



## Another Successful

**Conference!**- The third annual Making it in Michigan conference, Michigan's premiere specialty food show has come and gone. This was our third annual conference held at the Lansing Center in November. The conference featured keynote speaker A. Elizabeth Sloan, President of Sloan Trends, educational programs with information in regulatory issues, packaging, consumer trends and food safety, and the Marketplace trade show. The trade show this year included the awarding of shelf space at L&L Food Centers for two lucky trade show vendors. [Click Here](#)



## Bioeconomy Trends

Michigan's Emerging Bioeconomy [Click Here](#)

## Success Story



Did you know that Asparagus ranks amount top ten specialty crops in Michigan? [Click here for more...](#)

## Ask the Experts



### Product Concerns

Shelf life - what it means & what are failure modes  
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### From Recipe to Launch

Considerations when Commercializing your recipe [Click Here](#)



### The Retail Guru

Getting a piece of the proverbial pie [Click Here](#)



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## Hot Topics



Bill Knudson Introduces the Michigan Biomass Inventory  
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# Michigan Biomass Inventory

## Now Online

By: Bill Knudson

The Michigan Biomass Inventory, still under development, is now online. The Michigan Biomass Inventory maps where feedstocks that can be used for alternative energy are located. Examples include feedstocks for ethanol and biodiesel as well as feedstocks for electricity and gas. The Michigan Biomass Inventory also maps locations where biomass could be converted to alternative energy.

The Michigan Biomass Inventory uses Geographic Information System (GIS) software to map sources of biomass: crops, food processing waste, animal manure, municipal solid waste, and municipal wastewater treatment plants are examples. Wood and forest products are covered in another study.

The GIS map allows decision makers in the private and public sectors to locate sources of biomass and analyze the potential for developing supply chains for alternative energy. It should be noted that this is not a guarantee of success, but shows locations that have a good probability of success. When fully operational,

the Michigan Biomass Inventory will identify potential constraints that may impact the feasibility of processing biomass at a selected location. Examples of constraints are limited water resources, transportation network limitations; unique natural features that make it difficult to obtain feedstocks or generate energy, and lack of access to natural gas pipelines or the electric grid.

Funding for the program is provided by the Michigan Department of Energy, Labor and Economic Growth, Bureau of Energy Systems. The work on the sources and amount of energy available was primarily carried out by staff at the Department of Biosystems and Agricultural Engineering. The maps and other data were generated by staff at the Remote Sensing and GIS Research and Outreach at Michigan State University.

The Michigan Biomass Inventory can be accessed at <http://Mibiomass/rsgis.msu.edu>

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# Reviving An Industry - The Michigan Asparagus Industry in Transition

By Tom Kalchik

Asparagus ranks as one of the top ten specialty crops in Michigan. But in 2000, growers abandoned an estimated 4 million pounds of raw product in the field, worth about \$2.5 million. In 2001 the value dropped to a low of \$12 million when grower prices declined 33% from a four-year average of \$.43 per pound. The decreases were driven by a combination of factors, but mainly resulted from competition from imports of cheaper asparagus products. By 2008 the value of the crop had returned to \$18.5 million and grower prices rebounded to an average of almost \$.72 per pound.

What did the industry do to help cause this transition?

The Michigan Asparagus Advisory Board (MAAB) responded quickly to the loss of volume in the 2000 crop and anticipated the pricing pressure of the 2001 season. MAAB teamed with Michigan office of USDA Rural Development, the Michigan Agricultural Experiment Station, the Michigan Department of Agriculture, and MSU Extension to initiate a feasibility study to investigate the potential for fresh market asparagus in Michigan. A Task Force was established to provide industry guidance of this process. SJH and Company, Inc. for Massachusetts was hired to conduct the study.

The Study was designed in two phases. Phase A was an assessment of the economic/market situation for asparagus. It showed the Task Force that the Michigan industry, which focuses on the production of asparagus for processing, was not in line with the major demand trends of the U.S. asparagus markets. A more balanced focus between processed and fresh asparagus must be achieved for the industry to survive. Interviews with users in the fresh asparagus marketplace revealed that the Michigan industry had to give significant attention to improving its image both for quality and consistency of supply. These same interviews revealed that retailers were interested in a market niche for aspara-

gus – shorter all-green, all usable spears such as those produced by the Michigan method of snapping asparagus rather than the more traditional practice of cutting asparagus below the ground. The Feasibility Study also showed that Michigan growers, packers and shippers must work closely together to create a coordinated marketing information system to keep growers informed about the dynamics of the marketplace and shippers informed about the dynamics of the supply of raw product.

Phase B was the evaluation of the financial attractiveness of a fresh packing business and was started in late 2002. It included an economic and engineering analysis of a state-of-the-art fresh asparagus packing facility in Michigan. The conclusion of this phase was that a stand-alone fresh asparagus packing operation is not economically feasible in Michigan.

In late 2001, during the first phase of the Study, some members of the Task Force started to investigate the organization of a grower cooperative to provide a means to control the raw product quality of fresh asparagus and increase the grower focus on fresh asparagus. An industry meeting was held on February 5, 2002 to investigate grower interest in the concept. Sufficient interest was expressed to encourage the Task Force to proceed with the development of a cooperative. In late March 2002, Michigan Asparagus Growers, Inc. was incorporated. Twelve growers joined the new cooperative by purchasing stock in relation to delivery rights. The investment rate was \$50 per ton.

Each member of MAGI was required to post a performance bond of \$200 per committed ton to assure the delivery of asparagus for the fresh market. Greenstone Farm Credit Services provided assistance to this program by offering a line of credit to credit-worthy MAGI members in the amount of the performance



## Michigan Asparagus (Continued from page 3)

bond. The line of credit would not be activated unless the member failed to meet his/her delivery commitment to MAGI, at which time the money would have been released to MAGI and become a debt to the non-performing member. All members met or exceeded their fresh asparagus commitments to MAGI in 2002 and in 2003.

In addition to the development of the cooperative, the Task Force developed and produced a new shipping container for industry use to accommodate the shorter all-green, all usable asparagus spears. It also produced point of sale promotional material to support the sale of fresh asparagus. These were made available to all packers and shippers in Michigan.

The MAGI board of directors investigated various options for administration of MAGI and decided to contract with an existing cooperative, Michigan Celery Promotion Cooperative, to provide administrative services. That decision was based on that Cooperative's ability to provide similar services to other organizations as well as a track record of establishing raw product pricing between its grower/members and industry brokers.

The board of directors of the new cooperative had two goals in its first year of operation. Provide assurance to asparagus brokers that the members of MAGI would deliver asparagus to fresh market outlets. In the past, growers would indicate an intention to deliver to the fresh market but, if the price of processing asparagus increased during the season, they would abandon the fresh market to deliver to the processing market. Brokers who had planned promotions with retailers for Michigan grown fresh asparagus were unable to obtain enough asparagus to meet promotional needs. The posting of performance bonds by the MAGI members was intended to overcome this situation and accomplished this goal.

Improve the sharing of information between members of MAGI and the packers and brokers in the fresh industry. The board of directors worked with existing packers and brokers to develop formal agree-

ments with each group to provide information about sales prices, types of packs, returns to packers (by brokers), charges by packers for various services and materials, and returns to growers (by packers).

The board estimates that these activities during the 2002 production season increased the grower value of fresh asparagus over \$100,000. In addition, the information allowed the MAGI members to make informed marketing decisions about packers and brokers prior to the 2003 production season.

In the 2003 season, MAGI expanded its membership base and tonnage. The performance bond requirement was also continued and, as in 2002, all members met or exceeded their tonnage commitment to MAGI. A service fee was initiated for the 2003 production season to provide working capital for the cooperative. The MAGI board established a base capital plan under which each member must maintain his/her stock commitment at a minimum of 80% of the two-year average deliveries to MAGI to maintain membership in good standing.

The Cooperative was also able to capitalize on the "Select Michigan" program for the 2003 season. The program focused its promotional efforts on the greater Grand Rapids market area. MAAB also participated in the program. The MAGI members acted quickly in response to the "Select Michigan" program. They registered a brand name, "Michigan Tender Tips Asparagus," for shorter, all-green and all usable asparagus to differentiate the MAGI product from that of other production areas. They purchased radio time and in-store promotional materials to support the brand name. And they worked with brokers to help coordinate the supply chain for the promotion.

According to the Michigan Department of Agriculture records, the Asparagus promotion increased product sales by 65% and kept the price per case of Michigan product 27% above competitors (California, Washington and Ontario).

# Michigan Asparagus (Continued from page 4)

In recent years, MAGI has continued to increase its volume and has hired its own part-time manager. The cooperative has worked with the Product Center to investigate options for minimally processed asparagus to help capture more value for its members, using the Product Center's cooperative development program partially funded by USDA Rural Development.

In 2009, according to the USDA Market News Service, over 6.5 million pounds of Michigan asparagus was shipped fresh. That is 28% of the total crop, compared to less than 5% in 2000. The following chart shows the trend of asparagus tonnage for the last five years for processing and fresh.

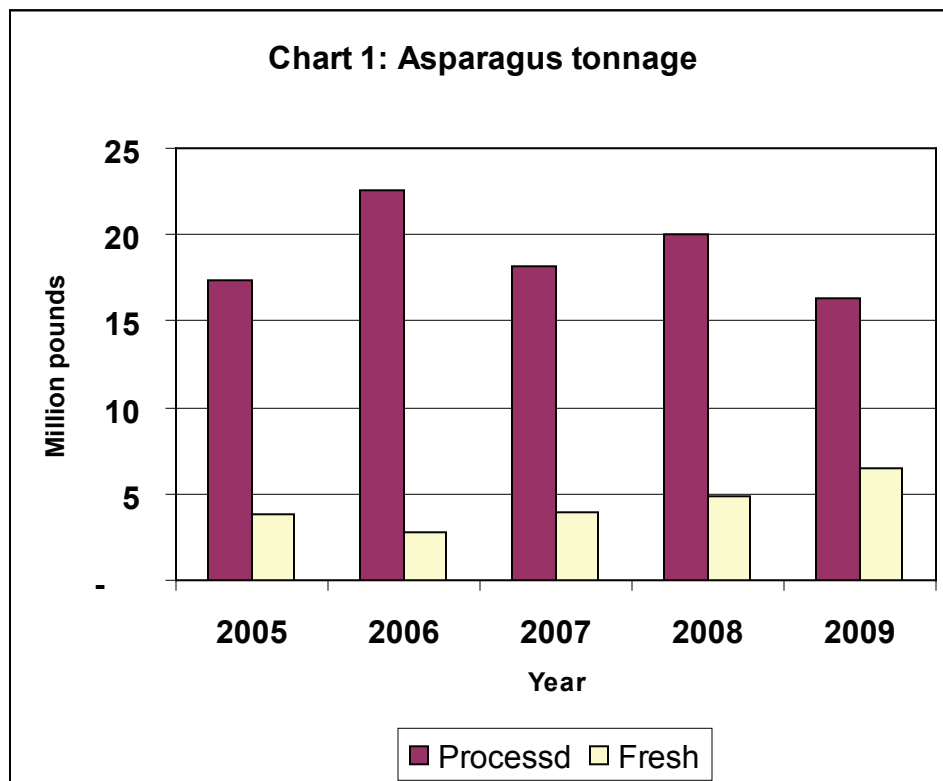
## SUMMARY

The Michigan asparagus industry reacted quickly to a decrease in demand for Michigan asparagus. Utilizing resources from USDA Rural Development, the Michigan Agricultural Experiment Station, the Michigan Department of Agriculture and Michigan State

University-Extension, it determined it must increase its participation in the fresh asparagus market to create a more balanced marketplace between fresh and processed. This resulted in a group of growers organizing a marketing cooperative to better-coordinate marketing information between growers and shippers, improve the performance of Michigan growers relative to the delivery of asparagus for the fresh market, and improve the image of Michigan fresh asparagus. The cooperative provided growers with the opportunity to participate in a fresh market promotion that increased both the volume and the price for fresh asparagus. It now continues to investigate ways to increase the value of its members' production through product research and innovation.

he farm," says Dave. Their bakery is now located in an industrial park in Chesterfield, about 12 miles south of Armada.

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# Ramping up My Recipe to Commercial Production

By Dianne K. Novak, RD, MS

As described in last edition of the newsletter, converting your favorite food product's recipe to a commercial formula is essential for preparing your product for public sale. Once you have mastered making your product by weighing all the ingredients and have results that match your original recipe (golden standard), you should then adjust your formula using commercial ingredients where appropriate. These may be added preservatives (natural or not), commercial starches, gums or emulsifiers, powdered or liquid flavorings, etc. After this adjustment your original recipe is now a "test" commercial formula. The next step is to begin evaluating how to make more product (packages/units) and proceed with scale-up from bench top to pilot plant or production size batches.

Making more of your product can be described as increasing the batch or yield of the commercial formula. This increase can be accomplished in two ways: (1) make more batches of the commercial formula or (2) change the commercial formula by increasing the amount of each ingredient to provide you with a larger batch or yield. To gain greater efficiencies and cost economies, selecting option #2 is best for commercial production. However, increasing the amount of the ingredients may require additional support in the area of food equipment and possibly ovens or steam-jacketed kettles, if

baked or cooked. Plus, the process to scale-up a commercial formula is ingredient-dependent and specific to the type of food product that will be produced.

For example, if the commercial formula for the product is being made simply by combining ingredients, which are not cooked or baked (and subsequently refrigerated and then eaten), a simple mathematical scale-up would be appropriate way to start. This must ensure increasing (double, triple, etc.) **all** the ingredients in order to keep the proportions (percent contribution) equal to the original recipe. Once that is done, you will likely need to make adjustments to your formula to account for any differences that you find with this larger quantity of product. This could be related to handling, mixing or final product results. Examples of food products that may fall into this category would be salad dressings, fresh salsa, dips, hummus, etc. Key to this scale-up test is to try the finished product and see if it indeed matches the original recipe. If the food product's original recipe requires being cooked or baked, a greater understanding of the "food science and technical" ingredients is needed. Specifically, scaling up an original formula that uses a cooking or baking process requires an understanding of how the heat changes the flavor or thickening, separation, or final product quality.

## Commercial Production (Continued from page 6)

To determine how to approach changes in your original recipe or address changes in your commercial formula in your scaled-up product, it is best to consult with a variety of individuals working with these types of product, including food scientist or ingredient suppliers. You will need to share your particular history of making the original recipe and what product issues have developed with scale-up of the commercial formula to help with addressing these issues. [Return to top](#)





# Sustainability Driving New Product Development

By Getachew Adatekassa

Sustainability in the marketplace is driven by a number of factors mainly related to concerns about the environment. Today, an increasing number of consumers understand that the products they are consuming have impacts on the environment. For example, a recent Mintel consumer survey reports that about 58% of the respondents agree that plastic bottles are bad for the environment while another 55% prefers to buy biodegradable plastic containers and bottles if available. This consumer trend is primarily led by “green” consumers who buy green products such as organic foods, green personal care products, green cleaning products, green clothing, green building materials, green electronics or green cars. According to Mintel, the share of green consumers who want to shop for green products increased from a mere 12% in 2006 to 35% in 2008. Climate change and environment related regulations, policies, support programs and government investments in green technologies are also shaping and influencing developments in sustainable consumer products and markets.

Besides these developments, businesses who are seeking to attract green consumers are now becoming more proactive on sustainability issues and embrace sustainable practices. Entrepreneurs and businesses have started to learn that embedding sustainability in product development would enable them to depend less on rapidly depleting feed stocks or reduce their reliance on expensive resources. Therefore, product innovations within the supply

chain are now influencing the sustainability trend. In the food sector, large retailers have already begun to influence the sustainability trend. For example, Wal-Mart is now pushing its global suppliers to find more efficient packaging methods. Other chains such as Safeway and Tesco have also started introducing their own sustainability initiatives. The sustainability trend has also been boosted by the surge in media coverage and documentary films that focus on environmental issues.

Consequently, at the production and manufacturing level, sustainability is becoming one of the factors that differentiate business activities and a basis for reputational and competitive advantages. According to Mintel, major categories of new environmentally friendly consumer products and packages in the past five years include beauty and personal care (30%), food (28%), household (28%), drinks (8%), healthcare (4%) and pet (2%). Most of these are brand products that are being entered in the European market (44%) followed by the market in North America (28%). Private label products appear to be underrepresented. Mintel reports that most of the sustainability related innovations are in packaging (e.g., less plastic and 100% recyclable materials), supply chain traceability and transparency, natural and organic, new product formulations (e.g., low-temperature formulations for detergents), carbon neutral to carbon negative, labeling (companies making it simpler to understand), and ethical energy consumption. According to



## New Product Development (Continued from page 8 )

Mintel, the number of new products featuring green packaging claims increased from 36 in 2005 to 649 in 2008. Similarly, recycling participation is increasing.

Some of the key challenges in sustainable product development include the following:

- (1) The supply chain is not well developed for some of these new products.
- (2) Lack of industry standards regarding sustainability are still making it difficult to clarify and provide evidence on sustainability claims.
- (3) New product developments currently are being affected by the downturn in the economy.
- (4) It appears that, at least for now, consumers are willing to support the sustainability trend as long as they are not paying higher prices for adopting the new innovations.
- (5) Some sustainability trends appear to be in conflict with some of the recent wellness trends (e.g., single packages or bottled water in plastic bottles which have been recently embraced by wellness-oriented consumer appear now to be unsustainable).

Mintel expects that future growth in the marketplace for sustainable products will come mostly from new innovations and increasing use of green products by green consumers. In addition, developing industry sustainability standards will enable entrepreneurs and businesses to align their sustainability effort with industry goals opening up better market opportunities for new sustainable products. [Return to top](#)



# Getting a Piece of the Pie

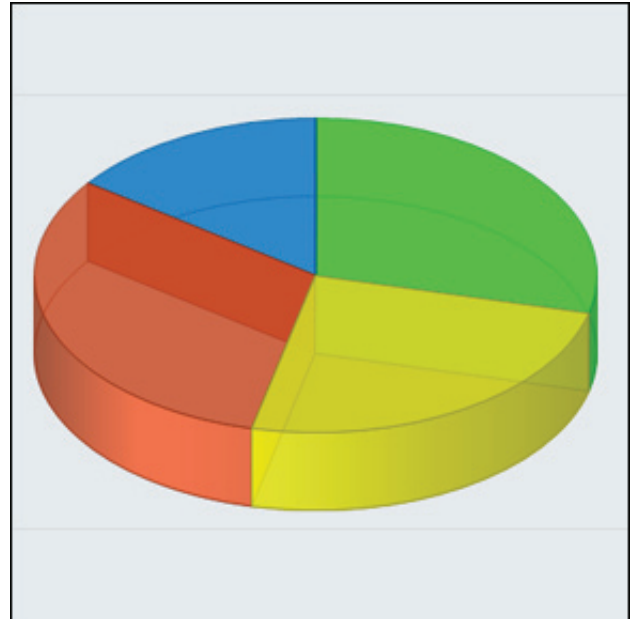
By Matt Birbeck

Just as the green movement has infiltrated so many aspects of our lives, so has the food movement. Ultimately, as a country we are changing how we eat. This is a huge undertaking filled, of course, with questions and concerns as a business as to how to best get a piece of the proverbial pie. The beginning of the 2010 has us wondering what will be on our plates for this year in trends and I have spent time asking questions to experts and looking at studies to determine what's ahead.

**At the Farmers' Market:** Expect shopping at farmers' markets and seasonal cooking in general to continue to be strong trends in 2010 for everyone from the novice cook to the celeb chef.

**In Your Kitchen:** The recession inspired more people to cut their budgets for eating out and therefore the cooking at home trend continues...and why not? Even if the economy takes off again (fingers crossed!), I think/hope that some of the lessons learned during this Great Recession will stick. Cooking at home is more cost effective and better for you and expect to see the cast iron skillet and the Dutch oven making a reappearance. Expect the best gifts of 2010 to be cooking classes and cookbooks.

**At Restaurants:** Although people will continue cooking at home there will still be plenty of restaurant trends to watch. The National



Restaurant Association predicts: sustainability; locally grown and produced meats, seafood, produce, wine and beer; smaller portions (with smaller prices); gluten-free and food allergy conscious food; and farm/estate-branded ingredients as the hottest trends to expect in restaurants in 2010.

**At the Grocery Store:** We've been hearing about lots of proposed legislation on everything from food labels to food safety standards, but what can we actually expect to see in our grocery stores in 2010? The FDA is moving to try to clean up front-of-package labels, revise the Nutrition Facts label, and possibly correct the issue with serving sizes. Also trends are moving towards quieter food labels and fewer ridiculous health claims.

## Piece of the Pie - (Continued from page 10)

Based on these trends we can better design our products and business plans to fit into these consumer feelings. As an example - a BBQ sauce might now have more information about convenient recipes, ease of use and locally made instead of statements of “Sizzlin’ hot” or “Texas Original.”

Lastly, I wanted to share with you the words that will be used by the corporate competition in 2010. - *Local, ethical, natural, honest, simple, sustainable, beautiful, rooted.*

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# Introduction to Shelf Life

By Nicole Goldman & Janice Harte, MS, PhD

Shelf life is a critical component of any food product not expected to be eaten immediately whether at home, on the go, or in a restaurant. There is the expectation that food will maintain a level of quality and safety during storage, preserving it until the time it will be eaten by the consumer. As a food manufacturer you also want to make sure that your product quality is consistent so that your customers are never disappointed in their expectations when they purchase your product.

Evaluating the shelf life of a newly developed product can be a daunting task. There are a number of choices that have to be made at each step of the evaluation process leading to the best estimation of shelf life that a food producer can give. Shelf life challenges differ for foods frozen, refrigerated, or kept at room temperature depending upon their water content and specific food composition.

Each food product is a complex system of ever changing chemical and microbiological conditions. As such, it is important to determine the first change that occurs to cause significant quality loss with which you would not be comfortable having the consumer be exposed to when purchasing your product. This is considered the failure mode of the food in question. The time that it takes to develop this quality is the determining factor used to set your shelf life.

There are a number of failure modes possible. Conditions of interest for failure modes include the following:

- **Microbiological changes:** The gain or loss of microorganisms causing spoilage conditions leading to a product that is rendered unsafe or inedible.
- **Nutritional change:** The deterioration of a key nutrient in the food. This is especially relevant if the product is labeled to be a good source of the diminishing nutrient.
- **Undesirable flavor, odor or appearance change:** The product may change and produce off-flavors, undesirable odors, or lose pigmentation during storage.

- **Change in a functional property:** The product no longer acts in the way it was intended to act. It no longer has the proper color, foam, flavor, etc. as intended.
- **Undesirable textural change:** Mealy, hard, soft, stale, sticky, etc. are all undesirable textures for many foods. If a product develops an unusual texture, its shelf life is probably up.

It is important to note that the system in which the food is contained and transported plays a part that is of equal importance to the food itself. The additives and packaging methods chosen to prolong shelf life are of the utmost importance. Be sure that the additives are doing what they were intended to do for example, confirm that an antioxidant is slowing the rate of oxidation in your food system. Make sure that packaging is not interfering with the food to create undesirable changes, and the packaging is intact and has not been compromised due to mishandling. Environmental instability during transit must also be accounted for in shelf life design.

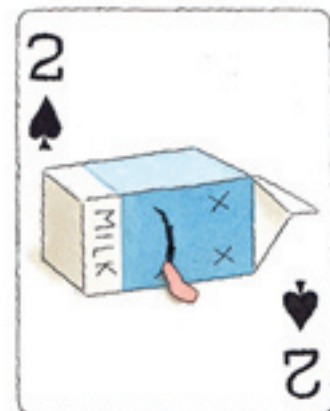
Types of tests to perform to determine shelf life and resource materials will be presented in the next edition of our newsletter.

## References:

Brody, Aaron L., and John B. Lord, eds. *Developing New Food Products for a Changing Marketplace*. Lancaster: Technomic, 2000.

Fuller, Gordon W. *New Food Product Development*. 2nd ed. Boca Raton: CRC Press, 2005.

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## Director's Note continued from page 1

I would like to take the chance to recognize our award winners from the conference this year. We recognize staff for their outstanding work as well as our partners who help make our work possible. We also recognized four customers in the following categories - Best Barrier Buster Award, Product Center Start-up to Watch, Product Center Entrepreneur of the Year, and Best Innovative Business Idea. These customers are an excellent sampling of the great entrepreneurs we have the opportunity to work with on a daily basis here at the Product Center.

Our first award category was the Best Barrier Buster. This award recognizes a Product Center customer for reducing or eliminating barriers to entrepreneurial success at the local, regional or state level. These barriers may exist anywhere in the venture development system, and include issues such as policy, regulation, technology, marketing, finance, public awareness, labor, distribution, and more.

The 2009 Best Barrier Buster is Sue Spagnuolo of Green Bush Farms in St. Johns. As a suddenly single woman, Sue struggled to not only support herself but to find a career that would have meaning in her life and for others. After trying different options she launched La Dolce Vita Goat Dairy in April 2009. In addition to her personal life changes, Sue also had to bust barriers as a woman carving a new path in a new industry in Michigan. She worked with Township Zoning and the Michigan Department of Agriculture in establishing the dairy and the rules and protocols in establishing this venture. She produces Chevre (Chev) cheese, and markets her product at area farm markets, through some area food stores, and the Dairy Store at Michigan State University. She is adding new flavors to her product lines.

She has worked with the Product Center with incredible ability and perseverance to create a business that is already successful. Marilyn Thelen, her innovation educator, has guided her to become a MEAEP – that is Michigan Agriculture Environmental Assurance Program – verified farm to assure her customers that her products are produced using environmentally friendly practices. Matt Birbeck of the Product Center campus

staff has helped guide her through the maze of regulatory and business development issues.

Our next award was the Product Center Start Up to Watch. This award recognizes an emerging or established Product Center customer who has demonstrated excellence, innovation and growth. The business has shown consistent success and growth in entrepreneurial and business development, sales, profits, and related financial performances, increased the number of employees, established a strong business culture, or exhibited a reputation for integrity and proven involvement in the local and regional business community.

The 2009 Start Up to Watch was Herkner's Foods. This company is owned by three sisters—Judy, Lynda, and Sue—originally from Traverse City. They worked with the Product Center from concept to start up, and launched their business at the Starting Block, the kitchen incubator in Oceana County. Their sales have far exceeded their forecasts. They are working with two major companies to distribute their products and have moved to a larger copacking operation to keep up with demand. Our third award was Entrepreneur of the Year. This award recognizes an enthusiastic entrepreneur who is very coachable, a pleasure to work with, has a “can do” attitude, and is full of new ideas but has not as yet achieved her or his goals. It singles out a customer to watch as she or he climbs the ladder toward entrepreneurial success.

The 2009 Entrepreneur of the Year was Harry Clark of Cherry Bowl Gifts and Goodies. Harry and his family operate a drive-in movie theater and marketing business in Northwest Michigan. The business features a store next to the theater selling Michigan products. The business has been struggling to be profitable over the last 2 years. Harry, with assistance from the Product Center, has developed a new store concept to bring in fresh ideas, design and products. Harry has stepped up to the plate with all suggestions and ideas and been a pleasure to work with and truly embraces the Product Center philosophy and entrepreneurship values.

## Director's Note continued from page 13

Our final customer award was the Best Innovative Business Idea. This award recognizes a Product Center customer that best demonstrates innovation in terms of a unique product or service that has the potential to fill a gap which no product, market or service currently fills. It may consist of entirely new things or it could be a new way to do old things.

The 2009 Best Innovative Business Idea winner was Dan Blackledge of Marion Bio-Energy. Approximately three years ago Dan, an entrepreneur and farmer, embarked on a new business model that would grow canola and convert the canola oil to biodiesel. To support his business model, he contracted with other farmers to grow canola which Dan would purchase and convert to biodiesel. When the company started, the price of diesel was over \$3.50 a gallon and the financial model projected a viable and profitable business. Late in 2008 the market price for petroleum diesel declined to a level that the project would not be financially viable as an alternative energy company. Rather than close the business, Dan looked for another innovative way to keep his new company going. He adjusted his model to sell canola oil, very rich in Omega 3, to food producers. He met with his contract farmers, explained his new business model, and gained their continued support to grow canola. His new model again showed a viable and profitable company growing and selling canola oil for food. He still holds the option of converting canola oil to biodiesel if the price of petroleum diesel rises to the point that it is economically feasible for canola biodiesel to compete with petroleum diesel.

The Product Center is a network of resources. Our campus staff and innovation counselors and educators cannot possibly deliver all the services needed by the multiple of clients we assist each year. We can only be fully successful when we have network partners who help us do our work. This year we are starting a new award tradition by recognizing our Network Partner of the Year. This award is presented to a member of our partner network who provides excellent support and service to the various programs of the Product Center or to our customer entrepreneurs directly. The award winner's effective partnering with us has allowed the Product Center Network to achieve a special level of service excellence that simply couldn't have been achieved without its good work and cooperation.

The 2009 Network Partner of the Year is GreenStone Farm Credit. Truth be told, GreenStone Farm Credit has provided many years of deeply appreciated support to the Product Center. Dave Armstrong who is now the CEO but then COO of GreenStone, played a key role in the executive committee of the Michigan Partnership for Product Agriculture as the ideas were formed that led to the Product Center's founding. GreenStone has been a continuing sponsor of our various events as well as a key sponsor of our Michigan MarketMaker project. We have also discovered in the initial phases of studying our impact on Product Center customer success that GreenStone has seen a potential loan customer's work with the Product Center as a positive factor in loan evaluation.

Finally, we recognized our Educator and Counselor of the year. Counselors work with customers to develop their concept, create a basic business plan, and guide them through the business start up process. Educators incorporate business development activities in their programming and work with Counselors to coach our customers. The Product Center could not do its work without the excellence of these two types of individuals.

The 2009 Educator of the Year was Marilyn Thelen who started as an Innovation Counselor. She was in our second class that was certified in 2006. She has helped twenty-eight Product Center customers in their entrepreneurial development. As a Counselor she helped two customers launch their new businesses, including Linda Hundt in DeWitt who has won national awards for her Sweetie-licious pies. When her duties with MSU Extension demanded that she refocus her priorities to become the interim County Extension Director for Clinton County, she continued her relationship with the Product Center as an Educator. As an Educator, she helped coach this year's Barrier Buster, Sue Spagnuolo.

The 2009 Counselor of the Year was Matt Birbeck. Matt has coached 290 customers in the years he has been with the Product Center. He has willingly stepped up to help in areas where customer demands exceeded our Counselor capacity to deliver

## Director's Note continued from page 14

services. His portfolio includes eight business start ups. He coached three of this year's award winners – Sue Spagnuolo, the Herknens, and Harry Clark. He can claim success with Legends of the Lakes, a cooperative that has helped Whitefish fisheries realize more returns with focused quality control and branded marketing. He is currently coaching several artisan cheese producers as they move to improve their marketing through a cooperative. In addition to working with individual customers, Matt is always ready to assist other Counselors as they work on concept development and other aspects of business development. He has most recently led a program to create educational modules for all our Counselors as well as others in the University to improve their business development skills.

The Marketplace food show grew from 30 vendors last year to more than 60 this year. The Product Center was fortunate to have the L&L Food Centers partner with us during the Marketplace food show this year. During the show L&L selected two winners from the vendors present and awarded shelf space for a year to their products in all the L&L Food Center locations. The winners were Johnny B's Cookies from St. Clair Shores and Mushie's Baked Goods out of Rochester. We thank all who participated in this exciting day.

Congratulations to all our award winners.

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[www.llfoodcenters.com](http://www.llfoodcenters.com)

# Michigan's Emerging Bioeconomy

By Ruben Derderian

Before we can discuss Michigan's emerging bioeconomy we first need to have a common understanding of the meaning of bioeconomy. Bioeconomy represents an emerging alternative to the petroleum-fossil fuel based economy that we currently have.

For the purposes of this article, bioeconomy is defined as any commercial or industrial effort that is based on the conversion of renewable bio-mass into bio-products that primarily replace petrochemical or fossil fuel-based products. The categories of bioeconomy products range from biofuels to biomass sourced from animal and plant wastes to biomaterials such as degradable plastics manufactured from corn starch, fine chemicals extracted from plants and biologically produced chemical substrates used to create biobased pharmaceuticals. We also include renewable energy crops such as switchgrass, fast growing stubble trees such as poplar and willow, and lumbering waste in our definition of bioeconomy.

The list of commercially available bioeconomy products theoretically could eventually include nearly all products currently created from petroleum or fossil fuel. While it is theoretically possible to create biobased replacement products for petroleum and fossil fuel based products there are many technology hurdles that must be overcome before the list of commercially available and economically feasible biobased products gets too long.

Examples of some of the early replacement successes are corn ethanol as a gasoline replacement and biodiesel, from soy bean oil, as a replacement for petroleum diesel. While the technology exists to create both corn ethanol and biodiesel on a commercial scale there are political and economical issues that have developed that have all but stopped the production of biofuels. First the cost of producing biofuels is in the range of \$2 per gallon which is a price point that cannot compete with gas and diesel prices in the mid \$2 range. Second the 2007-8 ramp up in the production of biofuels is cited by many

as the cause of a dramatic increase in the price of corn and soy based foods thus fostering the fuel versus food debate. Presuming the price of petroleum fuels rises to above \$3/gallon and there is a surplus of corn and soy this segment of the bioeconomy could become active again. Federal and State Renewable Fuel Standards resulting in mandates and subsidies supporting the production of biofuels may rekindle the biofuels market in spite of current economic conditions. Further breakthroughs in the production of ethanol from low cost renewable energy crops and the development of low cost catalytic agents for the production of biodiesel could also make biofuels economically competitive.

Biofuels are not the only biobased products with the potential to stimulate the development of Michigan's emerging bioeconomy. The Product Center is currently supporting over 15 entrepreneurs and projects in various stages of start-up. The cost to commercialization for the projects will range from a minimum of \$200,000 to in excess of \$10 million and the head count employed will range from five to as high as twenty five.

Following is a list of projects that are receiving support from the Product Center.

- Canola oil to Biodiesel –could bring 400,000 acres alive in Northern Mich.
- Anaerobic Digester for MSU campus
- Anaerobic Digester/Hydroponic Greenhouse
- Biodiesel effluent water to top applied fertilizer
- Sterilize/deodorize prosthetic limb pads
- Biomass substitute for coal fired power plants
- Biodiesel from waste cooking grease
- Green wound care foam (healthcare)
- Non-petroleum construction foam
- Manure digester to fertilizer
- Urban agriculture & aquaculture
- High R-value insulation from rice husks
- High speed pathogen sensor for food safety & healthcare
- Municipal waste to energy & fertilizer
- Anaerobic digester to support aquaculture
- Center of Energy Excellence (COEE) supply chain study for a cellulosic ethanol plant. MSU & MTU collaboration.



## Michigan's Emerging Bioeconomy (Cont.)

In addition to the start up projects listed above the Product Center has identified over 138 operating bioeconomy ventures in the State of Michigan. The number of companies by category is listed below.

Company Product Area	umber of Companies
Anaerobic Digester	9
Aquatic Farming	1
Beneficial Bacteria	3
Biobased Pkg Mtls	1
Biobased Plastics	5
Biodegradable products	10
Biodiesel	9
Biofuels	3
Biomass Energy	5
Consulting- Energy/Environmental	11
Consulting- Green Building	2
Ethanol- Corn	11

Food- Extract Manufacturer	14
Food- Safety Testing	1
Green Builder	16
Green Land- Developer	1
Green Roofs	8
Hydraulic Oil	1
Landfill Gas Energy	6
Pest Management	4
Soy Candles	6
Wood Pellets	10
Recycling- Polymeric Materials	1
<b>Total</b>	<b>138</b>

Michigan's Bioeconomy is beginning to emerge and is poised to become a significant sustainable supporter to the economy of Michigan. [Return to top](#)

## Schedule of Upcoming Events

- March 9-12, 2010 Better Process Control School - Acidified Foods and Low Acid Canned Foods  
Registration information please contact  
Linda Young at: [youngli@anr.msu.edu](mailto:youngli@anr.msu.edu) or 517-355-8474 x 114  
brouchures and registration forms are available at <http://fshn.msu.edu>

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## Acknowledgements

<b>Director</b>	Chris Peterson	<b>Product Marketing Economist</b>	Bill Knudson
<b>Associate Director</b>	Tom Kalchik	<b>Food Product Development Specialist</b>	Janice Harte
<b>Associate Director Bioeconomy</b>	Ruben Derderian	<b>Product Services Coordinator</b>	Dianne Novak
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