



Pine Hill Farm Receives 2015 Environmental Steward Award

According to the Meriam-Webster Dictionary, the word sustainable is defined as “able to last or continue for a long time”. Pig farmers have been incorporating sustainable practices for decades. Why? To leave the land, resources, and family practice in a healthful state to ensure the continuum of farming. The land we operate on, we own. The water we provide to our pigs, our neighbors use as well. The feed we nourish our pigs with, we grow. The air we utilize, we breathe each day. Without proper conservation of natural resources, pig farmers would not be able to pass their livelihood down from generation to generation.

Three pillars can help explain the practices pig farmers take to safeguard natural resources to preserve our world’s water quality and air quality, as well as decrease our land footprint. Wakefield Pork operates on these three pillars. Wakefield Pork’s boar stud manager, Andy Kamm, explains the pork industry’s action to preserve these resources:

“To me, the term environmentally sustainable means that we leave the land and resources in better condition than when we found them. The success of agriculture as a whole depends on the preservation and improvement of our natural resources because without those things agriculture and the way of life that goes with it can no longer exist. If each farm does their small part to improve the area around them, we as an agriculture community can ensure that those future generations will hold those same values and traditions.”

Driving past Wakefield Pork’s boar stud in central Minnesota, a passerby would not initially realize the amount of conservation work that has gone into the creation of the site. Prior to constructing a barn, a farm undertakes months of paperwork. Building permits are required for animal housing, and in the process, manure management permits are developed and approved.

Similar to other industries, “[pig farmers] must meet or exceed all local, state and federal regulations, as well as worker health

and safety requirements” before beginning construction. To articulate the practices pig farmers take to preserve these resources, while adhering to all regulations, this article will provide the details pertaining to three pillars – improved water quality, improved air quality, and decreased land footprint – that are ever-present at the Pine Hill Wakefield Pork barn site:



Water Quality

Pine Hill, the name of the Wakefield Pork boar stud, was constructed in 2009 on a plot of land that consists of 42 tillable farming acres and 183 Conservation Reserve Program (CRP) acres. The land is dotted with wide buffer strips, maturing trees, and hardy native grasses. Driving onto the grounds, visitors enter through a tree-lined driveway comprised of crushed rock. Stepping out of the vehicle, one can look to the southwest and see an array of fields, streams, and CRP land. The land looks healthy and it assuredly is healthy. Here is why:

In a traditional effort to preserve the water quality of the 200+ acreage, buffer strips were created along the snaking streams that run through the site. The buffer strips range from 30 to 100 yards wide and are a conglomerate of native grasses, cattails, and small trees. These vegetative buffers help prevent land erosion by holding the soil and rocks in place while acting as a filter to prevent water run-off. When access to fresh, clean water is present, wildlife flock to the location, which is true at Pine Hill - the location is rich in wildlife.



The lawn surrounding the barn is maintained at a longer length than the average homeowner's lawn. It is mowed once every 10-14 days to prevent water run-off. The driveway leading to the small parking lot is composed of crushed rock to allow rainwater to percolate and stay on the driveway, instead of immediately draining into ditches. The use of this rock helps prevent soil washouts. In the event of a heavy rain, the long lawn grass prevents the creation of additional washouts. The buffer strips, rich lawn, and crushed rock all contribute to increased water quality by filtering the water and preventing washouts that can transport sediment into streams.

Air Quality

The preservation of air quality is important to our pigs, our employees, and our neighbors. In past years, when consumers thought of pigs, they either thought of two smells – cooked bacon or a pig barn. Pig farmers have addressed the concerns of neighbors and consumers by proactively taking steps to lessen odors in the air by exploring many odor-neutralizing options. Barns are equipped with air filtration systems, to provide the cleanest, particle-free air possible to our pigs. These filtration systems are nearly identical to those used in hospital systems. The filters are electrostatically charged synthetic media that help to reduce dust particles from entering the barn, providing safe, clean air throughout the barn. Barn fans are operated in a manner to continuously supply fresh oxygen day and night. Dr. Tim Loula, DVM at Swine Vet Center, explains that the odor binds to dust, which is carried by air currents to displace the pig barn smell. By capturing the floating particles of dust, air is essentially freshened.



Outside the unit, trees and grasses assist with the cleansing of the air. According to the U.S. Department of Agriculture, “one acre of forest absorbs six tons of carbon dioxide and puts out four tons of oxygen. This is enough to meet the annual needs of 18 people.” In addition to the multitude of trees scattered throughout the property, Pine Hill has a lined drive of maturing Colorado Blue Spruce, Sugar Maple, and Red Oak trees. A total of 233 trees are scattered throughout the property including Meyer Spruce, White Pine, Arborvitae, and Black Walnut. Mature and maturing trees act as natural air filters by reducing dust particles and cleansing the air. Although the “swine industry only accounts for 0.33% of all GHG (Greenhouse Gas) emissions in the United States”, compared to other industries, pig farmers want to ensure they are taking the proper steps to preserve the air around their farms.

Dr. Loula states that trees have been proven to redirect wind, which may alleviate the chance to contact PRRS or other airborne diseases that are found within the pig industry. This reduction of exposure to some air particles helps assist in keeping pigs healthy in the barns. During the construction of Pine Hill, Dr. Loula found himself at an auction in which about 20 trees were being sold. He called Wakefield Pork to see if they would like the trees for the site and, to this day, those planted trees have remained along the driveway. On the surface, tree leaves cleanse the air, but below the ground, established tree root systems prevent soil erosion by storing water in roots and holding sediment in place, contributing to a healthier soil. The placement of trees at Pine Hill has assisted in cleansing the barn air, reducing the inoculation of disease within the barn, and securing the soil on the site.

Land Quality

Pine Hill’s CRP acreage is covered in prairie grasses and prairie flowers. The barn site acreage is walked monthly to maintain control of the acreage and trash is picked in the ditches. No motorized vehicles, other than ATVs for spraying weeds, are allowed on the property. Noxious weeds, such as thistles, are controlled on a rotational acreage basis to allow the prairie grasses to ample space to grow without the weeds choking fresh sprouts. Signs are posted around the property to keep out any unwanted visitors, while spring food plot preparations are in the development process to keep wanted visitors – wildlife – on the land. Pheasants have



been released on the site in the past, while ducks, geese, and deer are ever-present inhabitants of the land. Access to fresh, clean water and ample acres to nest within the acreage provides a haven for wildlife.

During the hunting seasons, family and friends of the Wakefield Pork family set their sights on large bucks or ducks. The hunting of the land keeps the wildlife numbers in an acceptable range. An excessive number of one species of

animal on a plot of land can have devastating results on the ecological state of the land.

Forty-two of Pine Hill's acres are dedicated to crop production. The manure pumped from the deep, cement-lined pit under the barn is directly applied to the cropland on the site. Manure serves as an excellent fertilizer for the tillable acres. In 2013, the manure tests from the yearly pit pumping yielded a nutrient-rich fertilizer mix of 22.8 pounds of nitrogen (N), 13.5 pounds of phosphorus (P), and 16.9 pounds of potassium (K) per 1,000 gallons of manure. Nitrogen, phosphorus, and potassium are macronutrients that are essential for soil health. Agronomist and consultant, Cody Toothaker, of SoMinn Agronomics, said:

“Manure helps with soil health in many different fashions. Hog manure contains many micronutrients such as zinc, sulfur, magnesium, manganese, calcium and iron. These are all essential elements to plant growth and health. Many commercial fertilizer programs do not include these ample enough amounts to cover crop needs. Soils are living structures and microbes play a huge role in this. These elements, along with nitrogen, help feed and build these microbe levels in the soils which live symbiotically with agronomic plants. The organic contents of the manure help with soil structure [by] producing good topsoil aggregates and tith. In doing this, manure is increasing the water infiltration rate and boosting the water-holding capacity of the soils.”

Cody continued, stating that the top three benefits of hog manure are “good sources of soil fertility,[an] addition of organic matter that helps with soil aggregation, and a stabilized source of fertilizer for the following crop.” All pig manure is tested and applied to fields according to manure management plans that dictate the rates of application. PorkCares.org explains, “farmers are subject to a host of federal and state environmental regulations. Pig farmers work with officials at all levels of government to develop additional science-based rules to address reuse and management of valuable manure-based nutrients”. This is why pig farmers work closely with agronomists to evaluate their manure composition, test their soils, and create a manure application plan to fit their specific field and crop. Toothaker added,

“If the manure application can cover the fertilizer needs for that crop, there is no need to apply added fertilizer commercially. Manure applicators take great measures to make sure manure is applied correctly and evenly to fields using precision instruments, while injecting the manure to protect it from runoff and volatilization into the atmosphere. Periodic soil sampling is also done to ensure nutrients are not building up too high in the soil. **With today's practices, applying hog manure is just as environmentally friendly, if not friendlier, than applying commercial fertilizers**”.

Neighbors

The building of a pig barn brings about many questions from neighbors – Pine Hill was no different. When Pine Hill was built, Wakefield Pork hosted an open house to showcase the new barn and accustom neighbors to their newest neighbor. One neighbor, Nancy Sweely, wasn't so sure about the building of the new barn, but her concerns quickly diminished. Sweely state, “what I enjoyed the most about that initial contact was

meeting the people and also seeing the landscaping they had done right off the bat - planting nice trees along the driveway.”

When asked what being “environmentally sustainable” meant to her and how she saw the pork industry upholding its values to protect environmental resources, Sweely responded “I think, for me, that is giving back to the environment. And I think, thus far, Wakefield Pork has shown that they are willing to do just that... - planting the trees, the long grasses, keeping up the natural habitat for animals. That is something that is important to us. Growing up in the country, we want to see [the habitat] maintained and not just taken over by a business, but [Wakefield Pork] seems to be giving back by investing in the property”.

Kevin Miller, another nearby neighbor, added to the conversation, “I think you improved your site by planting trees and native grasses that made it look respectable. You were concerned about your surroundings and you took care of it instead of saying... “this is where we are going to put [the barn] and this is the way it’ll be”. But you... blended into your surroundings and made it look very nice”.

Not only did Wakefield Pork take the time to plant trees and take other steps to ensure a healthy environment, they added landscaping to give the barn an aesthetic feel for the benefit of the neighbors. Good neighbor relationships are essential everywhere, but are especially essential in small communities. Pig farmers work merely acres away from other farmers and a good, working relationship is essential for the benefit of all interested parties.



When asked about neighboring relations with the boar stud employees, Miller responded, “we always give the... wave or say hello. We enjoy their community support - with hunting, we get along. I think it’s a community deal that we work with each other if there’s a question”. To round out the interview, Kevin continued, “you [Wakefield Pork] always talk to your neighbors before you do something and you... let them know what is going on. You know, that’s a big deal. Otherwise they’re wondering, ‘now what are they up to?’”.

Years ago, an article highlighting Woodville Pork, a contracted sow farm for Wakefield Pork, showcased the link between the environment and pig production. The article stated that “Woodville Pork co-exists harmoniously with wildlife, water, air and neighbors. The... ability to successfully combine swine production with wildlife enhancement and land stewardship is no accident” This statement reigns true today with many pig farmers across Midwest America. Farmers are taking active steps to ensure the continuity of our earth’s natural resources. The healthiest environments are created when healthy water, air, and land is maintained, visions of a better environment become realities, and neighbors can lean upon neighbors to do what is right and ethical.