

## **1. Ensuring Quality from Farm to Factory:**

We are keeping the seed quality, planting, pesticide application and other plant growing practices in harvesting outside the scope of discussion and starting only from harvesting practices onward. The majority of the Indian cottons being handpicked are normally very clean unless bad practices of its storage at farmer level or transportation level are adopted. Only some varieties such as 797 / Kala kapas where the cotton is hand stripped instead of hand picking the trash level is higher up to 20%.

The moisture level except for certain areas are also well within acceptance level of 8% unless intentionally added by farmer or Intermediaries.

The encouragement to add the trash comes from the practice of paying the picking charges on weight basis, hence the first thing should be that the deduction for any trash content must be made from picking charges if the trash is mixed with seed cotton and picking people must be encouraged to ensure trash free picking.

The water is added by various people from the storage place of the farmer to factory transportation. The ginning factories must fix the percentage moisture depending upon the local conditions and should not buy seed cotton with higher moisture or deduct the payment for higher moisture so that all people who are tempted to add water are discouraged.

If the moisture contents are within normal range i.e. not exceeding 8% the cleaning efficiency of the cotton is always better and some trash if mixed gets cleaned.

The contamination is normally added due to negligent handling of cotton such as allowing the foreign materials with the cotton or hair fall during sleeping of people on cotton heaps etc. The contamination is normally a difficult issue and is costly to handle hence all the better management practices should be used to avoid this.

The remedy appears to be strict gradation and encouragement at market yards and ginning factories to buy cotton at standard parameters only. Though the Govt. assistance for improvement of market yards and grading practices or law to discourage the people who mix trash or add water will certainly help improvement in the cotton quality from farm to factory.

The ginning / ginners associations should make rules for quality and variety etc. related to cotton purchases and it should be followed by ginning factories uniformly.

Ginners should change their mindset that they can earn more with higher trash cotton and high moisture cotton. As a matter of fact these are only a misconception and in real terms ginners are losing but due to their ignorance and incorrect understanding, they continued to make loss on these grounds.

The farmer education to make him understand the benefit of clean seed cotton and paying him better price for clean seed cotton will encourage him to reduce trash and produce desired quality cotton.

## 2. Technology choices and product quality:

There are four ginning technologies being used in the world and each is suitable for different cottons.

- i. Open type i.e. Saw Gins – here the seed falls by gravity effect and can take with it the impurities without affecting the ginning process. In saw ginning centrifugal force helps to hold the cotton till sufficient ginning is done, thereafter seed falls down, which can also take pods pieces etc, hence this technology is used for trashy as well as clean cotton, however saw gins are suitable for short and medium length fibres. Though it can take trashy cotton but if the cotton fibre is long it cannot remove entire length and fibre length cut is eminent, thus if long and extralong fibre cotton is ginned on this technology the ginning outturn will be quite low. Further, due to the higher speed (RPM) it will generate higher neps.
- ii. Close type i.e. Double Roller Gin – in this case the seed passes through the grid and space between base and grid which is almost equal to size of seed. Here if any impurity which can block the holes of grid will obstruct the further flow of seed and obstruct the ginning process at later stage unless the impurities are removed from the holes of grids. Thus this technology is used for clean cotton only; however with the setting adjustment this technology can gin all length of cottons. It can take only clean cotton and due to gentle pulling action and reverse beating of seed, it takes out maximum length and a combing action keeps fibre straight hence the neps are lower. Moreover, the roll temperature is below 80° C due to which the upper surface of fibre does not get affected.
- iii. Open type with reclamation arrangement - Rotobar and Single Roller McCarthy Gin, here also the arrangements are open type where the seed can fall with impurities and also some cotton falls with seed, which is then tried to be recovered by a reclamation process, however finally some quantity may go unrecovered. Thus these technologies can also be used either for trashy cottons or clean cottons. The fundamental difference here with saw gin is that saw gin is suitable only for short and medium length while these two technologies are suitable for long and extralong fibre. Due to higher speed the frictional value is higher and the temperature at ginning point is higher due to which the surface tension and moisture contents of fibre gets affected making it brittle and the spinning parameters like CSP will get affected i.e. if the same cotton is having CSP up to 2900 on Double Roller Gin it will come down to about 2100.

The Ginning outturn (GOT) is measured by the percentage of fibre obtained after ginning with reference to total weight of input seed cotton on any ginning technology i.e. ginning outturn for same cotton may vary up to 4% when ginned on different technology depending upon suitability of process. In case you compare the Zara cotton variety of Zimbabwe, which is handpicked and clean having 29-30 mm length with a bunch of fibre on seed over 47% if we check by Acid delinting, the Double Roller will take out about 43-44% while saw ginning will take out about 42-43% or take the case of Shankar 6 variety of Indian cotton where the length is 29-30 mm and bunch of fibre is about 40%, the Double Roller Ginning will take out about 36-37% while the saw ginning will take out about 35%.

In view of various disadvantages of saw ginning for clean long and extralong fibre cottons so long as cotton remains handpicked and clean in India, the Double Roller Gin is best, however if the machine picking is started and trashy cotton is required to be ginned then saw gin and roto-bar both may be required.

### **3. Improving quality of output:**

The major reasons for increase in trash percentage, contamination and inconsistency in mic are as below:

- a. Encouragement to add trash to gain weight due to weight based picking charges for hand picking of cotton.
- b. Careless storage and transportation practices of cotton from farm to factory.
- c. Higher moisture content at the time of processing which obstructs cleaning.
- d. Absence of use of drying equipments for high moisture cotton before ginning.
- e. Non use of cleaning equipments.
- f. Early picking affecting the mic and maturity.
- g. Variety of cotton such as Kala Kapas.
- h. Temperature at the point of ginning.
- i. Speed of ginning in case of Roto-bar and Saw Gin.
- j. Low maintenance or bad condition of machine parts.
- k. Inherent characteristics of cotton affecting the mic etc.
- l. Mindset of the ginners that mills do not pay premium for clean cotton.
- m. Absence of branding practices
- n. Absence of grading department like USDA of USA.

### **4. New trends in ginning and pressing**

The sustainability concern is overpowering other factors now in ginning sector, hence the ginning factory owners are trying to achieve the fundamentals of sustainability.

- i. To gin higher volume
- ii. To achieve lowest cost per unit of ginning and pressing.
- iii. To retain best natural fibre parameters.
- iv. To produce lowest trash / contamination cotton.
- v. To resort to branding to get better price and trust.
- vi. To provide highest information to buyer to market their higher quality cotton.
- vii. To invest in aesthetics, information technology and improved machinery.
- viii. The complete value chain of seed cotton and cotton stalk should be utilized.
- ix. The current sampling pattern of bales should be changed to international pattern.

The achieve above worldwide ginners have started informed selection of suitable ginning technologies such as Zimbabwe etc have switched to Double Roller Ginning Technology while Turkey is accepting saw ginning as these technologies are suitable for their cotton. The mindset of the ginners is changing to provide cotton in the standard best parameters and achieve the proper realization by informed and branded marketing.

The new equipments with complete cover to control the dusty atmosphere in the ginning factories are being introduced while scientific humid air humidification is becoming the order of day. The efficient handling equipments and practices are being adopted and the equipment manufacturers are coming forward with innovative solutions.

**5. Traceability and accountability**

The proper labeling and traceable laboratory reports for incoming as well as outgoing material are being used to keep the track of quality of cotton hence the ginners are able to trace and connect.

HVI testing should be made compulsory for each ginning factory and press mark / bar coding should be made compulsory. The central control for press mark / bar coding may come from the Textile Commissioner / Textile Committee on all India basis.

**6. Case study or success stories on engaging with farmers in improving quality**

There are several cases in Gujarat and Andhra where the spinners / ginners have directly entered in to contract farming which is giving desired quality cotton without any mixing with desired parameters.

**7. Quality vs. premium on price. Any case study**

M/s. Amit Cottons Shadnagar, Hyderabad may be a correct case for quality production and still getting premium in price contrary to the normal practice of the various ginners where they always have a grudge that spinning mills do not pay higher for quality cotton while they are not able to present their quality properly nor maintain the consistency in the quality.

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