



## 5th-grade Student Shares Knowledge of Aquaponics, Cow-Power

*By Rebecca L. Nelson*

Melinda Bok, a 5<sup>th</sup> grade student at Nature Hill Intermediate School, Oconomowoc, Wisconsin, spoke to hundreds of interested individuals about Cow Power (generating energy from cow manure) and Aquaponics (growing fish and vegetables together) at the Baldwin Dairy 101<sup>st</sup> Anniversary Celebration and Community Breakfast in Baldwin, Wisconsin on Saturday, August 30, 2008.

Last year, while at Greenland Elementary, Melinda entered the Science Fair with a Cow Power and Aquaponics presentation. Her comprehensive display was complete with a model farm displaying components involved in “Cow Power.” Her pet fish, Nemo, represented the fish in aquaponics, a green plant with roots dangling into Nemo’s bowl represented the vegetables in aquaponics. Hershey kisses represented the cow manure that eventually becomes biogas.

Melinda’s science fair project attracted attention far beyond Greenland school. Her presentation was the subject of a 2-page article in the Aquaponics Journal, a quarterly publication on aquaponics. The article caught the attention of the Baldwin Dairy owner, John Vrieze, and his partner, Steve Meyer. Vrieze and Meyer have recently formed a new company, Future Farm Food and Fuel, LLC and have embarked on an innovative new aquaponic venture that utilizes bio-gas from the dairy to heat an aquaponic greenhouse.

Vrieze and Meyer invited Melinda to the Baldwin Dairy Anniversary and asked her to present her project to the attendees. At 8:00am on Aug 30, the morning of the Baldwin Dairy’s 101<sup>st</sup> anniversary celebration, Melinda was busily setting up her science fair

display, and placing the now well-travelled Nemo in the center. Throughout the morning, she spoke with people of all ages about the concepts of Cow Power and Aquaponics. Her audience streamed by over a four hour period and consisted of local farmers, community members and the extended Vrieze family. Melinda spoke with many people from the Baldwin area as well as individuals from several states.

As Melinda explained to so many people, Cow Power is the conversion of cow manure into biogas. The manure is converted to biogas (mostly methane) in an anaerobic digester and the biogas can be used for heating or generating electricity.

Aquaponics is the combination of fish farming and hydroponics (soilless plant culture). When used in conjunction with Cow Power, the biogas is used to provide heat and energy to an aquaponic greenhouse. In the greenhouse, fish and plants are raised in a recirculating system in which the fish provide the natural fertilizer for the plants and the plants help to clean the water for the fish. This process, called aquaponics, is a very efficient and environmentally friendly way of growing fish and vegetable crops.

Doing the presentation at the farm, Melinda was able to point to each part of the Cow Power and Aquaponics equation – the barn, the anaerobic digester and the greenhouse (currently being built) to help describe the technology.



Melinda (right) with her Mom, Mary, and her brother, Andrew, at the Baldwin Dairy 101th anniversary celebration.

Many attendees commented on how knowledgeable she is and how confidently she speaks about a very complicated and technical subject.

Melinda originally learned of Aquaponics and Cow Power when her aunt and uncle, consultants in the aquaponics industry, were discussing the new project in Baldwin, WI. Melinda decided the concept would make a great science fair project. She proved it did and now continues to learn about and study this environmentally friendly technology for growing food.

Melinda attended the event with her Mom, Mary Nelson, brother, Andrew, and Aunt and Uncle, Rebecca Nelson and John Pade. More information on aquaponics can be found at [www.aquaponics.com](http://www.aquaponics.com). For information on the Cow Power / Aquaponics greenhouse, visit [www.afuturefarm.com](http://www.afuturefarm.com).

Upon completion of the presentation, Melinda was invited back for the Grand Opening of the Future Farm Aquaponic greenhouse.

Melina plans to continue studying aquaponics and cow power and hopes to be a scientist when she grows up. This is another example of how aquaponics can inspire learning in many ways because the technique demonstrates so many principles of science and agriculture.

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