

Virginia Soybean Update

Volume 11, No. 4

July 2008

Double-Crop Soybean Replant Decisions

Dear Reader,

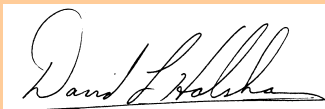
This month's newsletter is somewhat of a repeat of last July's issue. The subject of replanting is always a hard one. But things have changed, prices are higher and so are costs.

For some, high soybean prices tell them that only with maximum yields will they benefit; therefore, replanting a poor stand is absolutely necessary. But for others, seed and diesel costs tell them that replanting is more expensive than ever; so they won't even consider it.

This reminds me a little of the analogy of the glass being half-full versus the glass being half empty. It all depends on how we perceive the situation. But, there is another alternative view. To quote the late George Carlin, "the glass is just twice as big as it needs to be."

Sometimes, we let how we perceive things override how things really are. We sometimes approach a situation in the wrong way. With replant decisions, maybe we are not seeing all options. Things are rarely black and white, but with replant decisions, they are far from gray. We do have Virginia data that can help us in our decision.

If you are trying to determine if you should replant double-crop soybeans, I hope the main article in this issue will help. If nothing else, I hope the article will at least help reevaluate your perceptions.



Extension Soybean Specialist

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Dry field conditions and questionable seed quality are being blamed for poor stands in our double-crop plantings. These may or may not be the cause, but deciding whether or not to replant in July can be a gut-retching decision. I readily admit that the choice to leave the present stand or replant is not a simple one. With the ever-increasing cost of Roundup-Ready soybeans and diesel fuel, the profitability of replanting may not seem a good idea. On the other hand, high prices make replanting more appealing. In the end, your decision should be one based on the estimated dollar gain from replanting. This will require a careful evaluation of the soybean stand and an analysis of yield potential of the present and replanted crop.

In general, there is less benefit of replanting if stands are reduced uniformly across the field. Usually replanting can only be justified where stands have been reduced by half. However, poor stands usually include gaps in addition to merely a lower plant population. These gaps must be accounted for. In addition, one may have a 75-80% stand in parts of the field, while other parts of the field may only have 20-25% of the intended plant population; the decision may be to only replant part of the field.

Remember to take into account the yield loss from delayed planting. As mentioned in the June newsletter, for every day delay in planting yield declines about half a bushel per day. For instance, if replanting 2 weeks later, then your potential yield has declined by 7 bushels per acre.

A few more questions must be asked before we can proceed with a step-by-step procedure for estimating the profit of replanting. When considering a replant, do you leave plants in the field and plant through them? In many cases, this is a possibility. If you're using rows wide enough to fit a tractor tire comfortably between them, then you can split the rows and plant enough new plants to get the final plant population up to 180 to 200

thousand plants per acre (this may require equipment or tractor tire modifications).

On the other hand, a drill will cut up many healthy plants and make them less productive than the ones that you just replanted. Also, if the drill has wide gauge wheels, then you can severely damage a significant number of plants (there's a significant amount of down pressure on those wheels – enough to crush a plant on hard soil). And a damaged plant can sometimes act more like a weed than a crop. Recognize that the plants growing in the field are going to be higher yielding than any that emerges after replanting. If you destroy or injure those plants, you've just writing off some profit. Therefore, I do not suggest planting through the old stand with a drill.

Another issue is that if you decide to replant, do you switch to an earlier maturity group? There is little need to plant an earlier-maturing variety. A general rule of thumb is that a 5-day delay in planting (after mid-June) will result in a 1-day delay in maturity. Therefore, if planting 15 days later, the crop will mature only about 3 days later. Most important is to plant a maturity group that would grow as long as possible (therefore producing an adequate canopy for maximum yield) and still mature before the average frost date. If you're destroying the old crop and starting over, just make sure that the variety you chose will mature before a frost.

Alternatively, if you are planting into the old crop, you may want to choose a variety about one-third to half a maturity group earlier (depending on planting date differences) so that harvest maturity of both plantings will be more in sync. For example, if you planted a relative maturity group 5.3 on June 15, then you could choose a relative maturity of 5.0 if replanting on July 1. Correspondingly, if you originally planted a variety with a relative maturity of 5.6, then you could replant with a 5.0 if replanting 1 month later.

Finally, realize that you'll need a higher plant population when planting late. Your final stand with a double-crop planting should be at least 180 thousand plants per acre. If replanting in July, increase the seeding rate to insure at least 220 thousand plants per acre. So seed costs will be higher.

To estimate the profitability of replanting, follow the guidelines listed below. Be sure to incorporate plant population and gaps in your calculations. We've found that 2- to 3-foot gaps cause as much or more yield loss than from low plant populations.

- Determine the cause of the poor stand.** Was the poor stand the result of poor seed quality, cold wet soils, hot dry soils, planting too deep or shallow, soil crusting, herbicide injury, insect feeding, poor soil to seed contact, or disease infection? Determine if the cause can be corrected to avoid a similar situation. If slugs, insect feeding, or disease is the cause, then you might expect poor stands again.
- Estimate the stand and percent stand loss due to gaps.** Pace off the sections of row 20 paces long in at least 6 areas of the field. Determine (in number of paces) the total length of row lost to 2- to 3-foot gaps. For drilled soybean, this can be interpreted at 2- to 3-foot diameter gaps. Then determine the percent of row lost to gaps. In addition, count and determine average number of plants per foot in sections of row not reduced by gaps. The simplest method is to count the number of healthy plants (capable of recovery) in a length of row equaling 1/1000 of an acre. For instance:
 - 36-inch rows = 14.5 feet
 - 30-inch rows = 17.5 feet
 - 20-inch rows = 26 feet
 - 15-inch rows = 35 feet
 - 7.5-inch rows = 70 feet
 Then, just multiply your counts by 1,000 to get plants per acre.
- Estimate the yield of the poor stand.** Use Table 3 to determine percent of yield potential for double-crop plantings. Multiply this percentage by the expected yield. This is the yield to expect from the deficient stand.
- Estimate the yield from replanting.** After mid-June, decrease the expected yields an additional half of a bushel per acre per day delay in planting. This is the yield to expect from delayed planting.
- Determine the gain or loss from replanting.** Subtract the expected yield of the poor stand (step 3) from the yield expected from delayed planting. This is the gain or loss in bu/A from replanting. Multiply this number

by the expected price (\$/bu), using future prices, to obtain gain or loss in \$/A.

- Estimate the cost of replanting.** Include per acre cost of tillage, herbicide, fuel, seed, and labor.
- Determine profitability of replanting.** Subtract your cost of replanting from your estimated gain from replanting.

Table 1. Plant populations of different row spacing with different plant counts per foot.

Plants/ foot	Row Spacing					
	36	30	24	20	15	7.5
<i>Plant Population (1,000's/acre)</i>						
1	15	17	22	26	35	70
2	29	35	44	52	70	140
3	44	52	65	78	105	210
4	58	70	87	105	139	278
5	73	87	109	131	174	---
6	87	105	131	157	209	---
7	102	122	152	183	244	---

Table 2. Hula-hoop method for determining drilled soybean populations.

No. of Plants	Inside Diameter of Hula Hoop				
	30"	32"	34"	36"	38"
<i>Plant Population (1,000's/acre)¹</i>					
6	53	47	41	37	33
10	89	78	69	62	55
14	124	109	97	86	77
18	160	140	124	111	100
22	196	172	152	136	122
26	231	203	179	160	144

¹Plants/acre = no. plants ÷ (3.14 x r² ÷ 43,560 ft²) where r = radius of hula hoop in feet.

Table 3. Yield response (% of maximum) of double-crop soybeans to deficit stands¹.

% Stand lost to gaps ²	Remaining Plant Pop (1,000's/A)			
	100	140	180	220
0	80	88	95	100
20	71	79	86	91
40	61	69	76	81
60	48	57	64	69

¹Source: 2001-2004 experiments, Suffolk, VA.

²Three-foot gaps; 15-inch rows; MG 5 variety.

An alternative method is to use Table 4 to get a quick idea of whether the deficit stand will yield enough to exceed the cost of replanting. These calculations use data from table 3 to illustrate the effect of soybean price and yield potential on estimated dollar loss from poor stands. I have made the following assumptions: the present stand will be destroyed, 75-80 lbs per acre of seed will be used, seed is priced at \$40 per 50 lb bag, and at least \$5 per acre is needed for fuel and other costs associated with planting. These estimates do not include additional herbicide, labor, other associated variable costs, or the reduced yields resulting from later planting. Therefore, this table is just a quick guide to help you get started with the process. The table is color coded to allow those of us more visually inclined to quickly recognize if replanting will pay. The green colors indicate that the loss from a deficit stand is less than replanting costs; yellow indicates breakeven levels; and red indicates that replanting would at least cover planting costs. If your estimates fall in the yellow zone, then follow the steps previously outlined closely.

Soybean Futures Continue to Rise

Mike Roberts, Commodity Marketing Extension Agent

SOYBEAN futures on the Chicago Board of Trade (CBOT) surged upward on Monday based on fears that soybean stocks will fall to near record lows on USDA's harvested acreage forecasts. USDA reported on Monday U.S. farmers expected to harvest more than 72 mi ac vs. 74.5 mi ac planted. This is the third largest on record and up 17% from last year. Keep in mind the USDA reassessment that will take place the middle of July as stated earlier in the corn section. The JULY'08 contract finished at \$16.050/bu, up 23.4¢/bu from last week and 71.0¢/bu more than two weeks ago. NOV'08 soybean futures closed at \$15.74/bu, up 14.4¢/bu. Even though planted acres were up, the USDA report shows stocks at 663 mi bu vs. 676 mi bu published in the June 1 report and 429 mi bu on hand one year ago. End-of-quarter positioning by large commodity funds were also supportive. Late on Monday USDA reported the U.S. soybean crop 58% in good-to-excellent condition. The market expected and received a 2% rating improvement. Volume was heavy at

times with an estimated 168,250 futures and 23,186 options registered in trading. CFTC Commitment of Traders report last Friday had large speculators decreasing net bull positions in soybeans while expanding net bull positions in both soy oil and soybean meal for the week ended June 24. This action was supported by surging crude oil prices. Having up to 60% of the '08 crop priced is still a good idea. Looks like higher soybean prices are in the offing for both the 2008 and 2009 crop. However, if the USDA survey work of July shows the soybean crop in better condition look for profit taking and lower soybean prices. (*From the Weekly Roberts Agricultural Commodity Market Report July 1, 2008; to subscribe, contact Mike Roberts at mrob@vt.edu or 804-733-2686*)

Research You Can Use

Poultry Litter Application Increases Carbon Sequestration and Soil Quality. Scientists from the USDA-ARS Northern Plains Agricultural Research Lab, Sidney MT and Alabama A&M University, Normal, AL have found that application of poultry litter, a nutrient source widely available in the Mid-Atlantic region, on croplands can increase carbon sequestration and offset agricultural carbon dioxide emission and sustain crop yield. The scientists compared poultry litter with Inorganic nitrogen fertilization under various tillage and cropping systems in Alabama. Interestingly, tillage (conservation vs. conventional) and cropping system (cotton, corn, and cover-crop systems) did not influence soil carbon sequestration. However, when poultry litter was applied at a rate to give 100 lb per acre of nitrogen from 1996 to 2005, soil organic carbon increased by 8% versus inorganic nitrogen application. This resulted in a soil carbon sequestration rate of 450 lbs of carbon per acre per year. In addition to nitrogen, the poultry litter supplied over 1,500 lbs of carbon per acre per year. The team concluded that long-term poultry litter application and continuous cropping can increase soil carbon sequestration and labile carbon fractions, thereby offsetting atmospheric carbon dioxide emission and improving soil and environmental quality. Results of this research were published in the May-June issue of the *Journal of Environmental Quality* 37:880-888. Authors were U.M. Sainju, Z.N. Senwo, E.Z. Nyakatawa, I.S. Tazisong, and K.C. Reddy.

Table 5. Effect of price per bushel and yield potential on estimated dollar loss from an evaluation of % of stand lost to gaps and the remaining soybean plant population outside of the gaps. Green colors indicate that loss from deficit stand is less than replanting costs; yellow indicates breakeven levels; and red indicates that replanting would cover planting costs (assumes that previous stand is destroyed and \$60/acre variable costs: 75 lbs per acre of seed at \$40 per 50 lb bag + \$5 per acre for planting costs; does not include herbicide or other variable costs).

% of Stand Lost to Gaps	Yield Potential (Bu/A)	Soybean Population per Acre x 1,000																			
		100,000					140,000					180,000					220,000				
		Price per Bushel																			
		\$6	\$8	\$10	\$12	\$14	\$6	\$8	\$10	\$12	\$14	\$6	\$8	\$10	\$12	\$14	\$6	\$8	\$10	\$12	\$14
0	20	\$24	\$33	\$41	\$49	\$57	\$14	\$19	\$23	\$28	\$33	\$6	\$8	\$10	\$12	\$14	\$0	\$0	\$0	\$0	\$0
	25	\$31	\$41	\$51	\$61	\$71	\$17	\$23	\$29	\$35	\$41	\$7	\$10	\$12	\$15	\$17	\$0	\$0	\$0	\$0	\$0
	30	\$37	\$49	\$61	\$73	\$86	\$21	\$28	\$35	\$42	\$49	\$9	\$12	\$15	\$18	\$20	\$0	\$0	\$0	\$0	\$0
	35	\$43	\$57	\$71	\$86	\$100	\$24	\$33	\$41	\$49	\$57	\$10	\$14	\$17	\$20	\$24	\$0	\$0	\$0	\$0	\$0
	40	\$49	\$65	\$82	\$98	\$114	\$28	\$37	\$47	\$56	\$65	\$12	\$16	\$19	\$23	\$27	\$0	\$0	\$0	\$0	\$0
	45	\$55	\$73	\$92	\$110	\$128	\$31	\$42	\$52	\$63	\$73	\$13	\$18	\$22	\$26	\$31	\$0	\$0	\$0	\$0	\$0
	50	\$61	\$82	\$102	\$122	\$143	\$35	\$47	\$58	\$70	\$82	\$15	\$19	\$24	\$29	\$34	\$0	\$0	\$0	\$0	\$0
20	20	\$35	\$47	\$59	\$70	\$82	\$25	\$33	\$41	\$49	\$58	\$17	\$22	\$28	\$33	\$39	\$11	\$14	\$18	\$21	\$25
	25	\$44	\$59	\$73	\$88	\$103	\$31	\$41	\$52	\$62	\$72	\$21	\$28	\$35	\$41	\$48	\$13	\$18	\$22	\$27	\$31
	30	\$53	\$70	\$88	\$106	\$123	\$37	\$49	\$62	\$74	\$87	\$25	\$33	\$41	\$50	\$58	\$16	\$21	\$27	\$32	\$38
	35	\$62	\$82	\$103	\$123	\$144	\$43	\$58	\$72	\$87	\$101	\$29	\$39	\$48	\$58	\$68	\$19	\$25	\$31	\$38	\$44
	40	\$70	\$94	\$117	\$141	\$164	\$49	\$66	\$82	\$99	\$115	\$33	\$44	\$55	\$66	\$77	\$21	\$29	\$36	\$43	\$50
	45	\$79	\$106	\$132	\$158	\$185	\$56	\$74	\$93	\$111	\$130	\$37	\$50	\$62	\$75	\$87	\$24	\$32	\$40	\$48	\$56
	50	\$88	\$117	\$147	\$176	\$205	\$62	\$82	\$103	\$124	\$144	\$41	\$55	\$69	\$83	\$97	\$27	\$36	\$45	\$54	\$63
40	20	\$47	\$63	\$79	\$95	\$111	\$37	\$49	\$62	\$74	\$86	\$29	\$38	\$48	\$58	\$67	\$23	\$31	\$38	\$46	\$53
	25	\$59	\$79	\$99	\$118	\$138	\$46	\$62	\$77	\$92	\$108	\$36	\$48	\$60	\$72	\$84	\$29	\$38	\$48	\$57	\$67
	30	\$71	\$95	\$118	\$142	\$166	\$55	\$74	\$92	\$111	\$129	\$43	\$58	\$72	\$86	\$101	\$34	\$46	\$57	\$69	\$80
	35	\$83	\$111	\$138	\$166	\$194	\$65	\$86	\$108	\$129	\$151	\$50	\$67	\$84	\$101	\$117	\$40	\$53	\$67	\$80	\$94
	40	\$95	\$126	\$158	\$190	\$221	\$74	\$98	\$123	\$148	\$172	\$58	\$77	\$96	\$115	\$134	\$46	\$61	\$76	\$92	\$107
	45	\$107	\$142	\$178	\$213	\$249	\$83	\$111	\$138	\$166	\$194	\$65	\$86	\$108	\$129	\$151	\$52	\$69	\$86	\$103	\$120
	50	\$118	\$158	\$197	\$237	\$276	\$92	\$123	\$154	\$185	\$215	\$72	\$96	\$120	\$144	\$168	\$57	\$76	\$96	\$115	\$134
60	20	\$62	\$82	\$103	\$124	\$144	\$51	\$68	\$86	\$103	\$120	\$43	\$58	\$72	\$86	\$101	\$37	\$50	\$62	\$75	\$87
	25	\$77	\$103	\$129	\$155	\$180	\$64	\$86	\$107	\$128	\$150	\$54	\$72	\$90	\$108	\$126	\$47	\$62	\$78	\$93	\$109
	30	\$93	\$124	\$155	\$185	\$216	\$77	\$103	\$128	\$154	\$180	\$65	\$86	\$108	\$130	\$151	\$56	\$75	\$93	\$112	\$131
	35	\$108	\$144	\$180	\$216	\$252	\$90	\$120	\$150	\$180	\$210	\$76	\$101	\$126	\$151	\$176	\$65	\$87	\$109	\$131	\$153
	40	\$124	\$165	\$206	\$247	\$288	\$103	\$137	\$171	\$205	\$240	\$86	\$115	\$144	\$173	\$202	\$75	\$100	\$124	\$149	\$174
	45	\$139	\$185	\$232	\$278	\$325	\$116	\$154	\$193	\$231	\$270	\$97	\$130	\$162	\$194	\$227	\$84	\$112	\$140	\$168	\$196
	50	\$155	\$206	\$258	\$309	\$361	\$128	\$171	\$214	\$257	\$300	\$108	\$144	\$180	\$216	\$252	\$93	\$124	\$156	\$187	\$218

2008 Virginia Ag Expo

“Celebrating Virginia’s Agricultural Diversity”

August 14, 2008
7:30 AM to 3:00 PM

The Virginia Ag Expo is the largest field day event held annually in the Commonwealth of Virginia and is an educational, marketing and social event that farmers look forward to every year. This year the AG EXPO will be held in Dinwiddie County. The location is Billy Bain Farms owned and operated by our host, Billy Bain. Billy has a large diversified farming operation consisting of corn, soybeans, wheat, peanuts, forage and a beef cattle herd.

Growers will have an opportunity to view the 2008 Virginia On-Farm Corn and Soybean Test Plots. There will be corn and soybean seeding rate, weed control, seed treatment, fungicide, fertilizer, row spacing and tillage plots. In keeping with the diversity of this part of the state there will be demo plots of peanuts, cotton, tobacco, forages and pumpkins. Participants will be able to go from exhibit to exhibit and visit with the various exhibitors at their own pace.

Companies will display their products and services under a large exhibit tent. The latest in farm equipment and related products will be on display in a large outdoor area.

There is a \$10.00 registration fee for a traditional a Bar-B-Q lunch served with all the trimmings and beverages. There will be a limited number of lunch tickets (100) available on the day of the Ag Expo for \$13.00. Fill out the attached form and mail it to the address on the form along with payment for the number of tickets you are requesting. Your lunch tickets may be picked up at the registration tent on the day of the Ag Expo.

We look forward to seeing you this year at the Virginia Ag Expo.

The 2008 Virginia Ag Expo is a joint project of the Virginia Grain Producers Association, the Virginia Soybean Association, and the Virginia Cooperative Extension Service.

2008 VIRGINIA AG-EXPO
“CELEBRATING VIRGINIA’S AGRICULTURAL DIVERSITY”
 Billy Bain Farms
 Dinwiddie, VA
 7:30 AM – 3:00 PM August 14, 2008

Registration Form
 (List all attendees)

Name: _____

Farm/Business/Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail: _____

PRE-REGISTRATION ADMITTANCE \$10.00 – ON SITE REGISTRATION \$13.00
 *A limited number of lunch tickets (100) will be available on site for \$13.00 per person
 (Children 12 years old and under free, but must pre-register)
 Registration includes admission, Bar-B-Q lunch, Snow Cones and Beverages

Number of Adult Tickets Requested _____ X \$10.00 Total Enclosed \$_____

Please list names of all who will attend, in addition to you. Identify those 12 years old or younger.

_____	_____
_____	_____
_____	_____
_____	_____

Continue on additional sheet if necessary.

Make Check Payable to Virginia Ag-Expo

Mail form and check to: Virginia Ag-Expo, 17000 Sandy Point Road, Charles City, Va. 23030

Pre-registration Deadline – August 6, 2008

Pick up your tickets at the registration tent on the day of the Ag-Expo

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