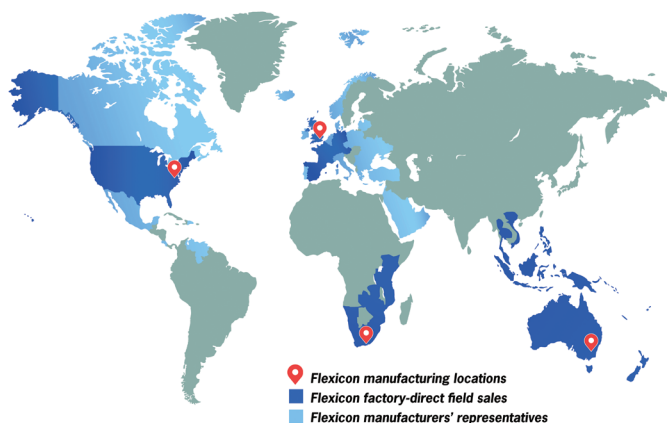




Bulk Agricultural Chemicals Production Improved

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ST. LOUIS, MO — When Whitmire Micro-Gen Research Laboratories, Inc. moved the manufacture in-house of its granulated corn cob-based ant bait products, flexible screw conveyors made the shift economically feasible. In less than three years, Whitmire doubled production of these products and slashed production costs compared to previous outside contract manufacturing. The system paid for itself in less than one year, with the flexible screw conveyor portion paying back in the first six months. At the same time, product quality improved.

Whitmire's results are based on operating with low cost flexible conveyors from Flexicon Corporation as compared to pneumatic conveyors. "Flexible conveyors allowed us to affordably get into this business," says Larry Sharp, Whitmire Research plant manager.



Pneumatics too Heavy

Whitmire first considered a pneumatic conveying system. But pneumatics' bigger, heavier hardware would require a receiving tank outside the facility, a blower and a heavy pipe conveyor. Lightweight flexible screw conveyors are easy and inexpensive to install and re-route, unlike permanently installed pneumatic tubing. Sharp says the pneumatic system would also risk more mechanical problems, having more mechanical parts than the simple-design flexible screw conveyors, and is more costly.

A pneumatic system, with its powerful blower, would also tend to develop leaks, which could hamper Whitmire's workplace environmental safety because of the ingredients being added to the ant bait. The completely enclosed flexible screw conveyor remains dust-free, and therefore environmentally safe, as the granules move between vessels.

Whitmire's new system also made in-house production affordable as a PLC-controlled gain-in-weight system assures weighing accuracy to prevent any loss of expensive active ingredients. The 2000-lb capacity ribbon blender is mounted on load cells, integrated with a scale. As the flexible screw conveyor feeds the mixer, a controller shuts off the conveyor when reaching a set weight, thereby metering the precise amount of corn grit and active ingredients to the mixer. "We get the exact amount of corn grit and actives that we want per batch," Sharp says. (The actives are pumped and sprayed into the mixer.)

Improvement of product quality, Sharp says, "might be our most important payback for high customer satisfaction and sales." The flexible conveyors raised product quality by reducing corn grit fines, which tend to pack and ball up. Such lumping would make an ant bait product that a spreader would have difficulty laying down around farms and commercial properties. A pneumatic system's rougher handling of granules would generate far more fines," Sharp says, "We see very little degradation of the corn grit as processed to or discharging from the mixer. Our product also meets our customers' specs for the allowable amount of fines."

Flexible Conveyors

The flexible screw conveyors handle the corn grit gently without the grinding or crushing that can occur with other conveyors, minimizing fines generation. The conveyors move material through a 4.5" diameter polyethylene outer tube enclosing a rugged, flexible stainless steel screw, driven by a low-power electric motor. The inner screw is the only moving part contacting material. As the flexible screw rotates in the tube, it self-centers to provide clearance between the screw and tube wall.

The conveyor cleans easily and quickly, having no cracks, crevices, filters or bearings that can trap particles.

Whitmire receives the granulated corn cobs in 800-lb. bags, which a Flexicon bulk bag unloader discharges into an enclosed hopper. Flow promotion devices promote complete discharge from the bag with no manual intervention. The hopper intake chute, with flow control valve, provides safe, dust-free opening and closing of the bag spout, preventing bursts of material from displacing dust into the plant environment as it drops into the hopper.

From the bulk bag unloader, a flexible screw conveyor transports the granules 10 feet at a 45 degree angle into the ribbon blender mixer. A second flexible screw conveyor moves the product from the mixer 32 ft at a 45 degree angle to a 2000 lb capacity holding tank that supplies filling machines that package ant bait in containers from 25 lb bags to 2 lb and 8 oz. bottles.

Expanding

Whitmire has expanded its line to add carpenter ant bait, which requires a finer corn grit and travels through the same flexible containers.

Whitmire's in-house ant bait line has been so successful that the company plans to step up production. The future expansion will likely operate with the same type of flexible conveying system. "Had we known we'd see this kind of growth, we would have installed a larger flexible conveyor system right off," Sharp says.



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