EXPERIENCE WITH INTELLIGIN ON STRIPPER HARVESTED COTTON

Joseph M. Yankey, Sr. (Product Manager)
and William Mayfield
Zellweger Uster, Inc.
Knoxville, TN

Abstract

The use of process control for the gin has been installed commercially beginning in 1998. Over the past 2 years 17 gins have been using the IntelliGin system to control the processing of seed cotton. Up to this point all the applications have been on the processing of spindle harvested cottons in mid south, southeast and south Texas regions. Results from these installations have been reported on successful processing and controlling the drying and cleaning of spindle harvested cotton. During the past 2 seasons the IntelliGin system has also been exposed to processing some of the UNR cotton grown in mid south and southeast region. The initial results from processing these cottons gave us valuable information and confidence that the system had very good potential for applications into stripper harvested cotton.

In 1999 we decided to install a system in a stripper-harvested gin in the Lubbock area. We also did some preliminary work with the USDA ginning laboratory located in Lubbock. This work centered around sampling cottons with higher trash levels than the normal trash levels associated with spindle harvested cotton. The normal system configuration for spindle harvested cottons has three (3) sampling stations located at the module feeder, after gin stand and condenser before bale press. A decision was made to increase the number of sampling stations to four (4). An additional station for seed cotton measurements would be located after the first stick machine. Readings for moisture and trash would be averaged from these two (2) stations and used in the decision-making algorithms in the IntelliGin software. This was done to smooth out the variable trash and moisture levels that can occur with stripper harvested cotton.

Several specific goals were defined for the analysis of the system on processing stripper-harvested cotton.

- Optimize sampling station placement
- Determine high trash effect on moisture sensor
- Compare decision algorithm (spindle – stripper)
- Conduct turnout tests
- Analyze USDA color and trash grades
- Determine system value to grower

Reprinted from the *Proceedings of the Beltwide Cotton Conference*
Volume 2:1560-1561 (2000)
National Cotton Council, Memphis TN

The gin site used for the installation was the Citizens-Shallowater Coop Gin just outside of Lubbock, Texas.

Test Results

A wide variety of cottons were processed so that we could get a comparison that was representative of the types of seed cottons ginned in the area. The cottons processed were all stripper harvested with the following variations.

- Mixed modules burr extracted and non-extracted
- Irrigated modules burr extracted
- Dry land non-extracted
- UNR burr extracted

IntelliGin on/off turnout tests were conducted on 5 different groups of modules representing the different harvesting conditions described above. These modules produced 397 total bales. Results were analyzed based on the financial value of the cottons and the fiber quality results from the USDA classing office.

Figure 10 shows the results from the turnout tests that show an average improvement of 13.6 pounds per bale. If this is translated into dollars using a New York Futures price of $0.40 and a POP of $0.18 the increased value is $7.89 per bale.

Fiber quality analysis was done to compare the results from the IntelliGin “on” bales with the classing office average. The results from the fiber length and leaf grades are shown respectively in figures 11 and 12. IntelliGin bales had a high number of bales in the 33 and 34 staple length categories than the classing office average. There was also a major increase in the number of leaf grade 4 bales as compared to the classing office average.

Financial analysis was done to compare the IntelliGin On/Off bales using the PCCA loan value as well as a producer payback summary. The increased value from processing stripper harvested cotton using the PCCA loan chart value was an increase of $1.75 per bale and this does not include the increased bale weights. The producer payback summary shows a range from a low to high value between $4.64 to $14.81 per bale. This information is shown in figures 13 and 14 respectively.

Conclusion

Using the IntelliGin process control system on stripper harvested cottons requires additional sampling stations. Averaging the moisture and trash between the module feeder and after the first stick machine provided consistent results for use in the IntelliGin decision making algorithms. The basic decision making algorithms used for spindle picked

cottons will also work with stripper harvested cottons. IntelliGin can provide significant value to a producer by using process control in ginning stripper-harvested cotton. Producers that follow good harvesting and defoliation practices can significantly increase their turnout.