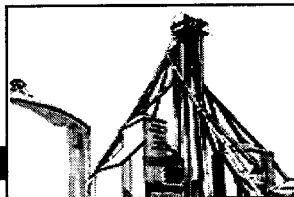


Mill Market



**INFORMATION
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For AgriChem, moisture content is a 'feed ingredient'

By CHARLES HOUSE
Feedstuffs Staff Editor

AgriChem, Inc., wrestles with the varying moisture levels in grain. It sizes them up, controls them and pins them down — for cattle feedlots and feed manufacturers internationally.

The eight-person business, headquartered in Anoka, Minn., is based on a growing recognition that moisture is a crucial feed component, rather than an incidental trait.

"We look at moisture as a feed ingredient in a formulation, as opposed to an adjunct," said Dave Greer, AgriChem's founder and president. Like crucial components of any blended product, he said, inclusion amounts shouldn't be left to chance.

The key is being able to use grain at a stable and precisely ordered level of moisture — say 16%, rather than 18% or 14%, or one that wobbles in-between.

"You need it to be precise because there's a big difference in how grain processes," Greer said. For example, less-than-optimal or varying moisture levels can make it tough to control basic feed characteristics such as particle size, hardness and binding strength. Gelatinization of starch also depends on how much moisture is present.

"After the bushel weight, the most important quality concern is moisture content," Greer said. "It's also the biggest variable."

He noted that grain from the field might contain 25% moisture, while supplies in storage may have just 12%.

AgriChem got its start about 12 years ago making a surfactant, or wetting agent that allows grain to absorb moisture quickly and uniformly. Customers included a variety of feedlots, which used the product to moisturize whole-kernel grain in steam-flaking operations.

While Greer said the surfactants were effective, he also concluded that they were not, by themselves, the final answer. To bring grain up to optimal moisture levels — levels that maximize the potential of both the feedstock and manufacturing equipment — tighter application parameters were required.

"It was a problem of process control," Greer said.

Now, AgriChem's products include a food-grade surfactant called Grain Prep and process-control equipment, typically

sold as a unit. The unit, Auto Delivery System II consists of three integrated segments:

- A moisture sensor, which uses electrical capacitance to calculate the moisture level of incoming, or untreated grain.
- A patented, computerized controller, which compares the sensor readings to a desired moisture level, set by plant personnel. Taking into account the grain-flow mass, the controller continuously and instantaneously calculates how much moisture has to be added.
- A metering pump and related equipment, which responds to the controller and delivers precise amounts of moisture or surfactant to grain in the mixer.

Greer said the system produces moisture levels to within 0.5% of the desired target, in both continuous-flow or batch-mixing applications.

"You can sit back and the beast will run in the automatic mode," he said.

Because the controller can be programmed by keystroke, feed manufacturers can measure equipment perfor-

mance and end-product quality against various moisture levels.

"You can find out how the pellet mill behaves at 14%, or 15% and fine-tune it," Greer said.

The controller can also calculate the amount of grain processed and the amount of moisture added. Data can be displayed electronically, or in a print-out, and the numbers can be sent to in-house computers for further crunching.

A complete package, including the controller and all sensors, costs about \$15,000. The price includes two or three days of on-site work by an AgriChem engineer, who calibrates the equipment and takes it on a "shakedown cruise," Greer said.

AgriChem's system is designed to work with whole grains, as well as with grain (or feed) particles, roasted soybeans and other material. Right now, for example, the company is testing its equipment with beet pulp for use in pelleted feed.

While improved feed uniformity may

be the most obvious result, Greer stressed that precise and consistent moisture levels also can optimize existing equipment.

"It's like driving your car on a freeway or a bumpy country road," he said. "On the country road, you've got to throttle down to absorb the bumps. If there are bumps in the moisture content, you've got to throttle down the equipment."

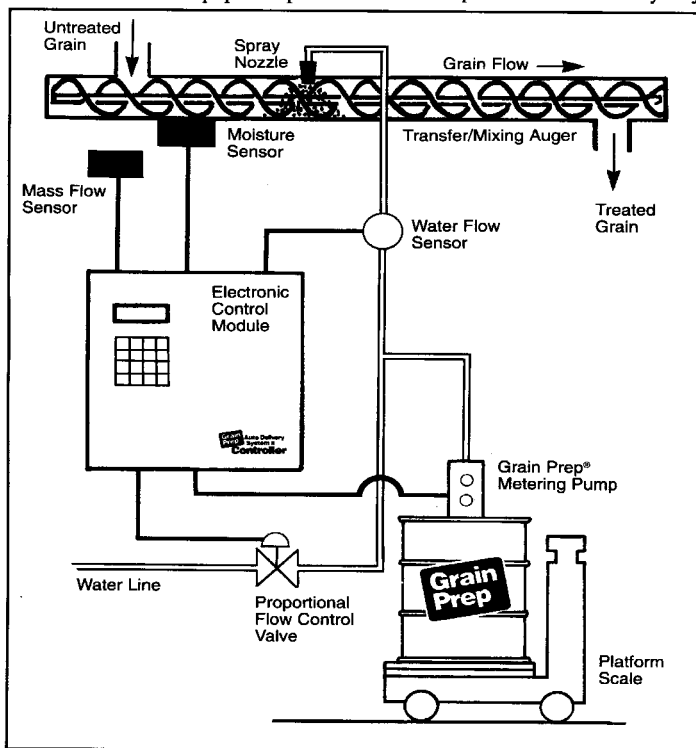
However, once moisture levels are brought under control, feed-manufacturing equipment can be "cranked up" and run at close to the designed capacity, he said.

Greer said productivity often increases 10% in a feed mill with the equipment installed. Reduced labor costs are also a factor, as employees are freed from the task of adjusting machinery to compensate for wet or dry grain.

About 60% of AgriChem's business comes from commercial feedlots, many of which are steam-flaking or dry-rolling grain.

Much of the rest comes from feed manufacturers in France, South Korea and Canada. Greer said fully 40% of the company's sales come from outside the U.S., where interest has been especially keen. The company's wetting agent is also sold internationally.

Greer said the product is non-toxic and approved for use on animal feed and human food. ■



AgriChem's product works in both continuous-flow applications (above) or batch systems. It measures moisture content and brings grain up to desired moisture levels.