MISSION - Develop strategies and action plans to accelerate the transition of transportation fuels to higher octane/lower carbon blends for use in the North American light duty vehicle fleet.
What is the Future

- OEMs Continue Push for High-Octane Gas
  2016 SAE World Congress

  Apr 20, 2016 Tom Murphy | WardsAuto

- GM, Ford, Fiat Chrysler, and Honda all said they need higher Octane to meet CO2 reductions and increased mileage performance.

- Ethanol is currently the cheapest octane available.
Purpose

- To increase the number of dispenser distributing higher level blends of Ethanol
- Currently 7.4 million vehicles registered in Michigan
- 898,000 are Flex Fuel
- 41,708 Gasoline Dispensers (1 for every 177 vehicles)
- 689 Flex Fuel Dispensers (1 for every 1304 vehicles)
Auto Industry Commitment

- Ag Auto Ethanol Working Group (AAE)
  - 40 Partner Organizations
    - NCGA & State Corn Grower Associations
    - Ethanol Industry
    - Auto Industry
    - Agribusiness Industry
  - 12 Steering Committee Members
  - 6 Action Teams
  - 2 Co Chairs (GM & John Deere)
USDA Biofuel Infrastructure Program (BIP)

- $100 Million CCC funds
  - $210 million total investment with matching state and private funds
  - 21 States Received funding under USDA program
  - Nearly 5000 additional pumps to be installed nationwide as a result
  - PtP expansion
  - NCGA and States pledged an additional $1.95 million
Michigan Pump Infrastructure

- 3 Million CCC funds
- Total investment from all 5.34 million
- Install Dispensers and Underground Storage Tanks (UST)
- 9 E15/E25 Retrofit Dispensers
- 40 E 85 Dispensers
- 40 Blender Pumps
- 20 UST
Michigan Pump Infrastructure

- REQUESTED TO DATE
  - 1.7 Million CCC funds
  - 20 Blender Dispensers
  - 37 E 85 Dispensers
  - 17 Underground Storage Tanks

- AVAILABLE TO GRANT
  - 9 E15/E25 Retrofits
  - 20 Blender Dispensers
  - 3 E 85 Dispensers
  - 3 Underground storage tanks.
Marketing Efforts
Questions?

Jim Zook
jzook@micorn.org
517-819-4249

www.micorn.org
DFA Cass City MI

Erik Macevoy, Plant Manager
DFA Cass City
Plant overview

- **Total Milk Capacity 3M pounds/day**
- **Equipment**
  - 4 receiving & load out bays
  - 2 Separators
    - GEA 80K pounds/hour each
  - 2 Pasteurizers
    - Skim 160K pounds/hour
    - Cream 14K pounds/hour
  - 1 Reverse Osmosis for Condensing
    - Skim feed rate 160K pounds/hour
  - Waste Water Treatment Plant
    - Full treatment with direct discharge to the Cass River
    - Membrane Bio-Reactors with 1.6M gallon activated sludge tank
First milk received on February 8th 2015
Staff and Team Members
Receiving Bays
Separators
Reverse Osmosis Unit
Raw Silo Corridor
Waste Water Treatment Plant
Waste Water Membrane Filtration
DFA Cass City
Questions?
Division Focus

• Food Safety
• Dairy Safety
• Pure MI FIT & Food Policy
$16.6 M Budget

Food and Dairy Division FY16 Budget (Millions)

- Food Safety
  - General Fund: 7.7
  - Fees: 3
  - Federal: 1

- Dairy Safety
  - General Fund: 3.9
  - Fees: 150K
  - Federal: 45K

- Food Service
  - General Fund: 8.8
  - Fees: 22.2

Food Safety Education Grant Fund- $250,000/yr

$31 million local health food service program. State provides 28%.
Field Focused

• 91 (82%) with home workstation
  – 54 Food Inspectors
  – 18 Dairy Inspectors
• Focused on keeping staff close to customer
• 85 vehicles drive 1.1 million miles per year
USDA – Wholesale Meat
FDA – Interstate Food Processors / Dairy Program

MDARD Dairy, Food – Retail/Processing

Local Health
Food Service

NSF, IFPTI
MSU, MPHI
INDUSTRY

MDEQ
MDHHS
MDE
Integrated National Food Safety System - Avoiding Duplication

- Science & research
- Food, dairy & label standards
- Training to states
- Program evaluation
- Imports
- Additive approvals
- Laboratory standards
- Inter-State processor inspections

Coordination & Communication

- Inspections
- Licensing
- Compliance & enforcement
- Foodborne illness investigations
- Consumer complaints
- Food sampling & analysis
- Industry compliance assistance

MDARD, Local Health

FDA
Regulated Community

- 45,000 Food Service
- 18,000 Retail Food
- 2,000 Processors
- 1,850 Dairy Farms
- 1,008 Trucks
- 88 Dairy Processors
Trends

- Strong Dairy Growth
- Increased Exporting
- Moderate Retail/Processing Growth
Food Section

• Licenses and Evaluates Food Establishments
• Food Sampling, Recalls, Tracebacks, Plan Review, Emergency Response, Complaints
• Farmers Markets, Cottage Food
• FDA Contracts and Grants
Dairy Section

- Licenses and Evaluates all segments of Dairy Farms, Trucks & Haulers, Processing Plants
- Dairy Sampling, Recalls, Tracebacks, Plan Review, Emergency Response, Complaints
- USDA Cooperative Agreement- Butter Grading
Quality Assurance and Emergency Response Unit

• Food Service Consultants
  – Accredits 45 local health departments

• Dairy Rating Officers: QA for dairy program

• Emergency Response Staff: Recalls, Tracebacks, Emergency Response, Foodborne Illness

• Rapid Response Team, Incident Command
Business Unit

- Budget
- IT Support / Data Management
- Supplies and materials to staff state-wide
- Exports - Certificates of Free Sale
- Administrative Support
Emerging Areas

• Growing Food Inspection Staff from 47 to 59
  – Adding Internal Audit Position
  – Increasing amount of specialized training needed
• Improving Food Establishment Compliance
• Food Safety Modernization Act
  – Pursuing Funding and Resources to Implement
    • On-Farm Produce Safety
    • Food Processors
      – Preventive Controls, Import Verification
    • Transportation Food Safety
• Dairy
  – May need additional staff as industry grows
  – State Milk Production moving from 7th to 5th nationally
  – New technologies – Robotics - Milk protein fractionation
Legal

- Updating Pasteurized Milk Ordinance adoption
- Update Food Law to include:
  - Food Safety Modernization Act rules
  - Manager and Employee Training Updates
  - 2017 Food Code adoption
  - Vending bill proposes to move vending inspections to MDARD.
Questions?

Stay connected with MDARD!

Michigan Department of Agriculture

@MichDeptoFAg

Mlagriculture
Michigan Milk Producers Association

Est. 1916

POWER of the Past. 100 Years VISION for the Future.

Michigan Milk Producers Association
Dairy Industry Update

Ken Nobis, President
Michigan Milk Producers Association
Michigan’s Dairy Industry

- Ranks 7th nationally
- Dairy is the top ranking segment of Michigan’s agriculture industry.
- Dairy contributes over 20% of Michigan’s cash receipts for Agriculture.
- Represents more than 4.0% of total U.S. milk production.
## Top Ten Dairy States

### 2015 Milk Production

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Production (billion lbs)</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>California</td>
<td>40.8</td>
<td>-3.4%</td>
</tr>
<tr>
<td>2</td>
<td>Wisconsin</td>
<td>29.0</td>
<td>+4.4</td>
</tr>
<tr>
<td>3</td>
<td>Idaho</td>
<td>14.2</td>
<td>+1.7</td>
</tr>
<tr>
<td>4</td>
<td>New York</td>
<td>14.1</td>
<td>+2.7</td>
</tr>
<tr>
<td>5</td>
<td>Pennsylvania</td>
<td>10.8</td>
<td>+1.3</td>
</tr>
<tr>
<td>6</td>
<td>Texas</td>
<td>10.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>7</td>
<td>Michigan</td>
<td>10.2</td>
<td>+6.7</td>
</tr>
<tr>
<td>8</td>
<td>Minnesota</td>
<td>9.4</td>
<td>+3.7</td>
</tr>
<tr>
<td>9</td>
<td>New Mexico</td>
<td>7.8</td>
<td>-3.4</td>
</tr>
<tr>
<td>10</td>
<td>Washington</td>
<td>6.6</td>
<td>+0.5</td>
</tr>
</tbody>
</table>
Milk production in Michigan has increased 80% since 2000 while cow numbers have increased 36% during this time.
<table>
<thead>
<tr>
<th>State</th>
<th>Milk Produced Per Cow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Colorado</td>
<td>25,685 pounds</td>
</tr>
<tr>
<td>2. Michigan</td>
<td><strong>25,130 pounds</strong></td>
</tr>
<tr>
<td>3. Arizona</td>
<td>24,477 pounds</td>
</tr>
<tr>
<td>4. New Mexico</td>
<td>24,245 pounds</td>
</tr>
<tr>
<td>5. Idaho</td>
<td>24,126 pounds</td>
</tr>
<tr>
<td>6. Washington</td>
<td>23,848 pounds</td>
</tr>
<tr>
<td>7. Utah</td>
<td>23,146 pounds</td>
</tr>
<tr>
<td>8. Nevada</td>
<td>23,069 pounds</td>
</tr>
<tr>
<td>9. California</td>
<td>23,002 pounds</td>
</tr>
<tr>
<td>10. Iowa</td>
<td>22,943 pounds</td>
</tr>
</tbody>
</table>
The Michigan Advantage

• Agricultural Land
• Climate
• Water
• Infrastructure
• Access to Population Centers
Milk Production and Market Outlook
U.S. and EU Milk Production Increasing, Oceania Declining
EU production growth pushes global dairy into uncharted territory

Source: UN ComTrade, USDA, EuroStat, DCANZ, and DairyAustralia. **Reflects 2015/16 marketing year (July-Jan)

<table>
<thead>
<tr>
<th>Region</th>
<th>Production (Bil. Lbs.)</th>
<th>Growth (%)</th>
<th>Change (Bil. Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>208.6</td>
<td>+1.3%</td>
<td>+2.6</td>
</tr>
<tr>
<td>Europe</td>
<td>334.3</td>
<td>+2.2%</td>
<td>+7.1</td>
</tr>
<tr>
<td>New Zealand</td>
<td>33.5</td>
<td>-2.8%</td>
<td>-960</td>
</tr>
<tr>
<td>Australia</td>
<td>13.9</td>
<td>-0.32%</td>
<td>-45</td>
</tr>
</tbody>
</table>
U.S. DAIRY TRADE BALANCE, 1995-2015 ytd

- Exports: Percent of U.S. Total Milk Solids Production
- Imports: Percent of U.S. Total Milk Solids Production

2015: January-November
The Aftermath of China’s Buying Bubble

China milk powder imports, change vs. prior year

Source: GTIS, USDEC
Russia Ban Forces Reallocation of EU Supply

EU cheese exports to Russia

Source: GTIS, USDEC
Gap will remain large in 2016

Milk Production (Top 5) vs. China/Russia Imports

Top 5 includes EU-28, United States, New Zealand, Australia and Argentina. Oct 2015-Dec 2016 projected.
Source: USDEC, Global Trade Atlas

Global Dairy Outlook: 2016
Major Headwinds for U.S. and World Dairy Exports

- Large drop in China’s imports from 2013 – 2014
- Russian food embargo, began August 2014
- End of E.U. production quotas, April 2015
- Collapse of petroleum prices
- Drop in world dairy product prices since 2013 – 2014
- Increased competition from E.U. and New Zealand exports
- Strong U.S. dollar
- “New normal” for world markets?
U.S. Production: A Tale of Two Milksheds
2015 Total U.S. = 208.6 Billion Pounds (+1.3% YoY)

Upper Midwest +2.8 billion lbs
Northeast +0.5 billion lbs
California -1.4 billion lbs
U.S. MILK PRODUCTION (Adjusted for Leap Year)

March = +1.8%
YTD = .97%

Billion Lbs.
STATE MILK PRODUCTION (Adjusted for Leap Year)

Michigan Monthly Totals

March = +7.7%
YTD = +7.13%

<table>
<thead>
<tr>
<th>State</th>
<th>Pounds (Millions)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio</td>
<td>(8)</td>
<td>-0.56%</td>
</tr>
<tr>
<td>Michigan</td>
<td>176</td>
<td>7.11%</td>
</tr>
<tr>
<td>Indiana</td>
<td>38</td>
<td>3.87%</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>339</td>
<td>4.83%</td>
</tr>
<tr>
<td>Total YTD</td>
<td>545</td>
<td>4.60%</td>
</tr>
</tbody>
</table>

2016 State Increases over LY
USDA Projects Another Record Year in 2016
+3.3 billion pounds (1.6%) year-over-year, 2015 was up 1.3%

Since 2000 average growth rate is 1.6%. Max was 3.6% in 2005 and Low was -0.4% in 2009

Source: USDA NASS, WASDE

Price ($/cwt)

- $10.00/cwt.
- $15.00/cwt.
- $20.00/cwt.
- $25.00/cwt.
- $30.00/cwt.

- Dec. 1, 12
- Jun. 1, 13
- Dec. 1, 13
- Jun. 1, 14
- Dec. 1, 14
- Jun. 1, 15
- Dec. 1, 15
- Jun. 1, 16

$26.20/cwt. Sept. 2014
$12.40/cwt. March 2016
U.S. and EU Milk Prices

The graph shows the trend in milk prices per hundredweight from 2015 to 2016 for the EU, U.S. All Milk Price, and Michigan All-Milk Price.
Uncertainty on When Prices Will Improve Significantly
Futures curve in 2016 mostly flat

Dairy products: Per capita consumption, United States, 1975-2014 (in pounds per person)
In U.S. the Story Has Been About Milkfats
Domestic butter use now accounts for nearly 1/5th of milkfat consumption

Cumulative Growth in Per Capita Consumption of Milkfats

- Butter: 2014: 5.5 lbs. (23% growth)
- All Cheese: 2014: 36 lbs. (12% growth)
- Yogurt: +128%, 14.9 lbs.

+13.3 Additional Pounds of Cheese, Butter, and Yogurts Consumed Since 2000

Source: USDA ERS. 56.4 lbs/person in 2014 compared to 43.1 lbs/person in 2000
Milkfats Were A Larger Portion of Milk Checks in 2015
Contribution of Milkfat to Class III Price

Share of Class III Value in Milkfat
Share of Class III Value in Nonfat Solids

2000 to 2014

- Milkfat: 39.44%
- Nonfat Solids: 60.56%

2015 to present

- Milkfat: 51.75%
- Nonfat Solids: 48.25%

Source: USDA and author’s calculations
POET BIOREFINING – CARO
POET and the RINS Expansion

Emily Boynton
Quality Manager
May 18, 2016
AGENDA

• POET
  • Who are we
  • POET Caro
  • What do they do and what we make

• RFS/ RINS Refresher

• Caro RINS Project
  • Project Objectives
  • Scope of Work
About POET
Company Profile

- 20+ years ethanol industry experience
- 1.7 billion gallons of production capacity
- Largest ethanol producer
- Over 1,500 team members
- 10,000 farmer investors
- 30,000 farmers supply grain
- Integrated business model
- Low cost producer
- Technology leader
- Every project has been successful
POET Biorefining – Caro

- First ethanol plant in Michigan
- 14th POET plant built
- Consumes 21 million bushels of local corn annually
- Produce 58 million gallons of ethanol annually
- Produce 8820 tons of corn oil annually
- Produces 153,000 tons of distillers grains annually
Hammer Mill
Slurry
Fermentation
Distillation
Centrifuges
Evaporation
Corn Oil
Dehydration Technology
Products and Co-products

Ethanol
- Meets ASTM D4806
- EQA Accreditation

Dakota Gold and DDGs
- Meet feed tag spec with protein <27, Fat <6 or 6-9, Mst <12.0

Corn Oil
- FFA<15, MIU>3.0, sulfur and phosphate <50ppm, iodine >118

Co Products

Syrup
- Protein >5, Fat >3, mst <75%

Wet Grains
- Protein <9, Fat >.05 mst <72%
**Bottom Line**

1. Completed by 8/1/16
2. Potential to add 2-3 positions moving from 48-51
3. Grind about 3.2 M more bushels of corn annually (21M to 24M)
4. Produce about 9 M more gallons of ethanol annually (58 to 66.7M)
5. Produce approximately 1,300 more tons per year corn oil (8820 to 10,056)
6. Produce approximately 27,200 more tons per year of feed. (153,000 tons to 180,200)
Questions?
Michigan’s Terrestrial Invasive Species (TIS) Management Plan

Sue Tangora
DNR Forest Resources Division
May 18, 2016
Draft:
Michigan’s Terrestrial Invasive Species State Management Plan
Coordinated by the Terrestrial Invasive Species Core Team

2016-2021
Public Review
May 16 – June 24, 2016

A Cooperative Effort of the
Michigan Department of Agriculture and Rural Development
Michigan Department of Environmental Quality
Michigan Department of Natural Resources
In Consultation and Partnership with Other Interested Parties
Feral Pig Photo Credit: Chris Gedy
Michigan’s TIS Management Plan: who will use it?

- Citizens
- Elected Officials
- Partners
  - Academia
  - Industry
  - Local, federal and tribal governments
  - Non-governmental organizations
  - Other state departments
  - Private landowners
- Staff
Creating the Plan

- TIS Core Team
  - DNR
  - DEQ
  - DARD
  - DOT
- Partner Survey – February, 2015
- Partner Review – December, 2015
How is Michigan’s TIS Management Plan organized?

- **GOALS (4)**
  - Activity Areas (6)
    - Objectives (19)
    - Strategic Actions (62)
GOALS

**Prevention:** Prevent the introduction of new terrestrial invasive species to Michigan.

**Early Detection and Response:** Detect terrestrial invasive species as they arrive and respond to prevent their establishment and spread in Michigan.

**Control and Restore:** Control terrestrial invasive species to minimize the harmful environmental, economic and public health effects resulting from established populations. Restore habitats as appropriate.

**Collaborate:** Encourage collaboration to optimize solutions and share resources, knowledge and skills.
ACTIVITY AREAS

- Risk Analysis
- Management Practices
- Monitoring and Research
- Outreach and Education
- Regulation and Policy
- Leadership and Coordination
Timeline

- Public review – May 16 – June 24, 2016
- Final plan this summer
- Updated every five years
- Accomplishments published in annual report
THANK YOU

Questions?
Economic and Agricultural Benefits of Wind Farms

Skip Pruss

5Lakes Energy
Wind Energy – A Better Choice

**Benefits**

- Wind energy is the least cost energy option in Michigan
- Wind energy doesn’t pollute
- Wind energy doesn’t consume water

**Burdens**

- Noise
- Flicker
- Bird & bat mortality
- Aesthetics
Benefits of Wind Energy

• County tax base can increase significantly
• Schools and local government receive tax revenue
• Families participate in land royalty payments
Of Michigan’s 83 counties, Gratiot, Huron and Tuscola and counties – the counties with the most wind farms – experienced the largest tax base increase from 2011 - 2015.

<table>
<thead>
<tr>
<th>Rank</th>
<th>County</th>
<th>Tax Base Change (2011-2015)</th>
<th>Increase Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gratiot</td>
<td>$357,991,962</td>
<td>+38.48 percent</td>
</tr>
<tr>
<td>2</td>
<td>Huron</td>
<td>$559,599,077</td>
<td>+34.22 percent</td>
</tr>
<tr>
<td>3</td>
<td>Tuscola</td>
<td>$364,576,534</td>
<td>+26.02 percent</td>
</tr>
</tbody>
</table>

State average all counties: +1.28 percent

Source: MI Dept. of Treasury
Economic Benefit of Wind Energy to Communities

Gratiot County
• $16.6 million in new tax revenue from 2012 – 2014
  Source: Greater Gratiot Development

Huron County
• $18.89 million in new tax revenue in 2014 - 2015
  Source: Huron County

Tuscola County
• $4.07 million in new tax revenue in 2014
  Source: Tuscola County
### How is the money spent?

<table>
<thead>
<tr>
<th>Huron County</th>
<th>Tuscola County</th>
</tr>
</thead>
<tbody>
<tr>
<td>• County operating expenses</td>
<td>• County operating expenses</td>
</tr>
<tr>
<td>• Schools</td>
<td>• Bridge/street repair</td>
</tr>
<tr>
<td>• Roads</td>
<td>• Emergency services</td>
</tr>
<tr>
<td>• Libraries</td>
<td>• Intermediate school district</td>
</tr>
<tr>
<td>• Seniors</td>
<td>• Akron Fairgrove schools</td>
</tr>
<tr>
<td>• Veterans</td>
<td>• Reese schools</td>
</tr>
<tr>
<td>• Drug Task Force</td>
<td>• School Debt</td>
</tr>
<tr>
<td>• County parks</td>
<td>• Fire/Ambulance services</td>
</tr>
<tr>
<td>• 911 EMG</td>
<td>• Township operating expenses</td>
</tr>
</tbody>
</table>
Local Businesses Benefit from Wind Farms, Too

- **Fleet vehicles are serviced at local service stations**
  - Oil changes
  - Brakes/Tires/Mufflers

- **Hardware Stores**
  - Corporate accounts at local hardware stores for necessary supplies

- **Restaurants**
  - Staff meetings are often catered from local restaurants

“In 2006, our revenues at Holiday Inn Express in Bad Axe were less than $900,000; in 2014 revenues approximated $1.7 million”

Gary Malchow
Why Wind Revenue Matters

State policymakers control the purse strings to resources that local governments rely upon to provide services.

• In the past, state distributions to local governments have been reduced
• State policymakers are attaching new strings as a condition of receiving funds

Revenue from wind farms support local communities and make up for reductions in state support!
Wind farms support Michigan agriculture

• Wind farms keep land in agriculture.
• Wind projects preserve open spaces.
• Wind farms help preserve family farms.
• Wind energy helps keep young people interested in farming.
• Wind projects benefit rural communities.
Benefits to Farmers

- Wind - A drought resistant and flood proof cash crop
- Provides certainty and peace of mind to landowners
- Improves roads and culverts
- Only occupies about 1 acre per turbine for towers and access roads after construction – does not greatly impact crop and livestock production
Wind Power Reduces Water Use

The 144 coal plants and 38 operating nuclear plants on the Great Lakes account for 76 percent of all water withdrawals from the Great Lakes Region.

Every Megawatt hour of wind energy

✓ Avoids 8,420 gallons of water used to cool coal plants
✓ Avoids 270 gallons of water lost

Source:
National Renewable Energy Laboratory
Lawrence Berkley National Laboratory
Michigan Fossil Fuel Expenditures

Money spent on wind energy stays in Michigan, multiplying through our economy.

Michigan spends about $22 billion per year importing fossil fuels.

Money spent on fossil fuels leave Michigan’s economy.
Businesses Want More Renewable Energy

• Apple, Google, Facebook, Walmart, Microsoft, Amazon, Costco, Johnson & Johnson, Proctor & Gamble, Starbucks, Steelcase, and many other companies have 100 percent zero carbon goals.

• Fifty-one Fortune 500 companies recently signed the Corporate Renewable Energy Buyers’ Principles: Increasing Access to Renewable Energy

• Over 500 U.S. companies are now deriving 100 percent of their electricity from green power sources, including Intel, Kohl’s and Staples. (2014 EPA Green Power Partnership)
Renewable Energy is the Biggest Source of New Electricity Supplies

- Renewable energy accounted for 68 percent of all new electric generation resources added to the U.S. grid in 2015.
- Wind and solar power installations are currently emerging faster than any other electric power source.
- The transition to clean energy resources is underway.