

CAT scan checks bales for moisture

By DON COMIS

OUT on the High Plains of Texas there's a whole new way to look at cotton bales.

A new system for more accurately measuring moisture in cotton bales has been developed by an Agricultural Research Service scientist.

Measuring moisture in cotton bales is important, because high moisture levels can ruin cotton bales while they are being stored. Changes with today's cotton ginning technology are creating wetter bales — with moisture being distributed less uniformly within the bales than before.

To deal with this problem, USDA Agricultural Research Service agricultural engineer Mathew Pelletier, working at the ARS Cotton Production and Processing Unit in Lubbock, Texas, has developed a special CAT scan — three-dimensional imaging technology — to measure moisture in cotton bales.

Saving good cotton

In recent years, there have been a growing number of incidents in which large numbers of cotton bales — up to an entire season's worth from the farmers who used a particular cotton gin — were ruined.

Intensive analysis of these bales revealed moisture levels ranging from below 7% to well above 13%.

A 7.5% moisture level is the maximum safe storage level for cotton bales. Pelletier notes it doesn't take moisture levels much higher than that to quickly cause color deterioration, fiber damage and mold.

Previous microwave sensors developed by Pelletier used wide microwave

Key Points

- New system can more accurately find moisture in cotton bales.
- A moisture level above 7.5% can damage color and fiber and cause mold.
- Three-dimensional imaging technology can detect moisture in bales.

beams to scan bales for average moisture readings. The systems worked well with uniformly moist bales. But since more and more bales now vary in moisture, equipment needs to be capable of detecting the highest moisture point, as well as average bale moisture.

The new prototype system developed by Pelletier sends multiple pencil-

thin microwave beams through each bale to sensors on opposite sides, giving a 3-D image of the water distribution throughout the entire bale of cotton.

This new system can detect high moisture layers, as well as determine overall average bale moisture.

Comis is with the USDA Agricultural Research Service.



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