

THE WILLIAM D. RUCKELSHAUS CENTER

Ag Pilots Project

Final Report

October 2009



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for the

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THE WILLIAM D. RUCKELSHAUS CENTER

UNIVERSITY OF WASHINGTON

October 28, 2009

The Ag Pilots Project relied on a great number of people for its success. First and foremost were the Pilot participants who were willing to try something innovative and potentially somewhat financially risky. These people are listed in the write-up for the individual pilot within this report. For their time, work and willingness to allow us to evaluate their efforts, the Center is very grateful.

The Oversight Committee was the driving force behind the Ag Pilot Project. Members of committee (listed on page 5) provided substantial knowledge, “good offices” and time to help the Center develop, implement and test the viability of an Ag Pilots Program. Without their involvement, the Ag Pilot Project would not have been as innovative or as well received in the agricultural and environmental communities.

A good number of WSU and UW faculty/staff substantially contributed to the Ag Pilot Project. These include David Granatstein, Chris Feise, Dan Carlson and Branden Born. The Center would also like to thank William Budd for overseeing the Project evaluation activities and Ralph Cavalieri for assisting project staff in finding out-of-state reviewers. A special thanks to Jennifer Jansen and Esther Tate at WSU for helping us master the intricacies of a “re-granting” program and to Karla Heinitz at the Conservation Commission for helping us get the money to the people doing the work.

Without the support of the Washington Legislature, the Governor and a number of state agency colleagues this project would not have taken place. The Center would especially like to thank John Mankowski and Keith Phillips for their belief in this project.

One of the more challenging aspects of this project was the development of the monitoring and evaluation regime for the pilots. The following people participated in a focus group to help us finalize our approach:

Andrea Copping, Bruce Crawford, Dave Hedlin, John Hollowed, Ty Meyer, Maurice Robinette, Jan Seago, Ann Seiter, Evan Sheffels, Carol Smith, Ashley Steele, Rod Hamilton, Larry Wasserman.

Kara Whitman was our pilot evaluator and primary author of the Center’s final report. Without her efforts, this project could not have been completed. She gave more of her talents and time than we paid for. Her dedication is greatly appreciated.

Lastly, a number of Center staff and interns were part of the Ag Pilot Project. These include the following:

Debra Akhbari, Kelly Bidlingmaier, Jon Brock, Maggie Buckley (formerly Brothers), Gwendy Campbell, Angela Day, Mike Gaffney, Brigitta Jozefowski, Rob McDaniel, Cheryl Rajcich, Dan Siemann, Andrea Sternberg.

To the staff, I would like to say, well done.

A handwritten signature in black ink that reads "Bill". The signature is written in a cursive, flowing style with a large initial 'B' and a trailing flourish.

Bill Ruckelshaus
Chair, Advisory Board

Introduction

The Ag Pilots Project was based on the primary thesis that agricultural producers can best provide environmental benefits when their economic prospects are concurrently enhanced. The dual goals of the Ag Pilots Project were to promote innovative ways to “enhance farm income” while at the same time “improve natural resource protection.” The Project also sought to build bridges among the agriculture and environmental communities.

The Ag Pilots Project drew upon the practical problem solving skills, imagination, commitment, and collaborative capabilities of Washington State agricultural producers, members of the environmental community and others. Furthermore, the Project utilized well established agricultural and environmental research in order to help translate innovative ideas into reality by evaluating their feasibility, effectiveness and potential for dissemination.

In the 2007, the Governor and Legislature allocated \$500,000 to The William D. Ruckelshaus Center (the Center) for a proof of concept phase for the Ag Pilots Project. The funding was used to implement and evaluate four pilots that best demonstrated the dual goals of the Project.

Purpose of Final Report

The purpose of this report is to provide a final update and summative evaluation of the Ag Pilots Project. The report includes:

- an overview of the Ag Pilots Project;
- evaluation of the Ag Pilots Project and recommendations for a future *Ag Pilots Program*;
- final summaries of each pilot

This report meets the requirement of the interagency agreement between the Washington State Office of Financial Management (OFM) and The William D. Ruckelshaus Center. Copies of the Project’s interim reports (August 2008, December 2008, and April 2009), and a number of supporting materials for this report are available on the William D. Ruckelshaus Center website. <http://ruckelshauscenter.wsu.edu/projects/app.html>.

The Ag Pilots Project: conception to implementation

At the request of the Governor’s Office and with the support of the legislature, the Center developed the Ag Pilots Project to encourage innovative demonstration of on-the-ground activities that promote a vital agricultural economy as well as produce benefits for the environment. The Project’s design was based on consultations with agricultural, environmental, tribal and community leaders.

*“When we started this project, I don’t think we had a real concept of how new and fresh the proposals would be, or how many would be submitted.”
Deborah Moore, member of the oversight committee.*

In September 2006, pilot pre-proposals were solicited from Washington’s State agricultural and environmental communities. An astonishing eighty-nine pre-proposals were received within the following month. The Ag Pilots Project Oversight Committee reduced the number of pre-proposals down to 25 based on specified criteria and pilot innovation (the pilot selection criteria can be found on the Center’s website at: <http://ruckelshauscenter.wsu.edu/projects/documents/AgPilotProjectCriteria.pdf>).

The Center then convened a review committee comprised of Washington State University and University of Washington faculty who then reviewed the 25 proposal for their scientific soundness, technical feasibility, and potential for high impact. Those pilots that met the criteria were then asked to submit a full proposal to establish each pilot’s readiness for implementation. As part of the final selection process, Center staff worked with out-of-state proposal reviewers who specialize in the subject area of each pilot. The out-of-state reviewers assessed feasibility and applicability of each pilot. In 2007, the Center funded 4 pilots from the \$500,000 allocated by the Washington State Legislature. (A timeline for the Ag Pilot Project is found below in Table 1)

The four selected pilots were: *Farming for Wildlife*; a pilot that seeks to support wildlife and agriculture in the Skagit Delta through a voluntary, science based, conservation strategy that includes creating farmland habitat for shorebirds; *Transition of Insect Pest Management to New Pest Control Technology*, a pilot that seeks to enhance understanding and encourage the wider adoption of environmentally friendly integrated pest management strategies while maintaining acceptable crop protection and profitability, and increasing worker safety; *Beefing up the Palouse: An Alternative to the Conservation Reserve Program (CRP)*, a pilot that seeks to test the feasibility and replicability of converting land coming out of the Conservation Reserve Program (CRP) into a vertically integrated grass-fed beef production system; and *Direct Seed Mentor*, a pilot that seeks to increase the use of direct seeding methods in Spokane County through the use of mentors and side-by-side on-farm demonstrations.

Ag Pilots Project Timeline

Table 1 Ag Pilots Timeline

| Date | Activity |
|-----------------------------|---|
| 2005 | Ag Pilots Project feasibility assessment began at the request of Governor Gregoire |
| January 2006 | Assessment report produced by the William D. Ruckelshaus Center |
| August 2006 | Ag Pilots Project Report: Guidelines for Implementation produced by William D. Ruckelshaus Center |
| September 2006 | Call for pre-proposals |
| October 2006 | 89 pre-proposals received |
| April 2007 | WSU/UW Faculty perform Feasibility Review |
| June 2007 | Oversight Committee request full proposals from 6 pilots |
| Early September 2007 | Out of state reviews of full proposals takes place |
| Late-September 2007 | Oversight Committee selects 4 pilots to be funded |

| | |
|--------------------------------------|--|
| October 2007 | Selected pilots notified |
| May 2008 | Contracts signed with OFM |
| August 2008 | First Interim Report completed (http://ruckelshauscenter.wsu.edu/projects/documents/AgPilotsInterimReport-August2008.pdf) |
| December 2008 | Second Interim Report completed (http://ruckelshauscenter.wsu.edu/projects/documents/AgPilotsInterimReportDecember2008.pdf) |
| April 2009 | Third Interim Report completed (http://ruckelshauscenter.wsu.edu/projects/documents/AgPilotsInterimReportApril2009.pdf) |
| June 2009 | Oversight Committee meeting in Seattle, including presentations and discussions with each pilot team |
| October 31st, 2009 | Final Ag Pilots Project Report submitted |

Assessment of the Overall Merits and Challenges

The Ag Pilots Project was innovative and unique in its evolution from concept to implementation, as well as in the pilots ultimately chosen for funding. The Project was developed from consultations with nearly 200 agricultural, environmental, tribal and community leaders. The Oversight Committee (OC) composed of diverse, knowledgeable, and respected individuals connected to the agricultural and environmental communities in the state of Washington were instrumental to the success of the Project (Table 2 provides a list of OC membership). The OC served as a neutral and balanced body whose purpose was to select the pilots, guide the overall evaluation and report on the Ag Pilots Project. The OC members encouraged Center staff to undertake the Ag Pilots Project in way that met the dual goals of the Project while spurring innovative pilots that held promise for wider dissemination and large scale impact.

Table 2 Oversight Committee Members

| |
|---|
| Deborah Moore , Committee Chair - (past) Grant County Commissioner |
| Ed Adams – WSU Spokane County Extension |
| George Boggs – Whatcom Conservation District |
| Fred Colvin – Washington Association of Conservation Districts |
| Andrea Copping – Pacific Northwest National Laboratory |
| Jay Gordon – Washington State Dairy Federation |
| Heather Hansen – Washington Friends of Farms and Forests |
| Bud Hover – Okanagan County Commissioner |
| Jim McFerson – Washington Tree Fruit Research Commission |
| Betty Sue Morris – (former) Clark County Commissioner |
| Mike Petersen – The Lands Council |
| Joe Ryan – Washington Environmental Council |
| Don Stuart – American Farmland Trust |
| David Troutt – Nisqually River Council, Nisqually River Tribe |
| Bob Whitener – Island Enterprises |

The Project was conceived as a “proof of concept” activity, wherein the following could be evaluated. Whether:

1. There was a demand for this type of program; a granting program that encourages producers to test innovative ideas.
2. A grant program could be developed that elicited proposals that combine the dual goals of Ag pilots; increasing farm profitability while enhancing environmental stewardship of the land (i.e. anything that has a positive and measureable environmental impact).
3. Through the grants, bridges could be built among the agricultural, environmental and other stakeholder groups.
4. Due to the funding available through the Ag Pilots Project, pilots could be solicited from the agricultural community that would allow them to take more risks and think more “outside the box.”

Four other important criteria were used to guide the evaluation of both the Ag Pilots Project and each individual pilot. These include: the assessment of agricultural and environmental benefits, new and/or strengthened working relationships and forums, and pilot innovation and sustainability.

Evaluation of the Project is comprised of a *Summative* evaluation of the efficacy of an ongoing “*Ag Pilots Program*” and a *Formative* evaluation of process and the existing Ag Pilots.¹ The Center’s evaluators have concluded that “ultimately the Ag Pilots Project has been a successful investment because”:

- The Project has shown that there is a demand for this type of program, as seen by the large number of pre-proposals received (89) in fall of 2006.
- Although only 4 pilots were funded, 6 of the 89 pre-proposals were selected to submit full proposals for review, all of which displayed the dual goals of the Ag Pilots Project. It is clear that if the program were to continue, there are many projects yet to be explored with the potential to meet these dual goals.
- All of the pilot teams have received, applied for, or are currently looking for more funds to continue with their activities, showing that the Project has been successful at “jump starting” innovative projects and helping them leverage funds from other sources that might otherwise have been unavailable to them. All of the pilot teams feel that more funding is needed to ensure that all benefits and

¹ Both formative and summative evaluation approaches were used by the evaluators. As outlined by William M.K. Trochim, a formative evaluation’s main purpose is to enhance or “strengthen” a program by evaluating process and procedures. Trochim goes on to explain that summative evaluations look at the outcomes of the program or project(s).

2006, William M.K. Trochim <http://www.socialresearchmethods.net/kb/intreval.htm>

outcomes, particularly concerning the environment and long term sustainability, can be determined and understood and that the methods and results are properly distributed to the larger agricultural and environmental communities.

- Despite the fact that none of the pilots have had the necessary time to demonstrate success;
 - preliminary pilot profitability data and analysis show the potential enhance agricultural profit in the State of Washington
 - it is apparent that environmental concerns are being addressed, and that the expected long term outcomes of each of these pilots will increase sustainability.
- While newer relationships built during the duration of the pilots still are maturing, the Ag Pilots Project has been successful at providing the opportunity to establish these relationships; providing a forum for the exchange of ideas and the sharing and dissemination of information; and strengthening already existing relationships which have helped create the momentum to continue working together.

“The Ag Pilots project has enabled the apple sector to “take the plunge” and work to create a broad-based collaborative for sustainable apple production” (Nadine Lehrer, PMTP).

Furthermore, discussions with and surveys of pilot leaders, affiliated partners, and others indicate that the Ag Pilots Project has made positive contributions to the agricultural and environmental arenas in Washington State. Participants indicated that leadership within *the pilots was very good and improved as the pilots progressed. They also indicated that all pilots made progress in building momentum and stronger relationships, and suggested that collaboration would continue after the pilot was finished.*

“I would hope the Ag Pilots program will be able to continue. I feel it is visionary in concept and has the potential to create sustainability and move agriculture to a level not achieved before.” (anonymous comment from Ag Pilots surveys).

The Ag Pilots Project was not without its challenges. Issues in the contracting phase of the Ag Pilots Project resulted in the pilots getting a late start, and in one case resulted in the loss of some of their FY08 funding. Ultimately, the pilots lost an entire growing season because of this problem and consequently none of the initial Ag Pilots have come to the end of their efforts. This being the case, the Oversight Committee and Center evaluators will not, at of the time of this report, declare any of the pilots to be a complete successes. At the same time, both

the Oversight Committee members and Ruckelshaus Center project evaluators have concluded that:

- the initial pilots have shown sufficient progress toward success to warrant saying an *Ag Pilots Program* definitely can work
- the agricultural community in conjunction with environmental partners and other local stakeholders can propose and carry out projects on the ground that meet the dual goals of adding to the producer’s bottom-line while providing environmental benefits

- Ag Pilots funding can help these innovative projects secure further funding from other sources.

Recommendations and Moving Forward

The Oversight Committee and Center evaluators recommend a fully funded, ongoing *Ag Pilots Program*. It is the Center's recommendation the grants program is placed with a State funded entity that has the mission, capacity and willingness to do the following:

- Initiate a new program that embodies the elements and spirit of the Ag Pilots Project as outlined in this report
- maintains the dual program goals of farm profitability and environmental benefits
- relies on the guidance of an oversight committee of stakeholders
- provides technical assistance to the pilots
- funds pilots that are close to the cutting edge that have the potential for high impact and transportability to other places in the state. Pilots should demonstrate a willingness to take big risks that have the potential for big rewards.

Both the Washington State Conservation Commission and Washington State University have stated their interest in managing an *Ag Pilots Program* that is adequately funded. At Washington State University the program would be jointly supported by the College of Agriculture, Human and Natural Resource Sciences and WSU Extension.

It is important to remember the Ag Pilots Project was a “proof of concept” endeavor. As such a number of theses were confirmed and of “lessons learned.” These form the basis for following “process” recommendations for an ongoing *Ag Pilots Program*.

- Maintain an Oversight Committee for the pilot selection process and program oversight, for all the reasons enumerated in this report.
- Set-up a roster of out-of-state reviewers. In many cases the pilot teams include faculty or staff from Washington State University and/or Conservation Districts. Out-of-state reviewers with relevant expertise will add to a critical review of proposals.
- Provide proposal writing consultation to finalists selected to submit full-proposals. A lack of prior grant writing experience should not result in an applicant being placed at a disadvantage.
- Assure a robust level of technical assistance to the pilots. This will strengthen internal evaluations. The technical assistance needs to include support of the pilots' efforts to evaluate positive environmental impacts and economic contributions to the agricultural producer.
- Designate a liaison between pilot teams and the managing State Agency. This will foster problem-solving as contract, implementation or evaluation issues arise.
- Establish a funding approach that allows for expenditures across OFM/legislative demarcations, and design a process that allows for smooth access to funding.

- Ensure an adequate timeline for pilots to gather and analyze pertinent data related to their proposed goals and expected outcomes. It is most evident that few pilots can reach the dual goals of the program in a single year.
- Provide multiple venues for the interaction of pilots with each other, and with the agricultural, environmental, and political communities within the state of Washington. This will help disseminate new knowledge, skills and information learned during the pilot as well as to help foster positive working relationships among these communities.

In closing this section, Center staff and project evaluators would like to thank all of the people that helped in conception, implementation and evaluation of the Ag Pilots Project. Without their hard work, wise counsel and patience the Project would never have been completed. Please see the Acknowledgement page for those involved.

The Pilots: executive summaries

The Center was responsible for the evaluation of the pilots and an overall assessment of the value of the Ag Pilots Project. To meet these responsibilities, the Center employed Kara Whitman as a research assistant under the direction of Dr. William Budd.

Each pilot proposal was required to put forward an evaluation approach. The proposed evaluation methods were reviewed by Center staff and technical experts for appropriateness and feasibility as part of the pilot selection process. While these evaluations have helped measure the preliminary success of each individual pilot towards meeting their own goals, further evaluation was needed to discern the success of the Ag Pilots Project as a whole and to make recommendations on the potential future of the program (for more information on overall program evaluation see report section on assessment and recommendations). The following are summaries adapted from full final reports submitted by each pilot. Summaries address the pilot progress and outcomes relating to their proposed goals, as well as progress and outcomes relating to the Ag Pilots Project goals of profitable livelihoods, long term sustainability, and the building of relationships and forums between the agricultural and environmental communities.

It is important to note that the funding time allotted for these Pilot was quite short, limiting the amount of conclusive data that could be collected to measure success towards longer term goals. While a few of the pilots have completed their studies within the scope of the Ag Pilot project, some pilot activities have not been completed. All pilots have either developed new questions or are still looking at implementation and outcomes from their studies. All the pilots have received or are looking for further funding from other sources.

To read the individual pilots' concluding reports in their entirety, please go to The William D. Ruckelshaus Center website at:
<http://ruckelshauscenter.wsu.edu/projects/app.html>.

Farming for Wildlife Pilot, Skagit Delta: The Nature Conservancy

Pilot Lead: Julie Morse

The Nature Conservancy of Washington

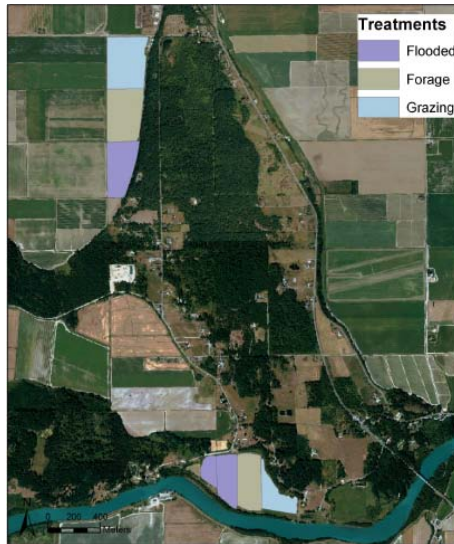


Overview of Pilot

The Skagit River Delta serves as critical habitat for a myriad of wildlife species, including migratory shorebirds and anadromous fish. It is recognized as one of the key Pacific Flyway stopover and wintering sites for migratory shorebirds. The Skagit Delta and Port Susan Bay region provides foraging and staging habitat for over 100,000 shorebirds annually, making it the 8th ranked shorebird site on the west coast. Of the approximately 30 shorebird species regularly seen on the Skagit Delta, 14 are species of conservation concern.

Skagit Delta soils are classified as some of the most unique and productive in the world and contribute significantly to the global food supply. Half of the world's beet and cabbage seed, and 75% the world's spinach seed are grown in the valley. Skagit farmers grow more than 80 other crops of commercial significance. Maintaining high quality soils is critically important for farmers, yet is difficult to achieve when also trying to maximize agricultural production. New agricultural practices are needed that can increase soil nutrients, restore organic matter to the soil, and decrease soil pathogen loads.

The Farming for Wildlife (FfW) Pilot is testing the novel concept of creating habitat for shorebirds on working farms by implementing "habitat rotations". The primary goal of this pilot is to determine whether certain crop rotation practices may benefit soils and farmers while also providing temporary wetland habitat for shorebirds and other wetland dependent species. Experimental treatments (flooding, forage, and grazing) have been implemented on over 200 acres at three privately owned farms in the Skagit Delta: the Hedlin Farm, the Mesman Farm, and the Thulen Farm.



Map of Farming practice treatments on the Hedlin and Mesman farms (left) and Thulen farm (right)

Farming for Wildlife pilot goals and objectives are multi-dimensional, ranging from local ecological outcomes to the development of conservation strategies that influence national conservation programs.

The long term goals of the Farming for Wildlife pilot are:

1. Complete the pilot on three Skagit Delta farms investigating the effect of habitat rotations on shorebirds, invertebrates, vegetation, and soil characteristics.
2. Assess the economic impact and feasibility of habitat rotations.
3. Assess the disease and pest control potential of saturated soils.
4. Expand and link existing shorebird population monitoring and habitat use studies to the pilot in order to determine the ecological relevance of the FfW Program at the landscape scale.
5. Develop a Shorebird Conservation Plan for working landscapes on the Skagit and Stillaguamish river deltas which includes recommendations for broad scale implementation.
6. Develop communication and marketing materials to disseminate findings to experts in the Pacific Flyway and guide implementation locally and globally.

The Ag pilot funding was intended for the following:

1. Completing the economic feasibility study and enterprise business plans for habitat rotations
2. Performing the final soil fertility analysis and macroinvertebrates sampling
3. Initiating precedent setting research that examines the potential disease and pathogen control benefits associated with habitat rotations/saturated farm fields.

Timeline

Spring 2006-----Project begins with the Hedlun Farm in Spring using funds from The Nature Conservancy obtained (with funding from

US EPA, National Fish and Wildlife Foundation, Ducks Unlimited, and other donors)

Fall 2006-----2 more farms added to study to improve statistical rigor (Thulén and Mesman Farms) baseline studies were conducted for all farms for 2 sampling periods, fall 2006 and spring 2007

June 2007-----Habitat rotation (flooding) and the two crop rotations (sod harvest and grazing) were applied

Fall 2007-current-----Shorebird habitat study

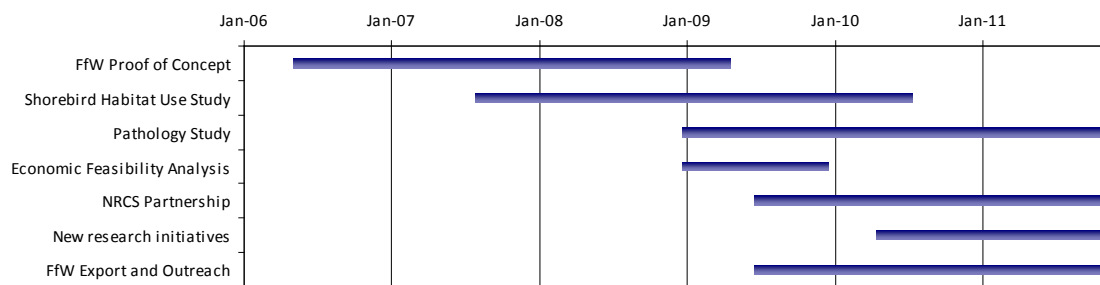
October 2007-----Farming For Wildlife pilot selected for funding by Ag Pilots Project.

May 2009-----Experimental treatments completed

June 2009-current-----Economic feasibility study and disease and pathogen study

August 2009-----Final report submitted to William D. Ruckelshaus Center

Farming for Wildlife Project Timeline

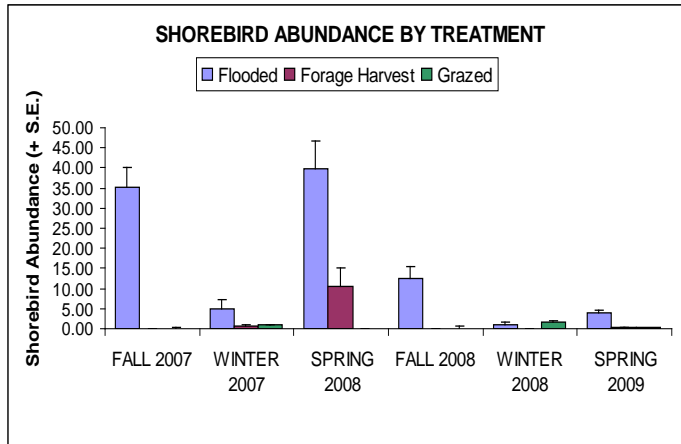


Meeting Goals

Pilot Goals

The first goal of the Ag Pilot portion of the Farming for Wildlife project pilot was completing the economic feasibility study and enterprise business plans for habitat rotations. This study is in progress. For preliminary results see profitability section to follow. The second goal of the Ag Pilot portion of the project was performing the final soil fertility analysis and macroinvertebrates sampling. Results of the soil fertility and microbiology tests are very promising, though the true agronomic benefits of wetland rotations will not be realized until the fields are re-cropped in 2010. Nitrogen levels on the flooded fields increased over 50 pounds per acre, more than, and at a faster rate than, other treatments. The only other physical soil variable to differ between treatments was manganese; levels were significantly higher on the flooded fields than either the grazed or forage harvest fields. While farmers were concerned flooding the soil would lower the soil pH, the pilot team has observed no significant change in pH at any of the flooded sites over the course of the 3 years of monitoring. For the soil microbiological properties, heterotrophic bacteria diversity index and the yeast mold diversity index were the only response variables to differ between treatments.

The 3rd goal that the Ag Pilot Funding was intended for was to initiating precedent setting



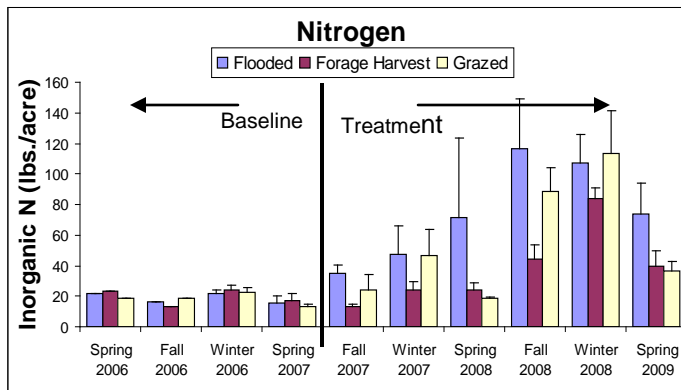
research that examines the potential disease and pathogen control benefits associated with habitat rotations/saturated farm fields. The data gathering for disease and pathogen control has begun and will continue as the three sites go back into production. At this point there is no data available.

Mean shorebird abundance for each season after farm treatments were initiated.

primary goal of the Ag. Pilot funding, was to determine the ecological relevance of the Farming for Wildlife Program at the landscape scale. Shorebird population monitoring and habitat use were used to

help explore this relevance.

Response by shorebirds to the wetland treatments was nearly immediate. In the fall of 2007, a state record was set at Mesman’s farm for the most number of yellowlegs west of the Cascades. Peeps (*Calidrus* sp.), yellowlegs, and dowitchers comprise the primary groups of shorebirds observed on the flooded fields with the highest abundances observed on the Hedlin and Mesman farm. All total 15 different shorebird species have used the flooded fields, including Short-billed Dowitchers, Lesser Yellowlegs, Western Sandpipers, and Dunlin — all species of high conservation concern.



Significantly fewer shorebirds used the flooded sites during migration periods in 2008-2009 compared to 2007-2008, presumably due, at least in part, to the extensive vegetation which had colonized the flooded fields.

Mean levels of inorganic Nitrogen in soil samples at 3 farms in 3 different farm treatments: flooded (blue bars), forage harvest (red bars), and grazed (tan) fields. Treatments were applied in the summer of 2007 (black line).

Shorebird abundance on all farms was highest during fall and spring migrations, and was very low during the winter sampling period. During the winter, when shorebird use of flooded fields was low, many fields in the region have saturated soils and standing water, providing numerous habitat options. Not surprisingly, thousands of ducks

were observed on the flooded treatment fields. Soras and bitterns were also commonly observed on the flooded fields.

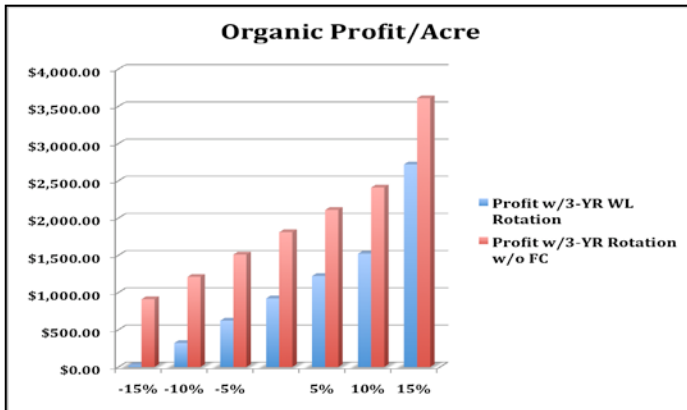
Ag Pilot Goals:

Profitability

With increasing economic pressure from rising input costs, rising land costs, stiff competition and market entry barriers, and farmers must yield net gains in order to participate in habitat rotations programs. Economists from Washington State University are evaluating the economic costs and benefits for farmers participating in the Farming for Wildlife pilot. The principal goal of the analysis is to ascertain whether the financial benefits that may result from wetland rotations - increased productivity associated with improved soil fertility and lower levels of soil-borne pathogens resulting from anaerobic conditions during the wetland rotation, are greater than the monetary costs of establishing and maintaining the wetlands.

The enterprise budget for wetland rotations estimated the annual costs of creating a wetland to be between \$343 and \$1016 per acre (including lease and overhead). Costs per acre declined substantially if the rotation was maintained for more than one year. Some plots will not incur in flooding costs. When they do, the average flooding costs (tractor, pump, fuel, and labor) to maintain a year-round wetland was estimated to be \$866 per acre; flooding was at least 50% of the total wetland cost. Despite the high costs of a wetland rotation, the profit subsequent to the rotation could be substantial if the rotation results in an increase in yields. In the Klamath Basin of California and Oregon,

wetland rotations have produced a 20% increase in yields.



Per acre profit of a potato crop subsequent to a wetland rotation with decreasing and increasing crop yields. It should be noted that yield decreases are not expected and are included here for comparison only.

Comparatively, traditional cover crops such as wheat and peas are

less expensive but have very low profit margins (in the Skagit Valley peas have been produced at a loss the last seven of eight years). These crops are generally grown for their positive effects on the soil. Preliminary analyses suggest wetland rotations that include flooding costs would pay for themselves if productivity increased by at least 15%, or farmers used the wetland rotations to transfer to organic production and realized a 5% increase in yields.

Sustainability

The critical measure needed to ensure the sustainability of this pilot is a long-term funding mechanism. Similar programs (e.g. USFWS “Mini-refuge” program) have not

been maintained primarily because they were unable to develop a long-term funding source (Barry White, USFWS, pers. Comm.). Ideally, the soil health benefits realized from wetland rotations will incentivize farmers to voluntarily implement the rotations. Work evaluating the economic feasibility of wetland rotations will fill this crucial information gap, and assist us in engaging farmers by appealing to their market and bottom line needs. The Nature Conservancy is also working to influence Farm Bill programs that could further subsidize wetland rotations. In 2009, the Natural Resource Conservation Service (NRCS) in Washington implemented a pilot under the Wildlife Habitat Incentives Program (WHIP) to support wetland rotations. Two new sites – one in the Skagit, and one in the Stillaguamish deltas will be supported with WHIP funds over the next few years. On a national policy level, the Conservancy can use the data collected in the pilot study to work with farm bill partners and legislators to modify existing NRCS programs to support implementation of the farming for wildlife concept on a landscape scale in Washington and across the U.S.

Working Relationships and Forums

Pilot partners include: Skagitonians to Preserve Farmland (SPF), Western Washington Agricultural Association (WWAA), Washington State University (WSU), Wilbur Ellis Seed and Fertilizer Company, Ecostudies Institute, and three independent farmers. In addition to the Ag pilot grant, we have received funding from: EPA, National Fish and Wildlife Foundation, Packard Foundation, and private donors. Ecostudies Institute, WSU, SPF, farmers and WWAA helped develop the experimental design for the pilot and WSU faculty has overseen the invertebrate monitoring, economic feasibility, and pathogen research. Wilbur Ellis has provided soil tests and analysis.

Successes and Challenges

“One of the challenges to collaboration between conservation & agriculture is keeping everyone at the table and understanding that we are all working towards a common purpose” (Kevin Morse, The Nature Conservancy)

Certainly the biggest challenge and success of this has been establishing broad partnerships between agriculture and conservation interests. These partnerships are the most effective means to achieve the pilot’s objectives. This is the first time all of these farming and conservation partners have worked together to achieve mutual benefits. The process is building a foundation of trust, mutual respect and understanding that will enable us to work collaboratively towards a future that includes viable farms and a healthy ecosystem.

Managing wetland rotations was a challenge. Native wetland plant communities colonized the flooded sites faster and more extensively than anyone predicted. By the second year of flooding, cattails and rushes were over 2 m tall and extensively covered the flooded fields. While this created ideal habitat for Soras, Bitterns, and other waterbirds, it likely excluded shorebirds from using the fields. Indeed, significantly fewer shorebirds used the flooded fields in the second year of the rotation. Additionally, the extensive vegetation growth required substantially more work and time from the farmers to work the vegetation into the soil and prepare the site for a subsequent crop.

Additional research is needed to identify how the wetland vegetation can be managed to optimize both the ecological and agronomic values of wetland rotations.

Future Plans

The Nature Conservancy, in collaboration with WSU, is currently evaluating the impact wetland rotations have on common plant pathogens in the Skagit Valley. This cost-share with WSU is supporting a graduate student supervised by Dr. Debbie Inglis at the Northwest Research and Extension Center in Mount Vernon. Results of this research will provide crucial information needed to evaluate the potential agronomic benefits of wetland rotations, and will identify the optimal rotation time period for soil health.

In July 2009, The Nature Conservancy received a 3 year Conservation Innovation Grant (CIG) from the Natural Resource Conservation Service (NRCS) to support the next phase of research on this project. This funding will continue to support the economic feasibility and potato pathogen research already underway. Additionally, the funding will allow us to investigate the best management practices that can optimize both the ecological and agronomic benefits of wetland rotations. The success and momentum built during the pilot was crucial in securing this funding for the next phase.

Transition of Insect Pest Management to New Pest Control Technology Pilot

Pilot Leads: Keith Granger and Nadine Lehrer

Washington State University Tree Fruit Research and Extension Center



Overview of Pilot

The Transition of Insect Pest Management to New Pest Control Technology pilot, also known more broadly as the Pest Management Transition Project (PMTP) was funded to deliver research-based information to the Washington apple industry and broader stakeholders; and to proactively move the apple industry in the State of Washington towards new technologies that will decrease or eliminate the use of harmful substances such as the organophosphate (OP) called azinphos-methyl (AZM, which is commonly used to control the codling moth).

The Ag Pilots Project funding that was accorded to the PMTP for the 2007-09 has made a crucial contribution to the viability and sustainability of tree fruit production as well as

growers, consultants, farm workers, and concerned citizens in Washington State. As a result of this funding, the broader PMTP has extended research-based knowledge on IPM strategies and alternative insecticides to a large and growing number of apple growers, pest management consultants, farm workers, environmental groups, and the public. With a multi-pronged approach combining workshops, meetings, web and print materials, presentations, survey assessments and evaluations, PMTP is facilitating the tree fruit industry's transition from an organophosphate-based pest management system to one that blends environmental, social, and economic sustainability into an integrated pest management approach to tree fruit production.

And under this umbrella, the specific goals of this pilot were to:

1. Understand barriers to adoption of new IPM practices and develop educational and training strategies which encourage rapid and sustained adoption;
2. Develop metrics to assess the impact that adopting new technologies has on (1) growers' economic viability and (2) the environment; and
3. Understand perceptions of the environmental and farm labor sectors to more effectively develop education, communication and outreach programs that engage these groups

Timeline

| | |
|--------------------------------|--|
| Dec. 3, 2007----- | PMTP introduced at 103 rd annual meeting of the Washington State Horticultural Association held in Wenatchee |
| 2007-2008----- | PMTP participated in 19 industry meetings |
| 2008----- | Conducted three, 2 hour field days in Quincy, Prosser, and Brewster (approximately 120 attended each) |
| 2008----- | PMTP put together 14 IU's containing approximately 192 participants representing over 42,000 acres of production land. Each unit has had at least 2 meetings each (once a month, for approximately 1.5 hours) having at least 8 participants or more present. |
| Jan. 9, 2008-May 21, 2009----- | PMTP presented at 11 public meetings, and 11 other meetings. |
| July 2008----- | Mailed out 73 consultant surveys (with a 57% response rate) |
| July 22, 2008----- | Field tour, Wash. EPA Pest Management tour |
| Nov. 12, 2008----- | Field tour, New Paths-Health and Safety in Agriculture Western Agriculture Conference |
| Dec. 2, 2008----- | PMTP hosted a session at the 104 th annual meeting of the Washington State Horticultural Association (WSHA) in Yakima, WA (200 people attended session). Other session presented in Spanish by Nadine Lehrer (400 people attended), poster was also presented by Wendy Jones. |
| Dec. 8-11, 2008----- | The PMTP sponsored the 2008 WSU Fruit School on Pest Management entitled Growers and Managers Working Together to Optimize Resources which was simulcast to local colleges and extension centers. |
| 2008-2009----- | PMTP participated in 18 industry meetings, distributed over 600 IU handbooks, and sent out over 400 PMTP newsletters. |
| 2009----- | Eleven IUs, consisting of 135 participants representing over 90,000 Washington apple acres, began meeting in March of |

2009. The IUs will meet monthly through March, April, and May

2009-----Conducted four, 2 hour, hands on field days in Quincy, Prosser, Brewster and Wapato.

February 2009-----Conducted a grower survey (27% response rate)

June 26, 2009-----Health Fair in Monitor, WA (partnered with Columbia Valley Community Health Clinic (CVCHC) of Wenatchee

June 27, 2009-----Health Fair in Malaga, WA (partnered with CVCHC of Wenatchee.)

Meeting Goals

Pilot Goals

The PMTP strove to meet the three goals simultaneously through outreach and education; and assessment and documentation; and policy work through the EQIP program.

Outreach and Education

First, outreach and education efforts of PMTP occurred in several different venues and were targeted to growers, pest management consultants, farm workers, and environmental group representatives. The primary grower-focused educational activities of PMTP were carried out through Implementation Unit (IU) meetings, distribution of pest management IU handbooks, field days focusing on IPM practices, sponsorship and organization of the WSU Fruit School on pest management, sessions at the WA State Horticultural Association annual meeting, winter grower meetings, and pesticide applicator recertification classes. PMTP also presented at a number of public meetings, field days, and health fairs, both within and outside of the fruit industry, to share the mission of PMTP and the efforts that Washington growers are taking to integrate new pest management strategies into their programs. PMTP newsletters, addressing seasonal IPM topics, were distributed via mail and email, the PMTP website was regularly updated, and articles about PMTP appeared in several news media. PMTP also met with individual farm worker and environmental group representatives to further exchange information, identify needs, and build relationships.



Implementation Unit (IU) geographical distribution in 2008 (left) and 2009 (right)

Second, assessment and documentation efforts were carried out in order to understand practices and perceptions more thoroughly. Primary assessment and documentation

efforts in 2008 were conducted through surveys of tree fruit industry consultants and growers, and related assessments of early IPM adoption.

Surveys

The consultant survey showed that while they were concerned that both the costs and control of codling moth would become more difficult and riskier after the Guthion phase-out, they agreed that WSU research had developed good information on alternatives to Guthion and that they had been able to use these alternatives in their codling moth control programs. These results indicate that the PMTP is having impact by providing training and resources to help the apple industry adopt acceptable alternative technologies. A second and expanded consultant survey will be developed and distributed in the fall of 2009 to cover the 2009 growing season (if access to continued funding is obtained for PMTP).

Preliminary grower surveys indicate that growers are aware of the Guthion phase out and are taking steps to reduce their use of Guthion and other OP insecticides, while increasing their use of alternative insecticides and IPM practices. However, most still have room for improvement in completely eliminating their use of Guthion and developing greater knowledge of and confidence with alternative methods of codling moth pest management. The PMTP plans to complete its analysis of these data by fall 2009, so as to compare results with the 2007 consultant survey and also use results to improve the PMTP and the transition to increased IPM use.

These first consultant and grower surveys will also be used as baseline data for future comparisons with upcoming practices/perceptions surveys for the 2009 (for consultants) and, if PMTP funding is continued, the 2010 (for growers) growing seasons.

Policy Work

The 2002 Farm Bill created the Environmental Quality Incentives Program (EQIP) to address natural resource concerns in all land use sectors, including specialty crops. EQIP is administered by the USDA Natural Resources Conservation Service (NRCS). Prior to 2008, some Washington tree fruit growers obtained EQIP contracts, but the focus was on irrigation system improvements with pest management assistance as an additional, but not primary, focus. For future contracts, NRCS will consider assistance to growers who wish to make the transition away from AZM and other organophosphate insecticides to mating disruption and new chemistries. This new focus for NRCS will be a means for some growers to afford the expense of adopting new IPM strategies and goes hand-in-hand with the educational efforts of the PMTP.

The PMTP worked with the EQIP program by encouraging those receiving contracts through EQIP to participate in PMTP by joining an IU. The education and sharing of information that is accessible through PMTP IUs has helped EQIP growers gain a better understanding of new IPM technologies that are available and has also helped them identify strategies for implementing these technologies. This type of education and information sharing has and will continue to better facilitate the successful transition away from organophosphates to new IPM technologies.

Ag Pilot Goals:

Profitability

In order for growers to successfully adopt new IPM strategies and OP-alternative insecticides, these new tools must be cost-effective. Preliminary indications suggest that tools are expensive, but there seem to be a number of early adopters using them in financially sustainable ways. More detailed perceptions of costs on the part of growers will be available once grower survey results are completely analyzed. However, a solid economic analysis of the new pest management tools was not conducted as part of the pilot due to lack of funding for a part-time economist. Nevertheless, this is work that pilot staff hopes to complete in the future through collaboration with Dr. Karina Gallardo, a newly hired WSU Agricultural Economist housed at WSU-TFREC. In addition, other WSU economists are working to model the macro-level financial impacts of the Guthion phase-out on the state's economy. PMTP staff looks forward to working with this group to further delve into the economic sustainability issues inherent in the transition to new pest management tools.

Sustainability

IPM contributes to agricultural sustainability in that it enhances environmental, social, and economic balance in pest management. Research indicates that use of IPM strategies and OP-alternative insecticides contributes to an improved environmental footprint in tree fruit production and gains for human health, especially for farm workers. However, transitioning to these new pest management tools implies increased costs, especially up front. Part of PMTP current efforts and future goals is therefore to document the long term costs savings of using IPM (in terms of reduced pest pressure, improved conservation of natural predators, etc.) that can balance the increased costs of OP-alternative insecticides, in order to add to the assessment of IPM's economic sustainability. In addition, PMTP staff is looking to more quantitatively document the environmental and social sustainability of new IPM practices using a sustainability assessment tool called the IPM Pesticide Evaluation Tool.

Working Relationships and Forums

This pilot helped strengthen relationships between WSU-TFREC and tree fruit industry representatives, growers, and pest management consultants. It also helped WSU-TFREC build new relationships with farm worker advocacy groups and service providers (health/legal clinic staff, etc.) as well as environmental and sustainable agriculture organizations. In addition, a listing of the farm worker and environmental groups that PMTP met with during the pilot and a listing of advisory committee members (which include many of the project's industry partners) can be found in the full report. While many of PMTP's newer relationships still have room to grow and strengthen, the pilot provided a very important opportunity to establish them and begin an exchange of ideas and information.

Successes and Challenges

Pilot successes included new and improved partnerships with stakeholders, high recommendations of IPM and new insecticides among consultants, buy-in to the pest

management transition process from the tree fruit industry, high satisfaction with Implementation Units among participants, strong knowledge base about pesticides among pesticide applicators & supervisors, development and adoption of new materials for educational programs (IU handbook, newsletters, Turning Technologies system, Wireless Interpretation equipment), and ongoing outreach and collaboration with farm worker and environmental groups

Pilot challenges included adequately strengthening partnerships with farm labor and especially environmental stakeholders. While such partnerships now exist, representing a major step forward, they are still in need of bolstering. This is particularly true in relationships with environmental organizations, where many groups expressed support for this pilot but lacked the time to participate in relevant collaborations.

A second challenge included developing adequate Spanish language materials, especially written materials to extend outreach to Spanish-speaking growers and farm workers. While PMTP staff was able to communicate orally with Spanish-speaking audiences, their ability to provide translated written materials was more limited due to lack of time. This is an area where PMTP staff hopes to improve in the coming months and years, provided more funding is secured.

A third challenge was expanding outreach impacts beyond the early participants in Implementation Units; in other words, expanding IUs to include new growers and consultants and also designing outreach efforts for growers and consultants not able/willing to invest the time in IU meetings. This too is a future goal of this pilot. A final challenge was encountered in assessing real changes over time. While baseline surveys have provided good information on pest management practices from 2008-09, this pilot will need further funding in order to conduct future surveys to compare against this baseline, in order to more robustly assess pest management changes over time.

Future Plans

This pilot has grown to include many more orchards and a much broader range of stakeholders than initially expected. PMTP leadership sought renewed legislative funding for the 2009-11 biennium, but due to economic shortfalls, this funding was not secured. Currently PMTP leadership is applying for additional funds to continue this work, including:

1. Possible funds from EPA (American Farmland Trust & EPA monitoring funds)
2. WSDA specialty crop block grant – the proposal has passed the pre-proposal phase and is in the full proposal stage, and
3. Dovetailing with a specialty crop research initiative based at WSU-TFREC and focused on enhancing biocontrol (through IPM practices and guided use of OP-alternative insecticides)

PMTP's goal is to continue activities through the complete phase out of Guthion in 2012, in order to better support the tree fruit industry's transition to new pest management tools and more adequately address health and safety issues for and with farm workers and environmental groups.

While many challenges remain to the full adoption of IPM within the tree fruit industry, much has been accomplished through the PMTP's efforts thus far. It is the hope of PMTP staff and supporters that further funding will be obtained to continue this work, through to the complete phase-out of Guthion/AZM, to ensure industry adoption of IPM practices and broader stakeholder participation for a more sustainable tree fruit sector in Washington State.

Beefing Up the Palouse Pilot- An Alternative to the Conservation Reserve Program (CRP)

Pilot Lead: Don Nelson

Washington State University



Overview of Pilot

The Beefing up the Palouse pilot is exploring several aspects of converting land managed in the Conservation Reserve Program (CRP) to a holistically managed resource using livestock as the principle tool to move towards more environmentally sound, economically viable, and socially responsible practices. Many lands will be coming out of the CRP program in the next few years, and how these lands are managed will have severe impacts on farming and ecosystem services.

As of 2007, the state of Washington had 1,557,212 acres enrolled in the CRP. The site of this pilot is located on G & L Farms in Adams County near Benge, Washington. This 6,000-acre farm includes 5,000 acres that are currently enrolled in the CRP. Adams County has one of the largest CRP enrollments nationwide, at over 214,000 acres, and a significant portion of this acreage is nearing the contract end in the next two years (2010-2011). USDA efforts to scale back total enrolled CRP acreage while focusing new offers on smaller contracts through Environmental Priority practices, as required by the 2008 Farm Bill, will likely lead to a significantly reduced CRP presence in Adams County and throughout central Washington as early as 2010.

While no land enrolled in the CRP program was grazed in this study, property adjacent to CRP land with similar biologic communities was used to duplicate the affects of grazing and rest. Some CRP land was used to test different fertilizer affects and inter-seeding techniques.

The Goals of the Beefing up the Palouse Pilot are:

1. Assess the economic feasibility of CRP conversion to a grass-fed natural or organic beef production system.
2. Assess and demonstrate agronomic strategies, including inter-seeding alfalfa for enhancing degraded CRP grass stands into productive pasture in the 12-14 inch rainfall areas of Washington State.
3. Monitor the biological effects of planned grazing using the Land EKG rangeland monitoring system.
4. Assess the replicability of this pilot by describing the place-dependent factors likely to affect feasibility by mapping these factors utilizing known parameters, as well as Geographic Information Systems (GIS)

Timeline

| | |
|--|---|
| December 2007-June 2009----- | 18+ conference calls and/or Ag Pilots Team planning meetings, data evaluation meetings |
| January 24, 2008----- | Pilot update meeting with Adams County Farm Service Agency Committee, sought approval to get a research exemption to graze a section of CRP land on G & L Farms without a reduction in payment, Ritzville, WA (unsuccessful) |
| March 2008-June 2009----- | Collected monitoring data from Land EKG transects collected and analyzed soil and biomass samples for all Land EKG transects and N fertilization demonstration and control plots. Collected grass/legume comparison data. |
| April 2008- July 2008----- | Grazed 196 head of cattle owned by Joel Huesby and Mike Para on a contract gain basis @ \$34/lb. gain |
| May 2008----- | 1000 acres of cropland and pasture were certified organic |
| May 2008 and June 2009----- | BIOAg Tour stops at G & L Farms to discuss and be updated about the Beefing Up the Palouse Pilot |
| December 2008----- | Economic Feasibility study and enterprise budget model |
| April 2009----- | 304 hd. of yearling cattle owned by Para Cattle Company, Othello, (681 lbs. avg. wt.) were delivered to G & L Farms to be grazed on a contract gain basis of \$.34/lb. gain. |
| May 19-20, 2009----- | “How to Survive and Be Profitable in the Beef Business”- Planned Grazing and Grass-fed Beef Production Conference co-sponsored by the Ag Pilots-Beefing Up the Palouse Pilot and the Extension Grass-fed Beef Production/Pasture Management Team, Richland, WA (64 attendees) |
| June 2, 2009----- | Submitted USDA/CSREES/AFRI Managed Ecosystems grant |
| June 18 and 23 rd 2009----- | Maurice Robinette presented Beefing Up the Palouse pilot update to the Ag Pilots Oversight Committee, Seattle, WA and to a group of 30 people as part of a Sustainability Lecture Series, Dayton, WA |
| June 29, 2009----- | Showcased the Beefing Up the Palouse Pilot to a visiting Iraqi delegation, G & L Farms |
| July 23, 2009----- | 294 hd. of cattle on contract gain basis shipped off of G & L Farms |
| August 2009----- | Final Report Submission to William D. Ruckelshaus Center. |

Meeting Goals

Pilot Goals

The first goal of the pilot was to assess the economic feasibility of CRP conversion to a grass-fed natural or organic beef production system. Although the pilot was unable to get a research exemption to graze CRP without payment reduction from Adams County Farm Services Agency; the pilot was able to utilize land similar to the CRP enrolled land to graze yearling steers and to grass finish 2 year old cattle over 2 seasons and complete an enterprise budget analysis and economic feasibility study.

A Farm Business Management Report (EM010) was published entitled, 2008 Estimated Costs and Returns for a 150-head Cow-calf to Grass-finished Beef Production System in the Channeled Scablands Range Area of East-central Washington authored by J. Shannon Neibergs and Donald D. Nelson.

Currently the team is programming an economic model to evaluate forage availability relative to cow nutrition needs and altered calving season start that; this model will utilize forage and economic information generated during the Beefing up the Palouse pilot. The model contributes to the economic feasibility goal, by examining differing production management strategies to best utilize the pilot area's resources and to provide an analysis tool to evaluate an operation's unique resource structure.

The Second goal was to assess and demonstrate agronomic strategies, including inter-seeding alfalfa for enhancing degraded CRP grass stand into productive pasture in the 12-14 inch rainfall areas of Washington State. The pilot evaluated the establishment of legumes in CRP grass stand, looked at determining the best varieties of grass and legumes to plant in the 12-14 inch rainfall zone, and looked at what species and mixes would best fit the transition to a grass-fed beef forage system. (data are included in full report)

The third goal was to monitor the biological effects of planned grazing using the Land EKG rangeland monitoring system. Four permanent Land EKG monitoring transects sites were established. All of them were read before and after grazing during year one. Three of these transects were read before grazing in year-2 and the fourth one was read after one grazing in year two. The intent is to do one more post-grazing reading on all four sites in 2009 (cattle were shipped off of G & L Farms on July 23).

The fourth goal was to assess the replicability of the pilot by describing place dependent factors likely to affect feasibility by mapping these factors utilizing known parameters and Geographic Information Systems. The pilot team estimated and mapped potential productivity across the Palouse River Watershed based on a number of factors including soil texture, pH, organic matter, depth to bedrock, and precipitation. Results of this analysis show the pilot agriculture model is replicable in the Palouse. Availability of water and knowledge/skill in planned grazing will determine the profit level, but the potential is good to provide returns greater than the current CRP payment rate. (See full report for more detailed information regarding this analysis)

Ag Pilot Goals: **Profitability**

Initial economic analysis, looking at G&L farms as a model, shows that while the cow-calf and stocker beef cattle may not be profitable at Washington State cattle prices, grass finishing beef is profitable. Different approaches were analyzed in an Enterprise Budget Model by Shannon Neibergs of Washington State University. Findings were published in A Farm Business Management Report (EM010) authored by J. Shannon Neibergs and Donald D. Nelson entitled, 2008 Estimated Costs and Returns for a 150-head Cow-calf to Grass-finished Beef Production System in the Channeled Scablands Range Area of East-central Washington.

Sustainability

By showcasing the Ag Pilots study and educating policy makers and other influential persons about sustainable managed grazing, opinions and decisions are being influenced to accept a broader systems approach that includes livestock grazing as a viable land management tool. Personal observations have been made of policy makers collaborating with other pilot partners about potential funded programs to study use of managed grazing to address other cases of ecosystem degradation.

3 articles have appeared in a variety of sources in the northwest highlighting the Beefing Up the Palouse Pilot, showing a growing interest in alternative approaches to management of old CRP stands. The pilot also has the support of Senator Patty Murray and Washington Commissioner of Public Lands, Peter Goldmark.

Data at this point is supporting the application of this management model within a larger region in Washington State surrounding Adams County.

Working Relationships and forums

Many key partnerships have developed from the pilot. In carrying out the pilot, collaborative working relationships were forged between the Washington Sustainable Food and Farming Network, livestock producers, Washington Cattlemen's Association, WSU Animal Sciences, WSU Economic Sciences, WSU Crop & Soil Sciences, and WSU County Extension. Other partnerships have been formed as a result of several annual BIOAg tours that featured the pilot. Among the people who connected during the BIOAg tours were legislators, educators, wildlife representatives, livestock producers, representatives of state and federal agencies, and members of the Audubon society, Palouse Clearwater Environmental Institute, League of Women Voters and the general public. Tour attendees were educated about concerns, challenges and positive results derived from converting decadent CRP stands into a sustainable grass-fed beef system.

Successes and Challenges

Properly evaluating ecosystem change in long-term programs such as transitioning CRP land to a grass-fed beef system takes multiple years of research and analysis to yield reliable results. Nevertheless, this pilot has strengthened partnerships between agencies and groups with differing viewpoints, has shown economic benefits of converting to a

grass-fed beef based system instead of a government based subsidy program, and identified some of the environmental benefits of this system compared to a fallow/wheat farm-based system.

There were a number of challenges faced by the Beefing Up the Palouse Pilot. First, initially there was a complete lack of fencing, corrals, loading facilities and water delivery infrastructure at G&L farms. Years of farming had removed any previously existing infrastructure. Fencing and water distribution systems are expensive to construct and maintain and need to be amortized over a number of years. This continues to be a challenge, although a multi-year agreement between the landowner and the cattle grazer to accomplish infrastructure development has been developed.

Another challenge the pilot faced was the inability to graze CRP stands without taking a reduction in payment, which was not feasible for the landowner. A number of attempts to obtain a research exemption to graze CRP were made with no success. Stands similar to the CRP land were used in the study in its stead. Many acres of CRP land at G&L farms will be coming out of contract this year and will be used for further research.

The last significant challenge faced by the pilot was handling the large quantities of data gathered in the Land EKG Monitoring. There were problems getting all of the rangeland monitoring data together, mostly because of the volume of data and the amount of it and how dispersed over time the monitoring activities were. It is clear that a better system of keeping everything together is needed. In the future, better use of the Land EKG Datastore website and prompt data entry will help alleviate this problem.



Project planning meeting at G&L Farms 2008

Future Plans

On June 2, 2009, the pilot team and others submitted a proposal for \$487,365 to fund a 4-year project entitled Planned Cattle Grazing Strategies on Former CRP Land to Enhance Ecosystem Services in a Multi-functional Agricultural Production System to the AFRI program. Future funding will serve to help answer many questions that remain regarding ecosystem services, long term environmental and economic impacts and opportunities, carbon sequestration, and impacts on productivity.

Direct Seed Mentoring Pilot: Spokane County Conservation District

Pilot Lead: Ty Meyer, Production Ag Manager

Spokane County Conservation District



Overview of Pilot

The Direct Seed Mentor Pilot seeks to increase the adoption of direct seeding management practices throughout Spokane and Whitman Counties. The pilot is facilitating this goal through a mentoring program and side-by-side on-farm demonstrations of direct seeding compared to conventional farming. Direct seeding is a farming method that plants and fertilizes directly into the residue from previous crops, disturbing only a narrow strip of soil. Direct seed operations have numerous agricultural, economic and environmental benefits compared to conventional tillage systems. Traditional farming practices typically involve aggressive soil disturbance through numerous passes over the field. The benefits of direct seeding include: reduced operating costs, increased production and profitability, reduced soil erosion, improved water quality, trapping of soil moisture, improved soil tilth, and improved air quality. This pilot seeks to help growers see the benefits of direct seeding without the fear of the high up front cost of direct seeding equipment, through the use of mentors that practice direct seeding and have equipment and the expertise to guide the pilot sites.

The goals of the Direct Seed Mentor pilot are threefold:

1. Increase adoption of direct seed operations through the use of a mentoring program.
2. On-farm demonstrations of direct seeding.
3. Case study of side-by-side comparison of direct seeded ground with conventionally tilled ground.

The participating producers were asked to implement, with the mentors help, a side-by-side 50 to 100 acre direct seed trial on their farm. The producers selected their mentors from among those signed-up for the pilot. A producer's decisions were based on the type of direct seed equipment desired and the producers' willingness to work with the mentor. The mentor role is to provide education, as well as custom seeding using their equipment. Eight teams of mentors and producers are taking part in the mentoring pilot. The teams are as follows: Blake Wolf – Mike Faerber, Mark Richter – Darrel Bafus, Jason Huntley

– Glen Smick, St. John Grange – Gil White, Ron Kile – Dave Swannack, Lonnie Green – Ken Keno, Lonnie Green – Al Anderberg, Jason Eckelberger – Anthony Wicks

Timeline

October 2007-----Pilot selected for funding:
January 2008-----Pilot inception, SCCD purchased space at Pacific Northwest Direct Seed Association annual meeting in Kennewick, WA to promote pilot.
May 14- May 18, 2008-----Contracts Signed by SCCD and the Conservation Commission
August 2008-----Funding issues result in loss FY 08 funding
September 2008-----Potential pilot participants backed out of fall seed season due to uncertain pilot funding and late harvest season.
Fall 2008 -----Revised budget for spring 2009 seed season.
October 2008-March 2009 -----Mentor Program Direct Seed workshops in Colfax. (Averaged 35 attendees at each meeting)
November 2008-----Ag Pilots presentation made at the Clearwater Direct Seeders Meeting in Lewiston, ID.
December 2008 -----Ag Pilots presentation made at the Colfax-Palouse Direct Seeders Meeting in Colfax, WA.
January 2009-----Pacific Northwest Direct Seed Association Meeting in Kennewick, WA. Potential participants were taken to the conference.
Spring 2009 -----Mentor Consulting and Custom Seeding
Spring 2009-----Economic Analysis of operations
June 2009 -----Direct Seed field Day
June 2009-----Presentation to Ag Pilots Project Oversight Committee in Seattle
August 2009-----Final Report to the William D. Ruckelshaus Center

Meeting Goals

Pilot Goals

The first goal of teaming successful mentors with interested producers appears to be highly successful. The original concept was to find four mentors and four producers interested in participating in the pilot. The ultimate outcome was the participation of 8 mentors and 10 producers. Funding for the pilot was limited and the inclusion of the extra teams meant that additional funding was needed. The Spokane County Conservation District and the Washington State Department of Ecology each allowed the use of other funds for the mentoring pilot. This was a huge success for the pilot as the mentoring program was recognized as a tool for moving the adoption of direct seed forward in the region.

The second goal of having the teams in place for 3 consecutive seeding seasons was only partially successful. Seed season 1 and 2 were both removed from the pilot due to funding and contract difficulties. The final seed season was a success once stable funding was established.

The third goal of performing economic analysis on each operation has proven to be the biggest and most important part of the pilot. Interviews were conducted with each operation and University of Idaho Ag Economist Kate Painter has performed the analysis.

Ag Pilot Goals:

Profitability

The profitability of each producer in the pilot will be dependent on their decision making process if and when they decided to implement a direct seed system on their farm. The pilot shows at this point that each operation has its own philosophy on how to handle and manage their equipment fleet. There are wide variations in the cost of machinery depending on whether the producer purchases or leases new equipment on a yearly basis or if they own older equipment that they maintain with very little capital costs attributed to the operation.

In addition to the cost of machinery, producers that are leasing land on a crop share basis are faced with the reality that a landlord's income is based on gross revenue. This means that each operation must maximize the landlord's revenue by producing high yields. The landlords are sometimes skeptical about allowing a producer to transition their farm to direct seed if there is any chance of a reduction in yield potential. Although direct seed technology has evolved greatly over the last 20 years, there are still memories of direct seed and no-till farming failures that cost some producers in the region their farms.

If the producer is dedicated to Direct Seed, they understand that profitability is driven by reduced costs versus increased yields or stated another way direct seed puts the emphasis on net income versus gross income.

“Overall, total costs are \$9.00 less per acre for the direct seed group. Investment in direct seed machinery may represent one barrier for farmers wishing to switch to this technology. While it would improve profitability, they may not be able to cash-flow purchases of powerful tractors and direct seed drills.” (Dr. Kate Painter, Ag Economist for the University of Idaho)

After other miscellaneous cost savings are figured into each operation, the final results show a cost savings to Direct Seed Operations of \$9.02/acre.

When the final economic analysis is completed later this fall and all yield data are included in the study, the mentoring pilot has the potential to have a great impact on the way producers view the transition to direct seeding systems. There will be many valuable lessons to learn from the economic study of each operation that will help producers across the region make better decisions related to machinery ownership and variable cost comparisons. For more detailed information on the economic analysis, see full report available at <http://ruckelshauscenter.wsu.edu/>.

Sustainability

The sustainability of the direct seed mentor pilot has a very positive future on the Palouse. It will, however encounter several obstacles that have the potential to slow its progress. Some of the barriers farmers face when making the decision to transition to

direct seed systems are: tradition, resistance to change, landlord resistance, lack of federal funding for conservation programs, cost of machinery and perceived loss of yield.

When evaluating the potential of continuing the direct seed mentor pilot into a long term program, the biggest challenge to be faced is finding a consistent funding mechanism. Without a source of funds, the program loses its incentive for some individuals to try direct seeding. One solution to the problem is to set up a network of direct seed mentors that are willing, under the right circumstances, to perform custom seeding for others using their own equipment. This service would be performed at a cost of somewhere in the neighborhood of \$25-\$30/acre to the producer. The Pacific Northwest Direct Seed Association is developing a similar network for farmers to share information and work with each other on a voluntary basis if desired.

With the success of the pilot to date mentoring activities will continue if funding is established.

Working Relationships and Forums

The pilot brought several groups and agencies together to make it a success. Washington State University and the University of Idaho, the Pacific Northwest Direct Seed Association, the Washington State Department of Ecology, and the Spokane County Conservation District all worked together to complete the pilot.

Dr. Hans Kok, Associate Professor and Extension Specialist for Conservation Tillage for Washington State University and the University of Idaho, was an integral part of the pilot program. He had past experience running mentoring programs in the mid-west and provided invaluable knowledge to the program as it was implemented.

The Pacific Northwest Direct Seed Association is the main trade group for the direct seed industry in the Pacific Northwest. Russ and Patt Evans, Co-Directors of the PNDSA, provided marketing and outreach expertise to the pilot which helped us educate producers and find the teams that ultimately participated in the pilot. They also organize the PNDSA Annual Convention in Kennewick, WA that some of the pilot participants attended as an educational opportunity.

The Palouse-Rock Lake Conservation District and the Palouse Conservation District both provided participants to the pilot and a direct seed tour was held in St. John, WA that featured the Mentoring Program participants in their area.

The Washington State Department of Ecology and the Spokane County Conservation District Water Resources staff both provided additional funding for the mentoring pilot. DOE has recognized the importance of the mentoring program and allowed the use of funds for the participation of two additional teams in the Latah Creek watershed in Spokane County.

Successes and Challenges

The Direct Seed Mentoring pilot had many great successes, few challenges, and an unbelievable response from the farm community in Eastern Washington.

In the beginning it appeared that the biggest challenge would be finding pilot participants. In the end the biggest challenge was funding the number of teams that wanted to

participate in the pilot. The goal was to have four mentor/producer teams involved, in the end it finished with 8 mentors and 10 producers.

The pilot included eight established direct seed mentors and 10 producers paying for 1,000 acres of direct seed on land not typically or currently being direct seeded. The economic analysis done showed a \$9.02/acre savings when transitioning to direct seed and one producer has indicated the desire to purchase a direct seed drill after just one season of being mentored due to a reduction in fertilizer costs of nearly \$11/acre.

Several challenges were faced early in the pilot related to the funding cycle and the loss of FY 2008 funds. Re-evaluation and revision of budget allowed the pilot to proceed. The Spokane Conservation District funded the bulk of the startup phase that was lost in the contract process.

Outside of the contract issues, the pilot did not experience any other challenges that threatened its completion. Additional funding was received to expand the pilot to its current size and the Spokane Conservation District and Dr. Painter from the University of

Idaho have agreed to proceed with the completion of full farm budgets including harvest 2009 yield data. This will be available late fall 2009.



No till operation. Foreground just seeded with Cross-Slot Drill.

Future Plans

The Direct Seed Mentoring Pilot was completely dependent on the funds received from the State of Washington. With the funding cycle ending on June 30th, 2009 the pilot is looking for another source of funding to continue the program. The Spokane Conservation District is reviewing several options to fund the program and will be applying for funding

through the Department of Ecology in late October. The team will be working with the PNDSA and WSU/UofI to move the pilot forward and to continue marketing the concept of direct seed mentoring.

Appendices

Appendix A: Summary of Ag Pilots Project Funding Allocation

| <u>Ag Pilots Project</u> | | |
|---|-----------|------------------|
| William D. Ruckelshaus Center Contract | | \$ 65,241 |
| <hr/> | | |
| Transition of Insect Pest Management | \$149,296 | |
| Direct Seeding Mentor Pilot | \$ 94,250 | |
| Farming for Wildlife | \$ 84,500 | |
| Beefing Up the Palouse | \$ 81,713 | |
| Pilots | | \$409,759 |
| <hr/> | | |
| Contract Oversight and Reserve Fund | | \$ 25,000 |
| <hr/> | | |
| Total | | \$500,000 |