

CORN MARKETING PROGRAM OF MICHIGAN



BUILDING THE FUTURE OF
MICHIGAN'S CORN INDUSTRY

Project: 2009 ANNUAL REPORT

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ABOUT THE CMPM

Established under 1965 P.A. 232, and voted in by the state's corn farmers in 1992, the Corn Marketing Program of Michigan (CMPM) receives one penny per bushel for all field corn grown in Michigan and sold. The "check-off" funding is invested in education, market development, new uses and research to enhance the economic position of Michigan corn farmers. The continuation of the program is voted on by Michigan corn farmers every five years. For the program to continue, the referendum vote must be approved by both the majority of voting farmers and corn production. The CMPM works cooperatively with the Michigan Corn Growers Association, a grassroots membership association representing the state's corn farmers' political interests.

The nine-member, corn-farmer CMPM Board of Directors, appointed by the Governor, sets the yearly direction of the program. Board terms are staggered, and each year three board positions are up for appointment. Michigan is divided into nine districts based on corn production, with each board member representing a district.

Every year, the CMPM releases an annual report containing program highlights and research results from the past year. This annual report features the projects and events the CMPM has worked on and participated in during 2009 relating to the organization's mission of keeping Michigan's corn industry viable through the education of farmers, consumers and media; production and new use research; market development; and new use development.

If you're interested in more information, the CMPM staff and board members are available to speak or attend meetings, plot tours and tradeshow. If you are interested in having someone at your event, call the office at 1-888-323-6601.

WELCOME FROM THE PRESIDENT

This past year has been very exciting for those involved in Michigan's corn industry and for the Corn Marketing Program of Michigan (CMPM). The CMPM has been heavily engaged in research, market development, new use development and education. All of these areas help Michigan corn farmers be more efficient, productive, and always on the cutting edge of the latest technological and production advancements. It is extremely important as an organization to focus on both current and future markets for corn, which is something that we are continuing to do, just as we have in the past.

Ethanol is one of those markets and a topic we all hear a lot about. We are continuing to devote resources to inform consumers with the most up-to-date information. Topics like the efficiency of corn and ethanol production, and "food and fuel" get a lot of press. We have devoted time to write rebuttals, press releases, newsletters and pull together informational packets for consumers, media and legislators. We have also worked with WJR to produce Kernel of Truth radio spots. We have gone outside the traditional agricultural events in order to reach more consumers with our message through energy fairs, green events and environmental conferences.

The CMPM has focused more energy toward corn-based products this year, too. This market is a great opportunity for corn farmers and consumers to utilize products made from a renewable resource, corn. This is another way that corn farmers are helping the United States decrease its dependence on foreign oil.

Corn-based products are only one of the many new market opportunities the CMPM is looking at for the continued development of additional corn markets. The organization works with a large group of research partners to establish new uses, products and create market opportunities within the industry. The board and staff understand the importance of generating new ideas to keep the industry fresh and prosperous, while also educating consumers about the many new opportunities for corn.

In addition to new uses and markets, we are very focused on our traditional markets such as livestock, human consumption, and exports. Some of the research we are investing in looks at better utilization of corn and also increasing production, so there will be plenty of corn for new and existing markets.

This year, the CMPM board of directors also chose to find a permanent home. With the changes in the real estate market and the lease coming up on our current space, it was a great time to look at purchasing. In June 2009, the CMPM board purchased a building on Airport Road, north of I-69 in Lansing.

My fellow CMPM board of directors and I are proud of the organization's accomplishments this past year. We look forward to another prosperous year in 2010. Please enjoy reading through this annual report to learn more about the CMPM's programs, research and positive contributions to Michigan's corn farmers. If you have any questions, suggestions or ideas for the CMPM, contact us at 1-888-323-6601.

Sincerely,



Clark Gerstacker, CMPM President



Front row, left to right: Brian Kreps, Vice President; Clark Gerstacker, President; Mark Kies, Treasurer; and Gary Kaufman. Back row, left to right: Tom VanSickle; Larry Nobis; Ed Breitmeyer; Richard Dobbins, Secretary; Tom Durand; and Randy Poll. Not pictured: Carl Barth and Doug Buhler.

EDUCATION

One of the key priorities for the CMPM is to increase the awareness of corn and corn-based products. The CMPM strives to inform not only corn farmers, but also consumers about new products and uses for corn. The CMPM is committed to increasing consumer awareness in order to expand the corn market and improve the general image of the corn industry. The last year has been filled with many ups and downs, media attacks and more direct outreach by the CMPM to counter all of the myths surrounding the corn and ethanol industries. The following areas highlight a few of the CMPM's educational activities for the past year.



The CMPM had a presence at the final four Michigan State University home football games by heating the WJR broadcast tent.

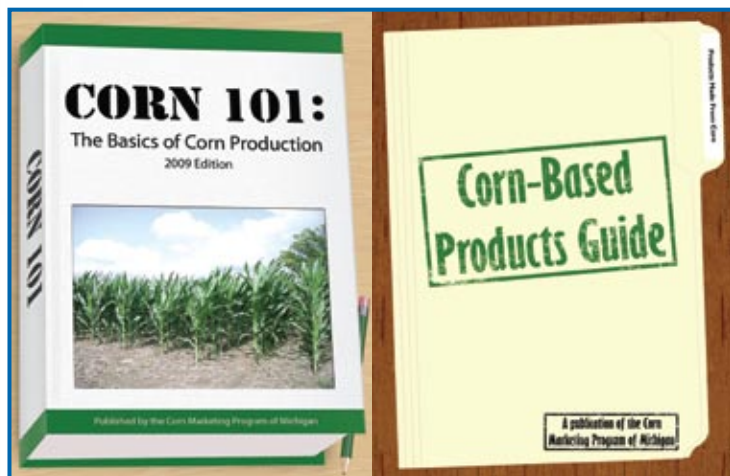
MEDIA AND CONSUMER OUTREACH

The CMPM continues to expand their outreach to media sources throughout the state of Michigan in order to provide information about corn to both consumers and farmers. Every week, CMPM staff write and distribute news releases to more than 260 media outlets across the state. Within the past year, the CMPM's articles have appeared in community, city, state and out-of-state newspapers, as well as state and national websites and business and farm-related publications. The CMPM also continues to educate consumers about the benefits of corn through radio and television interviews, media events, the Michigan Corn website and educational DVDs.

This year saw an increase in media attacks and myths regarding corn and ethanol. As a result, the CMPM confronted these myths head-on by writing rebuttals and airing radio spots. With the creation of our "Kernel of Truth" spots on WJR, we were able to bust the myths and provide accurate and scientific information. Our "Kernel of Truth" spots are created from real questions we have been asked. Setup as a mock phone call to the

CMPM office, the spots ask and answer many questions regarding corn. We have received tremendous feedback regarding the spots, which also ask people to call or e-mail the office to have their questions answered. The "Kernel of Truth" spots will continue to run throughout 2010.

In addition, we have built upon our original campaign to partner with WJR on two separate educational opportunities for corn heat and ethanol. During the last four home Michigan State University football games, the WJR broadcast tent was heated with America's renewable resource, courtesy of the CMPM. During the pregame show, the hosts talked about corn heat and interviewed the corn heat manufacturer or dealer providing the heating unit. This allowed for an excellent educational opportunity, to not only the listeners, but also to the game attendees. The CMPM also partnered with WJR to power The CAR Show with E85. During every Saturday morning broadcast, the hosts of The CAR Show answer questions about cars. Anyone that calls in with a question, who owns a flex-fuel vehicle, has their name put into a drawing. At the end of the show a winner is drawn and they receive a \$25 E85 gift card. When the gift card is sent, we also provide additional information to the winners regarding corn and ethanol.



PUBLICATIONS

In order to provide farmers and consumers with up-to-date information on the CMPM's activities and happenings, the organization releases several publications every year. In addition to publishing the quarterly CMPM newsletter, which details pertinent information about the corn industry and CMPM activities, the CMPM also creates topic specific newsletters. In the past, ethanol and corn heat newsletters were created to educate consumers and farmers about these industries. The CMPM continues to update and provide those publications as educational resources.

The CMPM is always striving to remain on the cutting edge of the industry and provide farmers and consumers with the information they need about the industry. As a result of new technology and questions from consumers, we created two new consumer publications, The Corn-Based Products Guide and Corn 101. The Corn-Based Products Guide explains how corn-based products are made, the variety of products that can be made from corn, and where these corn-based products can be purchased. The Corn 101 publication covers the basics of the corn industry including the different types of corn; how corn is planted, grown and harvested; the equipment used; where Michigan's corn goes; and the sustainability of the corn industry. Copies of all the CMPM publications are available on the Michigan Corn website at www.micorn.org or from the office.



FARMERS FEED US

During 2009, the CMPM, along with several other commodity groups and the Michigan Farm Bureau, went back to the basics to provide information to consumers about where their food comes from. Through the program, Michigan residents were able to register for the chance to win one of three grand prizes of "Free Groceries for a Year!" courtesy of Michigan's farmers at www.FarmersFeedUS.org. Upon visiting the website, consumers were able to meet 10 Michigan farmers and learn how they grow safe, nutritious and affordable food. Consumers could then register with each of those farmers daily through the end of the 90-day program, which is on Feb. 12, 2010.

"As Michigan farmers, we're thrilled to offer free groceries for a year to the consumers of our great state," said Clark Gerstacker, a corn farmer from Midland, who is a featured farmer on FarmersFeedUS.org. "This is an opportunity for us to share what we grow with Michigan consumers and let them know we share their

values - taking care of our families, taking care of our animals and land, and giving back to our communities." The website features apple, cattle, corn, dairy, egg, hog, vegetable, sheep, and soybean farmers from across the state, with each farmer sharing information about his or her farm and family. In addition to guiding visitors through their registration for free groceries for a year, each farmer also offers a brief online tour of his or her farm. "I'm proud of how farmers from our state grow food," said Gerstacker, who is also a National Corn Growers Association Corn Board member. "I want to show people how today's farms operate."

Throughout the course of the 90-day campaign, consumers also saw and heard from these farmers as they were featured in advertising and in-store promotions.

Through the program, Michigan agriculture came together to educate consumers on the fact that Michigan's farmers are growing safe, affordable, and nutritious food, in an environmentally safe manner. With consumers being so far removed from agriculture, it was a great chance to provide basic information regarding agriculture.

MICHIGAN'S FEATURED FARMERS FOR THE FARMERS FEED US CAMPAIGN

- Clark Gerstacker, corn farmer, Midland
- Jennifer Bixby, apple farmer, Berrien Springs
- Bret Schapman, cattle farmer, Romeo
- Jennifer Lewis, dairy farmer, Jonesville
- Annie Link, dairy farmer, Alto
- Harry Herbruck, egg farmer, Saranac
- Dave Cheney, hog farmer, Mason
- Jason Ruhlig, vegetable farmer, Carleton
- Scott Oswalt, sheep farmer, Vicksburg
- Ed Cagney, soybean farmer, Scotts

TRADESHOWS, EXPOS AND OTHER EVENTS

Staff members and CMPM board members travel across the state to attend tradeshow, expos and other events to reach out and interact with farmers, media and consumers. Throughout the last year the CMPM has participated in events including: Ag Day at the Capitol, Ag Expo, Bean & Beet Symposium, Buckley Farm Show, Clinton County Progressive Farmers meetings, Clinton County Taste of Michigan, Michigan Agri-Business Association Annual Conference, Michigan Farm Bureau

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TRADESHOWS, EXPOS... (CONT. FROM PAGE 5)

Annual Meeting, Michigan Clean Transportation Expo, Michigan Livestock Expo, Michigan State University Autumnfest, St. Clair County Fall Farm Tour, Thumb Ag Day and several others.

ENERGY CONFERENCES AND EARTH DAY EVENTS

Due to the increasing interest in renewable products, the CMPM has stepped up to educate consumers about the many uses for corn, including ethanol, corn heat and corn-based plastics and fibers. The CMPM board members and staff have gone outside traditional outlets to visit with consumers and show them the many uses for corn. With all of the misconceptions among consumers about ethanol and corn production, these events are perfect for teaching about corn and the environmental benefits of the crop. Staff and CMPM board members have presented at energy fairs, environmental-related conferences and earth day events throughout the state. These events included: Earth Day Expo, Green Street Fair, Michigan Energy Fair, Michigan Department of Agriculture Earth Day, St. Clair County Earth Fair, University of Michigan Energy Day and many more. The CMPM has also been involved in Clean Cities organizations in Ann Arbor, Detroit, Lansing and West Michigan. These organizations are focused on the environment and alternative fuel use.



Steve Errer, a corn grower from Fillion, invited the Corn Marketing Program of Michigan to speak about the organization at his plot tour.

PLOT TOURS/SEED MEETINGS

A primary focus of the CMPM is to stay in close communication with the state's corn farmers. Throughout the year board members and staff travel to several plot tours and seed meetings to represent the corn industry. At these events, board members and staff talk to farmers about new and expanding corn markets, agronomic research, industry happenings and the CMPM funded research projects. These events also give board members and staff a chance to discuss farmers thoughts and ideas of the organization and what they would like the CMPM to focus on in the upcoming year.

MARKET DEVELOPMENT

Keeping up with current markets and finding new markets for corn are integral outcomes for the CMPM. As corn production continues to increase, so does the opportunity for new markets and additional uses. Corn is no longer looked at as just a valuable livestock feed, but is now used for fuel, heat, corn-based plastics and fibers. The CMPM works to generate awareness of traditional markets, as well as new, innovative markets by sharing information with farmers, media and consumers.

CORN-BASED PLASTICS AND FIBERS



For many years, the CMPM has helped fund research for the development of new corn-based polymers. These polymers can be made into

plastics and fibers. Some of the corn-based products made from polymers include plates, cutlery, coffee and travel mugs, bedding and clothing, carpeting and floor tile. In the past year, the CMPM has worked extremely hard to educate consumers about the benefits and availability of corn-based products. More information on corn-based products is available in the Corn-Based Products Guide, which is available online at www.micorn.org.

CORN HEAT

Due to the skyrocketing costs of energy prices, the corn heat industry has also shown to be a market for Michigan corn. Heating with corn is an economical alternative to the traditional heating methods of using propane and electricity. The CMPM has continued to work with the Corn Heat Task Force, an assembly of industry and government representatives, corn farmers and researchers, in an effort to help guide and expand the corn heat industry.

In an effort to advance the corn heat industry, the Corn Heat Task Force has worked to educate consumers about the benefits of corn heat. The Heating with Corn website, www.micorn.org/heat, still remains the largest educational outlet for Michigan's corn heat industry, providing basic information regarding corn heat including the economics, benefits, questions to ask and where to purchase a unit or corn for the unit.

The CMPM also partners with manufacturers and dealers of corn heating systems to increase the market for heating with corn. Through various media outlets, the CMPM has put out educational materials including news releases, advertisements, radio announcements, newsletters, and advertorials to increase consumer

awareness. Our information has reached broad markets and audiences and has received media pickup as far away as Maine.

ETHANOL

With so many people implementing “go-green” initiatives, interest in ethanol as a transportation fuel has continued to grow. In 2009, the CMPM worked closely with the Greater Lansing Area Clean Cities Coalition to sponsor a “Green Fleets Ethanol Workshop.” The half-day event educated fleet managers on the benefits of ethanol-blended fuels. Speaking at the event was the American Coalition for Ethanol’s Vice President, Ron Lamberty, who discussed with workshop attendees how they could make ethanol work for their company fleet. The State of Michigan also came to the CMPM this year with questions on converting more vehicles to run on ethanol. The CMPM gave a presentation this fall at a State of Michigan Vehicle Coordinator’s Meeting to help inform fleet managers on ethanol use. Although the State owns many flex-fuel vehicles, many of them continue to be run on regular unleaded gasoline. The CMPM has been working with the State to provide information in fleet vehicles that would make it easier for drivers to locate E85 (85 percent ethanol/15 percent gasoline) fuel across the state.

Many consumers, like those driving State of Michigan vehicles, fail to utilize their flex-fuel vehicles due to a lack of knowledge and access to the fuel. As a way to counteract this problem, the Renewable Fuels Association (RFA) has developed two applications to be used with both Garmin and TomTom GPS devices. Owners of these two types of navigational systems (which represent 67% of all GPS devices in the United States) can now download an application that will map

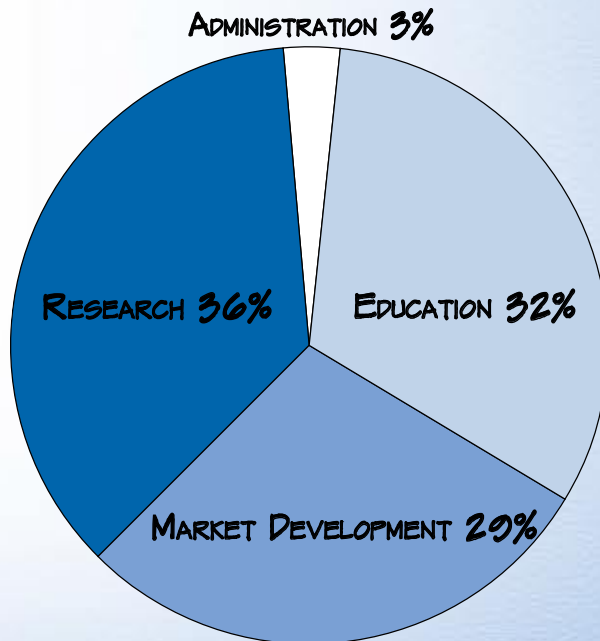
out the locations of the country’s more than 2,000 E85 stations. The RFA plans to update the station directory every three months and hopes these new applications will make it easier for consumers to connect with ethanol-blended fuels. To download these applications, visit www.ChooseEthanol.com.

While the number of E85 stations continues to increase across the country, many retailers have made the decision to install blender pumps. Although they are not a new technology, blender pumps have only recently begun to be used to market midlevel ethanol blends. Similar pumps have been used to blend unleaded gasoline and premium gasoline into a mid-grade product. Today’s pumps are blending gasoline and ethanol to create E20 (20 percent ethanol/80 percent gasoline) or E30 (30 percent ethanol/70 percent gasoline). These are options that are not offered at traditional fuel pumps or standard E85 dispensers. Blender pumps provide the consumer with more choices at a single pump; a situation that is a win-win for the consumer and the retailer. As ethanol production across the country continues to grow, these types of mid-level blends will help to increase the amount of ethanol that is utilized.

Michigan saw its own ethanol production numbers rise this year as one of its idled plants came back online. In March, Carbon Green BioEnergy acquired the Woodbury plant previously owned by VeraSun Energy. After minor renovations, the new Carbon Green BioEnergy plant came back online on June 26. The plant produces more than 50 million gallons per year and employs 40 Michigan residents. The plant puts Michigan ethanol production capacity at over 250 million gallons annually.

FINANCIALS

In September of each year, the nine-member Corn Marketing Program of Michigan board of directors sets the budget for the following fiscal year which begins on October 1. Programs and events are discussed and approved, as well as the funding for next year’s projects. The CMPM board carefully reviews the organization’s direction and previous work to determine the best use of funding. The chart to the right shows how the check-off funds were utilized in 2009.





Research sponsored by the CMPM at Michigan State University works to enhance the genetics of corn biomass so that it will breakdown quicker during the ethanol process.

RESEARCH

Farming techniques have changed dramatically since Michigan's early settlers plowed the land. However, even with all the changes, the goals and ideals of Michigan farmers still remain the same, to raise a healthy, high-yielding crop, while being good stewards of the land.

While farmers strive for maximum yields and revenues from their crop, the CMPM strives to do the same by funding research that benefits Michigan's corn farmers. The CMPM looks for projects that can add value to Michigan corn through new markets and corn-based products or advancements in traditional markets, as well as new production techniques and practices that enhance productivity and conservation. Research is an integral component to the check-off, comprising one-third of the CMPM budget. Last year, the CMPM board invested in a large variety of research projects that they anticipate will help improve Michigan's corn industry. Projects funded in 2009 include:

- The Effects of Animal Waste and Tillage on Corn Based Crop Rotations
- Demonstrating the Benefits of Using E85 in Snowmobiles and Racecars
- Thumb Agricultural Research & Education (TARE) Project
- Totally Renewable Biodiesel Production from Ethanol and Vegetable Oil
- Ethanol Fueled Drag Race Engine Development
- Long Term Management of Dandelion in a Corn and Soybean Rotation
- Functional Ecology Indicators to Help Defend

Michigan Genetically Modified Corn

- Range Expansion of Western Bean Cutworm Moths and Larval Damage in Michigan
- Commercialization Launch of Carbohydrate-Based Chemistry Platform
- Benefits of Reduced Tillage Study
- Ethanol Engine Testing
- Predicting Soil Organic Matter in a Biofuel Economy: Farmer Friendly Tools and an Outreach Program

The CMPM also partners with other states through the National Corn Growers Association (NCGA) to fund large-scale projects that individual state organizations would not be able to afford on their own. NCGA partnered projects for 2009 include:

- Ethanol Platform Development
- Bioproducts Industry Development
- Diesel Additives from Ethanol and Bio-Diesel Co-Products

Research projects that are funded this year may be of use to farmers and consumers next year or several years down the road, depending on the success of the research, acceptance by consumers and the difficulty of commercialization. The research phase of these projects is only the first step in improving corn production, increasing markets or developing new uses.

Farmers and the public are able to learn more about CMPM-funded research at the Corn and Soybean Winter Research Meetings held annually at locations throughout the state in January and February. Visit the CMPM website, www.micorn.org, for specific dates and locations. Research is also shared through press releases, radio interviews and through our annual reports.



Corn is a very versatile commodity that can be used to not only feed our livestock and create fuel, but also to replace virtually anything that is created from petroleum. Research funded by the Corn Marketing Program of Michigan works to find even more uses for this valuable commodity.

2009 COMPLETED RESEARCH

Through the check-off, Michigan's corn farmers are able to join together to fund research projects that focus on improving on-farm corn production and conservation practices, strengthening traditional markets, and also developing new uses for corn. One of the main goals for the CMPM is to expand and enhance current markets, while at the same time develop new markets and uses for our state's corn.

During its seventeen year tenure, the CMPM has funded more than 200 research projects, which have resulted in the development of corn-based carpeting, fabrics, packaging materials, salt substitutes, ketchup with no salt added, chemicals, pharmaceuticals, and plastics. Research funded through the CMPM five, ten, and fifteen years ago is being commercialized and can now be found in the marketplace. The CMPM is dedicated to investing funds contributed by the state's corn farmers towards developing new markets for Michigan's corn crop, but also to maintain and enhance our current markets. Livestock has been, and continues to be the number one user of Michigan corn. As a result, the CMPM has continually funded projects looking at how Michigan's corn farmers can grow more corn, on less acres, utilizing fewer inputs; how livestock producers can efficiently and effectively utilize dried distillers grain (DDGs), a co-product of ethanol production; and how the use of DDGs will impact sulfur levels in animal manure and the amount of sulfur that is available once the manure is land-applied.

The CMPM publishes an annual Research Report detailing the results of check-off funded projects. While the CMPM funds projects every year, many of those projects are completed during a multiple year time span. As a result, only a few projects were completed in 2009, with a large number ready for completion throughout 2010. The following pages represent the 2009 annual Research Report and showcase those projects that received funding from the CMPM and were completed in 2009. All of the research is designed to keep the Michigan corn industry on the cutting edge of production, technology and new uses.

MOVING MICHIGAN TO AN AGRICULTURAL-BASED ECONOMY

As farmers in Michigan harvested, another record crop of 295 million bushels in 2008, the Corn Marketing Program of Michigan (CMPM) worked to find and develop new products and markets for Michigan's corn crop.

"The CMPM has been working with AFID

Therapeutics, Inc. to develop exciting new opportunities for Michigan's corn," said Clark Gerstacker, CMPM president and a corn farmer from Midland. "AFID Therapeutics has developed a large repertoire of carbohydrate-based chemistries, primarily from corn, dried distillers grains (DDGs), and even sugar beets."

Aerospace Applications

AFID Therapeutics, Inc. has created a high-purity reactant from corn and its co-products. The corn is put through a chemical transformation, creating an advanced glycol-based reactant. AFID Therapeutics, Inc. has already received three orders from leading aerospace companies for their high-tech product. "It is especially gratifying to see success in using chemical technology to bridge the aerospace and agricultural industries," said Rawle Hollingsworth, president and founder of AFID Therapeutics, Inc. "Michigan is the perfect place for this kind of development in which agriculture is placed at the center of a budding scientific, technical and economic revolution. In many respects, this is the future chemical industry for Michigan and its corn farmers."



Pure materials obtained by chemical transformation of Dried Distillers Grains (DDG) for use in pharmaceutical development.

Pharmaceutical Applications from Corn

In addition to its high-purity reactant, AFID Therapeutics, Inc. has also developed a platform of carbohydrate-based chemical compounds, primarily used as the building blocks for pharmaceutical substances. "Since 2005, we have introduced more than 200 new chemical entities into practice for internal use and use by pharmaceutical companies around the world," added Hollingsworth. "Now that the platform has been created, we are focusing in on a special class of compounds, known as the pyrrolidines. These are highly-specialized compounds that are being used to develop drugs for antiviral, cancer and autoimmune therapies."

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Dr. Hollingsworth's assistant separates DDG into sizes to obtain a fraction for use in preparing chemical intermediates and cellulosic materials.

MOVING MICHIGAN.. (CONT. FROM PAGE 9)

Chemical Intermediaries from Dried Distillers Grains

As Dr. Hollingsworth was creating his chemical platform for pharmaceutical applications, the Michigan ethanol industry expanded from one plant to five, producing 250 million gallons of ethanol and 671,000 metric tons of dried distiller's grains (DDGs). With this influx of DDGs on the market, Dr. Hollingsworth began developing a chemical intermediate platform from DDGs. These chemical intermediates can be used in areas ranging from pharmaceuticals to paints, polymers, coatings and other industrial materials.

Dr. Hollingsworth has created two commercialization streams from DDGs, leading to either fine chemicals, pharmaceuticals, and polymers or leading to paper, new hybrid materials and other cellulosic composite materials. "As of right now, we can prepare lactic acid, glycolic acid, hydroxybutyric acid and dihydroxybutyric acid from DDGs," said Hollingsworth.

"The research being conducted by Dr. Hollingsworth focuses on enhancing the uses of corn and DDGs by moving it into markets that are usually very energy intensive, are non-renewable, and have a very large negative environmental impact," added Gerstacker, who also serves on the National Corn Board. "This research moves us one step closer to realizing our long-term vision of having an agricultural-based carbon economy."

LONG-TERM MANAGEMENT OF DANDELIONS

Since dandelions continue to be a problem throughout many of Michigan's no-till fields, the Corn Marketing Program of Michigan (CMPM) has partnered with researchers at Michigan State University (MSU) to look at the long-term management of dandelions in no-till and rotational tillage cropping systems. "Through this research, we have found that dandelions could be

managed to reasonable levels with proper application timings and herbicide selection," said Christy Sprague, MSU Department of Crop and Soil Sciences Associate Professor.

To evaluate the effect of different herbicide treatments on dandelions, corn and soybeans were planted in 20-foot blocks in a field that was managed to have high populations of dandelions. Each block had eight treatments, which were replicated four times. After harvest, four quadrants were established. Dandelions in two of the quadrants were removed to examine seedling establishment, while both seedling and established dandelions in the other quadrants were counted.

During the past two years, eight different systems have been examined to determine what effect they have on dandelion populations. System 1 examines intensive management of dandelion in both crops of the rotation, fall and 7 day early preplant applications of glyphosate at 22 fl oz/A + 2,4-D ester at 1 pt/A + 17 lb/100 gal and an in-season POST application of glyphosate. Systems 2 and 3 are intensive management in one of the crops of the rotation, in this case System 2 is corn and System 3 is soybeans. System 4 is a moderate management plan that focuses on spring applications of glyphosate + 2,4-D ester and an in-season glyphosate application in both crops of the rotation. Figure 1 illustrates the decline in dandelion populations over the past two years with the intensive and moderate management systems as compared with the no management system. POST conventional herbicide programs Callisto + Atrazine in corn and Classic in soybeans were used instead of glyphosate POST to look at conventional herbicide programs. "These systems responded similarly to the Roundup Ready treatments, keeping in mind that the glyphosate + 2,4-D were applied in the fall and prior to planting," added Sprague. "After two years, the dandelion population was reduced to levels that did not affect corn or soybean yield. However, in plots where dandelion was not managed, corn yield was reduced 25% and soybean yield was reduced 40%."

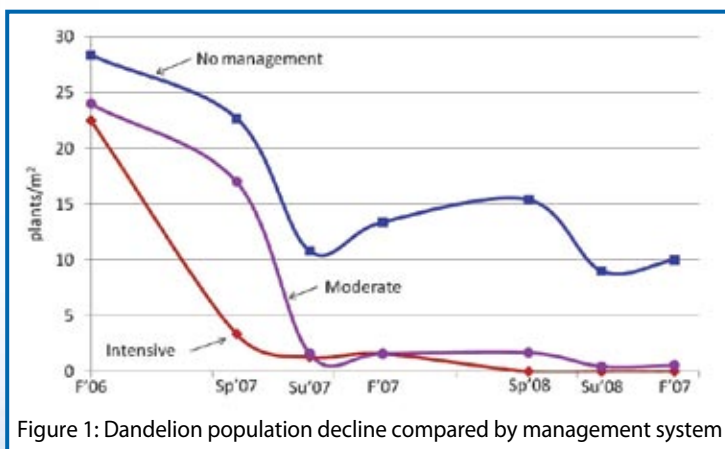


Figure 1: Dandelion population decline compared by management system

The project also looked at the effect tillage and herbicides had on dandelion population. There are a total of 9 treatments that include tillage and herbicide applications (Table 1). Corn was planted in 2007 and soybeans in 2008.

During the two years, tillage and herbicide applications had significant effects on dandelion populations. Figure 2 illustrates the effect that conventional tillage, rotational tillage, and no-tillage has had on dandelion populations. In the fall after the first year of treatments, dandelion populations were less than one plant per square meter regardless of herbicide treatment in no-till. However, this was not reflected in corn yields. If dandelion was treated in the spring only, corn yield was reduced by 52 bu/A. “One possible reason is that moisture levels may have been low from dandelion competition prior to the spring herbicide application, and even though the treatments reduced dandelion populations the damage had already occurred,” said Sprague. “Soybean yields were similar for all treatments except for the unmanaged dandelion plots in the no-till soybean. Unmanaged dandelion reduced soybean yield by 35 percent,” added Sprague.

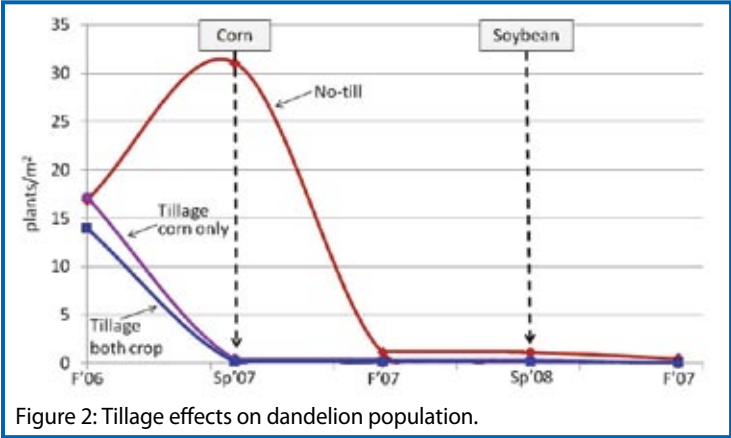


Figure 2: Tillage effects on dandelion population.

“Long term management of dandelions in no-till cropping systems will help keep no-till crop production sustainable. Without effective control strategies, growers may be tempted to use aggressive tillage to reduce dandelions, ultimately losing the benefits realized from no-till,” said Sprague. “Growers using reduced tillage or rotational tillage will also have information on long-term management strategies for this weed. Through the management of dandelion populations, corn farmers can improve their profitability by improving their crop yield.”

Tillage (Factor A)	Herbicide Timing (Factor B)
1) No-till	1) Spring only
2) No-till (SOY) - Reduced-tillage ¹ (Corn)	2) Fall fb Spring (SOY) – Spring only (Corn)
3) Reduced-tillage ¹ (annually)	3) Fall fb Spring

Table 1: Treatments used for dandelion management.

NEW HEINZ KETCHUP FEATURES CORN-BASED SALT SUBSTITUTE

The Corn Marketing Program of Michigan (CMPM) has a long tradition of investing in research looking for new and innovative uses for corn.

More than ten years ago, the CMPM looked at an innovative project which resulted in the creation of a sodium-free salt substitute, called AlsoSalt. The product has been available for consumer purchase for several years, but hit it big in 2009, when Heinz decided to sell a salt-free ketchup.

The new Heinz No Salt Added Tomato Ketchup includes the sodium-free salt substitute, which is made from corn. The product was developed at Michigan State University (MSU) using research money from the CMPM. “We’re excited to see a large company such as Heinz get behind and use a product that was developed using funds from the state’s corn farmers,” said Jody Pollok-Newsom, CMPM executive director.

The CMPM funded the development of AlsoSalt in 1996 and the product was patented in 1999. According to Kris Berglund, AlsoSalt’s developer and MSU Distinguished Professor of Forestry & Chemical Engineering, the 10-year timeframe between receiving a patent and the introduction of a new product is not unusual. “It takes time to successfully commercialize a product,” he said.

AlsoSalt, made from lysine, is fermented from cornstarch. It was developed to address the need for low-sodium diets. The corn-based ingredients in AlsoSalt mask the undesirable aftertaste found in other salt substitutes. AlsoSalt looks and tastes like salt, while providing potassium and lysine, two important nutrients for good health.

“The CMPM takes its mission of finding new uses and new markets for corn very seriously,” said Clark Gerstacker, CMPM president and corn farmer from Midland. “As our crop size continues to increase, it is vital we continue to identify new uses and we are very excited about adding Heinz No Salt Added Tomato Ketchup to our lineup of corn-based products.”





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