CULTURAL PRACTICES - *(Woodruff/Prostko)*

Field Selection and Rotation

Fields to be considered for 2009 soybeans should have at least a 35 bushel per acre potential and should have been planted to something other than soybeans in 2008. Deep sands and eroded clays with a 15 to 20 bushel per acre soybean yield potential should be avoided.

Planting soybeans after soybeans will increase the incidence of diseases, nematodes, soil insects, and possibly herbicide residues. The result is generally decreased yields or increased production costs. Rotate soybeans with non-legume crops to help reduce these problems. When rotating with cotton in fields with southern root-knot nematode, select soybean varieties that are resistant to this nematode. Set up crop rotations so that soybeans are planted on land no more than once every two years. Also, rotate between cyst resistant and cyst susceptible soybean varieties.

Land Preparation

Land preparation for soybeans should provide for deep rooting and a moist seedbed for planting. In-row subsoiling, 12 to 14 inches deep, is desirable for getting deep-rooted soybeans on sandy textured Coastal Plain soils. Deep turning or chiseling is also acceptable if soil is not re-compacted with roto-tillers, disks and other seedbed preparation equipment. Fine textured soils and red soils of the Upper Coastal Plain, Piedmont and Limestone Valley do not usually benefit from in-row subsoiling. These soils can be prepared by deep disking and turning or chiseling.

Planting Dates

The optimum period for planting soybeans in Georgia is from May 10 to June 10. Planting can begin as early as May 1 if soils are warm (>70^{o}F) and tall-growing MG VI or VII varieties are used. Planting before May 1 usually causes premature flowering, plant stunting and reduced seed quality. Very early-maturing soybean varieties tend to have a more narrow range of favorable planting dates than do late-maturing varieties. This occurs because at southern latitudes the photoperiod response induces early varieties to flower before obtaining adequate growth necessary for optimum yields.

Planting after June 10 reduces plant growth, axillary limb branching, root nodulation/nitrogen fixation, and yield. However, the planting period can be extended as late as June 30 if adapted tall growing late maturing varieties are used. A list of varieties best suited for late planting dates has been established for each region in Georgia (see Recommended Varieties). These varieties should be used in conjunction with approved late-planting practices of higher plant populations and close rows when planting cannot be made during the optimum period. All soybeans planting should be completed before July 1. Growth and yield, even with the best of efforts, are generally not economical after this time. **Expect soybean yield with good varieties and management to decline about ½ bushel/A for every day planting is delayed after June 10.**

Planting date guidelines above can be modified slightly for the Early Soybean Production System which uses MG IV or early MG V indeterminate soybeans. These varieties can be planted as early as April 20 if soil temperatures are above 70°F, but should not be planted after May 20. See the section on Early Soybean Production System for more details.

Row Spacing

Top soybean yields are generally obtained with row widths of 20 to 30 inches. However, most soybean varieties will give near top yields with wider row spacings of 30 to 36 inches if planted at the optimum time. When soybeans are planted late or under stress conditions that reduce vegetative growth, tall-growing varieties planted will usually perform best. When planted in May and in close rows, short growing varieties will lodge less and often give higher yields than tall-growing varieties.

Plant Population/Seeding Rates

Aim for a final stand somewhere between 85,000 and 100,000 plants per acre. Final stands as low as 60,000 plants per acre can produce reasonable yields if plants are evenly distributed. Under good planting conditions final stands will be about one soybean plant for every two planted seed, so **calibrate planters to meter two seed for every plant desired per foot.** Increase the seeding rate by 10 to 20% if planting late, or in a dry or trashy seedbed. **Select seeds that have at least 80% germination.**

Suggested Stands for Soybean (Number of Plants per Row Foot)

Row Spacing (Inches)[1]	Row Feet/Acre	Seed / Row Foot	Plants / Row Ft
36	14,520	9 - 11	5 – 6
30	17,424	8 – 10	4 – 5
20	26,146	5 – 7	3 – 4
18	29,040	4 - 6	2.5 - 3.5
7	74,674	2 – 3	1 - 1.5

Planting

Set planters to place seed 1.0 to 1.25 inches deep in moist soil. If surface soil moisture is limited, set planters to push aside dry soil and plant in a shallow seed furrow. Postpone planting when seed cannot be placed in moist soil. Adjust the planter packer wheels to firm soil around soybean seed; but, don't overdo it, as soil crusting and poor emergence can result. If the soil crusts, rotary hoe within one to three days to help insure getting an adequate stand.

Soybean germination will be best at soil temperatures of 70°F to 90°F and poor at temperatures above 95°F. Postpone planting when peak daily temperature at the two-inch soil depth exceeds 100°F. Use stubble-mulch planting in hot weather to help reduce soil surface temperatures and improve stands.

If irrigation is needed for stand establishment, it should be applied ahead of, not after planting. For reasons not understood, planting in dry soil and irrigating soon thereafter often results in a high incidence of seed rot and poor emergence.

Recommended Varieties

Adapted varieties reduce hazards of soybean production and allow for maximum yields at the lowest cost per unit of input. Getting best varieties for a field is a major challenge because there are many varieties available for planting, and because variety growth and yield are widely variable with location, planting dates, soil types, row spacing, planned harvest time, glyphosate herbicide, cyst nematodes, root-knot nematodes and diseases. Getting top performance is also a problem because each variety has a 5-6 week "critical moisture period" during fruiting when the plant requires moisture for normal yields. This critical period occurs July 20-August 20 for early maturing varieties and August 15-September 25 for late maturing varieties.

See charts in this Guide for a list of soybean varieties recommended for your geographic location and planting date. **To get top performance select varieties from the chart: (1) that are specifically adapted to existing field situations on your farm and (2) that are of early and late maturity to spread drought risks.** Spread the risk of drought by planting soybean varieties from each of these maturity groups.

A few words of caution to producers considering the use of bin run or farmer-saved seed beans: 1) The use of farmer-saved seed of any variety containing Roundup Ready technology is specifically forbidden by the technology agreement and can result is large fines or legal action. 2) With conventional varieties, remember the eye cannot detect seed viability; therefore, germination tests are **essential**. Germination should be 80 percent or above. Plump seed with high percent germination, good color, and no visible damage will generally develop into good stands.

Buying **certified seed** is an excellent way to ensure that seed is true to variety, of high quality and of good germination. Contact the Georgia Crop Improvement Association at 706-542-2351 for a list of certified seed suppliers in your area.