

2018 Tennessee Soybean Quick Facts

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Notes:

- 13 percent moisture is dry
- 60 lbs = 1 bu
- Dry soybeans contain about 20 percent oil and 36 percent protein by weight
- 2,500 to 3,000 seeds per pound

Five-year Tennessee Averages

- 1.64 million harvested acres
- 46.7 bushel/acre state average

Soybean Growth and Development

- Full-season soybeans mature in about five to five and a half months.
- A node is where a leaf attaches to the main stem of a soybean plant.

Vegetative Stage	Abbreviated Stage Title	Description
VE	Emergence	Cotyledons above soil surface
VC	Unifoliolate and first node	Unifoliolate leaves unrolled so leaf edges are not touching
V1	First trifoliolate and second node	Fully developed trifoliolate leaf
V2	Second trifoliolate and third node	Two fully developed trifoliolate leaves
Vn	nth trifoliolate and nth node	'n' number of fully developed trifoliolate leaves

Reproductive State	Abbreviated Stage Title	Description
R1	Beginning bloom	One open flower at any node on main stem
R2	Full bloom	Open flower at one of the 2 top nodes with fully developed leaf
R3	Early pod	Pod 3/16" long at one of the 4 top nodes on main stem with fully developed leaf
R4	Pod elongation	Pod 3/8" long at one of the 4 top nodes on the main stem with fully developed leaf
R5	Beginning seed	Seed 1/8" long in pod at one of the 4 top nodes of main stem
R6	Full seed	Green seed fills pod cavity at one of the 4 top nodes on the main stem
R7	Beginning maturity	One normal brown pod on main stem
R8	Full maturity	95 percent normal brown pods

Variety Selection

Choose varieties that consistently **yield** well and have **resistance to diseases** such as stem canker and Sudden Death Syndrome. Select herbicide technology to manage weeds. University trials (search.utcrops.com) and industry demos identify stable yielding options.

Planting Date

- April 16 to June 15 is full coverage crop insurance window.
- If conditions allow, plant at least part of the crop in late April to early May to capture more sunlight in longer growing season.

Seeding Rate and Row Spacing

- Plant when soil temps reach 55 F at 2 inches by 9:00 a.m. with similar conditions for next three days.
- Set planter for uniform spacing at 1-1.5 inches deep.
- Drop 130,000 to 150,000 seeds per acre to harvest at least 100,000 plants per acre.
- Reduce seeding rates on wide or skip rows and increase if double cropping.
- Narrow rows (≤20 in) reduce intra-row plant competition, speed canopy closure, suppress weeds and often yield higher than 30-inch rows.
- Actual seeding rate = $\frac{\text{(Desired Pop)}}{\text{(\% germ divided by 100)}}$

Desired Seeding Rate/ac	Row Spacing (inches)			
	30"	20"	15"	7.5"
	Seeds/ row ft			
130,000	7.5	5.0	3.8	1.9
140,000	8.1	5.4	4.0	2.0
150,000	8.6	5.7	4.4	2.2
Row feet/ac	17,424	26,136	34,848	69,696

Soil Fertility

P and K Recommendations

Soil Test Level	P205 (lb/ac)	K20 (lbs/ac)
High	0	0
Medium	20	40
Low	40	80

Boron (Bo):

- Apply 1 lb Bo/ac when Boron tests low (soil levels < 0.8 lbs/ac).

Manganese:

- Apply 20 lbs/ac manganese sulfate to correct soil deficiency.

Irrigation

Growth Stage	Comments	Est Crop Water Use
Emergence to early vegetative	Water to stand or incorporate herbicides	0.05-0.1" per day
Flowering through pod fill	Reduce bloom abort and set/fill pods	0.2-0.3" per day
Irrigate until mid R6 when 50 percent of pods have full-size seed and soil moisture is adequate. Watering until R7 or beyond may lower yield. Utilize moisture sensors to prevent overwatering during season.		

Managing Diseases

- Systemic fungicide seed treatments are recommended for early-planted soybeans.
- Dual mode-of-action foliar fungicides protect yield of susceptible varieties if disease symptoms are visible and conditions likely for disease.
- R3 to R4 often best timing for control of frogeye leaf spot.
- Refer to the latest version of W 343 for fungicide efficacy ratings on common bean diseases.

Managing Insects

- Seed-applied insecticides protect stand of early-planted soybeans.
- Green stink bug threshold: 9 per 25 sweeps R1 to R6; 18 per 25 sweeps R6 to R7.
- Defoliating pests R1 to R6: Bean leaf beetle (50/25 sweeps); Green cloverworm (38/25 sweeps); Loopers 19/25 sweeps.
- PB 1768: 2018 Insect Control Recommendations for Field Crops has additional thresholds and control recommendations.

Weed Control

- Apply residual PRE followed by POST with residual.
- Prevent seed release from palmer amaranth in fall.
- Check PB 1580 for the latest soybean weed control recommendations.

Harvest

- Adjust combine speed and settings to field conditions to minimize seed loss.
- Cut as close to the ground as possible.
- Begin harvest at 14 percent moisture.

Drying and Storage

- For short-term storage, dry soybeans to 12 percent or less.
- For storage >1 year, dry soybeans to 11 percent or less.
- Limit heat-drying temperature to 130 to 140 F for commercial beans and 100 to 110 F for seed beans.
- Aerate stored beans to maintain temperature of 35 to 40 F during winter and 55 to 65 F during the summer.

More detailed information about soybean management and additional copies of this fact sheet are available at utcrops.com and extension.tennessee.edu/publications.

