Acetochlor Registration Partnership (ARP)

Dave Gustafson, Monsanto

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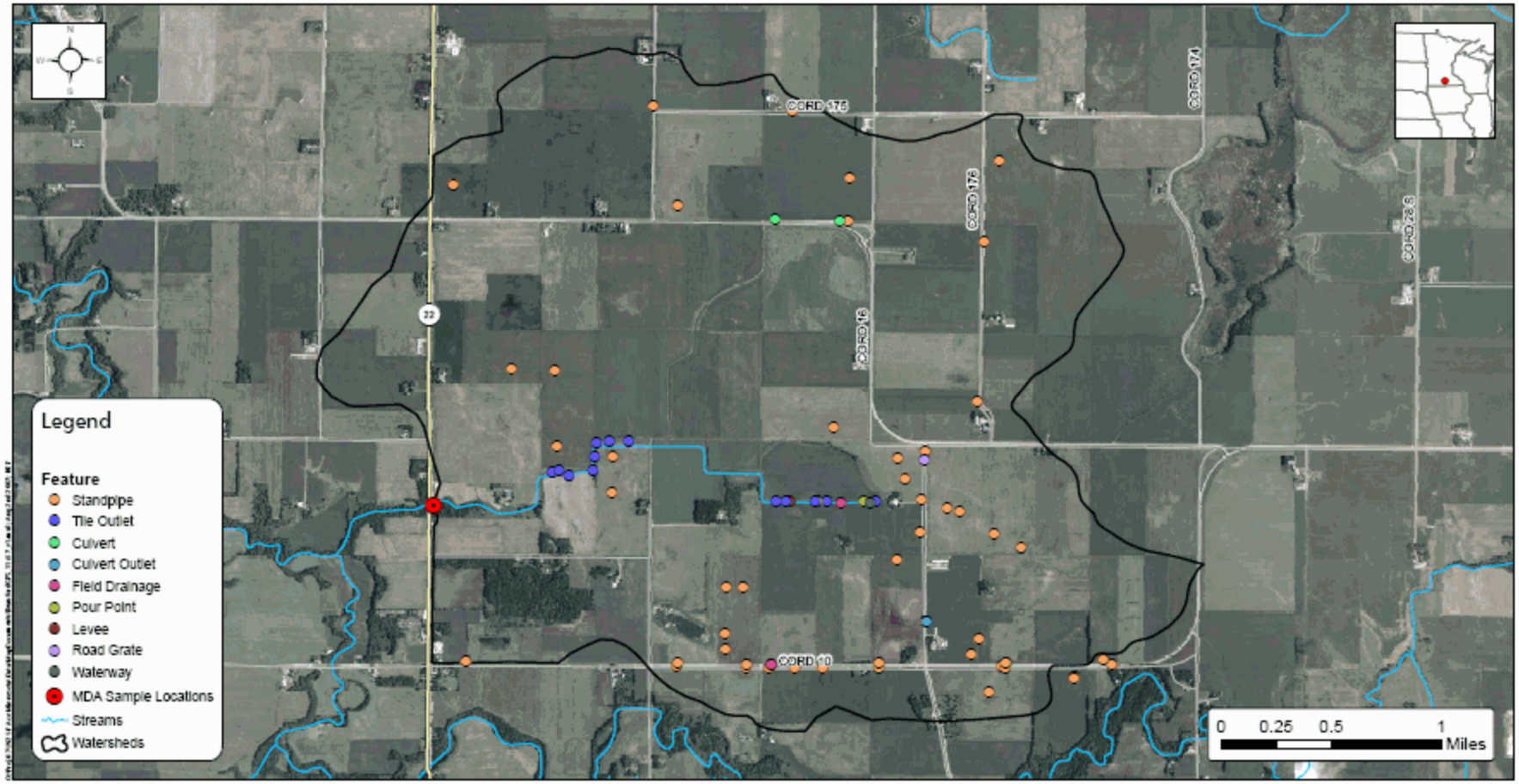
ARP Water Quality Initiatives in the State of Minnesota

- 2007 Watershed BMP Investigations
  - Beauford Ditch
  - Middle Branch Whitewater
- Enhanced promotion of BMPs for Spring 2008
  - Poster produced with MN Department of Agriculture
- Pilot Bioenergy Buffer project
  - Beauford Ditch in 2008
- Remote sensing data for targeting future enhanced stewardship efforts
  - Le Sueur River watershed
- Help facilitate new statewide buffer initiative
  - Today's meeting

Best Management Practices for Acetochlor

- General water quality BMPs:
  - Use proper rate for soil and organic matter
  - Consider reduced rates where appropriate and as indicated on product label
- Surface water BMPs:
  - Install filter strips
  - Adopt conservation tillage
  - Incorporate herbicide (if tillage is used)
- Ground water BMPs:
  - Determine depth to ground water
  - Manage irrigation (where applicable)

Beauford Ditch



MDA - ARP Watershed Evaluation Project
Figure 4 - Structural Features (by GPS and field location)
Beauford Ditch, Minnesota
Sources: Streetmap USA, NRCS, USDA Geospatial Data Gateway, ARP, SEI

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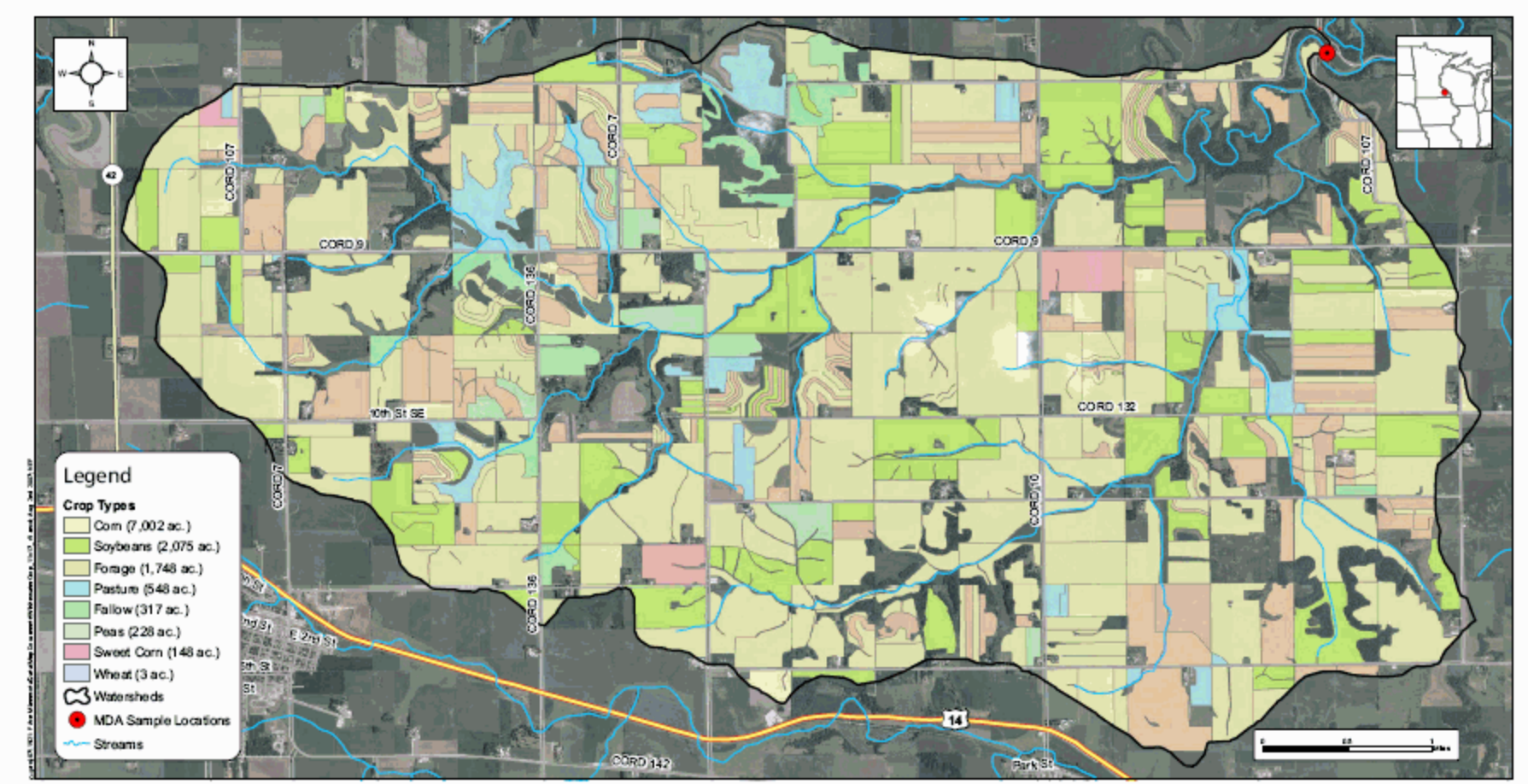
Middle Branch Whitewater



MDA - ARP Watershed Evaluation Project
Figure 3 - Land Use
Middle Branch of the White Water River, Minnesota
Source: Streetmap USA, NRCS, USDA Geospatial Data Gateway, Monsanto, SEI

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2007 Watershed Investigations: Conclusions

- BMPs have been adopted by acetochlor users
  - Reduced rates
  - Incorporation
- Challenges specific to the Beauford Ditch
  - Lack of protection for tile inlets, outlets, and culverts
  - Runoff water enters ditch via unbuffered culverts that directly pass through a levee bordering the ditch
- Overall, growers expressed concern over the amount of crop land that would be lost with setbacks of more than 50 feet

New Poster Produced in Collaboration with MDA

- Will be part of MDA mailing this spring
- Dow and Monsanto field staff will also distribute copies

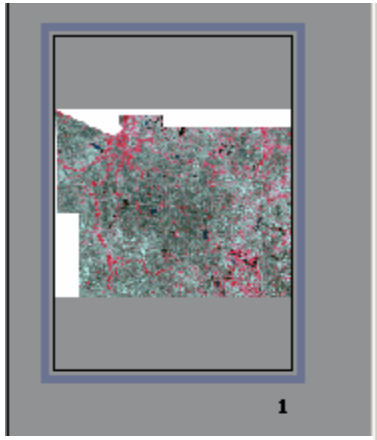
Pilot Bioenergy Buffer Project

- Beauford Ditch to be implemented in 2008
- Switchgrass or other potential cellulosic feedstock crops to be established as buffers in vulnerable portions of watershed
- Technical support:
  - Gregg Johnson, UM SROC, Waseca
- ARP Contacts:
  - Bruce Drager, Monsanto
  - Dave Ruen, Dow AgroSciences

Goals for Pilot Bioenergy Buffer Project (Beauford Ditch)

- Build practical experience on bioenergy crop establishment and management
- Track total costs and determine what level of financial incentive will be necessary to encourage such practices more broadly
- Provide demonstration plots for others to observe in a real-world production setting
- Realize actual water quality benefits now

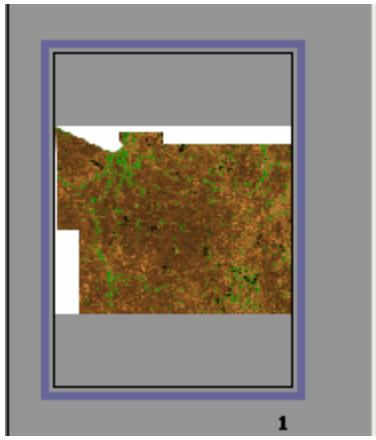
Landsat Image (11-May-07): CIR



Full 5-county image

Beauford Ditch sampling point

Landsat Image (11-May-07): SZC



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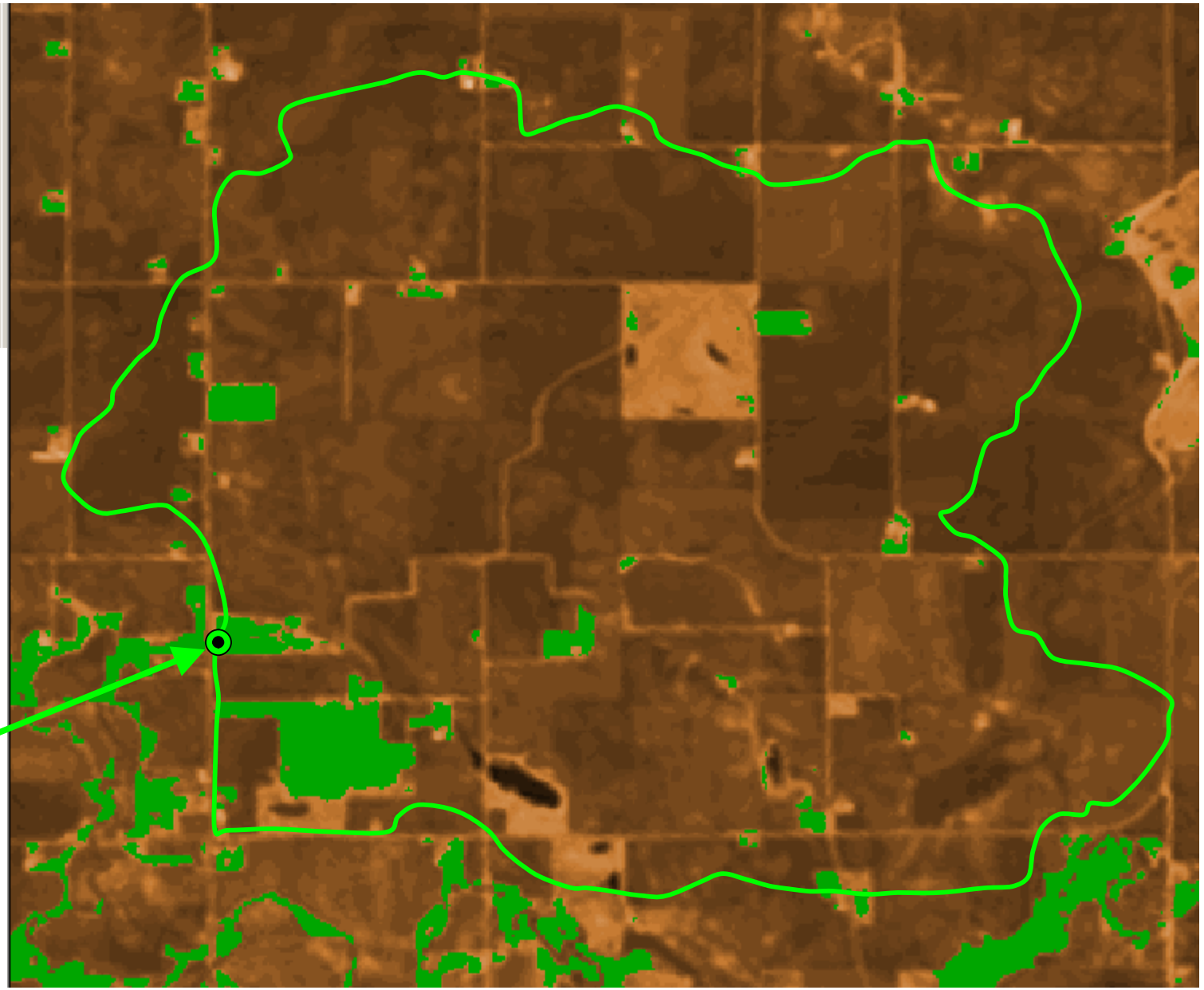

Goals for Today's Meeting

- Initiate a broader discussion among all who would like to see more MN buffers
- Increase general awareness of what is already being done by others in MN
- Look for synergies and opportunities for new collaborations
- Brainstorming of new ideas
- Agree next steps, responsibilities