

Soybean Management Quick Reference

Varieties – Refer to Variety Performance Trials: Missouri - <http://varietytesting.missouri.edu/soybean/>
Recommended Soybean Maturity Groups: 3.5 to 4.5 for early planting and 4.5 to 5.5 mid to late planting
Soybean flowering varies by maturity group and is function of day length X temperature interaction

Planting Date – April 20th – July 15th

Soybean does have a wide planting window. Soybeans need a minimum of 90 days to produce pods. Planting between April 20th and June 1st dates will retain >95% yield potential. Ideal soil temp is 60°F to maximize germination and emergence uniformity.

Planting Rate – Many methods similar results. Final plant stands: 165,000 for drill, 135,000 for 15" and 105,000 for 30"
Add additional 5-10% for early planting under cool conditions. Uniform stands of 90,000 plants/A is guide for replant decisions. Refer to MU guide 4091 for more replant info: <http://extension.missouri.edu/p/G4091>

Measured distance when determining final stands: #plants x 1000 method:

30" rows = 17 ft 5 in; 20" rows = 26 ft 2 in; 15" rows = 34 ft 10 in

Solid stand/drilled = hula hoop method (refer to replant guide): 30" Diameter = #plants x 8900; 36" D = #plants x 6200

Planting Depth – 1 to 1.5 inch; avoid planting deeper; watch for crusting on some soils

Fertility – Soil Test

Nitrogen – Not recommended since nodules supply N needs.

*Consider inoculants, especially when planting into new fields or fields flooded for an extended period

Phosphorus (P) – removal rate of 0.84 lb P₂O₅/bushel

Potassium (K) – removal rate of 1.44 lb K₂O/bushel

Boron (B) and/or Sulfur (S) – research suggests could improve yields on low O.M. soils

Water Usage – 25 inches per season; Peak water use: Bloom to Pod fill = 0.25 to 0.35 inches/day.

Irrigating – use an irrigation schedule: <http://crops.missouri.edu/irrigation/>

Irrigation termination – Average: 50% pods have seeds touching (R6) (will vary with soil types)

Management by Growth Stages – Vegetative (V) and Reproductive (R)

VE to V1 = Emergence to Unifoliate leaf = stand counts and scout for bean leaf beetles

V3 = 3rd trifoliate leaf = some herbicide cutoff

Determine R stages by counting down to 4th node from top.

R2 = Full bloom = water use entering peak period

R3 = 3/16 inch long pod = consider fungicide applications; begin scouting for pod feeders

R5 = 1/8 inch flat bean in pod = fungicide cutoff and continue scouting for pod feeders

R6 = Full seed = continue to scout pod feeders and terminate irrigation

R7 = One pod on stem reaches mature color = no further scouting

Pest Management – Weeds – First 3 weeks after soybean emergence is most vulnerable period for yield loss from weed competition!

Problem Weed – pigweed (waterhemp and Palmer)

Alternate modes of action and use residual chemistry!

MOA Groups (one example): Group 14 = PPO inhibitors (fomesafen); Group 9 = EPSP (glyphosate); Group 10 = GS (glufosinate); Group 4 = Auxin (dicamba); Group 15 = LCFA (metolachlor); Group 2 = ALS (chlorimuron)

Refer to Missouri Manual 171 “Pest Management Guide” for specific product recommendations.

Read and follow all label directions.

Flag The Technology! - Utilize color coded flags to manage herbicide resistant crops

Green Flag = Liberty Link; Red Flag = Conventional; White Flag = Roundup Ready; Yellow = Clearfield; Black =

Dicamba; Teal = 2,4-D. Follow link for more info: <https://www.uaex.edu/publications/PDF/FSA-2162.pdf>

Pest Management – Insects

Cumulative Defoliators: 30% defoliation b/f bloom & 20% after bloom

Cumulative Pod feeders: average 1 per foot of row or 9 per 25 sweeps

- NOTE: Pyrethroid (Group 3) efficacy on podworm (Corn earworm) (*Lepidoptera sp.*) in some areas has been reduced and alternate MOA products in Groups 22 or 28 should be considered.

Refer to Missouri Manual 171 “Pest Management Guide” for specific product recommendations.

Read and follow all label directions.

Pest Management - Disease

Seedling blights – Water molds: *Pythium* and *Phytophthora*; Others: *Rhizoctonia* and *Fusarium*

Plant in soil suitable for rapid germination and use fungicide seed treatments labeled for all blights.

Foliar – tolerant varieties and foliar fungicides if conditions are ideal for disease development

Sudden Death (SDS) – *Fusarium sp.* root disease, NOT a foliar disease.

Nematodes – Soybean Cyst (SCN) and Root Knot (RKN) are two dominant species in soybean. Soybean Cyst (SCN) can reduce yield without above ground symptoms! **Sampling is the only way of knowing if a problem is present!!** Nematology lab analyzes samples: <http://soilplantlab.missouri.edu/nematode/>

SCN: Sample soil any time of year for SCN egg count.

RKN: Sample during the months of August through October for Complete (Verm/Live nematodes) Test

Disease Management: Resistant varieties, crop rotation, and seed treatments are options.

Refer to Missouri Manual 171 “Pest Management Guide” for specific product recommendations.

Refer to variety information for resistant varieties.

Read and follow all label directions.

University of MO does not endorse any one product.

Harvest – 13% moisture is dry. 1 bushel weighs 60 pounds.

Ave. Seed counts: Small = 2500 seeds/pound; Normal = 3000 seeds/pound; Large = 3500 seeds/pound

Harvest aids available and refer to Missouri Manual 171.

Harvest Losses – 4 to 5 beans/square foot = 1 bushel per acre

Measure in front, behind header and behind separator to get an estimate of where losses are occurring and combine for total harvest loss. Harvest losses of 5% or less are ideal.

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