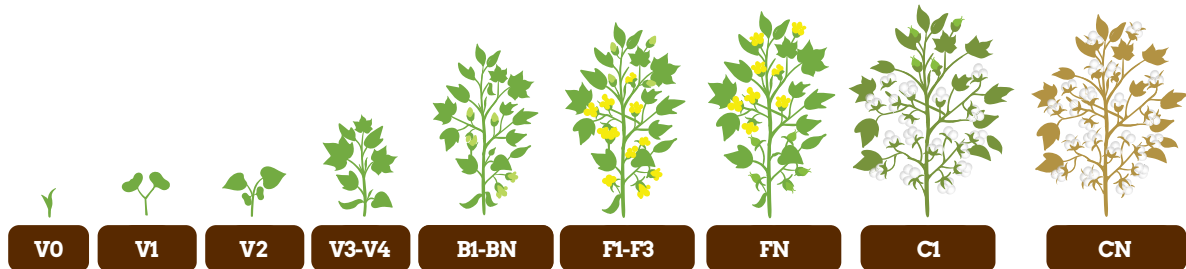




CROP INFORMATION: COTTON



COTTON	Planting	Vegetative	Flowering	Acorn Development	Post-Harvest
Monty's Recommended Program	Nauxin* : 2 qt/ac Calcium 3% : 2 qt/ac 9-24-3 : 2 gal/ac Surge XD : 1 qt/ac	(At 5th True Leaf): MLC : 2 qt/ac Agri-Sweet FG/Agri-N : 2 qt/ac Boron : 2 qt/ac 2nd Application if needed: 1 qt/ac each Also consider: Nanoboost : 3 oz/ac, to speed up defoliation process.	Nauxin* : 2 qt/ac Calcium 3% : 2 qt/ac 9-24-3 : 1 gal/ac Surge XD : 1 qt/ac Agri-Sweet FG/Agri-N : 2 qt/ac Boron : 1-2 qt/ac Also consider: Midnight : 2 qt/ac, applied alone at floral bud stage.	Nauxin* : 1-2 qt/ac Calcium 3% : 1-2 qt/ac 9-24-3 : 2-4 qt/ac Surge XD : 1 qt/ac Also consider: K28 Liquid Potash : 1-2 qt/a, Sulfur 15 : 1-2 qt/a	Humi-Till : 1 gal/ac Agri-Sweet FG/Agri-N : 1-2 qt/ac MLC : 1 qt/ac Also consider: C795 Plus/Hay-Now : 1-2 qt/a
Monty's Program Benefits	Improves soil health & stimulates soil microbial populations	Maximize yield & increase protein content Increase uptake of all nutrients, buffering salt, pH, and CEC		Maximize yield	Residue management for next spring decreases soil compaction and increases soil microbial populations
Fertility Needs	N, P, K, S, Zn				
Maintenance Applications		MLC : 1-2 qt/ac - especially with any liquid N application. Humihance : 2 qt/1 ton dry fertilizer, Surge XD : 1-2 qt/ac (Can be added to any herbicide/pesticide/fungicide application), Microhance : 1-2 qt/ac, Nanoboost : 3 oz/ac - to speed up defoliation process			
When To Soil Sample	Prior to planting or in the fall				
When To Tissue Sample	V4 and/or at F2				

* Nauxin can be mixed with Dicamba.
 † October to December sampling for spring fertilizer applications, and March to April sampling for fall applications are preferred.
 ‡ 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:

An efficient program should be developed understanding when different nutrients are needed and the impact of those nutrients when applied to the soil. Needs for nitrogen are greatest during boll filling, but carry-over into harvest is detrimental. Phosphorus is needed all season long, but the ability of roots to extract phosphorus is reduced in cool spring soils, justifying "at planting" fertilizer applications for increased availability. The heaviest demand for potassium and boron occurs during boll filling. Phosphorus, potassium, calcium and magnesium stay

where they are placed until that soil zone is disturbed; but nitrogen, boron and sulfur are vulnerable to losses from the root zone prior to plant uptake.

- A soil pH between 5.8–8.0 is needed for good cotton growth, with a more optimum range of 6.0–6.5. Cotton is among the most sensitive crops to low-pH soils.
- Refer to the table to the right to understand the amount of nutrients removed by producing 2 bales - 2,600 lbs/ac of cotton.

National Cotton Council newsletter Cotton Physiology Today, volume 2, no. 3, January 1991

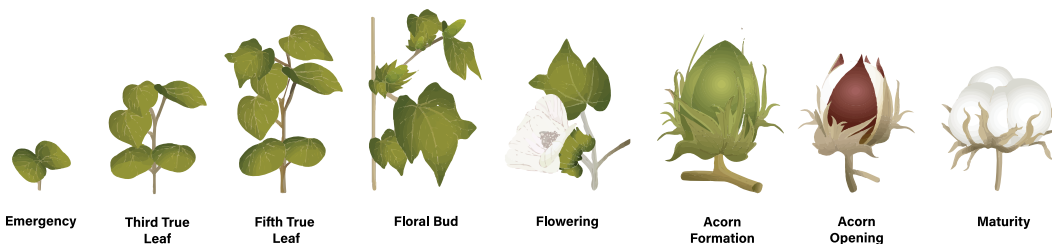
Nutrients removed by cotton (2 bales - 2,600 lbs/ac)

Maintaining the ideal level of nutrients is key to maximizing yield. It is important to tissue test and supplement nutrients throughout the season to ensure your plants are getting the necessary amounts of nutrients.

Nutrient	lb/acre
N	63
P ₂ O ₅	25
K ₂ O	31
Ca	4
Mg	7
S	5
B	0.03
Cu	0.18
Fe	0.06
Mn	0.33
Zn	0.96
Na	...

The Fertilizer Institute, Phosphate and Potash Institute, and independent research sources.

Distinguishing between stages in cotton:



* 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: COTTON

Deficiency Symptoms



Nitrogen deficient wheat plants appear pale-green to yellow with necrosis/chlorosis, and appear in older leaves.



Boron symptoms develop in younger leaves and spread to older growth. Symptoms appear as small chlorotic spots that began to enlarge and coalesce to form white stripes.



Iron deficiency is characterized by interveinal chlorosis of the leaves with the leaf veins remaining green.



Zinc deficiency symptoms appear as pale green plants with localized light-yellow chlorosis, that can turn into brown/gray necrotic lesions. Plants can be stunted.



Sulfur deficiency is characterized pale yellow color, uniform yellowing without necrosis.



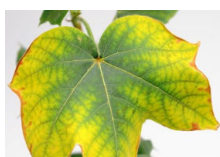
Calcium deficiency appears first on the youngest leaf and spreads to older leaves. Tips of leaves turn pale and began to roll inwards. Leaves may twist back, tear off, or die. The base of the leaves will remain green.



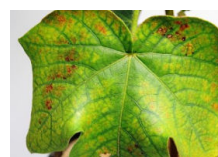
Phosphorus may cause dark green coloration of the leaves and a purple color to the leaves. Older leaves may be dark yellow to orange or brown.



Manganese deficiency will occur in patches throughout the field. Plants are stunted and symptoms appear as yellowing in the younger leaves, yellow striping of leaves and whitish to colorless spots.



Potassium deficiency appears as pale green plants that appear wilted or limp. Symptoms appear in the oldest leaves and have bright yellow chlorosis and brown necrosis along the margins.



Magnesium appears on the middle leaves as green, yellow with yellow interveinal chlorosis that can turn to brown necrosis.

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⁺), magnesium (Mg⁺⁺), and ammonium (NH₄⁺) 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: Cotton tissue sampling is best completed between V4 and F2 of the Flowering Stage. Growers are encouraged to tissue sample throughout the growing season (early and often) to achieve the highest yields possible.

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.*