

To: BMP CHALLENGE Project Team and Advisors  
From: Matt Anderson BMP CHALLENGE Program Assistant, Agflex, Inc.  
Re: Twelfth Quarterly Report: BMP CHALLENGE and Water Quality Trading

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### **Executive Summary**

Our project is designed to meet water resource quality goals by promoting and supporting innovative strategies including the BMP CHALLENGE net returns guarantee and water quality credit trading. We will build broad awareness of these tools and competence in their use by developing and distributing a curriculum and support tools, and training in-state trainers to support conservation district, crop advisory professionals and others who work with farmers. We will manage the BMP CHALLENGE for corn farmers reducing nutrient use and tillage in CA, DE, IA, ID, IL, IN, MD, MI, MN, MO, NC, NE, NY, OH, PA, SD, VA, WI. Water quality credit trading objectives will focus on MN and PA. Pennsylvania trading activities are limited to preparation of a trading template by Kieser and Associates, due by end of June 2009. A draft template was distributed in August 2008. The document will be used to document credits created by BMP CHALLENGE participants during the 2009 season.

Since our September 2009 quarterly report, we have:

- Begun expansion of BMP CHALLENGE program into California.
- Commenced planning and implementation of strategies to achieve 2009 CIG deliverables.
- Completed 5 biweekly conference calls and transitioned away from monthly team calls.
- Held several conference calls on foregone income with state and national NRCS staff.
- Set the next quarterly advisory committee call date as March 11th, 2010.

Over the next quarter we will:

- Revise and reprint the MN Water Quality Credit Trading brochure.
- Complete a second mailing to MN point sources.
- Begin planning workshop for point sources in Minnesota for summer 2010.
- Plan/hold annual advisory meeting.
- Publish BMP CHALLENGE email newsletter edition, circulate to approximately 8,400 contacts.
- Continue to interact with Minnesota state agencies and other interested parties on water quality credit trading rule development, and pursue additional funding to meet our match requirement.
- Present webinar to NRCS staff on foregone income.

The one year no-cost extension will allow us to collect, analyze and report results from the 2009 growing season, including harvest and net returns assessments from the 2009 harvest, and recruit additional participants for the 2010 season.

This project is funded by USDA NRCS with matching funds from the Minnesota River Board and Kieser & Associates for Minnesota activities, Bush Foundation for trading development in Minnesota and PA DEP for activities in Pennsylvania.

Summary status, key deliverables to date:

- | a) Proposed  | b) Achieved to date  |
|--|--|
| 1. 24 full-day seminars w/75 participants each, attendance lists, agendas. 1800 participants total.  | 1. 39 meetings and conferences held with 1,541 participants to date.   |
| 2. Offer BMP CHALLENGE for nutrient management and conservation tillage in 13 states.  | 2. With approval of NRCS, added three new states to the project (MO, ID, CA) bringing the total to 18 states.  |
| 3. Training plan, six trained individuals (three in PA, three in MN) to deliver seminars.  | 3. Training plan created, 4 individuals in Minnesota have qualified as trainers, one still active.   |
| 4. 150,000 brochures produced and distributed; 2-3000 farmer inquiries generated to state agencies, crop advisors, and watershed groups.   | 4. 60,000 BMP CHALLENGE brochures were printed with approx. 50,100 distributed to date.  |
| 5. 20 point-sources prepared to trade, list of trades completed, guarantees implemented, acres, practices, estimated resource improvements.  | 5. Keiser & Associates have identified and contacted ethanol plants in the MN River watershed, which are willing to use the point-point trading permit system, but are not committed to using the more desirable point-nonpoint trading system. The 2008 CIG was funded for work in the Minnesota River Basin. Protocols and estimation tools awaiting TMDL approvals. (2010-2011) |
| 6. 12 quarterly and one final progress reports; three annual advisory meetings by conference call and three in person.   | 6. 12 quarterly reports and two annual conference calls completed. Two in person meetings completed in March 2007 at Owatonna, MN, and March 2008 at St. Paul, MN.   |
| 7. Reductions of 760,000 lbs. of N use, 40,000 lbs. of P loading; 30,000 tons of sediment loading, 25,000 lbs. NO <sub>2</sub> and 5000 tons CO <sub>2</sub> greenhouse gases from nutrient management, conservation tillage, ditch management and other practices on approx. 34,000 acres in the Minnesota, Susquehanna and Potomac River Watersheds. | 7. Reductions of 311,916 lbs N use, 3,401 lbs. P loading; 2,550 tons sediment loading and 850 tons CO <sub>2</sub> greenhouse gases over approximately 10,876 acres.   |

Key reasons for variance from proposed deliverables:

1. Proposed work in Pennsylvania was not fully funded, reducing activities and acres in that state.
2. Continued delays in promulgation of trading rules in Minnesota have delayed related objectives in Minnesota.
3. Increase in corn prices from \$2.20 per bushel in 2006 to \$4.75 in 2008 and \$4.00 in 2009 resulted in higher costs per acre, reducing total number of acres accordingly.
4. We did not dedicate funding in our original budget to support/obligate trainers, making it difficult to retain trainers.

**I. Deliverables Update - Detail**

<p>1. WQ trading and BMP CHALLENGE curriculum delivered to MN state agency, conservation districts, crop advisors and others to equip them to offer these opportunities to their producer clientele.</p>	<p>a. Calendar of industry and extension meetings has been created and continually modified with contact information for meeting organizers.</p> <p>b. BMP CHALLENGE and WQCT meetings and conferences, 1,541 participants to date:            -March 21, 2009, New Ulm, MN, 60 participants;            -September 2008-March 2009, MN River and Cannon River Basin, MN, 40 participants;            -March 5, 2009, Columbus, NE, 38 participants;            -March 4, 2009, Wisner, NE, 48 participants;            -February 23, 2009, New Lenox, IL, 38 participants;            - February 18, 2009, Harrisburg, PA, 16 participants;            -February 16, 2009, Harrisburg PA, 10 participants;            -February 11, 2009, Saint Louis, MO, 48 participants;            -January 2009, Albuquerque, NM, 40 participants;            -December 9, 2008, Duluth, MN, 30 participants;            -December 8, 2008, St. Paul, MN, 98 participants;            - August 5, 2008, Saint Cloud, MN, 23 participants;            - July 29, 2008, Tucson, AZ, 50 participants;            -April 16, 2008, Redwing MN, 148 participants;            - April 1, 2008, Sauk Center, MN, 15 participants;            -March 31, 2008, Faribault, MN, 28 participants;            -March 28, 2008, Emmetsburg, IA, 48 participants;            -March 24, 2008, Fairmont, MN, 30 participants            -March 14, 2008, Marion, IA, 40 participants;            -March 3, 2008, Napoleon, OH, 23 participants;            -February 27, 2008, St. Paul, MN, 78 participants;            -January 14, 2008, Sidney, OH, 60 participants;            -January 10, 2008, Redwood Falls, MN, 35 participants;            -January 7, 2008, Cannon Falls, MN, 28 participants;            -December 18, 2007, Alexandria, MN, 26 participants;            -November 26, 2007, Owatonna, MN, 16 participants;            - August 30, 2007, New Haven, IN, 30 participants;            -August 17, 2007, Huron County, OH, 48 participants;            -August 10, 2007, Crawford County, OH, 48 participants;            -July 27, 2007, Toledo, OH, 28 participants;            -March 29, 2007, Shelbyville, MI, 7 participants;            -January 11, 2007, New Ulm, MN, 42 participants;            -2007, Rochester, MN, 38 participants;            -December 7, 2006, Harrisburg, PA, 18 participants;            -December 2006, Madison WI, 50 participants;            -September 27, 2006, Lancaster County, PA, 28 participants;            -September 15, 2006, Stark County, OH, 20 participants;            -September 11, 2006, Cross Plains WI, 50 participants;            -August 24, 2006, Champaign County, OH, 20 participants</p> <p>c. Tom Green, Brian Brandt and Maggie Westaby updated the BMP CHALLENGE brochure and composed a cover letter directed towards agricultural professionals. Brochures were circulated to 10,499 contacts between December 2008 and January 2009.</p>
<p>2. Support package of existing tools for trainers, subset to be used as handout for seminars and available online.</p>	<p>a. Trainer curriculum and support materials package currently includes 2009 BMP CHALLENGE enrollment and implementation forms, presentation PowerPoint files and print-outs, curriculum outline with notes, water quality trading references, BMP CHALLENGE FAQ sheets and additional BMP information (i.e. alternative credit generating BMPs and management information). These materials were reviewed at a MN Trainer meeting in November 2007.</p> <p>b. Website updated regularly, with current documents and information. Recent updates include the addition of a webpage dedicated to the</p>

	<p>California BMP CHALLENGE and the addition of the 2009 forms for the Nutrient, Reduced Tillage and the California Reduced Tillage CHALLENGE.</p>
<p>3. Preparing three MN public agency/NGO trainers to train others on BMP CHALLENGE and WQ credit trading.</p>	<p>a. Three trainers have been identified for Minnesota:  Shannon Fisher, MN River Board and Water Resources Center  Ed Hohenstein, Seven Mile Creek Watershed Project  - Russ Derickson, MN Dept of Agriculture  In addition to these three, a number of other collaborators including several professionals on our advisory committee are gaining competency in addressing water quality trading and the BMP CHALLENGE with others.</p> <p>b. Upcoming summer Minnesota meetings:  - Work is being done to obtain invitations to present at existing meetings.  - One or two dedicated workshops may be planned for the summer of 2009.</p>
<p>4. Inventory of potential point and non-point source traders, trades, values, credits, rates, forms, implementation and verification procedures.</p>	<p>The draft MN State rules for water quality trading are now available.</p>
<p>5. 95,000 brochures, 1,000-1,500 farmer inquiries generated to state agencies, crop advisors, watershed groups on BMP CHALLENGE and WQ credit trading. Approximately 50 inquiries have been made from agricultural professionals since the Dec 08/Jan 09 mailing.</p>	<p>a. 60,000 BMP CHALLENGE brochures were printed with approx. 50,100 distributed to date.</p> <p>b. Mailing of 1,650 brochures to 22 agricultural professionals regarding their request to promote the CHALLENGE since recruitment mailing of December 2008 and January 2009.</p> <p>c. Mailing of 150 brochures to Chippewa Valley Technical College in Eau Claire, WI regarding their request to use the brochure as part of their curriculum in a Land Management Course starting fall of 2009.</p> <p>d. Per the 2008 Outreach plan, a brochure and electronic newsletter schedule with designated dates of dispersal and topic outlines has been developed. Potential future E-newsletter topics include: Update on the Farm Bill, EPA Non-point Source Outreach Toolbox, implications of the EPA CO<sub>2</sub> regulation mandate for BMP CHALLENGE, a highlight on a main contact for a particular region, fall applications/tillage info, and updates on upcoming workshops, enrollment procedures, etc.</p> <p>e. Electronic newsletter mailing: March E-news, April 15, 2008 to 5240 contacts; Iowa BMP CHALLENGE workshop, February 28, 2008 to 1702 contacts; Redwood Falls Workshop Announcement, January 3, 2008 to 814 contacts; BMP CHALLENGE- Owatonna Workshop, November 13, 2007 to 975 contacts; MN BMP CHALLENGE/WQT Workshops-Owatonna, October 10, 2007 to 817 contacts; Owatonna Workshop "Save the Date" September 26, 2007 to 820 contacts; BMP CHALLENGE July 27, 2007, August 7, 2007 to 2451 contacts and August 27, 2007 to an additional 1670 contacts; April BMP CHALLENGE Update, April 20, 2007 to 2438 contacts; November BMP CHALLENGE Update, November 15, 2006 to 943 contacts; August BMP Performance Guarantee Update, August 8, 2006 to 832 contacts; Resend of August BMP Performance Guarantee Update, August 9, 2006 to 11 contacts; BMP Performance Guarantee Update, November 29, 2005 to 340 contacts.</p>

<p>6. Ten point sources in MN prepared to trade, list of trades completed, acres, practices, credits, estimated resource improvements.</p>	<ul style="list-style-type: none"> <li>a. Keiser &amp; Associates have contacted and identified ethanol plants in the MN River watershed, which are currently willing to use the point-point trading permit system, but are not at this time committed to using the more desirable point-nonpoint trading system. One identified gap from these contacts is the lack of time necessary for managers of facilities to undertake trading. A method to facilitate trading for individuals with limited time resources to complete the buyer and seller connections and the bureaucratic permit complexities is desired.</li> <li>b. The new 2008 CIG was funded to work with several watersheds to implement trades in the Sauk River watershed and throughout the Minnesota River Basin when the Lake Pepin and Sauk River Chain of Lakes TMDLs are issued. Establishment of protocols and estimation tools for six eight digit HUC watersheds is underway and awaiting TMDL approvals delayed until 2010-2011</li> <li>c. James Klang PE, and Brian Brandt have released a white-paper to help clarify how point and non-point perspectives view trading by interviewing potential buyers and sellers. The white paper was released in May 2008.</li> <li>d. Educational efforts have initiated conversations with numerous water quality trading participants. The project provided representation on the Citizens Advisory Committee for the MPCA draft of the Water Quality Trading Rules.</li> </ul>
<p>7. Inventory of BMP CHALLENGE guarantees implemented, acres, practices, improvements.</p>	<ul style="list-style-type: none"> <li>a. Nutrient BMP guarantees have been implemented on approximately 100 farmer fields, resulting in an average 22.5% reduction in nitrogen fertilizer use.</li> <li>b. Reduced tillage was implemented in 2006 and since then 39 fields have been enrolled.</li> <li>c. With the goal of expanding the Planned Nitrogen Reduction option, which, refers to an additional 15% reduction in BMP rates for nitrogen fertilizer use. In 2008 960 acres were enrolled and approximately 2500 acres in 2009.</li> <li>d. All results are recorded in a database.</li> <li>e. From 2000-2008, 4517.94 acres, 1700.50 acres and 4659.95 acres were enrolled in the Nutrient BMP, Reduced Tillage BMP and Planned Nitrogen Reduction BMP respectively.</li> </ul>
<p>8. Reductions of 760K lbs of N use, 40K lbs. P loading; 30K tons sediment loading; 25 K lbs. NO<sub>2</sub>; 5K tons CO<sub>2</sub> from nutrient and tillage reduction on approximately 34K acres in MN and PA.</p>	<ul style="list-style-type: none"> <li>a. See tracking, attached.</li> </ul>

<p>9. Funding development including \$759,464 in matching non-federal funding, \$170,500 in program income and \$944,400 in-kind. Additional funding for program expansion.</p>	<p>a. Funding obtained during performance period, total \$1,998,000:</p> <ul style="list-style-type: none"> <li>- 2006 Conservation Innovation Grant to Agflex, NRCS, \$683,000</li> <li>- 2007 Bush Foundation Grant to AFT, \$75,000</li> <li>- 2007 Pennsylvania Dept. of Environmental Protection (to IPM Institute, \$225,000</li> <li>- 2007 Pennsylvania State Conservation Commission to IPM Institute, \$20,000</li> <li>- 2007 Chesapeake Bay Commission to IPM Institute, \$25,000</li> <li>- 2008 Pennsylvania Dept. of Environmental Protection to IPM Institute, \$50,000</li> <li>- 2008 Bush Foundation Grant to AFT, \$270,000</li> <li>- 2008 Conservation Innovation Grant to AFT, \$650,000</li> <li>- 2008 Conservation Innovation Grant to Minnesota River Board, \$999,993.60.</li> <li>- 2009 Conservation Innovation Grant to Agflex, \$930,703</li> </ul>
<p>10. Quarterly and final progress reports including conference call and advisory meeting minutes.</p>	<p>a. Advisory conference calls and meetings scheduled for Dec, Jan and Mar through Aug 2009, including one in-person meeting per year.</p> <p>b. BMP CHALLENGE Project team (Brandt, Green, Anderson, and contractors) meets at least twice monthly by conference call to manage BMP CHALLENGE acreage recruitment and implementation.</p> <p>c. MN BMP CHALLENGE and WQ Credit Trading team (Fisher, Green, Kieser &amp; Associates, and Anderson) meets monthly by conference call, second Thursday of each month at 8:30am CST. Advisors welcome to participate. Call agenda and post-call notes circulated to project team and advisors.</p>
<p>11. Other</p>	<p>a. California expansion is in progress. Eligibility has been officially approved. Enrollment for 2009 is 7 farmers with over 540 acres for 2009.</p>

## II. Results Table

2000-2008 RESULTS	Nutrient BMP	Reduced Tillage	Planned Nitrogen Reduction
Total acres, 2000-2008	4,517 acres	1,700 acres	4,659 acres
BMP yield, average and range	159.2 bu/acre 59 - 220	156.78bu/acre 72-233	148.58 bu/acre 55-217
Check-strip yield, average and range	166.3 bu/acre 49-230	166.93 bu/acre 110-227	158.7 bu/acre 63-238
Farmer net returns after fertilizer or tillage savings	(\$6.43) (\$89) - \$81	(15.34) (\$156) - \$130	(\$22.90) (\$141) - \$105
Total N use reduction	187,677.4 lbs N	-	124,239 lbs N
Estimated sediment reduction	-	2,550.75 tons	-
Estimated P load reduction	-	3,401 lbs	-
Estimated N <sub>2</sub> O reduction	3539.06 lbs	-	2342.80 lbs
Estimated CO <sub>2</sub> reduction		850.25 tons	

## II. Project Team, Advisors and Trainers – As of 09/09/2009

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Participation is invited on monthly conference calls and requested for quarterly conference calls and one in-person meetings per year. Role includes reviewing plans and progress, responding to requests for information/assistance from project team.

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## **Trainers**

Three Minnesota or NGO professionals who will be trained to offer the BMP CHALLENGE and WQ Credit Trading curriculum developed as part of this project. Goal is to identify individuals whose current role would be enhanced by this capacity.

### **Current Trainers**

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### **III. Project Summary from Original Proposal to NRCS CIG**

Our project will build capacity by creating broad awareness and teaching in-state personnel to support CD, crop advisory professionals and others who work with farmers to meet conservation goals using new, innovative strategies. We will highlight, teach and implement BMP performance guarantees for corn farmers reducing both nutrient use and tillage in DE, IA, IL, IN, MD, MI, MN, NC, NE, OH, PA, VA, WI and point-nonpoint water quality credit trading in MN and PA.

BMP performance guarantees will focus on 51 million acres of corn in these 13 states. Our *BMP Challenge* has delivered a 24% nutrient use reduction in seven states over the past four years. We provide a financial safety net for farmers who reduce nutrient and sediment pollution using practices developed and recommended by land-grant scientists and state agencies. These practices save farmers money over time, but in any one year may result in lower yields and income. The program uses a side-by-side comparison in the farmer's field of his or her conventional practice on a "check" strip vs. reduced nutrient or tillage practice on the balance of the field. We compensate the farmer if net income declines as a result. Our 2005 survey indicates that 42% of corn farmers would try these new practices if guarantees were available.

Water quality credit trading is a new opportunity in the Susquehanna and Potomac River Watersheds in PA and the Minnesota River Watershed in MN. Point sources such as wastewater treatment facilities have greatly reduced nutrient emissions over the past 30 years and face very high costs for incremental gains. These funds can be more efficiently invested in improvements by farmers. Adequate controls are needed to ensure water quality goals are met. Accurate and effective education, training and technical support are needed to implement trading effectively.

Our experienced and nationally recognized team will work with state agencies and others to develop and implement a training curriculum, support tools and outreach for these innovative approaches, and work with conservation districts, crop consultants and other key influencers to equip them to competently offer and manage these opportunities with their client farmers. Support tools will include both new and existing materials and trained in-state technical support to help these professionals efficiently identify the best opportunities, calculate economic benefits to farmers and estimate water quality improvements, and verify and report implementation of conservation practices. Outreach will focus on CDs, crop consultants, Extension, agricultural organizations and other key influencers to drive farmer interest and inquiries to trained CD staff and crop consultants.

We will ease farmer recruiting to trading using our proven model of enlisting crop consultants, Extension and CD staff as recruiters, on-site BMP overseers and/or third-party verifiers for our guarantee program; assure farmers with yield/income guarantees so that they can put a comfortable value on their participation in trades, e.g., farmers are reluctant to trade nutrient use reductions for cash because they can't predict the yield impacts; verify/document credit production by farmers and so provide point-sources/regulators with the assurance they need; discover and institutionalize locally-acceptable credit estimation tools to provide certainty for participants; track multiple environmental benefits/environmental services; aggregate credits from multiple farmers to create a reserve pool such that if any one farmer cannot deliver promised credits for any reason, other credits are available to fill in; and offer this model as a turn key service solution to trading projects in other states as they begin to get ready for trading.