



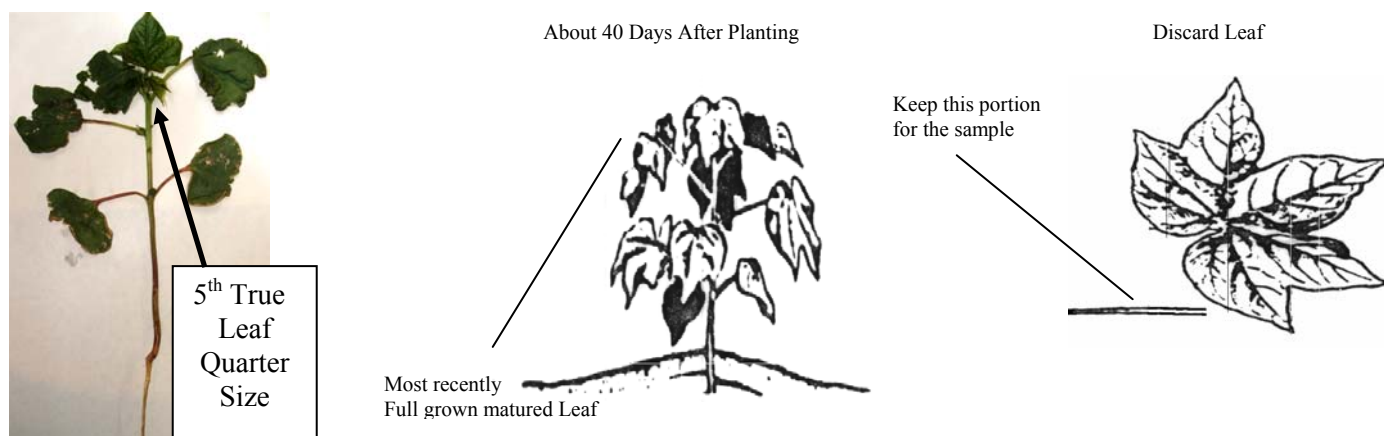
COTTON - SAMPLING

Cotton Petiole (sap) analysis is the heart of a profitable cotton production program.

Nitrogen, phosphorous, potassium and all other nutrient levels in cotton can be monitored by analyzing the petiole (stem) portion of the leaf.

Petiole sampling should begin when plants have 6 to 10 true leaves. The second sampling date should be approximately 2 weeks after the first sampling is taken, the fields should be sampled every 7 to 10 days. This will be a total of 7 to 9 samples taken during the boll growing season. (Less on dryland.)

It is important to pick the correct leaf to take the petiole sample. Sample the "MOST RECENTLY FULLY GROWN MATURED LEAF". This leaf is usually the 4th leaf from the top of the plant (Fig.1) only count 1/3 size or above leaves. Normally, at the time blooms start to appear this leaf is easily found because it sticks out from the stalk at a 45 degree angle, and thus looks almost level with the top of the plants.



After identifying the most recently full size matured leaf, remove it and petiole (stem) from the plant. Discard the leaf portion, keeping the petiole as the sample (Fig.2). Continue collecting petioles from random plants as you walk diagonally across the field. First petiole should be 50' from ends or sides of field. Approximately 25 if > 3 1/2" and up to 45 if < 2" petioles are needed for 1 sample. (Be sure all leaves sampled are full grown & undamaged leaves.)

Be sure to select an area in the field that is representative of the majority of the field being sampled. Fields should be sampled at approximately the same spot through out the growing season.

Remember, the analysis is only as good as the sample received. Hot spots or diseased areas should be avoided if these areas are insignificant compared to the entire field. Likewise, in irrigated regions the tale-end of fields should not be sampled because of the excessive water which normally ponds there. TAKE SAMPLE FROM PROBLEM AREAS SEPARATELY.

Furnish adequate observations of field conditions and plant development with each sample.

Petiole samples should be placed in a PAPER BAG; not plastic. Plastic bags will trap moisture and promote fungus growth. Punching holes in a bag helps.

Through out the growing season, each sample is analyzed for nitrate and phosphate in the sap. On the second & fourth sampling date for each field, a complete mineral analysis which includes: K, Mg, Na, Ca, Fe, Zn, Mn, Cu and B in addition to the nitrate and phosphate is run on the tissue samples.

Based on the nutrient levels found in the tissue, coupled with field conditions and stage of growth; nutrients, PGR's or other plant aid will be recommended.

Plants that are tending toward vegetative growth have different needs as opposed to fruiting plants. The nitrate:phosphate relation is important. Vegetative growth can be slowed and induce the plant to fruit by foliar applications of soluble carbon (humic acids, molasses, sugar) and also make PIX more effective.

Most new customers find the carbohydrate recommendations hard to believe. Supposedly it is felt any product which can influence plant growth should have an EPA registration number, a complicated chemical name and a fancy descriptive name for marketing. Table sugar (chemically known as sucrose) and molasses, are readily available and relatively inexpensive. And it works to control vegetative growth. These are the major advantages.

Flower initiation as well as vegetative growth are ultimately predictable reactions to hormonal and carbohydrate levels within the plant. However, with properly timed applications of carbon, based on the N:P ratio, the plant can be influenced to start flowering and fruiting instead of growing stalks, stems and leaves. Coupled with hormones, sugars are very effective.

Our cotton petiole (sap) analysis program eliminates the guesswork of applying not only nitrogen and phosphate but all other essential plant nutrients and growth regulators. We look forward to servicing your next crop. Petiole program also works for most crops, especially vegetables and melons.

GROWTH CYCLE OF THE COTTON PLANT

Stage of Growth	Range	Number of Days	
			Average
Planting to emergence	5-20		10
Emergence to square	27-38	Southeast	32
	33-38	High Plains	35
	40-60	West	50
Square to first bloom	20-27		23
First bloom to peak bloom	26-45		34
Bloom to open boll Early and midseason	45-55	Southeast and	
		High Plains	50
Growing Season	45-65	West	58
	120-150	High Plains	140
	130-170	Southeast	150
	180-210	West	