



A WIN-WIN FOR FERTILIZER PROCESSING

Nate Reznecek, GSI, USA, outlines how the company's InterSystems brand's high-capacity dry fertilizer handling equipment is helping enhance capacity, speed and blend quality.

Large corn and soybean harvests in North America have been fuelling farmer demand for larger equipment and expanded grain handling systems. Concurrent with this trend has been the development and adoption of new high-speed, high-capacity fertilizer handling equipment by agricultural retail and commercial grain operations to better meet the needs of their customers.

Dry fertilizer usage has remained fairly stable in recent years due, in part, to sustainable agricultural practices and depressed demand for crop inputs due to lower crop prices. However, processors are responding to the increased need for

quality fertilizer blends and faster handling to help farmers maximise their efficiency and yield potential.

In the US, for example, several CHS agricultural co-ops opened new retail facilities this year with the latest, full-site fertilizer handling equipment from GSI's (a leading global manufacturer of steel grain bins and drying/material handling equipment) InterSystems crop nutrient brand.

The combination of improved capacity, efficiency and quality is designed to promote increased profitability for these operations and also strengthen their position in a very competitive and demanding environment. In addition, advances in automation enable them to reduce manpower

needs, which benefits the industry at a time when it has become more difficult to recruit employees for certain technical and operational jobs, especially during the busiest parts of the growing season.

Equally important is improved equipment reliability. The new fertilizer handling equipment is designed with high durability to last 30 years or longer, allowing for less



Figure 1. CHS Dakota Plains Ag co-op in Gwinner, North Dakota, uses new, state-of-the-art hybrid blend tower technology from GSI's InterSystems brand.



Figure 2. A durable galvanised tower structure at CHS South Central co-op in Sterling, North Dakota, provides proven corrosion protection that will continue to look great year after year.



Figure 3. Vertical tower blenders on load cells help balance the loads into multi-compartment tenders at CHS South Central co-op.

maintenance and reduced risk of costly downtime compared to older systems still in use throughout the industry.

Meeting the needs of precision agriculture

Advances in blending technology also enable these CHS facilities to keep pace with the continued growth of precision agriculture by producing customised fertilizer blends best-suited for different soil conditions on a farm. This is especially important in parts of the US, such as the Dakotas, where farmers are planting different crops than they have in the past.

"Farmers understand their own soil and fields, and they recognise that using a fertilizer blend, formulated specifically for their growing conditions, is one of the most important strategies to optimise their yields," said Delane Thom, General Manager of CHS Southwest in Lemmon, South Dakota.

The new CHS Southwest co-op, which began operations last spring, has a 15 000 short t fertilizer holding capacity and also offers a full range of agronomic products and application services for its more than 800 co-op farmer owners. Its high-speed handling equipment includes a leg and conveying system that can receive fertilizer products by truck and rail at the rate of 1200 short tph; a tripper conveyor which uses a remote-operated laser guidance system to distribute fertilizer into selected storage bins; two 18 short t blenders; and a finished product conveyor and leg system that enables the new co-op facility to load 10 semi-trucks per hour.

"This high-efficiency process enables us to turn around our members' trucks very rapidly," said Thom. "Our goal is to minimise waiting time and help them stay productive by getting back to their fields as quickly as possible." The new site replaces a smaller, nearby CHS operation that lacked enough capacity or expansion space to meet growing demand.

Another new facility, CHS South Central co-op, opened last spring in Sterling, North Dakota. Serving about 1200 co-op farmer-owners, it provides additional capacity to supplement production at its two other regional operations in North Dakota.

"Meeting production needs that help our customers be more efficient now and for future growth is paramount," said Ed Mallett, Vice President of CHS Country Operations Midwest region. "These high-capacity systems enable us to serve our owners in a timely way, not only in providing basic nutrients, but also by helping them to drive more revenue per acre by blending micronutrients they may have overlooked in the past."

New hybrid blend tower

The new CHS Dakota Plains Ag co-op in Gwinner, North Dakota, includes a new hybrid blend tower from InterSystems that is the first of its kind in the industry as it includes two towers (retail and wholesale) combined into one single tower. This technology saves several hundreds of thousands of dollars in capital expenses, without sacrificing throughput speeds or blend quality, while servicing two load-out lanes simultaneously.

The hybrid blend tower also provides added flexibility, enabling the operator to service more customers, plus

built-in, fail-safe redundancy to control mission-critical functions. Advantageous for the growers and the co-op, it is expected that additional co-ops and other grain operations will adopt this new technology as the industry strives to provide more service to its customers on tighter budgets.

The new Gwinner location is also benefiting from more physical space as well as higher capacity. “The window for spring planting is very compressed,” noted Dennis Novacek, General Manager of CHS Dakota Plains Ag. “At the rate fertilizer product goes out, we need the floor space to have enough product on hand when planting season starts in order not to run out. And with our high efficiency, farmer trucks are not sitting in line to get loaded.”

Benefits of consolidation

A new, state-of-the-art facility, located in Peru, Illinois, is the sixth co-op facility operated by Northern Partners Coop, in a partnership with CHS Inc. dry fertilizer operations that were previously conducted at three of the other locations and relied on outdated equipment are now consolidated in Peru. In addition, CHS Inc. will market fertilizer to wholesale customers from this location.

Kevin Nelson, Director of Communications for Northern Partners, said the new facility offers many key benefits for the co-op and its co-op farmer-owners. These include expanded storage capacity (27 000 short t for inbound fertilizer), increased speed of the fertilizer blending process and managing a single blending system instead of multiple ones at different locations. Assurance of a reliable supply brings value to the co-op’s member-owners and higher efficiency also translates into improved customer service.

Nelson added that the new facility not only means increased efficiency, but also the opportunity to expand Northern Partners’ customer base. “This facility gives us the ability to serve a new segment of the market, primarily larger growers, with services that weren’t in our toolbox previously,” he explained. “We have improved our access to the markets around us.”

Another major advantage is being able to receive incoming fertilizer products by barge at the Peru site right on the Illinois River. “We no longer have to go to a different terminal to pick up and haul fertilizer back to our facilities,” Nelson said. “We also benefit from better economies of scale by being able to receive larger raw material shipments by barge.”

Meeting future needs

Recent trends that have impacted dry fertilizer operations are expected to continue for the near future – large crop yields, resulting in a continued focus on automation, better efficiency and more capacity. As an engineered to order brand, InterSystems is always looking to introduce new equipment features that will benefit end-users, depending on their geography and crop mix.

With its recent entry into the dry fertilizer business, GSI along with its parent company, AGCO Corp., now support agricultural production from end-to-end – including equipment for tillage, planting, application and harvesting; seed treatment production; fertilizer material handling; and grain storage and conditioning. This broad scope gives agricultural equipment manufacturer AGCO the ability to



Figure 4. CHS Southwest co-op in Lemmon, South Dakota, features high-speed, fully-automated load-out and a stainless steel fertilizer blend tower.



Figure 5. This InterSystems double weigh hopper and single horizontal mixer blend tower provide high speed, multi-product and impregnated customised blends.

invest in new ideas and innovations that benefit farmers and the supply chain. GSI’s crop nutrient portfolio also now includes Willmar fertilizer spreaders and tenders. Following a million dollar investment by AGCO in GSI’s Omaha, Nebraska, production facility, Willmar products are now manufactured alongside InterSystems fertilizer material handling equipment.

In today’s rapidly changing agricultural market, it will be those with the most flexibility to adapt to customer requirements and market conditions that will succeed. To meet this objective, the InterSystems brand seeks to fill a gap in the market by specialising in higher-quality, heavy-duty fertilizer processing systems that supports truck, barge and rail receiving, ingredient storage, truck loading, open tripper belt conveyor for commodity flat storage, blending, conditioning and facility design and layout. **WF**