

Farmer-Dealer Input Leads To System Development

GOLDEN VALLEY, Minn. — The next generation of seed handling systems was unveiled by Northrup King Co. at the American Soybean Association (ASA) National Expo in Denver.

Northrup King's new Load & Go™ Seed Handling System for corn and soybean seed features specially-engineered durable plastic boxes which make filling planter boxes easier and quicker, and allows growers to cover more acres per day.

"This system enables growers to go straight from the dealer to the field without taking the intermediate step of loading a poly bag into a gravity wagon," said Jack Bemens, Northrup King corn product manager. "No one has ever packaged seed like this before."

The Load & Go system, in development for more than two years, originated with five Iowa farmer-dealers, their Northrup King district manager Lloyd Bigler, and Jim Berquam, North-

rup King plant manager at Waterloo, Iowa.

"We were looking for a safer, easier way to handle large quantities of seed to replace the poly bags," Bigler said. The group shared their ideas with Northrup King Corn Product Manager Jack Bemens, who worked with container manufacturers to transform the concept into blueprints and a prototype.

The centerpiece of the Load & Go system is the Q-Bit™ contain-

er, an injection-molded polyethylene bin manufactured in two sizes from durable, recyclable plastic. One Q-Bit container is the equivalent of 30 bags of seed corn or 40 bags of soybeans. When full, the Q-Bit container weighs about 2,000 pounds and can be loaded between the wheel wells of a full-size pickup truck box. Seeds can then be discharged from the container using a simple hose connection or belt conveyors, specially designed augers, or pneumatic air

transfer systems to fill planters or drills.

Rodent-proof, moisture-resistant and stackable, the patented design of the Q-Bit container features a sliding gate for unloading the container from the side or bottom, and regulating the flow similar to a gravity box. A slanted floor ensures that beans or corn empty out, and smooth inner walls keep seeds from becoming trapped. Before shipment, the top of each container, as well as the slide gate, is sealed to guarantee varietal purity. The Q-Bit container also includes a built-in, four-way pallet for lifting the box with a fork-lift, a retro-fitted three-point hitch, or an adapted front-end loader. When empty, the containers can be collapsed in half for storage and dealer return.

The popularity of large poly bags — one of every 10 Midwestern soybean farmers has switched to bulk soybean purchases in the past five years — has presented a disposal problem.

"Every year, our industry needs to find a way to get rid of about 90 million soybean and seed corn bags," Bemens said. "The Q-Bit container addresses this problem with a 15-20 year life expectancy. That's five to seven times longer than the poly sacks."

Prototypes of the new seed handling system were tested this season on Iowa and Minnesota farms. For example, Jerry Ostrander and his son, Jay, used the prototypes to plant soybeans on their Jefferson, Iowa farm this spring.

"We planted 1,800 acres of corn and soybeans this year, and with the wet spring, we didn't have a lot of time to get the crop in," Jerry Ostrander said. "On a normal day, we go through 150 to 200 50-pound seed bags. The Load & Go system really helped speed up planting."

Program Aims To Unearth Secrets Of Roots

UNIVERSITY PARK (Centre Co.) — Roots have been in the dark for too long, said the leader of a team of Penn State scientists working to unearth the secrets of roots.

"They're used for everything from food to plastics," said Dr. Hector Flores, associate professor of plant pathology and biotechnology in Penn State's College of Agricultural Sciences. "We owe it to ourselves to learn more about how they work."

Flores heads Penn State's Root Biology Group, an interdisciplinary research and training program supported by a \$1.2 million grant from the Collaborative Research

Plant Biology Program sponsored by the Department of Energy, the National Science Foundation, and the U.S. Department of Agriculture.

Their underground environment makes roots difficult to study. "Most people don't think about roots, because it's hard to visualize something you can't see," Flores said. "But a better understanding of root biology could enable scientists to help plants withstand drought or flood. It could even lead to more nutritious foods."

Increased understanding of roots also could benefit human

health. "Chemicals from the roots of the Chinese cucumber plant are a promising treatment for AIDS victims," Flores said. "Many other plants produce medicinal compounds, but we're just beginning to explore their potential. Biotechnology may be able to enhance this ability."

"We know so little about the thousands of compounds roots make that it is no exaggeration to suspect there may be hundreds of new medicines and other beneficial substances in roots."

The program unites 23 faculty members from nine academic departments in the Colleges of Agricultural Sciences and Engineering and the Eberly College of Science. The group includes physiologists, biochemists, molecular biologists, computer scientists, and engineers. "This diversity allows us to study roots from many perspectives," said Flores. "We all benefit from the collaboration."

Flores and others spent a year recruiting the best possible graduate and postdoctoral fellows and developing new courses and workshops for the program. During the next five years, the team will pursue research projects

while training six graduate students and six postdoctoral fellows in the latest root biology techniques. Also offered will be an intensive residential summer program for promising undergraduates.

Flores has developed techniques that enable root cells to mass-produce chemicals. "Seedlings infected with certain bacteria enter a state of perpetual growth," Flores said. "Because they increase their size several thousand times in a single month, these modified roots can act as factories to mass-produce pharmaceuticals and other chemicals."

Other scientists in the Root Biology Group are examining the growth, development, architecture and function of roots in plants and the environment. Others study the relationship between roots and soil organisms, detailing the interactions between roots and bacteria, mycorrhizal fungi, and insects.

Flores hopes the program will change the way roots are grown, used, and even thought about. "Right now, roots remain a scientific black box," he said. "But we're planning to shine a little light on them."

Agriculturalists To Report On Recent China Visit

LANCASTER (Lancaster Co.) — Six agriculturalists will be at an On-Farm Biogas Production Conference to report on their recent trip to China to study small and medium-scale digesters to be held on December 8th, at 9:30 a.m. at Yoder's Restaurant, New Holland.

Their study took a look at Chinese technology to see what might be transferrable to Pennsylvania conditions. The project was sponsored by the USDA Office of International Development, the Center for Rural Pennsylvania, local conservation districts, the Pennsylvania Pork Producers, and local banks.

The six-member team consisted of Harlan Keener, a swine producer; Dr. Richard Fite, veterinary medical officer; Dr. Robert Graves, agricultural engineer professor; Gerald Heistand, Chesapeake Bay technician; Virgil Gutshall, vo ag teacher and swine producer; and James Kauffman, poultry producer.

One of the goals of this conference is to determine what interest exists for the future of biogas development in Pennsylvania. Representatives for various

national, state, and local agencies will be on hand to discuss their viewpoints on biogas digester development in Pennsylvania. On a second panel, owners and designers of large scale biogas digesters will be on hand to give their views and report on their experiences.

A majority of China's 4.9 million digesters are small in size, whereas most of Pennsylvania's digesters are large. The main purpose for installing digesters is different in the two countries, and the environmental situation is different. However, both countries are looking to get energy from manure and at the same time help solve environmental problems.

Sponsors of this conference are Penn State Cooperative Extension, Lancaster County Conservation District, and Center for Rural Pennsylvania. They hope to come away with a good indication of whether more resources need to be funnelled into digestion of animal manures.

Registration should be made by November 30. More information about biogas digestion or the conference can be obtained from the Lancaster County Conservation District at (717) 299-5361.

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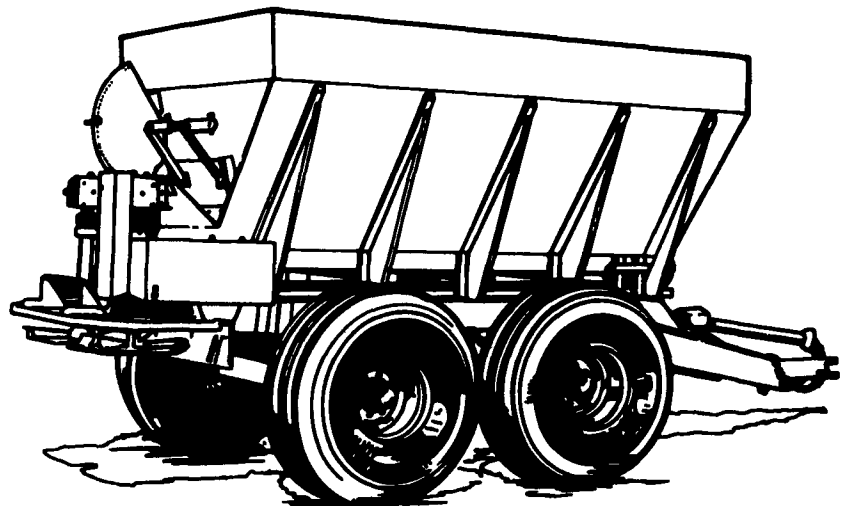
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