

## 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 20<sup>th</sup> – July 15<sup>th</sup>

Soybean does have a wide planting window. Soybeans need a minimum of 90 days to produce pods. Planting between April 20<sup>th</sup> and June 1<sup>st</sup> 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 P<sub>2</sub>O<sub>5</sub>/bushel

Potassium (K) – removal rate of 1.44 lb K<sub>2</sub>O/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 = 3<sup>rd</sup> trifoliate leaf = some herbicide cutoff

**Determine R stages by counting down to 4<sup>th</sup> 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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