had no yield response; 1 required ~80 thousand
  - 60+ bushel: 5 of 6 required 70 to 100 thousand plants; 1 required ~ 130 thousand

What does this mean? **There is a risk to reducing plant populations below 80,000 plants per acre.** The greatest risk is when full-season yield potential is around 30 bushels per acre. This has to do with a lack of canopy development early in the season. But even in those experiments, the profit loss as the population went from 100 thousand plants to 80 thousand was relatively small; the greatest profit loss occurred when the population dropped below 60 to 80 thousand plants.

So, with these data, my new final plant population recommendations for full-season soybeans have been reduced from 100 to 120 thousand plants per acre to 80,000 plants per acre. This can result in about a $5 per acre savings, more or less, depending on seed size and cost.

I do caution that these data were obtained from fairly uniform plant stands. Conventional drills do not distribute the seed uniformly. I have not tested these populations using the erratic stands that drills give. Therefore, use caution when using drills. My suggestion is to try some lower seeding rates in replicated trials on your farm and see how you fair.

What about the 60+ bushel experiments? This basically boils down to the plant's ability to handle all the pods necessary to get high yields at low populations. For instance, at 75,000 plants per acre, each plant needs about 80 pods per plant to yield 60 bushels per acre. But, at 150,000 plants per acre, each plant would only need 40 pods. I question whether or not a soybean plant can maintain this many pods, especially in our fields that commonly have at least short periods of drought. So, if you trying to win the yield contest, use higher seeding rates.

The Right Variety…in the Right Field…for the Highest Yield

"I don't care what Holshouser's data says, [variety X] always yields best on my farm." That's not an uncommon comment when I talk to growers about variety selection. Usually, in such a case, the grower's favorite variety is not finishing at the top of our variety tests. So, is the grower right; or is my data right? In many cases, we both are.

How can this be so? **To maximize yield, one should use high-yielding variety that match the field's limitations.** You see, that's the key – matching the field's limitations. What are these limitations? It may be nematodes. It may be the cropping system or rotation. Or, it just may be the yield potential (dependent primarily on soil type) of that field.

In this article, I'll discuss how to select the right varieties for your operation, and where to place those varieties on your farm. The steps that I suggest using are: 1) Select the proper maturity groups (MG) for your operation; 2) Within those MG, match variety traits to field limitations; and 3) Chose high-yielding varieties within those limitations.

Select the proper maturity groups for your operation. Soybean is photosensitive plant. What this means is that flower initiation responds to daylength (it actually responds to length of the night). Flowering in soybean is triggered when the daylength is reduced to a certain number of hours. It takes a shorter daylength to trigger a MG 5 to flower than it takes to trigger a MG 4. Days begin to shorten after the summer solstice. So, a MG 5 will flower later than a MG 4.

Which maturity group is best for your operation? This depends are several things such as the size of your operation, your risk tolerance your soybean cropping system, your rotations, and where the farm is located in the state.

If you are farming large acreages, it may be best to use several different maturity groups in order to spread out the workload, especially harvest. Soybeans have pretty good shatter tolerance today, but they won't hold on forever. Plus, seed quality will decline the longer that you leave the crop in the field after it matures. By using a wide range of maturity groups, you can harvest the earlier-maturing varieties first, and then move on to the later-maturing varieties without worrying about seed quality decline in this later maturity group. I'd suggest planting the early-maturing varieties on the wetter soils. Obviously, this would allow harvest earlier on these soils that can quickly become unsuitable for driving a combine through. But, there is another reason for this suggestion; I'll address it later in this article.

Risk management is another reason for using multiple maturity groups. In Virginia, we never really know when the drought will hit. So, instead of putting all your eggs in one basket, use a wider range of maturity groups to avoid a poor yield for your entire crop. In 2006, the MG 5 varieties clearly performed better due to the dry August and wet September. This trend has been reversed however in some years.

Crop rotations are very important in choosing a maturity group. If you're a cotton or peanut producer, you should stay away from early- and mid-group 4's. These varieties will mature in late-September to early October, right when harvest of cotton and peanuts is beginning. If left in the field until late October, the seed quality could decline to the point of the crop being non-saleable. Don't take this risk! And don't foul up the quality of a generally high-quality Virginia soybean crop. I used cotton and peanuts as an example, but other conflicting crops would have the same result.

Where you farm makes a difference. Obviously, where you have a shorter season (Shenandoah Valley, Northern Piedmont), pick an earlier maturity group. The general rule of thumb is to pick a variety that will meet canopy, or leaf area, requirements and still mature before first frost. Maturity group 5's just don't fit in the Valley.

Planting data should influence your selection. Late maturity group 5's, planted after wheat, may not mature before a frost in the northern counties. In addition, maturity group performance varies with region.

Below are 5-year averages for all varieties within a maturity group at five locations in Virginia. The data was obtained from our soybean variety tests.

Table 10.1.1. Average yields of soybean varieties tested in the 2002-2006 Virginia full-season tests.

Location	Maturity Group				
	Years Tested	3	E4	L4	5
N. Piedmont	**5**	**45.8**	**40.3**	**45.2**	**48.1**
S. Piedmont	**5**	**---**	**33.3**	**38.8**	**42.8**
Eastern Shore	**5**	**47.8**	**50.2**	**51.2**	**49.1**
N. Coastal Plain	**5**	**43.4**	**44.1**	**42.5**	**46.7**
S. Coastal Plain	**5**	**51.3**	**53.2**	**51.9**	**53.5**

You've seen these data before. Using a full-season system, MG 5's tend to be the highest yielding varieties, regardless of location. Exceptions seem to be on the higher-yielding soils of the Eastern Shore and Southern Coastal Plain locations. I'll come back to this.

Table 10.1.2. Average yields of soybean varieties tested in the 2002-2006 Virginia double-crop tests.

Location	Years Tested	Maturity Group 3	E4	L4	5
N. Piedmont	**5**	**27.2**	**25.0**	**28.3**	**---**
S. Piedmont	**5**	**---**	**38.6**	**40.8**	**40.2**
Eastern Shore	**5**	**34.1**	**36.6**	**36.9**	**40.3**
N. Coastal Plain	**5**	**32.0**	**36.8**	**36.8**	**31.9**
S. Coastal Plain	**5**	**33.5**	**39.3**	**40.1**	**42.6**

The same general trend holds true for double-crop plantings; later maturity groups yield best. An exception is the Northern Coastal Plain location. This is due to an earlier frost and a slight delay in flowering date, versus the more southern locations. Greater canopy development is responsible for the higher yields with the later-maturing varieties. Late planting combined with early maturity result in shorter plants with not enough canopy to meet minimum leaf area requirements.

But that's not the entire story. Averages are just that – averages. They don't always show the details. Note that in Table 10.1.1, that the earlier maturity groups are yielding as well as the group 5's at the two highest-yielding locations. Let's look at this a little further. Below is the relationship between yield of an individual maturity group at a particular location and the average yield of all varieties tested in that location. For example, the late MG 4 variety circled in red is yielding about 56 bushels while the average of all the other varieties is only yielding about 39 bushels. So, at that location, the late MG 4's yielded much higher than the other maturity groups. This is of course affected by when the rain came. But, by looking at the general trend, we see that at low yield potentials, MG 5's have the advantage. But, at high yield potentials, the earlier maturity groups have the advantage. I'll break the graph down a little on the next page for better clarification of this phenomenon.

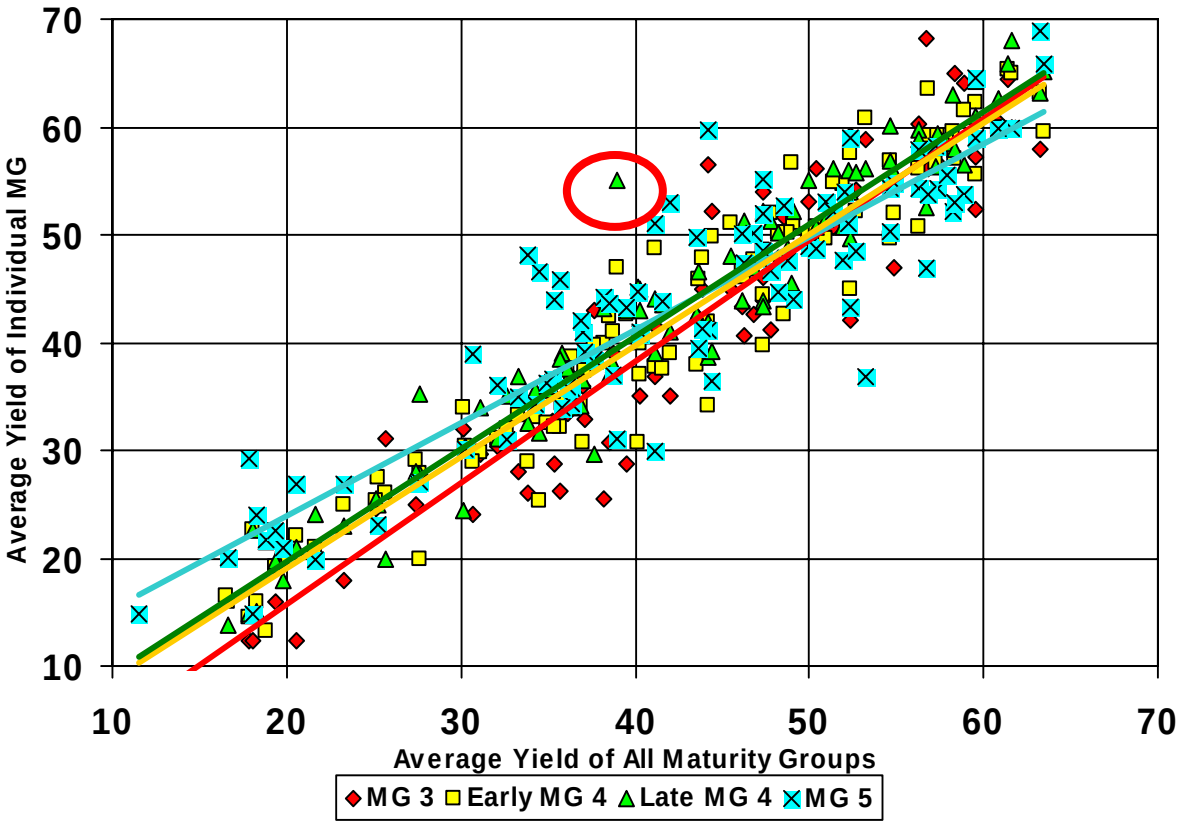


Figure 10.1.1 Relative yields of maturity groups 3, 4, and 5 in the Virginia Official Variety Tests (1997-2006).

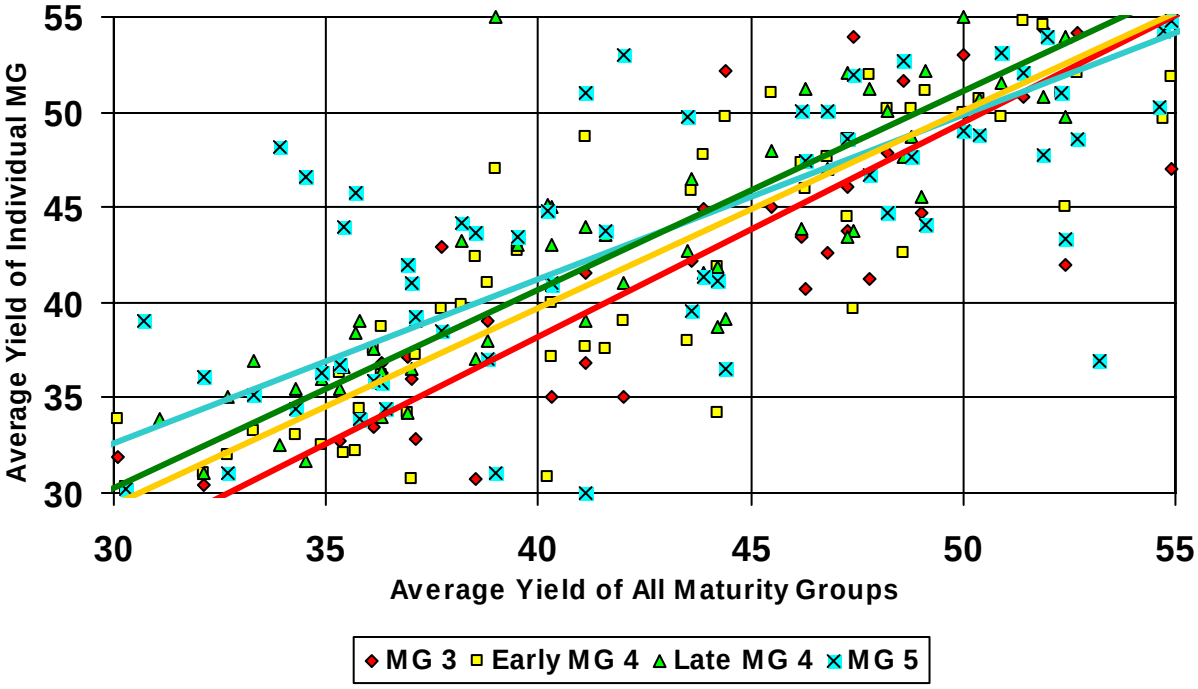


Figure 10.1.2. Relative yields of maturity groups 3, 4, and 5 in the Virginia Official Variety Tests (1997-2006) at medium yield potentials.

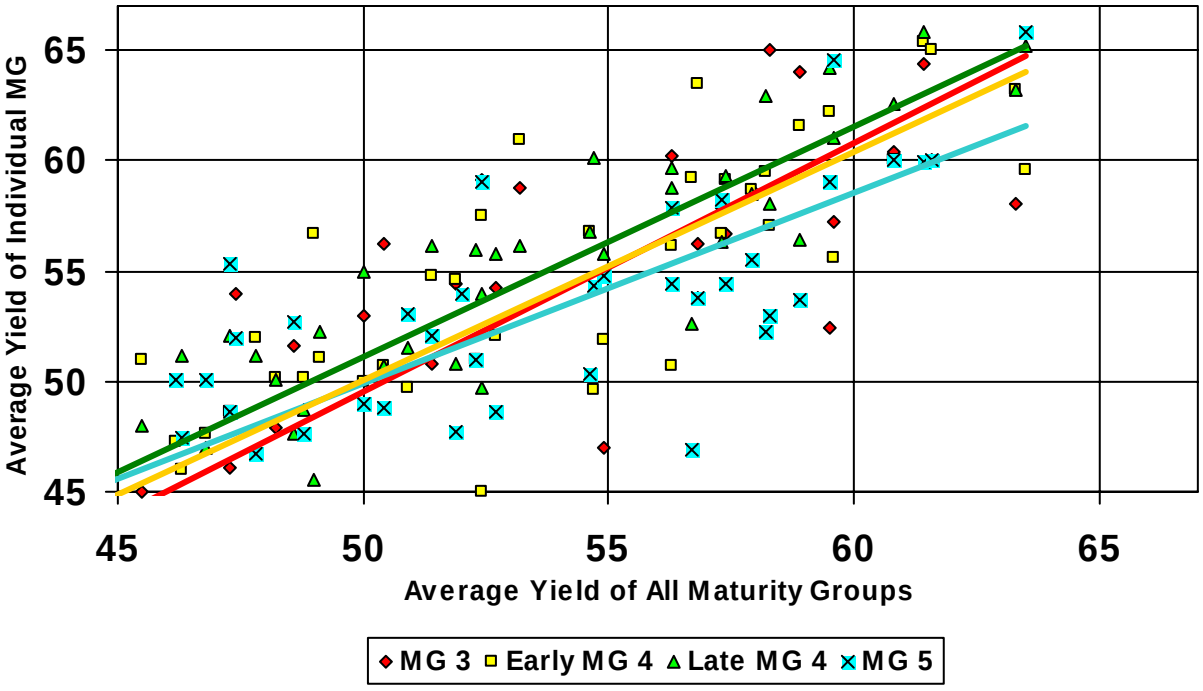


Figure 10.1.3. Relative yields of maturity groups 3, 4, and 5 in the Virginia Official Variety Tests (1997-2006) at high yield potentials.

Why is this? Canopy development may have something to do with it. Earlier maturity groups are generally smaller and don't always meet leaf area requirements on lower-yielding soils or in dry years. In some years, there's just not enough soil moisture to put enough leaves on in that short of time period. Those years of extended droughts are represented by the lower-yielding portion of the graph (Fig. 10.1.1). A dry July and August favor MG 5 varieties; MG 5 varieties tend to wait on the

rains and lower evapotranspiration that occur in September. The medium yield potential portion of the graph represents years where intermittent rainfall occurs (Fig. 10.1.2). In other words, the droughts aren't extended, but are short periods of moisture stress that are equally likely to occur during anytime. So, when the moisture stress occurs during early- to mid-August, group 5's may be favored over the group 4's. When moisture stress occurs in late August to early September, 4's may be favored. So, on average, MG 4 and 5 varieties yield about the same. What about the high yield potential years (Fig. 10.1.3)? These are years of little moisture stress. Canopy development is adequate for all maturity groups. These data best represent the true genetic yield potential of the varieties. From figure 10.1.3, one can see that MG 3 varieties perform relatively well at high yield potentials, and MG 5 varieties do not.

What's the application here? If possible, **place your earlier maturity group varieties on your better soils.** This has a double benefit in that the higher yielding soils may be your wetter soils. While not always the case, harvest on these soils can be more difficult in November.

So, you now know what maturity groups you'll use in your operation and maybe which fields you'll place these maturity groups. Now, which varieties should you pick within these groups? Or, more importantly, which fields do I plant a particular variety?

Match variety traits to field limitations. There are several traits which will be important. At one time, many years ago, herbicide resistance may have been part of the selection process. But, nowadays, everything is glyphosate-tolerant; so that's not a big issue. But, nematode and disease resistance is something that everyone should consider.

Nematode Resistance. Regardless of how well a variety yields in tests, if it doesn't have nematode resistance and you plant it into a field infested with nematodes, it will not perform well.

In Virginia, our major nematode problems are soybean cyst nematode (SCN), Root-knot nematode (RKN), and stubby root nematode. Many feel that numbers are on the rise. To add to the problems, there are different races of SCN and different species of RKN. The most common SCN races (we think) that are in Virginia are races 1 and 3. Many varieties have resistance to races 3 and 14, but not race 1. We have seen failures of these "resistant" varieties where race 1 is the predominant species. There are two main species of root knot in Virginia: southern RKN and northern RKN. Southern RKN will feed on corn and cotton (as well as a few other crops), so rotation is not an effective control measure. Northern RKN only attacks soybean and peanut. So, rotation to corn or cotton would be an effective control measure for this nematode. We have not performed a thorough survey of nematodes in Virginia in over 15 years. However, with the assistance of your check-off dollars, we will conduct a survey of 100 soybean fields and 100 corn fields in 2007. From this survey, we should have a better idea of where the nematodes are and what type we're dealing with.

For SCN, there are a number of varieties available with race 3 and 14 resistance. There are also a few with multiple-race resistance (including race 1). For RKN, there are fewer varieties with this resistance. Most resistance is for southern RKN and not northern RKN. Fortunately, rotation is effective against northern RKN. There is no known resistance to stubby root nematode.

If you suspect a nematode problem in your field, sample it. If you have verified that nematodes are present, then use a resistant variety in combination with rotation.

Other Disease Resistance. The most common disease that we have in Virginia where there is known resistance is frogeye leaf spot (FLS). If you've had problems with this disease in a particular field, you should consider using a resistant variety. This disease can be rather devastating, especially when soybeans are grown continuously (not in rotation). The disease can build up over time. There are several varieties with resistance. Usually, they are classified as resistant or moderately resistant. In my experience, the moderately resistant varieties will perform well if the crop is being rotated. But, sometimes these moderately resistant varieties break down when continuous soybeans are being grown. Therefore, in these circumstances, I'll suggest using only those varieties classified as resistant.

Another foliar disease that seems to be just as common as FLS (maybe more so) is *Cercospora* blight and leaf spot. Unfortunately, most companies do not list levels of resistance to this disease. This is the same disease that causes purple seed stain. We do rate incidence of purple seed stain in our variety tests, so we could assume that those varieties with low levels of purple seed stain also have some resistance or tolerance to *Cercospora* blight and leaf spot.

Keep in mind that both of these diseases can be controlled with strobilurin fungicides (i.e., Quadris, Headline, Stratego, etc.). So, selecting a resistant variety is not a necessity. However, doing so could save a fungicide application. Sometimes a higher yielding variety with a fungicide may be more profitable than a lower-yielding one with resistance.

There are other diseases that companies have bred resistance into their varieties. The most common one that you'll see in the company literature characteristic chart is *Phytophthora* root rot. This disease, like SCN, has multiple races. While this can be a truly devastating disease, we generally don't have problems with it in Virginia. Why? Because it's most severe in poorly drained, tightly compacted, clay soils that are readily flooded. Injury can occur on lighter soils and on well-drained soils if they are saturated for an extended period of time when plants are young. If you have these conditions, you may want to consider a resistant variety, but this is not generally a need in Virginia. Other disease resistance traits that can be found in company literature, but are not big concern in Virginia include soybean mosaic virus, stem canker, brown stem rot, sudden death syndrome, and others.

So, before you assign a variety to a field, know the field and what its limitations are. This is probably the main reason that growers and I may differ on which varieties perform best. Again, we're both right. Now it's time to select the high yielding varieties.

Choose a high-yielding variety. How do you select a high yielding variety? First, use replicated experiments that have been conducted over a wide range of environments. This usually means official state variety tests. This is the most non-biased and scientifically-sound method of gathering the needed data to make your decision. Our variety test data can be found at http://www.vaes.org.vt.edu/TAREC/holshouser/variety.html or obtained at your local Cooperative Extension office.

Secondly, use multi-year and multi-location averages and not just results from a location near you. Research has shown that **the highest yielding variety from a single location will always yield less at that same location the following year.** On the other hand, **the highest yielding variety from multiple-location averages will almost always result in high yields at any location in the following year.**

Multiple location averages can be misleading if all varieties are not included in all locations. In this situation, an average yield over locations would bias the results towards those varieties tested at only the high-yielding sites. In my variety tests, I don't always test every variety in every location, therefore I report multiple year averages as relative yields. Relative yields are not actual yields, but are calculated by dividing the yield of a variety by the average of all varieties at that location. When averaged across locations, relative yields take out some of the bias occurring if actual yields were averaged over locations. Keep in mind that official variety tests are conducted under nematode-free soils and they generally have little disease pressure due to rotation and site-selection.

Finally, there is some evidence that certain varieties yield better than average on soils of high yield potential and worse than average on soils of low yield potential. These varieties are commonly termed "racehorse" or "yield-contest" varieties. And, there are some that do the opposite – they are sometimes called "workhorse" or "stable" varieties. In general, I've seen little of this in our tests. Usually, a high yielding variety yields well regardless of the soil. Still, there are a few varieties that seem to fit these categories. I have yet to include last year's data in my analysis. With the low yields at some locations, I may begin seeing more of this type of response.

So, these are my basic steps for selecting high-yielding soybean varieties. As a review, 1) choose your maturity groups; 2) match varieties to field limitations; and 3) select the variety based on yield. I re-emphasize to place the right variety in the right field.

Below are charts of the top 10 varieties in our variety tests over the past two years, depending on various traits. New varieties that have only been tested for one year are not included because I don't yet have full confidence in those numbers. Still I've listed some fo these new varieties in a separate part of the table. You may want to try a few of these.

Table 10.1.3. Top yielding maturity group 3 soybean varieties in the Virginia Official Variety Test tested at a minimum of five sites, 2004-2006.

Brand	Variety	Herbicide Resist.	Nematode Resist.	FLS Resist.	Overall	Full-Season	Double-Crop	SCN	RKN	FLS
Asgrow	AG3602	RR	C3	MR	X	X		X		X
Progeny	3900	RR	C3,14	MR	X	X		X		X
S.States	RT3851N	RR	C3,14		X	X	X	X		
S.States	RT3860N	RR	C3.14		X	X	X	X		
S.States	RT3951N	RR	C3.14		X	X	X	X		
USG	7384nRS	RR/STS	C3,14		X	X		X		
Vigoro	V39N4RR	RR	C3.14		X	X	X	X		

Table 10.1.4. Top 10 yielding maturity group 4 soybean varieties in the Virginia Official Variety Test tested at a minimum of six sites, 2004-2006.

Brand	Variety	Herbicide Resist.	Nematode Resist.*	FLS Resist.	Overall	Full-Season	Double-Crop	SCN**	RKN**	FLS**
Asgrow	AG4404	RR/STS	C3,14	R		X				
Asgrow	AG4801	RR	C3,14	R				X		X
Asgrow	AG4903	RR/STS		MR		X				X
D&PL	DP4331	RR	C3	MR	X					
D&PL	DP4748S	STS			X		X			
DeltaKing	DK4461RR	RR	C2,5	MR	X		X	X		X
DeltaKing	DK4866RR	RR/STS	C3			X		X		
Pioneer	94M50	RR	C3,14	R	X	X		X		X
Pioneer	94M80	RR	C3,14	MR			X	X		
S.States	RT4451N	RR	C3.14		X	X		X		
S.States	RT4502	RR	C3.14		X		X			
S.States	RT4808N	RR	C3.14		X		X	X		
USG	7434nRR	RR	C3	R		X		X		X
USG	7440nRR	RR	C3,14	MR		X		X		X
USG	7443nRR	RR	C3,14	R		X		X		X
USG	7489RR	RR		R			X			
USG	7495nRS	RR/STS	C3,14				X	X		
Vigoro	V442NRR	RR	C3,14	MR	X	X	X	X		X
Vigoro	V44N6RR	RR	C3,14	R	X					X
Vigoro	V49N6RR	RR	C3	R	X	X	X	X		X
Vigoro	V50N6RR	RR	C3				X	X		
Other promising varieties tested only in 2006										
Clark	CL45RR	RR				X				
Clark	CL49RR	RR				X				
DP&L	DP4919RR/S	RR/STS		MR			X			X
S.States	RT4760N	RR	C3				X	X		
S.States	RT4996N	RR	C3		X	X	X	X		
T.A.Seeds	TS4689RS	RR/STS	C3,14	R		X		X		X
T.A.Seeds	TS4399R	RR	C3,14			X		X		
USG	74A45	RR		R		X				X
USG	74T35	RR/STS	R3	R		X		X		X
USG	74A76	RR	C3,14	MR			X	X		X
USG	74A91	RR		MR	X	X	X			X

*Variety contains at least moderate resistance. C=soybean cyst nematode with race; R=southern root knot.

**Note that the lack of an "X" does not mean that this variety does not have this trait; just that it is not one of the top ten highest yielding varieties with this trait. For frogeye leaf spot, moderate resistance may not be adequate for continuous soybean; in this situation, use a variety rated as resistant (R).

Table 10.1.5. Top 10 yielding maturity group 5 soybean varieties in the Virginia Official Variety Test tested at a minimum of six sites, 2004-2006.

Brand	Variety	Herbicide Resistance	Nematode Resist.*	FLS Resist.	Overall	Full-Season	Double-Crop	SCN**	RKN**	FLS**
Asgrow	AG5605	RR/STS	C3.14	MR	X	X	X	X		X
Asgrow	AG5905	RR	C3	MR	X	X		X		X
DP&L	DP5110S	STS		MR	X		X			X
DP&L	DP5634RR	RR	C1,3;R	MR			X		X	X
DeltaKing	DK5066RR	RR	C3,14	MR		X				X
DeltaKing	DK5567	RR	C3	MR						X
NK	S56-D7	RR	C3.14	MR	X	X	X	X		X
Pioneer	95M50	RR/STS	C3;R	MR					X	
Public	Teejay				X	X	X			
S.States	RT5450N	RR/STS	C3,14		X	X		X		
USG	5002T			R		X				X
USG	7515nRS	RR/STS	C3,14		X		X	X		
USG	540nRR	RR	C3,14	MR			X	X		
USG	7553nRS	RR/STS	C3,14		X	X	X	X		
USG	5601T		C3	MR	X	X	X	X		X
Vigoro	V51N6RR	RR	C3				X	X		
Vigoro	V53N5RS	RR/STS	C3,14	R	X	X		X		X
Promising new varieties tested only in 2006										
Dyna-Gro	33B52	RR	C3,14	R			X		X	X
NK	S59-B8	RR	C3,R	MR	X	X	X	X	X	X
Pioneer	95M82	RR	R	R	X	X	X		X	X
USG	Allen	RR	C3	MR		X		X		X
USG	7515nRS	RR/STS	C3,14		X	X	X	X		
USG	75M16	RR		MR			X			X
Vigoro	V51N7RS	RR/STS	C3				X		X	

*Variety contains at least moderate resistance to the nematode. C=soybean cyst nematode with race; R=southern root knot.

**Note that the lack of an “X” does not mean that this variety does not have this trait; just that it is not one of the top ten highest yielding varieties with this trait. For frogeye leaf spot, moderate resistance may not be adequate for continuous soybean; in this situation, use a variety rated as resistant (R).

2006 Virginia Soybean Yield Contest Winners

Full-Season Contest

1ST PLACE – HUGH TOWNSEND
76.4 BU/A
USG 7423nRS

2nd PLACE – STEVE ROGERS
72.3 BU/A
PIONEER 94B73

3rd PLACE – BERNARD & GAY YANCY
60.3 BU/A
ASGROW AG3905

Double-Crop Contest

1ST PLACE – RICHARD SANFORD
52.8 BU/A
ASGROW AG4404

2ND PLACE – JAMES & CALVIN HAILE
51.8 BU/A
DEKALB DKB 46-51

3rd PLACE – KEITH SHIPE
38.2 BU/A
PIONEER 94M92

Soybean Rust Found in Iowa Grain Bin

Iowa announce that they found soybean rust pustules and spores on a single leaf taken from a grain bin containing soybeans that were reported from an unthrifty field last fall. The soybeans were of maturity group 3.7, in a field planted in late May. The sample was brought into the Iowa State Plant Disease Clinic on March 8 and pustules and spores consistent with Asian soybean rust was identified. The sample was immediately sent to the USDA lab in Beltsville, MD for confirmation. The sample was confirmed by molecular analysis on March 12.

That's basically all I know at this time. Questions remain. Was the fungus "alive" and producing spores? Or were the spores dead? We'll know more later. Below is the news release.

March 13, 2007

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AMES, Iowa — Asian soybean rust has never been identified in an Iowa field since the disease was reported in the continental United States in November 2004. However, the disease now has been conclusively identified on soybean plant tissue, which was submitted to the Iowa Soybean Rust Team last week. This soybean residue is reported to have been recovered from a bin of soybeans produced in Iowa in 2006. Efforts are underway to identify other remnant plant residue that may show symptoms and signs of the disease in order to discern details of this event.

The fungus and the spores that cause the disease cannot survive without green leaf tissue and will die during Iowa winters. The recently discovered rust fungus does not pose a risk of infection for the 2007 growing season in Iowa.

"The fast, conclusive identification of soybean rust in this one particular plant residue sample illustrates the rapid diagnostic capabilities available at Iowa State University to protect the state's soybean crop from the threat of this disease," said Iowa State University College of Agriculture Dean Wendy Wintersteen. "This discovery reminds us that it is possible for Iowa fields to become infected with this disease," said David Wright, director of contract research at the Iowa Soybean Association. "Nonetheless, growers should not overreact to this development. Instead, growers must be ready to act appropriately and economically in 2007 should this disease again show up in Iowa and be a threat to soybean yields."

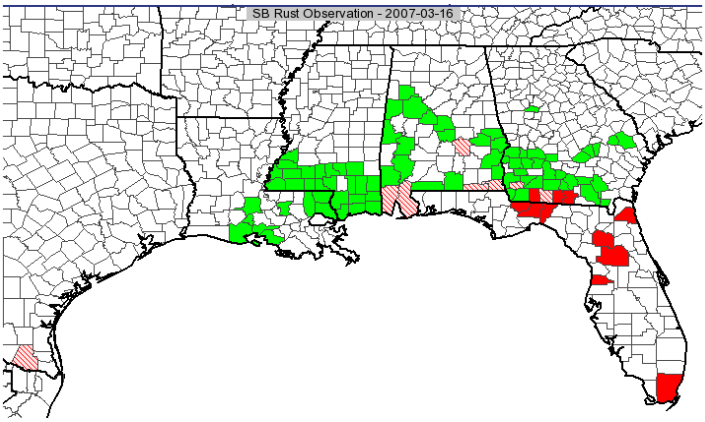
Bill Northey, Secretary of Agriculture with the Iowa Department of Agriculture and Land Stewardship, said the finding does not necessarily increase the risk for next year's crop.

"The confirmation of this disease in the 2006 crop does not guarantee that we will have Asian soybean rust in the 2007 Iowa soybean crop. As in previous years, producers should monitor conditions that favor rust and consult with extension specialists on identification and management plans. However, it is imperative for producers to avoid the inclination to panic and take drastic, costly and unnecessary action before positively identifying soybean rust in their fields," Northey said.

The Iowa Soybean Rust Team comprises personnel from Iowa State University College of Agriculture and ISU Extension, the Iowa Soybean Association, the Iowa Department of Agriculture and Land Stewardship and the USDA Animal and Plant Health Inspection Service. The Iowa Rust Team recruited and trained more than 600 agribusiness professionals from 2004 to 2006 to serve as "First Detectors" who can examine leaf samples and decide whether the samples warrant further investigation for possible infection with soybean rust by ISU Extension personnel in the state or by campus-based ISU scientists.

Growers are encouraged to consult with Iowa Soybean Rust Team First Detectors in the 2007 growing season if they observe plants that they suspect might have soybean rust. There is no charge to consult with these First Detectors concerning possible soybean rust infections. The names and contact information for First Detectors is available on the Internet at www.soybeanrust.info and at the county extension offices.

Otherwise, the fungus has been found on kudzu in southern Georgia, southern Alabama, Florida, and on



volunteer soybeans in Texas this year. The rust at many of these locations was destroyed either by the late frost in February or mechanically (see map below). Sentinel plots are in place in the southern states. We'll keep you updated.

Virginia Soybean Update

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