

# IOWA SELECT FARMS

## COMMITTED TO ENVIRONMENTAL CARE

Protecting the environment is one of the four pillars upon which the Iowa Select Farms' SelectCare business culture is built and has been since the company's founding in 1992. CEO Jeff Hansen knew early on a formal structure was needed to oversee nutrient management, regulatory compliance and to initiate proactive environmental stewardship efforts. Those efforts today are the responsibility of the Nutrient Management/Environmental Services group.

"Above all, our job is to make sure we're compliant in all regards," says Dwain Bankson, group director. "The company must be survivable and sustainable. To do that we have to make sure all facilities and employees and contract applicators are trained so that manure goes only where it's supposed to go and we don't have any non-compliant events; it's paying attention to details."

"Besides compliance," Bankson adds, "we also work with production to make sure they have the tools they need to do their jobs. In our case, no news is good news. I don't want to be on the front page. And if there is an accident, it's our job to make things right as quickly as possible and put steps in place to ensure it doesn't happen again."

Bankson relies on a group of Environmental Services area managers to achieve his goal of keeping the nearly 700 Iowa Select Farms (ISF) production sites in compliance. "Their role is not only to work with certain regional sites, but to also work vertically; it's managing the site year-round," he says. "These managers, along with our maintenance staff, support each production site in many ways such as site aesthetics, pit environment, snow removal, rock requirements, tractor and generator maintenance, landscaping and sewer and septic repairs."

"We've set them up so they can complete the required manure management plans (MMP), build the plans and handle the required updates," Bankson continues. "They communicate and coordinate with the applicators and the farmers when it's time to haul manure, follow up to make sure it's done appropriately, review all the paperwork to make sure we're compliant, process all of that and enter it into our database."

To those not familiar with the group, those tasks can seem gigantic. "We're working with anywhere from 600 to 700 million gallons of manure a year," Bankson says. "It may come out of a concrete vat, a pit or a lagoon. But it all goes on farm ground which is something we're proud of— it all goes to a neighboring farmer, a community member – and that's a large part of what we have to do in making sure we're compliant with the site's MMP and contributing to a sustainable food system."

Our activities help bring pork production full circle — feeding the crops that feed the pigs," Bankson says. "Although ISF doesn't own the neighboring ground that grows feed corn, we partner with those who do to protect the environment for future generations."



*The Iowa Select Farms Nutrient Management Team assembles for a team picture, sans the southern Iowa team of Chris Franklin and Doug Tull.*

## Compliance at all times

How does Iowa Select Farms stay in compliance? “With a staff that is very good and well-trained,” says Keith Kratchmer, regulatory compliance officer. “Our main responsibility is to make sure all locations stay in compliance with Iowa Department of Natural Resources (DNR) regulations. There is an entire chapter – chapter 65 – in the Iowa code dealing with environmental compliance for confinement livestock facilities of all species.”

Kratchmer’s group has to file yearly manure management plan (MMP) updates for nearly all the Iowa Select Farms production sites and submit them to the counties in which the farms are located or an application field is located. Completely new MMPs have to be submitted every four years which must include all the general information about the site, how much manure is produced, the nutrients that are produced, application rates and the fields to which manure is applied.



*Manure management plans and environmental records for every site are housed in binders and stored in the nutrient management office.*

Every field also has to have a P index calculated. The P index is a risk assessment of phosphorus moving from each field to surface water based on many factors including whether the land is pasture, hay ground or crop ground, type of tillage, soil conservation measures and existing tile lines.

The Environmental Services managers deal with approximately 5,500 fields that surround the ISF production sites for which the company has application easements. There are 10,000 management zones within those fields for which soil sample reports for each zone must be included in the MMP. Those fields represent a total of about 500,000 acres.

“At a minimum every P index has to be recalculated every four years because that’s how often we have to take new soil samples,” Kratchmer says. “You also have to calculate a new P index any time there’s a change in a field’s cropping or management pattern.”

“I view a lot of what we do as training and cross-training,” Kratchmer adds. “We work hard to make sure everyone in the department can do everyone else’s job as well so that we have backup for every position.”

## Leadership and Peer Recognition

**John Stinn**, Iowa Select Farms environmental projects manager, was recently named the recipient of three awards signifying pork industry leadership.



**John Stinn**,  
Environmental  
Projects Manager

He will be presented with a 2015 Superior Paper Award from the American Society of Agricultural and Biological Engineers (ASABE) at the Society’s annual convention this summer in New Orleans. The award recognizes papers published in the previous year that demonstrate exceptional timeliness, fundamental value, originality, and benefits to society.

Stinn says the paper was based on his Iowa State University Ph.D. graduate research project conducted at Iowa Select Farms Sow 26 production facility. The study focused on animal metabolic rates and heat and moisture production data which hadn’t been reviewed since the 1950s and ‘60s.

Stinn will also be presented with a 2014 Technical Paper Award from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) at the Society’s annual convention this summer in Atlanta. The award recognizes the best papers presented each year at Society meetings.

Stinn says the paper was based on collaborative research between Iowa State University and the USDA-ARS in Nebraska. This paper addressed updating metabolic rates and heat and moisture production data for growing pigs in a production facility.

The result of Stinn’s work is the establishment of new metabolic rates for most production stages of pigs. The new data are now being used to revise ventilation design standards for ASABE and will also be included when Midwest Plan Service publications are updated. Stinn has also been announced as one of the 15 members of the 2015 Class of New Faces of ASABE. “Through their professional and extracurricular pursuits, the group, all 30 years of age or younger, represents the best of the profession and a variety of specialties within agricultural and biological engineering, from crop handling and equipment design to environmental preservation and medical devices,” says the Association.

## Getting even better

Bankson points to the company's reduced volume of manure output in recent years even while producing more animals as one significant impact of ISF's efforts to protect the environment. He attributes that achievement—from just under 900 hundred million gallons in 2010 to just over 600 million gallons in 2014—partly to researching and ultimately implementing the use of wet/dry feeders to conserve water. The feeders cut the average volume of water ingested by one hog from 1.2 gallons to 0.7 gallons per day. That significantly reduces the volume of manure while preserving its nutrient value as fertilizer.

Researching and resolving such issues in the future is the primary task of one of the department's newest members, John Stinn, environmental projects manager. Stinn joined ISF last fall following the completion of his Iowa State University Ph.D. graduate research project which he conducted at Sow 26.

"My work focus will be partly environmental services and partly production," Stinn says. "On the production side, I'll research ventilation, air quality and animal environment. On the environmental side, I'll work on projects such as treating foam in pits, sludge accumulation and recycling flush systems."

"It seems that quite a few random special projects that nobody else knows what to do with land on my desk," he smiles. "And that's okay. It lets me use my engineering background to be a problem solver."

Sludge accumulation in pits is a particular problem Stinn is currently researching. "We're experiencing really thick manure in deep pits," he says, "thick enough so that it makes it difficult to pump. We're working with two different microbial products to help break it down so it pumps easier."

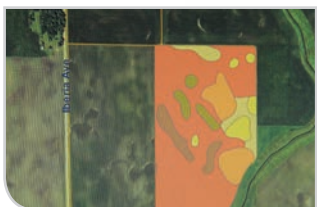
A second problem is pit foaming. "For the last five or 10 year, foam bubbles – which are basically methane – have been growing on the manure surface in some of our deep pits," Stinn says. "The bubbles can grow so big that it takes up storage space."

"But if you spray on water or throw something into the pit to break the bubbles," he says, "the methane rises to the top of the building where it can be an explosion threat if there's a spark. We have a product that seems fairly effective at controlling the foam, but new methods of foam control continue to be evaluated."

A third project is the development of an automatic pit-depth measurement tool in a joint project with Iowa State University. "The goal is to develop an instrument that allows the building manager to see his real-time pit depths." "Our farms are the brick and mortar of our business," concludes Bankson. "We take responsibility in maintaining our farms and treating them with respect. We believe in being good neighbors and work hard to protect our environment, serve as industry leaders in land stewardship and add value to our natural resources by replenishing the crop ground with essential nutrients from swine manure."



*The Environmental Services group uses aerial imagery as the base maps and layers are then added for contours, county tile lines, flood area, water sources and cemeteries.*



*Iowa Select Farms uses a high degree of technology, including geographic information systems (GIS), to practice precision agriculture — using precisely the right amount of nutrients needed by a specific acre of soil.*

## Geographical Information System

One area of focus for Kratchmer for the remainder of 2015 and 2016 is the continued implementation of a new and upgraded geographical information system (GIS). "We've had a GIS system in place since 2004," Kratchmer says, "but have been conducting a massive upgrade over the last three years."

Kratchmer says the new state-of-the art software allows ISF to look at all production sites as a whole; every parcel of ground under easement is mapped into the system. ISF is mapping where each field is, what it is, every management zone, any non-crop features such as creeks, building sites, terraces or tile outlets. Aerial imagery is used as the base maps and layers are then added for contours, county tile lines, flood area, water sources and cemeteries.

"We're also mapping how far away each site is from other farms as it relates to compliance and biosecurity," Kratchmer says. "It's something we've been building and will continue. We also plan to start mapping ISF infrastructure sites this summer for things such as gas lines, sewer lines and fiber optics; anything that might be affected if we have to dig around infrastructure sites."



*Keith Kratchmer,  
Environmental  
Compliance Officer*



*Kent Pliner,  
Environmental  
Services Manager  
Western Region*



*Del Johnson,  
Environmental  
Services Manager  
Eastern Region*



*Carl Ott,  
Environmental  
Services Manager  
Northern Region*



*Tim Hamilton,  
Environmental  
Services Manager  
West Central Region*



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## Environmental Protection Record of success

Iowa Select Farms became the nation's first pork producer to proactively develop a Lagoon Assurance Program in 1996. CEO Jeff Hansen and his team created this program on the heels of a major manure release at another Iowa producer's farm, where a manure storage structure drained due to a nearby field tile that had not been removed or capped.

Hansen and his team developed a written protocol to deal with potential tile lines around manure storage structures to prevent such an occurrence from happening again. They submitted the plan to the Iowa Department of Natural Resources which approved it the same day.

"We were proactive on this. That's our goal, to be the leader in the protection of our environment," Hansen told the Des Moines Register at the time. The Iowa DNR later adopted a version of the protocol, with lesser standards than the Iowa Select protocol, as a rule that now applies to all existing and new earthen manure storage structures in Iowa.

### Iowa Select Farms has gained additional recognition for its environmental efforts by:

- Becoming the first Iowa pork producer to receive the National Environmental Stewardship Award in Washington, D.C. The 1997 award recognized Iowa Select's Kielsmeiser Sow Farm near Radcliffe, IA, for exceptional commitment to the environment through innovative farm design and manure management.
- Partnering with the Northeast Hamilton High School FFA and the Blairsburg Lions Club to plant more than 1,000 trees and shrubs around the perimeter of the Arends Sow Farm in 1999 and receiving the National Environmental Stewardship Award for the second time in 2001.
- Providing training for all Nutrient Management department members on the Phosphorus Index as it became state law in 2005.
- Reducing the amount of phosphorus in manure by adjusting the diet of hogs and pigs allowing nitrogen to be applied at agronomic rates without excess phosphorus that can adversely impact water quality.
- Stocking a trailer with supplies and equipment that can be quickly transported to the site in the rare event of a manure release, thereby minimizing response time and environmental impact. Iowa Select even loans the trailer to nearby farmers when they need it.
- Working with Iowa State University in 2011 on a first-in-the-nation program to research air emissions, including ammonia and greenhouse gases, at one of the company's swine facilities. This program helped establish baselines for development of mitigation techniques.
- Complying with state and federal laws and regulations regarding nutrient-rich manure, from management planning to application to maintaining good relationships with neighboring farmers eager to buy this economical fertilizer for their fields.
- Using a high degree of technology, including geographic information systems (GIS), to practice precision agriculture — using precisely the right amount of nutrients needed by a specific acre of soil.
- Researching and ultimately implementing the best innovative production technologies, such as using wet/dry feeders to conserve water. The feeders cut the average volume of water ingested by one hog from 1.2 gallons to 0.7 gallons per day. That significantly reduces the volume of manure while preserving its nutrient value as fertilizer.

