Cool Bean Advisor

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Factors to Consider If Using Lower Soybean Seeding Rates in 2010

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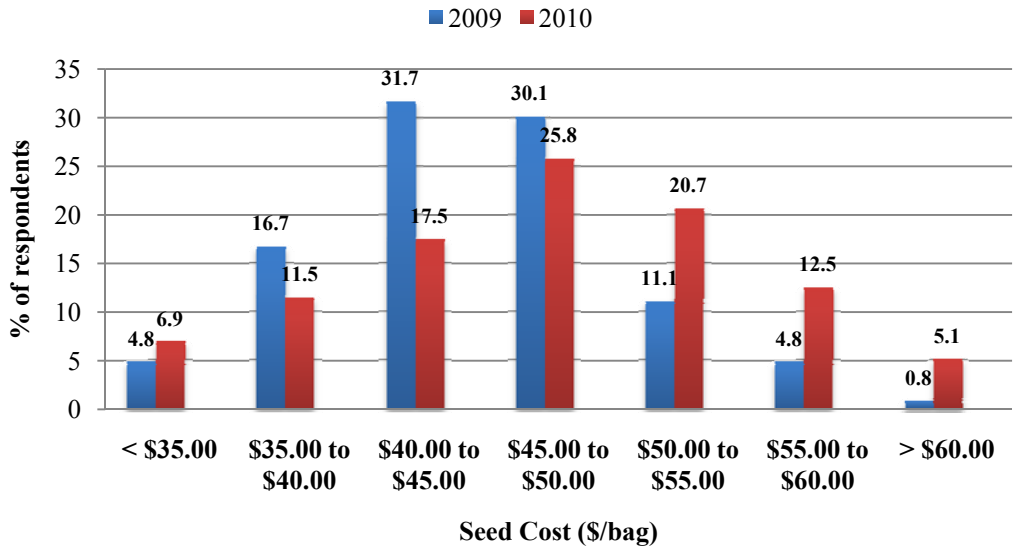
Though not as dramatic of a seed price increase as 2009, soybean seed prices have risen again in 2010. Given the number of rebates, seed treatments, and programs available through seed and chemical companies, it is often difficult to get at the true cost growers pay for seed. To try and capture this "***true***" cost, we sampled grower and dealer clientele that participated in the 2009 and 2010 Agronomy Update Meetings (N=126 and 217, respectively). Results from this survey indicated that seed prices ranged from under $35.00 to over $60.00 per bag (Figure 1). The largest percentage (32%) of those surveyed indicated that they paid between $40.00 and $45.00 per bag in 2009. In 2010, the largest percentage of growers (26%) paid between $45.00 and $50.00 per bag. We also saw a dramatic increase in the percentage of seed purchased at over $50.00 per bag (129%).

Figure 1. Comparison of soybean seed prices in Wisconsin for 2009 and 2010. Data collected during the 2009 and 2010 Agronomy Update Meetings (N=126 and 217, respectively).



Given this dramatic increase in soybean seed prices, most growers will likely consider decreasing their seeding rates in 2010. The extent of this reduction may be dramatic in some cases compared to the current seeding rates used in Wisconsin. In a grower survey conducted with cooperation and support from the Wisconsin Soybean Marketing Board (WSMB) we found that a majority (38%) of Wisconsin growers'

plant between 200,000 and 224, 000 seeds per acre in rows spaced ≤ 10 inches. A majority of growers that plant in rows spaced over 11 inches, plant at 175,000 to 199,000 seeds per acre (Table 1). A key factor to remember as growers contemplate dropping their seeding rate is they need to plant enough seed to achieve a minimum harvest stand (target density) of 100,000 to 120,000 plants per acre.

To successfully achieve our target density we must first make sure our equipment is well maintained and calibrated. At $15.00 to $20.00 per bag, many growers didn't take the time to properly calibrate, however at $45.00 + per bag, it is well worth the time and money to make sure our equipment is in proper working order. For information on drill calibration, please see Grain Drill Metering Systems and the Need for Calibration.

Table 1. Soybean seeding rates and rows spacings in Wisconsin in 2007.

	Seeding rate (1,000)						
Row	< 125	≥ 125 - 149	≥ 150 - 174	≥ 175 - 199	≥ 200 - 224	≥ 225	
	% Respondents						% Total
≤ 10	7	4	4	29	38	17	46
11 - 19	4	5	20	50	20	2	37
≥ 20	0	12	39	46	4	0	17
% Total	5	6	16	40	25	9	N = 153

Once we have determined that our equipment is working properly, we must next consider seed quality. Unlike the problems we ran into in 2008, soybean seed quality in 2010 should not cause growers any concern, though it is still important to take the time to read the tag and check the germ to ensure a proper seeding rate. In a normal year, we assume 90% of the live soybean seed we plant will emerge.

Therefore to estimate our final stand density, we conduct the following calculation:

(Seeding rate) x (% germ) x (% expected emergence) = estimated final stand
Example 1: (180,000 seeds/a) x (0.94) x (0.90) = 152,280 plants/a
Example 2: (180,000seeds/a) x (0.80) x (0.90) = 129,600 plants/a

In Example 1, a grower plants 180,000 seeds/acre of 94% germ seed, and assumes 90% emergence. The estimated soybean stand will be = 152,280 plants/acre. If a grower planted 80% germ seed, the estimated soybean stand would be = 129,600 plants/acre (Example 2) Under most environmental conditions 129,000 plants/acre would produce 100% yield potential, however if we do not achieve our assumed 90% emergence rate due to poor early season growing conditions, we rapidly approach lower stands where yield loss may occur.

A significant change we have seen over the last five+ years is the dramatic increase in seed treatments available to growers. Among the seed treatments available, the most common are fungicides and insecticides. Given the high value of establishing a soybean crop today, seed treatments are being marketed as "insurance" to growers. If you choose to use a seed treatment, it is important to remember to select products that have efficacy on the pest complex that is present on your farm. Selecting a product

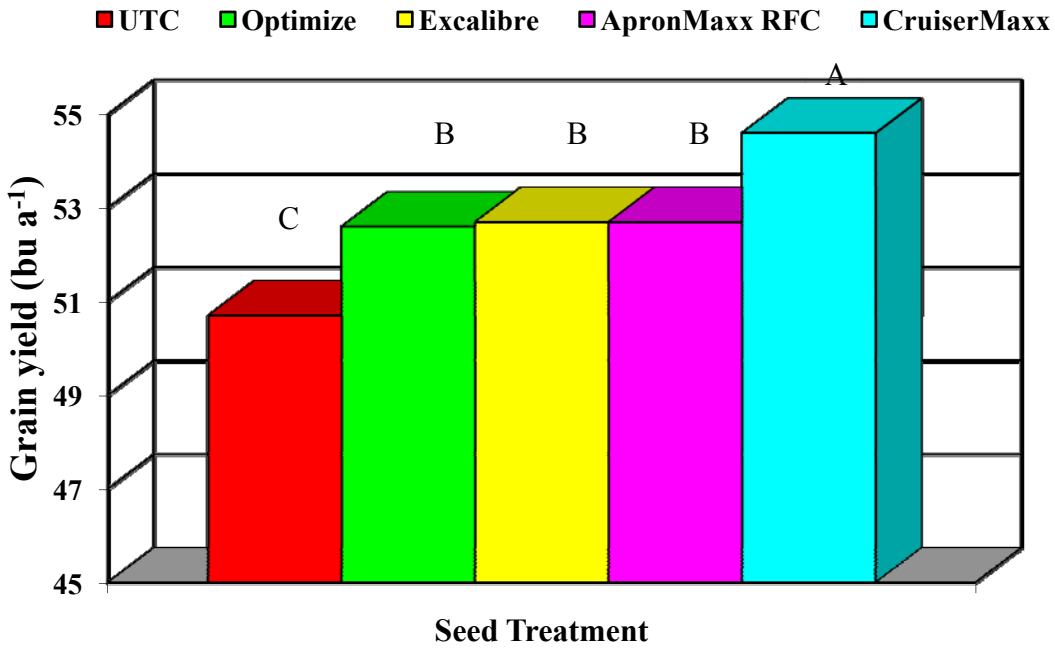
that insures you against a pest that you do not have is like buying flood insurance for a house that sits on the top of a mountain. It may be cheap, but unnecessary.

To evaluate the need for seed treatments in Wisconsin, we initiated a 9 location study (n=432 plots) in 2008. Averaged across all locations (9) and varieties (4), we did not see a benefit from using either ApronMaxx® or CruiserMaxx® in 2008. Analysis of the data however indicated a significant variety by seed treatment interaction suggesting that in some varieties, use of seed treatments significantly increased yield.

We expanded this work in 2009 by adding two inoculants to the experiment (n=540 plots) (Figure 2). Averaged across all locations (9) and varieties (4), we saw a yield response ($p \leq 0.01$) to all seed treatments. The variability in yield response between years was not caused by establishment problems as there were no stand differences (stand counts taken at V2 soybean) among the UTC, the inoculants and Apron Maxx RFC treatments. A 9% stand increase was noted in the Cruiser Maxx treatment in 2009. Note that all stands were at or above a minimum target density of 100,000 plants per acre.(data not shown)

The yield response we saw in 2009 may have been caused by poor nodulation (Please refer to "Year of the Yellow Bean"), early season diseases that impacted stands after our V2 stand counts, insect presence, or other factors not measured in this experiment. This research will be continued in 2010.

Figure 2. Soybean yield response to seed treatments across three regions in 2009.



Lastly, as we begin the planting season, we must remember to re-evaluate our soybean seeding depth. We recommend a seeding depth range of 0.75 to 1.25 inches for soybean. Based on our WSMB survey data, only 30% of Wisconsin growers planted in this optimal range (Table 2). Fifty-nine percent of growers seeded between 1.25 and 2.0 inches and 9% seeded at ≥ 2.0 inches deep. Deeper planting depths were likely relevant 10 years ago given later planting (i.e. warmer soil temperatures and dry soil conditions)

and cheaper seed; however in today's economic environment, planting at the proper seeding depth can reduce some of the risk.

Table 2. Percentage of WI growers planting their soybean seeds at various depths.

< 0.75 inches	0.75 ≥ x < 1.25 inches	1.25 ≥ x < 2.0 inches	≥ 2.0 inches
2%	30%	59%	9%