

Western IPM Center Project Report Form

How to submit: Please submit this completed form electronically, as an attached Microsoft Word file, to Frank Zalom at fgzalom@ucdavis.edu. **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: October 25, 2009

Reporting Period: 2008/2009

Report Type (please check one):

Progress Report Final Report

B. Grant Data

- Grant Agreement #: 4W2251
- Title: An Electronic, Multi-entry key for Identifying Weedy Plant Species in Small Grain Fields
- Grant Type: Western Region IPM Competitive Grants Program
- Lead investigator:
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- Team members (name, title, institution): Ned Tisserat, Professor. Colorado State University. Ronda Koski, Research Associate, Colorado State University
- State(s) involved: Montana, Colorado

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)

Rapid and accurate weed identification is at the core of an integrated pest management approach. A major limitation hindering weed identification is the decreasing availability of taxonomic services available to crop producers, crop management advisors, county extension agents, diagnosticians, and others associated with crop production. To fill this gap, using commercially available software (Lucid Builder™), we are developing an electronic multi-entry key for identifying weedy plant species in small grain fields. When complete, this key will provide easily accessible resources for weedy plant species identification linked to current information on weed biology and ecology as well as chemical and non-chemical control recommendations.

The key under development will cover common western crop and rangeland weeds and will be available through the BugWood Wiki internet site. Field-based characters used in the key include habitat, plant growth habit, current life stage, life cycle, leaves characteristics, inflorescences morphology, presence and type of fruits, lower stem and underground structures, and helpful resource to ID weeds. Photos and drawing are included as an aid to identification. Illustrated fact sheets provide detailed ecological and biological descriptions as well chemical and non-chemical management recommendations for many of the weedy plant species featured in the key.

We plan to conduct training sessions targeted towards extension specialists, diagnosticians, crop advisors, and growers to demonstrate how to use this key. By proving an easy to use diagnostic tool with links to up-to-date IPM recommendations, user of the key will be more likely to adopt and implement integrated management practices that specifically target the problematic weedy plant species.

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

Objective 1: Develop a multi-entry key to aid the in the identification of weedy plant species that occur in small grain production fields.

To date, a total of 154 species have been entered in the electronic multi-entry key. Curently, we are in the process of entering and revieweing an additional 160 species. When finished, the electronic multi-entry key will allow user to identify a total 314 of weeds belonging to 40 families.

Objective 2: Integrate the multi-entry weed identification key with web-based weed management information.

With funds provided by WIPM, we coordinated 22 authors from 7 states to produce fact sheets containing information on the biology, ecology, and integrated management of agricultural and rangeland weeds. Hitherto, a total of 99 fact sheets have been produced and web published using the wiki format in the Bugwood HPIPM web site (http://wiki.bugwood.org/Main_Page). We have linked several of these fact sheets to the electronic multi-entry key. We will continue producing fact sheets and integrating them into the multi-entry key.

Objective 3: Conduct training sessions to train extension specialists, diagnosticians, crop advisors, and growers to use the multi-entry weed identification key

We have conduced one training session targeted towards extension specialists to demonstrate how to use this key. When finished, we will continue conducting this type of training sessions as part of our regular extension activities. We will also produce news releases and a technical bulleting to explain and promote the use of the guide.

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

We are currently developing and evaluating a powerful, user-friendly and informative resource that will allow stakeholders across the region to identify weedy plant species identification. This information will be enhanced with figures, photos. Furthermore, it will be linked to information on the biology, ecology, and current chemical and non-chemical management recommendations. Approximately, 50% of the multi-entry key is finished. When complete, this recourse will provide growers, crop advisors, extension agents, diagnosticians and others associated with crop production with an easy to use aid to indentify and manage small grains weeds.

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.

Because the multi-entry key is still under development, it is still too early to report impacts.

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.

When complete, the multi-entry key will provide users of the High Plains IPM Guide with a user friendly tool to identify weeds. Because the multi-entry key will be linked to with fact sheets containing information on agricultural weeds and invasive species biology, ecology, and management it will improve the delivery of IPM programs across the region.

G. 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 “H. Additional Information,” below.)

Photo #1 description:

Screen shoot showing the multi-entry key to weedy plants in small grain fields

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:

Document #2 description:

Document #3 description:

H. 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?