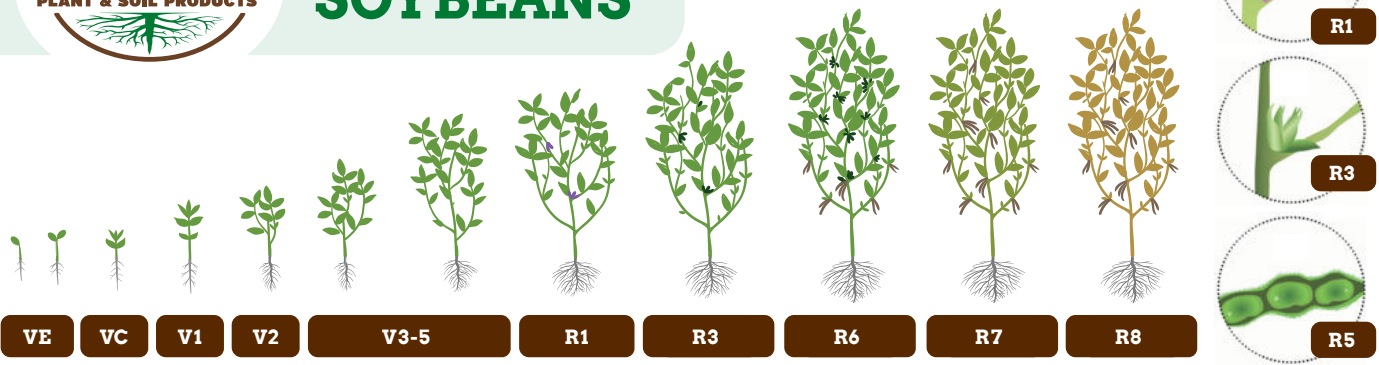




# CROP INFORMATION: SOYBEANS



SOYBEAN	Pre-Plant	Planting	VE-VC Emergence	V1-V2 2nd Trifoliolate	V3-V5 3rd-5th Trifoliolate	R1-R2 Begin Flowering	R3 Begin Pod	R6 Full Seed	R7 Begin Maturity	R8 Full Maturity	Post-Harvest
<b>Monty's Recommended Program</b>	MLC: 2-4 qt/ac Agri-Sweet FG: 1-2 qt/ac	Premium Blend: 2-3 gal/ac 9-24-3: 2-3 gal/ac Multiplicity: 8 oz/ac Agri-N: 2-4 qt/ac 11-26-0-1S: 2-3 gal/ac	Nauxin: 1-2 qt/ac* Surge XD: 1 qt/ac Sulfur 15: 1-2 qt/ac K28: 1-2 qt/ac CoMoB: 1-2 pt/ac		Foliar: 9-24-3: 2-3 gal/ac MLC: 2-4 qt/ac	Y-Drop: 9-24-3: 2-3 gal/ac MLC: 2-4 qt/ac 11-26-0-1S: 2-3 gal/ac Agri-Sweet FG: 2-4 qt/ac	Midnight: 1-2 qt/ac <sup>§</sup> Agri-Sweet FG: 1-2 qt/ac Alternative: Microhance: 1-2 qt/ac	Surge XD: 1 qt/ac Sulfur 15: 1-2 qt/ac K28: 1-2 qt/ac Agri-Sweet FG: 1-2 qt/ac			Humi-Till/ Breakdown: 3-4 qt/ac MLC: 2-4 qt/ac Agri-Sweet FG: 1-2 qt/ac
<b>Monty's Program Benefits</b>	Improves soil health and stimulates soil microbial populations	Benefits early soybean development Increases stand establishment				Increase number of blooms	Increase number of pods per node Increase in size and test weights	Increase test weight	Maximizes yield		Residue management soil for next Spring Decreases soil compaction Increase soil microbial populations
<b>Fertility Needs</b>	P, K: Fertilize based off soil sample Critical to achieve high yield			S, B, Zn	N, B, S	N, Zn					
<b>Maintenance Applications</b>	Seed treatments, and/or burndown		Herbicide Application. Also consider: Nanoboost: 3 oz/ac to speed up	Insecticides, Pesticides, Fungicides							
	Surge XD can be added to any maintenance and/or micronutrient application to increase efficiency of application Caesco can be added to all foliar applications to minimize insoluble solids - preventing sprayer clogging and promoting uniform application rates										
<b>When To Soil Sample</b>	Spring, when tissue sampling, or fall										
<b>When To Tissue Sample</b>	Weekly after 350 GDUs, or at critical growth stages										

<sup>§</sup> Midnight cannot be applied with other fertility, but can be tank mixed with fungicides/herbicides.  
+ Nauxin can be mixed with Dicamba.

<sup>¶</sup> October to December sampling for Spring fertilizer applications, and March to April sampling for Fall applications are preferred.  
<sup>†</sup> Weekly tissue sampling will allow you to monitor plants fertility to achieve the highest yield. Tissue sampling should be done if deficiency symptoms appear.

## Useful Information:

- For optimum soybean growth, soil pH should be between 6 and 6.5.
- High yielding beans remove substantial nutrients from the soil, more so compared to wheat, corn and sorghum.

For example, refer to the table at right to understand the amount of nutrients to produce one acre of beans and the nutrients removed from harvesting one acre.

## NUTRIENT UPTAKE & REMOVAL: 60 BUSHEL SOYBEAN

Nutrient	Required to Produce (Acre <sup>-1</sup> )	Removed with Grain (Acre <sup>-1</sup> )	Harvest Index (%)
N	245	179	73
P <sub>2</sub> O <sub>5</sub>	43	35	81
K <sub>2</sub> O	170	70	46
Zn (oz)	4.8	2.0	44
B (oz)	4.6	1.6	34

Bender et al., 2015.  
Agronomy Journal  
(107:563-573)

\* Program benefits are based upon results of field trials conducted by Monty's and third parties. Program benefits are not guaranteed and will vary based upon many factors including weather, soil type, and farming practices.



## CROP INFORMATION: SOYBEANS

### Deficiency Symptoms



**Nitrogen** deficient soybean plants appear pale-green to yellow with leaves maintaining dark-green veins (interveinal chlorosis)



**Boron** is necessary for nodulation as it accelerates atmospheric N fixation. Deficiency appears as yellowed leaves with curled leaf tips, interveinal chlorosis, tip dieback, and stunted roots. Flowering can stop under severe deficiency conditions.



**Iron** Deficiency Chlorosis (IDC) is characterized by interveinal chlorosis of the leaves with the leaf veins remaining dark green.



**Zinc** is necessary for the development of carbohydrates, proteins, and chlorophyll. Soils lacking Zn can reduce plant growth and yield potential. Symptoms are more apparent when soil temperatures are cool and in soils that are fine-textured, sandy, of low organic matter content, eroded, and under fallow syndrome situations. Soils with high phosphate applications may exhibit Zn deficiencies. Deficiency symptoms include interveinal mottling or chlorosis. Symptoms can be confused with IDC.



**Sulfur** deficiency is characterized by stunted plants, pale green color, similar to nitrogen deficiency except chlorosis may be more apparent on upper leaves.



**Manganese** plays a vital role in photosynthesis through chloroplast formation, which is important for chlorophyll development, helps in the development of carbohydrates, and influences enzyme activity. Deficiency symptoms include interveinal yellowing with veins remaining dark. Symptoms resemble Fe deficiency; however, Mn deficiency appears across the whole plant. **Can be seen with Roundup applications.**



**Phosphorus** deficiency may cause stunted growth, dark green coloration of the leaves, necrotic spots on the leaves, a purple color to the leaves, and leaf cupping. These symptoms occur first on older leaves.



**Magnesium** deficiency first shows up in older leaves turning pale green, followed by interveinal chlorosis. As magnesium deficiency progresses, reddish and purple spots appear on soybean leaves.



**Potassium** is highly mobile in the plant. Consequently, potassium deficiency symptoms occur first on the lower leaves and progress toward the top as the severity of the deficiency increases. One of the most common signs of potassium deficiency is the yellowing along leaf margins followed by scorching and dieback.

### Soil & Tissue Sampling

#### SOIL SAMPLING RECOMMENDATIONS:

Take one soil sample for every 20 acres. This sample should consist of a composite of 15 subsamples taken randomly at a depth of 6-7 inches from across the sample area. The sample needs to be mixed well to be representative of the soil conditions.

**Soils that can be tested less often:** If the soil has a high CEC, it will hold cation nutrients better and the pH will remain constant over longer periods of time. It is still suggested to test throughout the growing season and at the end of the harvest for planning.

**Soil that should be frequently tested:** Soil with a low CEC (less than 7), some cations such as potassium (K<sup>+</sup>), magnesium (Mg<sup>++</sup>), and ammonium (NH<sub>4</sub><sup>+</sup>) have the ability leach through the root zone, so testing more often to find nutrient deficiencies is beneficial. When fertility levels are low, soil sampling should happen more frequently to insure best utilization of added nutrients and fertility.

**The key is consistency and getting the information back in time to use it.** This is why we encourage sampling at harvest to plan properly for the next growing season. While factors such as weather and crop rotation can affect soil test results, these differences are generally small enough that reliable information can still be obtained regardless of when sampling is done.

**For general practices:** October-December sampling for Spring fertilizer planning and applications, and March-April sampling for Fall/post harvest planning and applications. These two time periods generally have the lowest amounts of testing variability associated with them. **Give yourself adequate time to review the test results and plan the program before making fertilizer applications.**

#### TISSUE SAMPLING RECOMMENDATIONS:

**Timing:** Soybean tissue sampling is best completed at first flowering, however we encourage to get the highest yield possible to tissue sample throughout the growing season. Some of the high-yielding growers tissue sample every week.

**Plant tissue to sample:** To properly sample, collect the top fully developed trifoliolate (three leaflet plus stem) from at least 20 plants randomly from the area to be sampled (for a minimum of 100 grams of fresh material).

**Storing and shipping:** Store the sample properly and remove soil or other debris that would interfere with tissue analysis and results. Problem areas or areas of interest should be sampled separately. All samples should be stored in a paper bag and in a cool place and properly labeled. All samples should be sent to the lab immediately to prevent any decay or damage to your sample that could cause your tissue results to be inaccurate.

**MONTY'S HIGH YIELD PROGRAM:** *Monty's high yield program can vary from a standard program by products, application rates, and application timing. If you are interested in a high yield program contact your Monty's representative or call 800.978.6342.*