DUPONT PIONEER

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DES MOINES

COMPANY BACKGROUND

DuPont Pioneer (www.pioneer.com), headquartered in Des Moines, Iowa, is the world's leading developer and supplier of advanced plant genetics, providing high-quality seeds to farmers in more than 90 countries. Pioneer provides agronomic support and services to help increase farmer productivity and profitability and strives to develop sustainable agricultural systems for people everywhere.

PROJECT BACKGROUND

Research and production at Pioneer generates approximately two million pounds of discard corn seed which must be incinerated in accordance with state regulations and company policy. Pioneer's discard seed is currently transported to two locations that burn Pioneer seed with other fuels in order to provide heat for their operations. Pioneer's objective is to bring the incineration process in house, utilizing its seed for fuel in a biomass boiler.

Throughout the 24-week internship the intern is also identifying opportunities, such as lighting retrofits and increased recycling, to improve sustainability practices and further reduce the company's environmental footprint.

INCENTIVES TO CHANGE

Transportation and incineration of corn seed costs Pioneer approximately $90,000 annually, a figure that could be greatly reduced or entirely avoided if the incineration process were kept entirely on campus. Utilizing the corn as a fuel would also help Pioneer reduce energy consumption and utility costs, providing even greater savings and environmental benefits. DuPont Pioneer considers environmental stewardship to be a Core Value and continually seeks ways to benefit the environment while simultaneously streamlining operations.

RESULTS

Corn Boiler: With two million pounds of seed at its disposal, Pioneer has the capacity to offset over three million kilowatt-hours of energy by utilizing a corn boiler to supplement the load on an existing boiler system. By bringing the entire seed disposal process in house, Pioneer would also realize significant savings in the cost of incineration, as the company has relied on outside parties to incinerate discard in the past. Because use of the corn boiler would allow Pioneer to greatly reduce its dependence on the practices and procedures of outside parties, the project mitigates risk in both the handling of regulated seed and unpredictable disposal fees.

Many obstacles must still be overcome. Because the majority of the discard must be sent for incineration in the summer and fall and a boiler would run primarily during the winter, a system for storing excess seed must be identified. A significant portion of the seed is also stored in packets, which will not be able to flow from a hopper system into a boiler. The intern has begun to look for machines that could be used to separate the seeds from their packages without reducing the seeds' integrity as a fuel. The intern has also begun to research the potential effects of burning treated seed, which makes up approximately half of the supply, and what options are available to make the process safe and environmentally friendly.

Lighting Upgrades: The intern performed a lighting audit of incandescent light bulbs located in conference rooms in the main campus. The bulbs have since been replaced with 11-watt LED bulbs with a much greater lifetime, reducing Pioneer's energy usage and maintenance costs. The 12 buildings that make up Pioneer's main campus contain several thousand other lighting fixtures. The intern will continue to perform audits around campus in order to recommend additional strategies to reduce Pioneer's energy costs and environmental impact through lighting upgrades.

Plastic Recycling: One of Pioneer's research facilities several minutes west of the main campus generates over 20 tons of waste in the form of plastic array tape and pipette tips. While both are made of recyclable materials, due to their particular geometry they cannot be accepted by Pioneer's current recycler. The intern will be working with a committee of researchers at the facility to find a solution that will allow these materials to be recycled.