On Thursday November 19, 2008 a breakout session was held in Room B1 of the Ouaga 2000 Conference Center on the following theme: **New developments in cotton ginning.** The session began at 2:00 pm and ended at 3:40 pm. The meeting was well attended and the discussions were frank and direct. Four speakers were on the agenda but there were in fact three presentations, as the fourth speaker was unable to travel to Ouagadougou for reasons of absolute necessity.

The first presentation by **Mr. Claude Vernier**, international sales manager of the USA-based Lummus Corporation, focused on **high capacity roller ginning** and **lint cleaning with unconventional saws**.

**High capacity roller ginning**
From this presentation, it emerged that, although ginning with saws is the most widespread method worldwide, this process contributes to degradation of the lint (greater quantity of short fibers, less uniformity, greater quantity of neps), whereas the concept of ginning with rollers, which used to be associated with low capacity and unwieldiness, has undergone technological improvements, and laboratory studies have shown that the high speed gin can process Upland cotton at more or less the same output and equivalent power as can be achieved by a conventional saw gin. Moreover, it was determined that Upland lint produced with a roller gin had a higher grade of length and less short fibers and neps. In 2007, Lummus began production of the all new Series 2000 model feeder and roller gin, which incorporates all the improvements and concepts. To date, 25 new feeder-gin assemblies have been installed and put into operation in California, Arkansas, and Brazil. While the California and Arkansas operations are primarily processing Pima, the facility in Brazil is processing Upland cotton to produce a top lint for the market.

**Lint cleaning with unconventional saws**
The concept of cleaning lint with unconventional saws was developed by Lummus in 1999 to make up for the inadequacies of the conventional lint cleaner. With this new equipment, air and dust are eliminated more efficiently than in lint cleaners with conventional saws where the lap tends to act as a filter, capturing the dust before it is evacuated with the carrying air. In addition, the waste particles are never compressed in the filter in the absence of traditional feeder mechanisms.
The main complaint about the first Sentinel-type lint cleaner was operational in nature: the horizontal system of air ducts for cleaning the separator required a large air compressor and was an unacceptable source of maintenance. However, in 2007 Lummus tested a new feed system using a high-speed brush applicator roller and fixed perforated panels for air separation in lieu and in place of the high-speed perforated separator roller and the horizontal system of ducts. This new patented system gives conclusive results.

The speaker closed by reassuring the participants that kits now exist for converting the Sentinel I generation to the new version, Sentinel II.
The second speaker, Mr. Roger Fermon, vice president of Continental Eagle Corp., spoke about humidification and drying of seed cotton, LouverMax and the Eagle Eye Imaging System, and baling.

**Humidification and drying of seed cotton**
In this presentation, the speaker said that controlling the humidity level is one of the key factors in preserving the quality of the lint in the ginning process. To ensure good quality, there is thus a need to maintain a balance between the humidity level, the reduction of impurities, and the lint quality.
He went on to say that the major manufacturers of ginning equipment have concluded that using a large volume of air at a low temperature is the best way to dry the seed cotton. With the vertical flow drier, the speaker indicated that they have managed to obtain significant reductions in fuel consumption. The seed cotton is dried uniformly at a lower temperature and, since the static pressure is decreased by more than 75 percent, the consumption of electric power is reduced considerably.

**LouverMax and Imaging System (Eagle Eye)**
The speaker explained that the idea of LouverMax is to retain good lint by not “overcleaning” the lint. By optimizing the balance between grade and outturn, the gin operator will achieve maximum profits throughout the season; the louvers work by opening and shutting based on the quantity of waste in the lint and the grade as determined by the gin operator. Independent tests on 1,000 bales and commercial tests show that the louvers save more than 1 percent of lint with no reduction of grade.
The louvers can be controlled automatically by what is called the Eagle Eye. This is a digital imaging system that detects the degree of impurities in the lint after the lint is cleaned and that gives a signal to open or shut the louvers based on the requested grade. The system reacts continuously, depending on any variations detected.

**Baling**
To achieve proper humidification of the lint, the speaker indicated that Continental has two types of pre-baling lint humidification systems:
- One system consists of a pre-baling application that uses a humidification chute to add 1 to 1.5 percent humidity.
- The second method is the Moisture Max system which adds 3 to 4 percent humidity, making it possible today for high capacity balers with an automatic strapping system to achieve a capacity as high as 80 bales per hour.

The third and final speaker was Mr. Mahendra Kunar Sharma, president of Bajaj Steel Industries in India, who spoke about roller ginning. After providing background on their industry, he addressed the advantages of roller ginning. Because of the gentle picking provided by this system, Bajaj Industries developed this technology to meet the prerogatives of the world market by lessening the drawbacks that this technology used to present. The speaker’s presentation covered the following points:

**Fiber length:** Trials conducted on Indian cotton using the three following types of gins gave the following results:
- Bajaj Double Roller Gins: 32.59 mm
- Saw Gins: 30.27 mm
- Rotobar Gin: 31.52 mm
The speaker noted that the Bajaj technology thus offers better results.
Number of neps: Test results show that the technology developed by Bajaj produces at the very most 90 neps, whereas saw gins produce 225 or more.

Outturn: Experiments conducted on cotton from Zimbabwe show that Bajaj double roller gins provide an outturn of 43 percent, versus 41 percent for saw gins. In certain cases, when the Bajaj double roller gins provide an outturn of 37 percent, the figure for saw gins is 35 percent.

Profitability: Because of the high outturn and the non-necessity of a delinting procedure, the double roller gin is more profitable.

Energy: In comparison to 10-30 bales/hour plants, the Bajaj technology consumes less energy.

Project cost: The project cost for setting up a Bajaj-type plant is substantially more cost-effective than for a saw plant.

Unwieldiness: Bajaj plants are adjustable and may be small, medium, or large, which is not possible in the case of saw or rotary gins.

At the end of the presentations, the discussion was opened up to the participants for clarifications and remarks. The following points emerged from the remarks:

1- Energy consumption
One inescapable observation is that modernization of ginning plants by improving the feed, the cleaning, the humidification, and the baling has in fact resulted in higher consumption of electric power, so that the gains sought in terms of quantity and quality are for naught. It was therefore suggested to the manufacturers that, alongside the new technologies under development, a top priority should be given to the issue of reducing the consumption of electric power.

Indeed, an analysis of production costs in many cotton producing countries reveals that energy is the highest cost center.

The manufacturers assured the participants that studies are under way to reduce the level of energy consumption.

2- Unwieldiness
Concerns were expressed about the roller gins because they are reportedly unwieldy to such a degree that the advantages they generate are offset by civil engineering expenses.

The manufacturers responded to this question by noting that major improvements have now been made to the machines in order to reduce the annoyances associated with unwieldiness.

3- Detection of foreign bodies
The question was raised as to whether there are currently any methods, during the ginning process, for detecting foreign bodies in bales of lint.

The manufacturers responded that, to date, there is no ginning mechanism for overcoming this phenomenon. However, in the spinning process, a color detector can be installed to avoid problems related to this situation.

This subject has long been targeted by specific interventions, and the participants cited examples from different countries to make the point that this issue has been solved in many countries as a result of the steps taken between the harvest and ginning of the seed cotton. Today, polypropylene, the nemesis of spinners, is no longer used in picking the seed cotton or packaging the bales. Moreover, some cotton companies are ISO 9001 certified, clear evidence that many efforts have been made to improve the procedures at all levels.