Kistler-Morse®

Multiple Products

case history

Market: Agricultural Storage and Processing

CUSTOMER

Diamond Walnut Growers, Stockton, CA.

PROBLEM

The facility wanted to upgrade inventory and process monitoring methods for 21 steel and cement bins holding more than 40 different specifications of walnuts and walnut shells. "We had been using a stick and a rope to monitor them previously," says Luc Gooris, Electrical Maintenance Manager at the site. "It was more or less an extended tape measure, and production personnel would just look down and guess how much was in the bin. One of the drawbacks was sending somebody up 70 feet on a ladder on the side of the bin. When it's raining, it was real dangerous, so safety was an issue." Another problem, according to Gooris, "was the consistency of record-keeping. The walnuts form a cone in the bin when it's full, and when it's emptied it forms a funnel. Two guys might look at the same bin and write down a different height for the same level."

Another problem was infrequent -- but costly -- overfilling of the bins. If one particular walnut shell bin overflowed, Gooris says, it meant that production was shut down for an entire area until the spillage was cleaned and switched to another bin.

APPLICATION

Diamond Walnut installed 21 Sonologic level transducers from Kistler-Morse on each of their bins, along with Multi-Vessel System monitoring software. The bins vary greatly in size: some hold as little as 5,000 pounds of product, while the largest are 70 feet tall and 20 feet in diameter. Gooris isn't sure what level of accuracy he's getting from the ultrasonic sensors. "All I know is that the sensors measure the closest point to the top of the bin, and I feel pretty confident that it's repeatable." The bin readings are sent via 4-20mA outputs to an Allen-Bradley PLC which controls the movement of a filling gate, so that the bins never overflow.

BENEFIT

"The main benefit is that everthing is tied together in a process control system," Gooris says, "From my office, I can see what's going on. The readings from the sensors go straight to the PLC to the movable gate, so now the operators don't have to manually switch the gate on and off anymore. It frees up labor to do other tasks."

CONCLUSION

"This is just one step on a long-term process to automate the entire facility," Gooris says. "Now that all this information is available to management, we should make better production control decisions." The next step for the plant is to install belt scales for weighing product on its way to the bins.