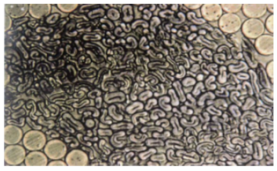
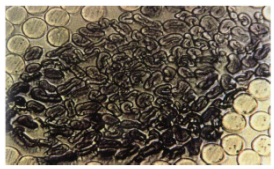
GINNING TECHNOLOGY SELECTION CRITERIA FOR OPTIMUM RESULTS

Sr. No.	Parameter Description	Parameter Defination	Classification	Range Defination	Technology available T-?			
					Saw Gin Preference	Single Roller preference	Double Roller preference	Roto Bar preference
					T-1	T-2	T-3	T-4
1	**Fiber length**	Fibre length is primarily determined by cotton variety, but growing conditions and fertility (nutrient deficiencies) can affect length as well. Night time temperatures of 60-70ºF are optimum for fibber length development. Temperatures above or below this range result in shorter fibbers. reduced length can also result from deficit or excess soil moisture levels (water stress). Excessive cleaning or drying at the gin may also result in shorter fibers. Fiber length affects yarn strength, yarn evenness, and the efficiency of the spinning process. The fineness of the yarn that can be successfully produced from given fibers also is influenced by fiber length.	<=28 mm	Short Staple Cotton	P	p	p	NP
			>28<31	Medium staple cotton	NP	P	P	P
	Len 1	Mean length (HVI mode) = mean fiber length	>31<35	Long staple cotton	NP	P	P	P
	Len 2	Upper half mean length (HVI mode) = mean length by weight of the longer 50% of fibers	>35	Extra Long staple cotton	NP	P	NP	P
2	**Uniformity Index**	Uniformaty Index or Length uniformity is the ratio between the mean length of fibber and the upper half mean length expressed as a percentage. Low uniformity values are a function of fibbers that are more easily broken. Length uniformity affects yarn evenness and strength and the efficiency of the spinning process. It is also related to shortfiber content. Cotton with a low uniformity index is likely to have a high percentage of short fibers. Such cotton may be difficult to process and is likely to produce low-quality yarn.	<=76	Very low	NP	P	P	NP
			77 - 79	Low	NP	P	P	P
			80 - 82	Average	P	P	P	P
			83 - 85	High	P	P	P	P
	Unf		>= 86	Very high	P	P	P	P
3	**Fiber Strength**	A tex is equal to the weight in grams of 1,000 mtr of fiber. The strength reported is the force in grams required to break a one-tex bundle of fibers. Strength measurements are made on the same beards of cotton that are used for measuring fiber length. The beard is clamped in two sets of jaws, 1/8 inch apart, and the amount of force required to break the fibers is determined. Fiber strength and yarn strength are highly correlated. Also, cotton with high fiber strength is more likely to withstand breakage during the manufacturing process.	<= 21	Very low	NP	P	P	0
			22 - 24	Low	NP	P	P	P
			25 - 27	Average	NP	P	P	P
			28 - 30	High	P	P	P	P
			30 - 36	Very High	P	P	NP	P
	[g/tex]		>36	Superb	P	P	NP	P
4	**Micronaire**	Micronaire is a measure of fiber fineness and maturity. An airflow instrument is used to measure the air permeability of a constant mass of cotton fibers compressed to a fixed volume. Micronaire can be influenced during the growing period by environmental conditions such as moisture, temperature, sunlight, plant nutrients, and extremes in plant or boll population. Fiber fineness affects processing performance and the quality of the end product in several ways. In the opening, cleaning, and carding processes, low-micronaire or fine-fiber cottons require slower processing speeds to prevent damage Fiber length and strength measurements are made on the same “beard” of cotton. Yarns made from finer fiber have more fibers per cross-section, which results in stronger yarns. Dye absorbency and retention are affected by the maturity of the fibers; the greater the maturity, the better the absorbency and retention.	<=3.4	Discount range - Very fine	NP	P	P	NP
			3.5 - 3.6	Base Range - Fine	P	P	P	P
			3.7 - 4.2	Premium Range -	P	P	NP	P
			4.3 - 4.9	Base Range - Coarse	P	P	P	P
	MIC		>=5.0	Discount range - Very	NP	P	P	NP
5	**Trash content in seed cotton (Harvesting Practice)**	Trash is a measure of the amount of non-lint materials in cotton, such as leaf and bark from the cotton plant. The surface of the cotton sample is scanned by a digital camera, and the digital image is analyzed. The percentage of the surface area occupied by trash particles (percent area) and the number of trash particles visible (particle count) are calculated and reported. The ratio between percent area of trash and trash particle count is a good indicator of the average particle size in a cotton sample. For instance, a low percent area combined with a high particle count indicates a smaller average particle size than does a high percent area with a low particle count. A high percent area of trash results in greater textile mill processing waste and lower yarn quality. Small trash particles, or “pepper trash,” are highly undesirable, because they are more difficult for the mill to remove from the cotton lint than are larger trash particles.	<=4	Very Low Trash (Hand Picked Cotton)	NP	P	P	NP
			> 4 & < 6	Low Trash (M/C picked	NP	P	P	P
			>6 & <12	High Trash (M/C stripper	P	P	NP	P
			>=12	Very high Trash (M/C stripper	P	NP	NP	P





Upland cotton with micronaire of 38 (TOP) and 52 (BOTTOM).

6	**Leaf Grade**	Leaf content is affected by plant variety, harvesting methods, and harvesting conditions. The amount of leaf remaining in the lint after ginning depends on the amount present in the cotton before ginning, the amount of cleaning, and the type of cleaning and drying equipment used. Even with the most careful harvesting and ginning methods, a small amount of leaf remains in the cotton lint. From the manufacturing standpoint, leaf content is all waste, and there is a cost factor associated with its removal. Also, small particles cannot always be successfully removed, and these particles may detract from the quality of the finished product.	0 - 0.49	Low	NP	P	P	P
			0.5 - 0.99	High	P	P	P	P
			> 1	Very High	P	NP	NP	P
7	**Hairiness**	The receiver detects only the light transmitted by the protruding fibers (Fig. 7). The yarn body remains black and does not transmit light. The light intensity, at the receiver, therefore, measures the light intensity which is proportional to the hairiness of the yarn. The hairiness H corresponds to the total length of protruding fibers divided by the length of the sensor of 1 cm. The hairiness is, therefore, a figure without a unit.	Having no value. Notional inputs by judgments.	Low	P	P	P	P
				High	NP	P	P	P
8	**Coton Seed Varity**	Seed Varity is known by pulling lint fiber from seed by hand. The seed is called Slick Seed - If it become necked without too much effort & the lint resuidle on seed is very minimul and the seed is called as fuzzy Seed - If the seed has its own resistance which enabled to take out the lint fiber by hand & it always left 4 to 6% lint fiber on it after ginning.	Having no value. Notional inputs by judgments.	Slick	p	P	P	p
				Fuzzy	NP	P	P	NP
9	**Moisture content in seed cotton**	It is the amount of moisture contents in the seed cotton by weight which can be measured by oven heater method by % weight loss.	< 5%	Low Moisture	NP	P	P	NP
			>5% <= 8	Moderate Moisture	P	P	P	P
			>8% but must be < 12%	High Moisture	NP	P	P	P
10	**Plant Capital cost, Plant Running over head cost,**	It is the Technology driven parameter for plant machinary type & capacity configuration	Having judgment based on the technical study	Low	NP	NP	P	P
				Medium	NP	NP	P	P
				High	P	P	NA	P
11	**Best lint Quality retension during the process, maximises productivity & yield**	It is the Technology driven parameter for plant machinary type & capacity configuration	Having judgment based on the technical study	Low	NA	P	NP	NP
				Medium	NP	P	P	NP
				High	P	NP	NP	P