



Turn Out

Introduction

Seed cotton that is delivered to the gin contains three main components: fibre, seed, and trash. One of the major tasks of the gin is to separate the fibre from the seed and remove trash. From a grower's perspective the amount and percentages of each of the three components are very important as they will determine their economic return. This is commonly referred to as turn out and mostly quoted in percentage, with lint turn out (LTO%), sometimes referred to as gin turn out (GTO%) the most important, followed by seed and trash percentages.

How is Lint Turn Out Percentage (LTO%) determined ?

The LTO% is a simple measurement of the weight ratio of lint to seed cotton in any particular module, field or gin run. For example, if the lint percentage is 40%, 50% may be seed and the remaining 10% trash mainly composed of hulls, sticks, dust, leaf, and a small percentage of motes (cotton fibres attached with immature or broken seeds).

Example to illustrate Turn Out:

- Deliver 2300 kg Round Module to gin
- LTO is 42% equating to 966 kg or 4.26 (227 kg) bales.
- Assuming a seed factor of 260 kg per bale
- 4.26 bales multiplied by 260 kg delivers 1107.6 kg of seed or 48.2%
- Adding the lint and seed weights together equates to 2073.6 kg with the remaining 226.4 kg or 9.8% comprising mostly of trash and to a lesser extent motes.

A 2% decrease in LTO% can result in a reduction of



46 kg of lint for this RM and a substantial loss in economic return to the grower.

Certainly, anecdotal information gathered from the gins show that, in general, LTO%, has been declining with corresponding increases in trash %. It must also be noted that these values can be substantially influenced by moisture content.

What affects Turn Out?

- 1) Modules with moisture content $\geq 12\%$ will require more heat and drying resulting in lower LTO%.
- 2) Some cotton varieties have higher LTO% than others, due to seed size and weight.
- 3) High trash content will require more heat and cleaning stages during ginning resulting in lower LTO%.
- 4) Timing and application of defoliation will help reduce the amount of trash.
- 5) Ambient conditions (temperature and relative humidity) in the field during harvesting and harvester set up will also influence LTO%.
- 6) LTO% of irrigated spindle harvested cotton is commonly 5 to 7% higher than dryland stripper harvested cotton. This is due to the fact that the stripper is a non-selective harvester that strips not only the well opened bolls but also the cracked, immature, and unopened bolls, along with burrs (husks), plant sticks, bark, and other foreign matter.
- 7) Nutrition. Higher than required application of nitrogen and water can result in lower LTO%. This is due to increased vegetative growth resulting in defoliation and harvesting challenges and also due to an increase in seed % and weight.
- 8) Low micronaire values of ≤ 3.4 will result in a decrease in LTO% and a increase in mote %.