

The Process of Harvesting Miscanthus in Northeast Ohio February 2016

By: David Marrison, OSU Extension Educator for Ashtabula County
marrison.2@osu.edu 440-576-9008

Even though it is wintertime in Northeast Ohio, there is still plenty of action going on in our county's agriculture industry. Over the past two weeks, miscanthus harvest has begun in Northeast, Ohio. Early reports are that nearly 350 acres (or almost 10%) of the area's harvest has been completed thus far. Due to the milder winter, the 2016 harvest of miscanthus is nearly five weeks ahead of last year's harvest. Since miscanthus is the newest agronomic crops grown in Northeast Ohio and Northwest Pennsylvania, there have been numerous questions about how miscanthus is harvested. This article will provide some insight into harvest.



What is miscanthus?

Giant miscanthus (*Miscanthus x giganteus*) is a sterile hybrid perennial warm-season grass that grows relatively fast on less-than-ideal soils and can be used either as a biofuel or to make bio-based products. This grass, as with many grasses, grows very well in Ashtabula County. Currently Aloterra Energy (<http://www.aloterrallc.com/>) is the major grower of miscanthus in the United States and has nearly 4,000 acres growing under contract with landowners in Northeast Ohio and Northwest Pennsylvania. The planting of this acreage was spurred on by NE OH/NW PA being chosen by the United States Department of Agriculture as a BCAP ([Biomass Crop Assistance Program](#)) project area in the summer 2011 to encourage the planting of renewable biomass crops. The BCAP was re-authorized in the summer of 2015.



When is miscanthus harvested?

Unlike, traditional agronomic crops which are harvested in the fall, miscanthus must be harvested in winter during its dormancy period which ranges from after a hard-killing frost in the fall (could be in late November) and before the emergence of the new shoots in the spring (which is typically in early May). The plant needs to have had time to send nutrients down to the root system in the fall to spur the next year's growth. Harvesting in the winter, especially in snow-belt, conditions can prove to be a challenge.



So, how is miscanthus harvested?

One of the challenges for harvest is that it must be accomplished during the wet, cold, damp winter. Work must be accomplished around winter storms. In the first few years, the miscanthus was cut into windrows, raked and then baled into large bales of miscanthus (see picture of bale to the right). This process was conducted much like

traditional hay harvested is completed during the summer months. However, this approach led to a few issues. Besides the major issue of waiting for favorable weather (which can change hour by hour), a major obstacle arose as the miscanthus was picking up too much moisture while lying on the ground waiting to be baled. This excessing moisture led to delays on baling as baling the miscanthus with too much moisture leads to storage losses. The target moisture percentage for the harvesting of miscanthus is 15%.



In 2015, Aloterra Energy made major in-roads to the successful harvest of miscanthus by switching from baling the miscanthus to chopping the miscanthus like livestock farmers harvest haylage or corn silage. The miscanthus is being harvested with a CLAAS chopper which cuts, chops and blows the miscanthus into silage wagons which are driven along-side the chopper. An average of 5 tons of miscanthus can be loaded on each wagon.



In order to negotiate the wet soils prevalent in winter and to reduce compaction, all of the harvest equipment has been placed on tracks.



After it is loaded on the silage wagons, the miscanthus is handled in two main ways. The first way is to directly off-load the miscanthus to semi-truck which then is taken directly to one of the storage & processing sites in Andover or Ashtabula, Ohio. About 14 tons of the chopped miscanthus will fit in a standard semi-trailer.



If the miscanthus is not immediately trucked to one of the processing facilities, it is placed in silage bags for storage. The bags are left on the perimeter of the field until it is needed by one of the processing plants.



What happens to the miscanthus after harvest?

There are two main products being produced from the miscanthus. Aloterra, in cooperation with foodservice ware innovator, [World Centric](#), have developed a new line of certified compostable foodservice ware made from Miscanthus plant fiber. The line is designed to displace similar products made from foam and plastic, which create millions of tons of waste each year. This product is made in the Ashtabula Township plant.



The second product being made by Aloterra is MxG Natural Absorbents™ which has a wide range applications including spill management of water, hydrocarbons, and automotive fluids and even sludge solidification applications. The product is safe, clean, and will dissolve back into the soil within days of application or may be landfilled or incinerated in accordance with federal, state, and local requirements.



Note: the compostable foodservice ware and absorbent pictures are courtesy of Aloterra Energy.

More Information:

More information about Aloterra Energy can be obtained at:

<http://www.aloterrallc.com/>

More information about Miscanthus can be obtained at:

NEWBio Energy Crop Profile: Giant Miscanthus-

<http://www.newbio.psu.edu/Extension/miscanthus.pdf>

Miscanthus Budget for Biomass Production-

<http://extension.psu.edu/publications/ee0081>



Note:

The compostable foodservice ware and absorbent pictures are courtesy of Aloterra Energy.

All other pictures were taken by David Marrison, OSU Extension.

This publication was developed by Ohio State University Extension.

Call 440-576-9008 for re-printing permission or for additional copies.

The Ohio State University is an Affirmative Action/Equal Opportunity institution.
Copyright © 2016, The Ohio State University

