

# Western IPM Center Project Report Form

**How to submit:** Please submit this completed form electronically, as an attached Microsoft Word file, to Jane Thomas at [jmthomas@tricity.wsu.edu](mailto:jmthomas@tricity.wsu.edu). If you have questions, contact Linda Herbst, (530) 752-7010. **Content:** Complete each section below, and include responses to as many of the questions listed in Attachment A as are relevant to your project. *These are guidelines.* Provide your readers with enough detail that someone who is not familiar with your project can understand what you were trying to achieve, how you went about it, and what you accomplished, but please keep it concise.

## A. Report Data

**Date:** April 6, 2011

**Reporting Period:** 2009/2010

**Report Type (please check one):**

Progress Report     Final Report

## B. Grant Data

- Grant Agreement #: 4w1971
- Title: Expansion of the online High Plains IPM Guide
- Grant Type: IPM Issues
- Lead investigator:
  - Name: Fabian Menalled
  - Title: Associate Professor
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  - Email: [menalled@montana.edu](mailto:menalled@montana.edu)
- Team members (name, title, institution): Fabian Menalled, Associate Professor, Montana State University. Mary Burrows, Assistant Professor, Montana State University
- State(s) involved: California, Colorado, Idaho, Nebraska, Montana, South Dakota, Wyoming, and Oregon

**C. Nontechnical Summary.** An overview of the project, briefly outlining the problem(s), how your project addresses them, and your results, *written to a lay audience*. (500 words)

The High Plains IPM site (<http://wiki.bugwood.org/HPIP>) is a collaborative project where specialists at several Universities across the region disseminate research-based information on effective management options for pest and environmental problems affecting all major field crops. A major limitation of this website was the lack of integrated weed management recommendations. To fill this gap we 1) coordinated a regional effort of producing and web-publishing fact sheets containing information on weed biology, ecology, impact, and integrated management in the High Plains IPM site, 2) integrated these weed fact sheets with information an electronic-based weed id key developed using the Lucid platform (<http://diagnostics.montana.edu/lucid/Small%20Grains%20Key/>), and 3) disseminated the online HPIP weed ecology and management information and weed id key across a wide audience. Contents of these fact sheets included 1) Identification and Life Cycle, 2) Habitats, 3) Impacts, 4) Biology and Ecology, 5) Management Approaches, 6) Biological Control, 7) Mechanical and Cultural Control, 8) Chemical Control, 9) Examples of herbicides that can be used, and 10) References. Photos and line drawings were also included to ease weed identification. A total of 22 authors from several states including Montana, Colorado, Nebraska, South Dakota, Wyoming, and California developed these weed fact sheets. Using a wiki format, these fact sheets were loaded into the Bugwood HPIP web site ([http://wiki.bugwood.org/Main\\_Page](http://wiki.bugwood.org/Main_Page)). We have conducted Adobe Connect Pro sessions to train authors to update and modify the fact sheets.

**D. Objectives and Progress.** List your objectives and describe your progress for each objective.

1. Coordinate a regional effort of producing and web-publishing weed biology, ecology, impact, and integrated management information on the High Plains IPM website

A total of 22 authors from 7 states (Table 1) collaborated in the production of fact sheets on the biology, ecology, and integrated management of agricultural and rangeland weeds. Contents of these fact sheets included information on 1) Identification and Life Cycle, 2) Habitats, 3) Impacts, 4) Biology and Ecology, 5) Management Approaches, 6) Biological Control, 7) Mechanical and Cultural Control, 8) Chemical Control, 9) Examples of herbicides that can be used, and 10) References. Photos and line drawings were also included to ease weed identification. These fact sheets (Table 2) were web-published using the wiki format in the Bugwood HPIP web site ([http://wiki.bugwood.org/Main\\_Page](http://wiki.bugwood.org/Main_Page)). Finally, these fact sheets were linked to a Lucid Key to identify common agricultural and rangeland weed species

2. Train authors to update and modify the fact sheets

Because the fact sheets were loaded into the Bugwood HPIP site in a wiki format, the authors will be ultimately responsible for updating them. We conducted three training program using the Adobe Connect Pro platform to train authors on how to upload information into their wiki fact sheets.

3. Disseminate the online Guide across a wide audience

As part of our regular extension activities, we disseminated the online Guide to County Extension agents, farmers, ranchers, natural resource managers, and others across the region.

**E. Outputs.** List your project's outputs, which might include publications, information, data, meetings held, attendance at meetings held, etc.

A total of 99 fact sheets containing management ecology, biology, and management information on cropland and rangeland weeds have been produced and web published using the wiki format in the Bugwood HPIP web site ([http://wiki.bugwood.org/Main\\_Page](http://wiki.bugwood.org/Main_Page)). The fact sheets were promoted in approximately 35 extension/outreach meetings, reaching more than 1,500 participants. Our goal is to continue incorporating the information presented in these fact sheets into our extension and outreach activities. We integrated these fact sheets into an electronic Lucid Key to identify common agricultural and rangeland weed species.

**F. Impacts and Potential Impacts.** The "impacts" and "potential impacts" sections of your report will

help the Western IPM Center highlight the value of IPM research and education by detailing the real-world impacts of Center-funded projects. We will use the information in news articles, reports, and informational brochures to showcase the impacts of projects that our program supports. *See Attachment A at end of form for questions to assist you in describing the impacts of your project.*

**1. Impacts.** Describe any impacts of your work. *Impacts* are specific changes in condition for those affected by your work. Impacts include adoption of technology, creation of jobs, reduced cost to the consumer, less pesticide exposure to farmers, access to more nutritious food, and a cleaner environment and healthier communities.

The development and distribution of weed biological and ecological information as well as the integration of this information with biological, cultural, mechanical, and chemical management recommendations provides the foundational bedrock to develop IPM recommendations. The information presented in the weed fact sheets as well as its integration with the electronic id key has significantly improved the delivery of IPM strategies. Users across the High Plains Region can use this HPIPM web site to obtain information on reduced-risk pest approaches and adapt this knowledge to the specifics of where they live or work. Additionally, the weed information enhances the High Plains IPM Guide by providing users with a single starting point for pest management for all regionally important pests.

**2. Potential impacts.** Describe your project's potential impacts. *Potential impacts* are the ways that your project's outputs could directly lead to changes in condition that will unfold in the future.

The 2007 Pest Management Strategic Plan, published by the National Information System for the Regional IPM Centers (available online <http://www.ipmcenters.org/pmsp/index.cfm>), identifies the need of providing research-based information on integrated approaches to manage weeds as a regional priority for increasing systems' efficiency. However, prior to this project the High Plains IPM site failed to provide such information. The addition of biological, ecological, and management information on agricultural, rangeland, and wildland weeds into the High Plains IPM Guide provides necessary information to facilitate the development and adoption of IPM practices across the region. The integration of the information generated in this project with an on-line weed id key will further promote the adoption of integrated management practices.

**G. Leveraged Funds.** List *additional funding* you have acquired because of the data and results yielded in this WIPMC-funded project.

**Additional Funding Award #1:**

Date of Award: 6/2008  
Dollar Amount: \$54,262  
Grant Period Duration: 6/2008 -  
5/2010

Name of Granting Entity: USDA -WIPM  
Name of Grant Program: An Electronic, Multi-entry key for  
Identifying Weedy Plant Species in Small Grain Fields

**Additional Funding Award #2:**

Date of Award:  
Dollar Amount:  
Grant Period Duration:

Name of Granting Entity:  
Name of Grant Program:

**Additional Funding Award #3:**

Date of Award:  
Dollar Amount:  
Grant Period Duration:

Name of Granting Entity:  
Name of Grant Program:

**H. Appendices**

1. With your report, please attach *at least two (2) photographs* that illustrate your project. Please describe the photo and indicate the name and institution of the person who took the photo. (If you submit more than two photographs, please include those additional descriptions and photo credits under "I. Additional Information," below.)

Photo #1 description:

This web-based project didn not involve any field activity. Therefore, we do not have photos available to report

Photo #1 credit (photographer's name and institution):

Photo #2 description:

Photo #2 credit (photographer's name and institution):

2. Also attach any printed fact sheets or other publications resulting from your work that will enhance our understanding of your project and its impacts. Please provide a description of each attached publication below.

Document #1 description:

Table 1. Names and affiliation of authors contributing to the weed fact sheets published at the Bugwood HPIPIM web site ([http://wiki.bugwood.org/Main\\_Page](http://wiki.bugwood.org/Main_Page))

Author	Affiliation
Evette Alison	Montana State University
Terry Angvick	Sheridan County Extension, Montana State University
George Beck	Colorado State University
Elizabeth Brown	Colorado Natural Areas Program, Colorado State Parks
Jeff Edwards	Goshen County Extension, University of Wyoming
Sandra Frost	Big Horn Area (Park and Powell Counties), University of Wyoming
Melissa Graves	Montana State University
Jim Jacobs	NRCS, Montana
Joe Julian	Douglas County, Colorado State University
Drew Andrew Hulting	Oregon State University
Steve Lackman	Yellowstone County Extension, Montana State University
Drew Lyon	University of Nebraska-Lincoln
Jane Mangold	Montana State University
Mark Major	Teton County Extension, Montana State University
Michael Moechnig	South Dakota State University
Hilary Parkinson	Montana State University
Tim Prather	University of Idaho
Mary Rumph	Powder River County Extension, Montana State University
Lowell Sandell	University of Nebraska-Lincoln
Rachel Soto	Meagher County Extension, Montana State University
Jack Stivers	Lake County Extension, Montana State University
Cheryl Wilen	University of California, Davis

Document #2 description:

Table 2. Common names of weed species fact sheets published at the Bugwood HPIPM web site ([http://wiki.bugwood.org/Main\\_Page](http://wiki.bugwood.org/Main_Page))

alfalfa	dogbane, hemp	nightshade, black
barley, foxtail	dyer's woad	nightshade, hairy
barnyard grass	falseflax, small seeded	nightshade, silverleaf
bedstraw, common	fiddleneck, coast	pepperweed, perennial
bindweed, field	filaree, red stemmed	pigweed, redroot
bluegrass, annual	flixweed	pineappleweed
bluegrass, bulbous	foxtail, green	prickly lettuce
brackenfern	foxtail, yellow	puncturevine
brome, downy	garlic, wild	purple loosestrife
brome, Japanese	goatgrass, jointed	purslane, common
brome, ripgut	goldenrod	quackgrass
buckwheat, wild	groundsel, common	rye, cereal
buffalobur	hawkweed, orange	ryegrass, annual
burdock, common	hemlock, water	salt cedar
bursage	henbit (dead nettle)	shepherd's purse
buttercup, bur	houndstongue	sorrel, red
camas, death	jimsonweed	sowthistle, annual
canarygrass, littleseed	johnsongrass	sowthistle, perennial
carrot, wild	knapweed, diffuse	sowthistle, spiny
chamomile, false	knapweed, Russian	speedwell
chamomile, mayweed	knapweed, spotted	spurge, leafy
cheat	knotweed, prostrate	sulfur cinquefoil
chickweed, common	Kochia	thistle, Canada
chickweed, mouse-ear	lambsquarters, common	thistle, musk
chicory	mallow, common	thistle, plumeless
cockle, cow	mallow, Venice	thistle, Russian
cockle, white	meadow hawkweed	toadflax, Dalmatian
cocklebur	milkweed, common	toadflax, yellow
common St. Johnswort	millet, wild proso	velvetleaf
crabgrass	mullein, common	whitetop (hoary cress)
daisy, oxeye	mustard, blue	witchgrass
dandelion, common	mustard, tumble	wormwood, absinth
dock, curly	mustard, wild	yarrow, common
		yellow starthistle

Document #3 description:

### I. Additional Information

*Credit: Some of the language about impacts and potential impacts was adapted from a PowerPoint presentation by H. Michael Harrington, Executive Director, Western Association of Agricultural Experiment Station Directors, Colorado State University.*

## Attachment A

### Questions to Help in Reporting Impacts and Potential Impacts

Below are some questions that will guide you in assessing and then describing the impacts and potential impacts of your project. The relevance of each question may vary depending on whether yours is a research or extension project. Please answer as many as you can to the best of your ability, and feel free to describe any additional types of impacts not mentioned below. Remember to identify any potential impacts.

**1. Innovations in IPM:**

Are there new IPM practices that have been (impacts) or could be (potential impacts) adopted as a direct result of your project? What is the total number of acres (or homes, schools, greenhouses, nurseries) on which these practices could realistically be implemented?

**2. Safeguarding human health and the environment:**

- a. Has the project reduced risk (or could it potentially do so) by changing the use of pesticides on farms, in homes, in schools, etc.? For example, could it result in fewer sprays per season or a switch to lower-risk pesticides? If possible, quantify the changes in condition. (Since there is no unanimous definition of *high* and *low risk*, investigators selecting this indicator are asked to categorize the pesticides they are reporting on as *high* or *low risk* according to the particular situation [e.g., lower risk to natural enemies]).
- b. Are there any other impacts or potential impacts on human health or the environment as a result of your project?

**3. Economic benefits:**

- a. What is (or could be) the economic benefit (e.g., dollars saved) for clientele who adopt IPM strategies and systems you studied? Do you envision potential commercialization or mass production of these systems?
- b. How many clients are satisfied with IPM results (such as improved yield, improved quality of yield, reduced pest populations, more effective pest control, greater preservation of nonpest species)?
- c. Are there other financial benefits that might be realized (potential impact) as a result of your project?

**4. Implementation of IPM:**

- a. How many IPM strategies and systems have been validated through this project (e.g., through on-farm trials, large plot tests, or other methods used to confirm efficacy)?
  - b. How many educational materials were delivered? To whom? And what are the impacts or potential impacts?
  - c. What is the number of growers/personnel trained? And what are the impacts or potential impacts?
  - d. For a Web site, what volume of traffic and type of use has the site experienced? (For example, number of visitors per day or month; number of page views; number of unique user sessions; change in volume during growing season; average viewing time.) And what are the impacts or potential impacts?
  - e. How many more people adopted IPM practices as a direct result of your project, or how many people adopted new IPM practices?
  - f. Are there other ways in which your work will result in improved use or increased implementation of IPM strategies in your region or across the West?
5. Has your project or study increased collaboration among stakeholders interested in the development and implementation of improved IPM strategies and systems?