MAKING THE MOST OF SOYBEAN PLANTING SEED

Portions of the soybean seed-growing areas in the US sometimes produce seed of poor or substandard quality for use in planting the next year's crop. Consequently, producers will be forced to plant seed of varieties that they would not otherwise have chosen in order to plant all of the intended soybean acreage.

Farmers should be unwilling to accept that a shortage of planting seed is an insurmountable hurdle in their path to successful soybean production. While there may be no fix to a seed shortage dilemma, there are management options that should be considered to ensure that available seed are used judiciously. The following material presents several points that should be considered to ensure that available seed are planted with the least risk on as many acres as possible, and that selection of non-preferred varieties is made using criteria that give the greatest opportunity for maximum production.

Important Seed Quality Parameters

Germination. The generally accepted low limit for soybean seed that are used for planting is 80%. That will not change in a year with a lower amount of available planting seed. It is also generally accepted that high emergence potential is indicated by a germination of 90% or higher. A germination test conducted just prior to planting is the most accurate to assess this quality attribute. Producers who have to plant seed lots with a lower-than-desired germination (between 70% and 80%) should have the seeds tested for vigor, increase planting rates, and plant them only when seedbed and environmental conditions are the most favorable for germination and emergence. Preferrably, lower quality seeds should not be planted in cold, wet soils, or in a seedbed with high residue or other conditions where seed-soil contact will be poor and adequate moisture for rapid germination and emergence is not constantly available.

Seed vigor. It is generally recognized that the standard germination test is deficient as a measure of the potential field performance of seeds. Seed vigor tests were devised to more accurately measure seed properties that determine the potential for rapid and uniform emergence and development of normal seedlings under a wide range of field conditions. The accelerated aging test is recommended to measure the vigor of soybean seeds. This test evaluates the germination capacity of seeds subjected to high temperatures and humidity stresses for a defined period. Farmers should request or obtain information on seed vigor from the supplier of a seed lot or an independent laboratory when planting seed quality is suspected to be poor.

Seed Size. Seed size within a variety normally varies among years and production environments, thus resulting in an average size for a given variety. Seeds produced under properly timed irrigation vary the least in seed size from environment to environment. Research has shown that size of soybean seeds with normal quality attributes has minimal effect on emergence and yield. Thus, planting a variety with small seeds or using a variety that has somewhat smaller-than-average seed size should not be a concern as long as germination and other quality factors are acceptable. The plus side of smaller-than-normal seed size of a given variety is that there will be more seed per pound than normal.

Maturity Group to Plant

Maturity Group (MG) zones in the US represent defined areas where a variety is perceived to be best adapted; however, this does not imply that varieties of a specific MG can be grown only in that particular region. Varieties of two to three MGs are often grown successfully at a specific site within a MG zone.

Soybean development, from germination through the onset of flowering and on to maturity, is controlled by photoperiod and temperature. How varieties respond to these factors determines which MG they fall into. Soybean breeders assign a variety to a MG based on its adaptation to the conventional planting practices used in a particular region.

L. X. Zhang at Mississippi State University's Delta Research and Extension Center in Stoneville recently published revisions to the MG zones in the US. His analyses show that varieties from MG's IV and V are adapted to the midsouthern US latitudes. He also states that the north–south region of adaptation for these MG's is approximately 3 to 5 degrees latitude, or a distance of 200 to 340 miles. Accordingly, varieties from MG's IV and V can be planted across a major portion of the midsouth.

Soybean varieties grown in the midsouth generally need 135 to 140 days from planting to maturity to reach full yield potential. Thus, varieties chosen from any MG for planting on a given date at midsouth latitudes should be determined to have this developmental pattern.

Producers within lower midsouth latitudes (generally latitudes south of Memphis TN) should select varieties from MG's IV and V for plantings made through late May. MG V varieties should be used for later plantings. MG VI varieties perform well in late plantings that are not irrigated.

Producers within upper midsouth latitudes (generally latitudes of West Tenn. and NE Ark.) should plant varieties from MG's III and IV when plantings are made in April and May. For plantings made in June, varieties from MG V should be used.

Selecting varieties from two MG's gives producers a wide array to choose from. In a year when seed stocks may be limited or of poor quality, it is best to look for top yielders across the two MG's before going to low yielders within a MG.

There are important caveats to consider when selecting varieties from a later maturity group. First, the growing season will be lengthened, and that places later varieties at greater risk for late-season insect infestations. Second, planting later-maturing varieties will increase the risk of infection by Asian soybean rust. Third, later-maturing varieties will generally require more irrigation to reach full yield potential. Management of these three factors will increase the cost of production in most years. This should be considered when deciding from which MG varieties should be selected in a year when seed of preferred varieties may not be available.

Seeding Rates and Associated Costs

Soybeans can be planted at varying seeding rates because different rates within an acceptable range can be used without affecting yield potential. It is generally accepted that seeding rates of between 120,000 and 150,000 per acre should be used to attain a final stand of at least 100,000 plants per acre.

In a year when seed of preferred varieties may be in short supply, seeding rate should be adjusted to the lowest acceptable limit in order to plant the most acres with a given supply of seed. Information in **Table 1** can be used to determine how the number of seeds planted per foot of row should be adjusted to achieve a lower seeding rate in rows of varying width.

Information in **Table 1** also can be used to determine how much a particular seeding rate will cost and how much savings will result from lowering the seeding rate. For instance, if seed cost is $32.50 per 50 pounds, decreasing the seeding rate of a 3000-seeds-per-pound variety from 150,000 to 120,000 seeds per acre will decrease cost $6.50 per acre. If there is no agronomic reason to use the higher seeding rate, then the lower, cheaper seeding rate should be used.

Planting the same number of seeds per acre of comparably performing varieties with a different number of seeds per pound will affect cost. For instance, planting 140,000 seeds of a variety with 3000 seeds per pound will cost about $5 more per acre than planting the same number of seeds of a variety with 3600 seeds per pound. If the two varieties are comparable in performance, then this higher cost will reduce net income.

Dr. Emerson Nafziger of the University of Illinois Department of Crop Sciences has published an online calculator for determining soybean seeding rate, seeds per foot of row, and associated costs for an intended plant population in a chosen row spacing. Example results from using this calculator follow.

High quality seed. Desired final population (100,000) divided by percentage germination (90%) divided by expected emergence (90%) = 123,500 seeds per acre to plant.

Low quality seed. Desired final population (100,000) divided by percentage germination (80%) divided by expected emergence (80%) = 156,000 seeds per acre to plant.

Seed Treatments

Seed and seedling diseases will reduce germination and/or emergence of soybeans. Using an appropriate fungicide treatment on soybean planting seeds will increase the probability of achieving a satisfactory stand and will enhance early-season vigor of established seedlings. When seed for replanting may not be available, using a seed treatment fungicide to enhance emergence and stand establishment is imperative.

Environments in which fungicide seed treatments provide benefit are early planting in cool wet soils with anticipated slow seedling emergence and growth, minimum-till or no-till systems, fields with high amounts of surface residue, fields that are planted continuously to soybeans, and fields with a previous history of seedling diseases. Planting in these environments when high quality seed are in limited supply presents greater risks.

There are two classes or types of seed treatment fungicides. Contact or protectant fungicides are active against pathogens present on planted seeds. Systemic fungicides are active against soil- and residue-borne fungi that attack planted seeds if soil conditions promote disease development.

Phomopsis, Pythium, Phytophthora, Rhizoctonia, and *Fusarium* are the most common pathogens that reduce soybean germination and emergence. Fungicide combinations that control or suppress various of these pathogens are shown in **Table 2**.

Many studies have shown that using a seed treatment results in a greater plant population than is achieved without seed treatment. This, then, can be used to decide what seed treatment expense is justified in the absence of an anticipated yield increase. The following example illustrates this point.

Soybean stands are often increased by over 10% when the proper seed treatment is used. Therefore, a planned seeding rate of 150,000 seeds per acre can be reduced by at least 15,000 seeds per acre and still achieve the desired stand. For a variety that has 3,000 seeds per pound, this translates to saving 5 pounds of seed or $3.25 per acre when seed cost is $0.65 per pound. Thus, using a seed treatment that costs no more than $3.25 per acre can be justified in seed cost savings alone. Saving 15,000 seeds per acre means that 10 acres instead of 9 can be planted with the same amount of seed. On a broader scale, 1,000 vs. 900 acres can be planted with the same amount of seed of a preferred variety if seeding rate is reduced from 150,000 to 135,000 per acre. In the above examples of seeding rate calculations for high and low quality seeds, seeding rates would be lowered to about 112,000 and 141,000 seeds per acre, respectively, when the appropriate seed treatment is used.

Fungicide seed treatments have a considerable range in price. Therefore, not all of them will pay for themselves with the level of seed cost savings described above. There must be some other ascribed benefit such as insurance against stand failure followed by replanting, and/or a yield increase resulting from using the seed treatment.

To ensure that a fungicide seed treatment will approach cost-neutrality, reduce seeding rate in an amount that the seed treatment is expected to improve stand. By doing this, the input will have at least partially paid for itself up front and more acres can be planted with the same amount of scarce seed. Additional benefit will be provided in years and environments which have conditions that will reduce stand below the level for optimum yield potential, and in years when seed of a preferred variety will not be available for replanting.

There is proof that treating soybean seeds before planting increases economic return. A study conducted in Arkansas by Paul Poag and his colleagues provides results that place an economic worth on fungicide seed treatment.

They used contact, systemic, and contact plus systemic combination fungicides applied to seeds before planting to compare their effect to untreated seeds. Since the cost of the different seed treatments used in their study was relatively minor (<$2 per acre for product) compared to other production costs, the economic impact of the different seed treatments was mainly driven by yield differences.

According to their analyses, profitability was increased by an average of nearly $18 per acre when high quality seeds were treated with a systemic fungicide (<$3.50 per acre cost for pretreated seed). This finding was true across locations, planting month, and soil moisture conditions.

Their data revealed another important point. Using high- rather than low-quality seeds when both were properly treated increased producer returns by an average of over $26 per acre. When low-quality seeds were used, a seed treatment product containing both systemic and contact fungicides was sometimes superior.

Another conclusion can be drawn from their results based on the following two points. First, the cost difference between the systemic fungicide and the product containing both contact and systemic fungicides used in their study was only $0.27 per 50 pounds of seed. Second, the use of a product with both systemic and contact fungicides was sometimes necessary to achieve the best results in their study. Therefore, since the cost difference between a systemic product and a combination product is small, it makes both economic and agronomic sense to use one of the myriad products that contain both systemic and contact materials (**Table 2**) to ensure the best possible results. This is especially true when planting seed are in short supply or when they are at the lower end of the quality scale.

Table 1. Number of seeds per foot of row and cost per acre for soybean seed of varied size and cost planted at different seeding rates in five row spacings.

			Row spacing (inches)					Cost/50 lb. of seed			
Seed size	Seeding rate		7	15	20	30	40	$20	$25	$30	$35
No./lb.	seeds/acre	lb./acre	---------No. seed/ft. of row*------------					--------------$/acre**---------------			
2800	100,000	35.7	1.3	2.9	3.8	5.7	7.7	14.30	17.90	21.40	25.00
	120,000	42.8	1.6	3.4	4.6	6.9	9.2	17.10	21.40	25.70	30.00
	140,000	50.0	1.9	4.0	5.4	8.0	10.7	20.00	25.00	30.00	35.00
	160,000	57.1	2.1	4.6	6.1	9.2	12.2	22.80	28.60	34.30	40.00
	180,000	64.3	2.4	5.2	6.9	10.3	13.8	25.70	32.10	38.60	45.00
	200,000	71.4	2.7	5.7	7.6	11.5	15.3	28.60	35.70	42.80	50.00
3000	100,000	33.3	1.3	2.9	3.8	5.7	7.7	13.30	16.70	20.00	23.30
	120,000	40.0	1.6	3.4	4.6	6.9	9.2	16.00	20.00	24.00	28.00
	140,000	46.7	1.9	4.0	5.4	8.0	10.7	18.70	23.30	28.00	32.70
	160,000	53.3	2.1	4.6	6.1	9.2	12.2	21.30	26.70	32.00	37.30
	180,000	60.0	2.4	5.2	6.9	10.3	13.8	24.00	30.00	36.00	42.00
	200,000	66.7	2.7	5.7	7.6	11.5	15.3	26.70	33.30	40.00	46.70
3200	100,000	31.2	1.3	2.9	3.8	5.7	7.7	12.50	15.60	18.70	21.80
	120,000	37.5	1.6	3.4	4.6	6.9	9.2	15.00	18.80	22.50	26.20
	140,000	43.8	1.9	4.0	5.4	8.0	10.7	17.50	21.90	26.30	30.70
	160,000	50.0	2.1	4.6	6.1	9.2	12.2	20.00	25.00	30.00	35.00
	180,000	56.2	2.4	5.2	6.9	10.3	13.8	22.50	28.10	33.70	39.30
	200,000	62.5	2.7	5.7	7.6	11.5	15.3	25.00	31.20	37.50	43.80
3400	100,000	29.4	1.3	2.9	3.8	5.7	7.7	11.80	14.70	17.70	20.60
	120,000	35.3	1.6	3.4	4.6	6.9	9.2	14.10	17.60	21.20	24.70
	140,000	41.2	1.9	4.0	5.4	8.0	10.7	16.50	20.60	24.70	28.80
	160,000	47.0	2.1	4.6	6.1	9.2	12.2	18.80	23.50	28.20	32.90
	180,000	52.9	2.4	5.2	6.9	10.3	13.8	21.20	26.50	31.80	37.00
	200,000	58.8	2.7	5.7	7.6	11.5	15.3	23.50	29.40	35.30	41.20
3600	100,000	27.8	1.3	2.9	3.8	5.7	7.7	11.10	13.90	16.70	19.50
	120,000	33.3	1.6	3.4	4.6	6.9	9.2	13.30	16.70	20.00	23.30
	140,000	38.9	1.9	4.0	5.4	8.0	10.7	15.60	19.40	23.30	27.20
	160,000	44.4	2.1	4.6	6.1	9.2	12.2	17.80	22.20	26.70	31.10
	180,000	50.0	2.4	5.2	6.9	10.3	13.8	20.00	25.00	30.00	35.00
	200,000	55.6	2.7	5.7	7.6	11.5	15.3	22.20	27.80	33.30	38.90

*To determine seeds per ft. of row for seeding rates not shown, perform the following calculations:
For 7 in. rows, divide seeds per acre by 74717 (number of feet of row per acre).
For 15 in. rows, divide seeds per acre by 34848 (number of feet of row per acre).
For 20 in. rows, divide seeds per acre by 26134 (number of feet of row per acre).
For 30 in. rows, divide seeds per acre by 17424 (number of feet of row per acre).
For 40 in. rows, divide seeds per acre by 13068 (number of feet of row per acre).

**Rounded to nearest $0.10. To determine cost for seed sizes not shown, perform the following calculations.
Desired seeding rate (lb. per acre) divided by seeds per lb. = lb. of seed per acre.
Pounds of seed per acre divided by 50 lb. then multiplied by cost per 50 lb. of seed = cost per acre.

Table 2. Seed-treatment fungicide combinations (contact + systemic) available for broad-spectrum control of soybean seed and seedling diseases, and organisms controlled or suppressed by each fungicide product as stated on its label* or in extension publications.

Trade name	Ingredients	Pathogens controlled or suppressed
ApronMaxx RTA and Warden RTA	Mefenoxam, Fludioxonil	Phytophthora*, Pythium*, Fusarium*, Rhizoctonia*, Phomopsis*
Bean Guard/Allegiance	Metalaxyl, Captan, Carboxin	Pythium*, Phytophthora*, Fusarium*, Rhizoctonia*, Phomopsis
Catapult XL	Mefenoxam, Chloroneb	Phytophthora*, Pythium*, Rhizoctonia*
Prevail	Metalaxyl, Carboxin, PCNB	Pythium*, Rhizoctonia*, Phomopsis
Protector-L-Allegiance	Metalaxyl, Thiram	Pythium*, Rhizoctonia*, Phomopsis
Soygard L	Metalaxyl, Azoxystrobin	Pythium*, Rhizoctonia*, Phomopsis, Fusarium
Stiletto	Metalaxyl, Carboxin, Thiram	Pythium*, Fusarium*, Rhizoctonia*, Phomopsis, Phytophthora

Cautions: Check product label for compatibility with *B. japonicum* inoculant, and do not feed or sell treated seeds that are not planted.
Resources: University of Arkansas, Iowa State University, and University of Nebraska.

Safe Planting Dates for Midsouth Soybeans

Early (late March through late April) planting of soybeans in the midsouthern US is used as a mechanism to avoid drought and ensure early harvest. The risks of planting in this timeframe are associated with temperature. In a year with a shortage of seed of preferred soybean varieties, this risk becomes greater since replanting with seed of preferred varieties will not be an option.

Many years of observations and experience have shown that soil temperature likely is not a factor when planting this early in the midsouth. High-quality seed that are treated with fungicide to control both seed-borne and soil-borne diseases will germinate and emerge. Emergence time may be extended by cold soils, but emergence will occur as long as adequate soil moisture is available.

The greatest risk with early planting is perceived to be from low air temperature that occurs after soybean emergence. There are known cases of soybean seedlings surviving frost after emergence, but the severity and duration of these cold temperatures are not documented. Presumably, there is a difference in how 2 hours at 36 degrees that may result in a light frost and 8 hours at 33 degrees that may result in a heavy or "killing" frost will affect soybean seedlings.

Based on the above assumptions, knowledge of when the last date of a particular low temperature is estimated to occur is important. **Table 3** presents the 10% (1 year in 10) and 50% (5 years in 10) estimates for expected last spring frost (36°) and last spring freeze (32°) dates for selected locations in the midsouth. Freeze/frost dates for other locations are available on the National Climatic Data Center website.

From Sikeston south, the 50% or average date for the last spring freeze is before early April. Since emergence likely will take 10 to 14 days when plantings are made this early, planting in late March at latitudes below Sikeston should not be impacted by a freeze in an average year. The 10% last freeze date indicates a higher risk from planting before early April.

From Memphis south, the 50% or average last spring frost is estimated to occur from mid-

March to very early April. Thus, when considering that emergence of early plantings likely will take 10 to 14 days, planting in the late March to early April timeframe is not a high risk from the standpoint of average date of last spring frost south of Memphis.

From Memphis north to Sikeston, average date of last spring frost is estimated to occur from early to mid-April. Thus, plantings that emerge before mid-April north of Memphis have a 50% chance of being subjected to frost and are probably too risky. Early April plantings made from Memphis to Sikeston that emerge 10 to 14 days after planting are not a high risk from the standpoint of average date of last spring frost.

Again, there is no documentation of just what level of frost will be detrimental to soybean seedlings. One choice to lower risk of stand loss is to time planting so that emergence will occur after the estimated 50% last spring frost date for a given location. If any stand failure resulting from frost or freeze injury is unacceptable because of a shortage of seed available for replanting, then delaying planting to ensure that emergence occurs after the 10% last frost date may be preferred. If this approximate 2-week delay in planting is too great for production and/or marketing goals, then planting on dates that fall between the 50% and 10% last frost dates will impart a risk of stand loss that falls between those for the two dates.

Table 3. Midsouth locations, their latitudes, and estimated* 50% and 10% last spring frost (36°) and last spring freeze (32°) dates.

		Last frost date		Last freeze date	
Location	Latitude	50%	10%	50%	10%
Alexandria LA	31°18′ N	Mar. 16	Apr. 8	Feb. 27	Mar. 23
Vicksburg MS	32°21′ N	Mar. 30	Apr. 14	Mar. 20	Apr. 8
Shreveport LA	32° 30′ N	Mar. 30	Apr. 17	Mar. 10	Mar. 31
Lake Providence LA	32° 48′ N	Mar. 19	Apr. 6	Mar. 4	Mar. 27
Stoneville MS	33°26′ N	Mar. 28	Apr. 13	Mar. 11	Mar. 31
Paris TX	33° 41′ N	Mar. 31	Apr. 14	Mar. 18	Apr. 6
Dumas AR	33° 52′ N	Apr. 3	Apr. 15	Mar. 13	Mar. 31
Clarksdale MS	34°12′ N	Mar. 30	Apr. 13	Mar. 14	Apr. 4
Marianna AR	34° 46′ N	Apr. 8	Apr. 18	Mar. 25	Apr. 10
Memphis TN	35°09′ N	Apr. 1	Apr. 14	Mar. 22	Apr. 9
Jackson TN	35°37′ N	Apr. 12	Apr. 24	Apr. 6	Apr. 18
Jonesboro AR	35° 50′ N	Apr. 10	Apr. 21	Mar. 29	Apr. 13
Union City TN	36°25′ N	Apr. 16	Apr. 30	Apr. 5	Apr. 18
Sikeston MO	36°52′ N	Apr. 12	Apr. 25	Apr. 2	Apr. 19

*Probability of later date of occurrence. For 50% dates, there is a 50% chance (5 years in 10) of occurrence later than date shown. For 10% dates, there is a 10% chance (1 year in 10) of occurrence later than date shown.

Using Seed of Unproven Varieties

Yield is always at the top of the list of selection criteria when choosing a soybean variety. However, seed of the top yielding varieties may not be available in sufficient quantity to meet demand. Thus, some soybean acres in the midsouth will be planted to varieties that are considered sub-standard yielders or are not proven high yielders over a long term or under a wide range of environmental conditions. When this is the case, there are important secondary criteria that should be considered to ensure that minimal risk is incurred when a top yielder is not available.

Variety trial results. Variety trials conducted in the midsouthern states contain hundreds of varieties. Many of these varieties are in the trials at several locations within a state, and in the trials of more than one of the region's states. Thus, even non-preferred varieties or those not proven over a long term will have a record that will give some indication of their performance in the region. Choosing among these varieties may be the only option for planting some of the intended soybean acres in years with a shortage of seed of preferred varieties. Evaluating their performance at multiple locations in a single state or across states will be a valuable tool in selecting from among these varieties. Variety trial results from Arkansas, Louisiana, Mississippi, and Tennesseewill help in this process.

Seed of varieties that are unproven in the midsouth may be available and used when there is a shortage of preferred varieties that are adapted to the region. Consult with seed company and seed dealer reps to determine which of these non-preferred varieties are available. Use seed company literature and university variety trial results from Illinois, Iowa, Oklahoma, Kentucky, and Missouri to evaluate/determine yields, disease and SCN resistance, MG, and growth characteristics of these substitute varieties. This process, in combination with consideration of the following factors, can be used to find quality scarce planting seed. This is the same process used by researchers in the late 80's and early 90's to choose unproven varieties for use in the early soybean production system.

Resistance to diseases. Most of the major disease pathogens of soybeans grown in the midsouth can now be controlled by foliar fungicides. Stem canker, sudden death syndrome, and phytophthora root rot are three that cannot. Thus, any variety that is selected should have resistance or field tolerance to these pathogens. Details on soybean diseases that can be controlled with foliar fungicides and control measures for those that cannot are provided by the University of Arkansas, Louisiana State University, and the University of Missouri.

Irrigation. Select seed of varieties that have been grown with properly timed (R1 to R6) irrigation. This will ensure maximum seed quality and germinability.

Plant height. Select varieties that achieve a height of at least 24 inches on clay soils when grown at or near the latitude of the intended production field. Check variety trial results from adjoining states where appropriate to aid in determining height of unproven or unknown varieties.

Soybean cyst nematode (SCN) resistance. If soybeans have been grown previously in a field, it is probable that SCN will be present. Damage caused by this pest is generally minimized by growing resistant varieties; chemical control is not economical. Most top-yielding varieties grown in the midsouth have some level of resistance to SCN.

If substandard or unproven varieties have to be used, soil sampling to determine SCN presence is especially important. If SCN is present, an important criterion for variety selection will be resistance to SCN. This is especially so for plantings made on medium and coarse-textured soils. Soybeans grown on fine-textured or clayey soils are not as prone to yield reductions caused by SCN.

Choosing Varieties for Doublecropping

In a year when quality seed of preferred varieties is scarce, it is safe to assume that doublecropped acres will have to be planted with seed of non-preferred varieties unless seed for these plantings was secured earlier. Choosing from among non-preferred varieties for doublecrop acres will be especially critical in this case because the expected lower yield from these later plantings (after June 1) will be exacerbated by using lower-yielding, non-preferred varieties.

In the lower midsouth, yield potential from plantings made after June 1 is greatest when MG VI varieties are used. Since these varieties are not preferred for earlier plantings in the midsouth, there is a good possibility that their seed will be available for doublecrop plantings if sufficient quantities were produced by seed growers. These seed may have to be obtained from the Atlantic coast states since this is the region where they are prominently grown.

Using prices for soybeans received by farmers prior to 2007 (less than $6.50/bushel), greater risks would normally be associated with producing lower-yielding doublecropped soybeans from non-preferred varieties. However, current and projected record soybean prices for the foreseeable future have changed the picture. With today's high grain prices, producers can tolerate less than optimum doublecropped soybean yields and still make a reasonable profit. This means that selecting a soybean variety from a non-select group that may be available will not be as critical.

Crop budgets for Arkansas, Louisiana, Mississippi, and Tennessee that use standard inputs, expected yields, and current commodity prices can be used by producers to assess the level of yield reduction that can be tolerated without sacrificing profit opportunity from doublecropped soybeans. Choosing to doublecrop with potentially lower yielding, non-preferred soybean varieties will thus be based on economic potential rather than just a projected lower yield.

Conclusions and Pertinent Points

The following points summarize management options that should be used to plant as many acres with seed of preferred varieties, to ensure that seed quality of preferred varieties is acceptable, and to select non-preferred varieties when seed of preferred varieties is not available.

1. For soybean seed lots with low but acceptable germination, use vigor tests to confirm emergence potential.

2. Ensure that seed size of a selected variety is within the acceptable range for that variety.

3. Select varieties from the widest possible range of MG's adapted to midsouth latitudes.

4. Use the lowest possible seeding rate of high-quality seed and treat seed with a fungicide that contains both contact and systemic ingredients to ensure planting as many acres as possible with a preferred variety. Reduce seeding rate by 10%. A final stand of 100,000 plants per acre should be the goal.

5. When using seed with lower than desired germination, increase seeding rate commensurately and treat seed with a fungicide containing both contact and systemic active ingredients to ensure achieving the desired plant population.

6. Avoid the risk of replanting.

    A. Treat seeds with a fungicide that contains both contact and systemic active ingredients.

    B. Plant in the latter part of the desired planting window for a given latitude to reduce risk of frost injury after emergence.

    C. Plant lower quality seed in the best environments.

7. Use multi-state variety trial results to assess performance of an unproven variety in as many environments as possible.

8. When left with the choice of selecting varieties that are not among the top yielders, ensure that they possess resistance or field tolerance to disease pathogens that cannot be controlled with foliar fungicides.

9. Ensure that seed of unproven varieties were produced with irrigation that was properly applied during reproductive development.

10. Select varieties that will achieve a height of at least 24 inches on clay soils when grown at or near the latitude of the intended production field.

11. Ensure that unknown or unproven varieties have resistance to SCN if they are to be planted on medium and coarse-textured soils that are known to be infested with SCN.

(Revised 08/2010 with updated URL’s)