

Enhancement of the High Plains Integrated Pest Management Guide for Colorado, Western
Nebraska, Wyoming, and Montana

<http://www.highplainsipm.org/>

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Background

The hard copy version of the High Plains Integrated Pest Management Guide for Colorado, Western Nebraska, Wyoming, and Montana was first published in 1998, with the objective of replacing the recommendation guides produced by individual states. Resources for producing and updating guides had become increasingly scarce, and the Guide authors were of the opinion that a combined effort would produce a much more comprehensive and useful publication. Additionally, the agricultural production environment was sufficiently uniform across the contiguous 4-state area that single recommendations could be made for the region for a given pest problem.

In total, 19 entomologists and plant pathologists from the four states have contributed to the Guide. The first hard copy version of the Guide exceeded 300 pages and provided arthropod pest and disease recommendations for most crops grown in the region. Several introductory chapters were developed, as well as crop chapters. Individual pest sections in the crop chapters provided, where available, information on identification, plant damage, nonchemical management approaches, treatment decisions, and chemical control. Several attempts were made to include weed management information, however, alternative information sources had already been developed, and there was little interest in duplicating those efforts. Links to several state weed management recommendations are provided in the Guide.

The content, format and structure of the Guide were based on the experience of the authors as to what had worked well for their individual state guides. The size of the printed Guide precluded major changes except during major revisions every fifth year. Updates, primarily addressing pesticide product availability, were developed and distributed annually. It was left up to individual Guide owners to incorporate the changes. This process proved cumbersome, and there was little evidence that updates were being used appropriately. The Guide authors, therefore, decided to convert to an online document to provide more flexible, timely and efficient updates. The online document also gave us much greater ability to improve the content, format or structure of the Guide or its components as the need arose. The Guide is now available only electronically, and the hard copy version is no longer supported (however, users can request that sections of the guide be printed and sent to them). The electronic version of the Guide seems to have been well accepted, with average daily visits increasing from six to 144 since it first became available.

Our newfound flexibility regarding changes in content, format, and structure prompted us to start a stakeholder group consisting of representatives of various segments of agriculture across the four state region (e.g. crop consultants, Extension educators, chemical industry representatives, regulatory specialists). This group met once in March, 2003, in Scottsbluff, NE

for a hands-on in-depth review of the Guide and provided us with a number of suggestions for improving the Guide. We remain in contact with members of the stakeholder group, but until now we have not proposed further major changes to them.

Progress to Date

Improvements suggested by the stakeholder group fell into one of three categories: Improvements to existing content; new subject areas; and increased Guide usability. The suggestions from the stakeholder group and progress towards meeting these recommendations are described below.

Improvements to existing content

1. Addition of a searchable color image database and inclusion of line drawing reminder images.

Color insect and disease images from the Colorado State University Department of Bioagricultural Sciences and Pest Management Agimage database have been made available and can be accessed by a keyword search. Higher resolution versions of these images suitable for other electronic applications and printed publication are available for purchase.

Black-and-white insect icons, which serve as reminders as to which pest is being discussed, have been added to all insect related articles in the Guide. Not all articles had these in previous versions.

2. Update plant disease articles, with content and formatting more consistent with arthropod pest articles.

Most of the plant disease articles have been updated in this manner, and are being processed so they can be added to the Guide in the near future.

3. Make articles more uniform regarding pest biology, damage, and monitoring.

The recent revisions to the plant disease and vegetable pest articles have emphasized this objective.

4. Continue to update all articles.

Many of the vegetable pest articles have been extensively updated. Other arthropod pest articles have had more limited updating, to reflect recent changes in product registrations.

New subject areas

1. Addition of new articles on livestock, natural enemies, organic production, and sod.

Articles on livestock (cattle, horses, sheep, swine), common natural enemies, organic insecticides, and sod have been added.

2. Add links to related sites.

Links to regional weed management guides have been added, in addition to links to emergency and special local needs registration lists at the corresponding departments of agriculture.

Improved Guide usability

1. Make the Table of Contents section more usable.

A new “skin” has been added as the first page to the Guide. This page provides quick links to tables of content for the main sections (General, Crops, Livestock, and Horticulture).

2. Reorganize the introductory articles.

A general topics section has been organized, so as to make the introductory articles more apparent and accessible. The general articles and supporting links provide users with background information on the diverse crop and pest specific articles.

3. Make small files available for downloading via slow network connections.

Small screen (HTML) files are available for every article. Larger formatted versions (.doc) remain available to preserve graphs and other complex features.

Proposal

We have accomplished most of what the stakeholder group recommended to us. We are now interested in seeking new funding to implement several additional features for the Guide. These are described below, however, they have not yet been prioritized. We will contact you in the near future to get your input as to which of these improvements would be most worthwhile. We think we can get them all done eventually, but your opinions will determine what we try to get funded first.

1. **Incorporating AnswerLink into the Guide.** AnswerLink (http://ext-colostate.custhelp.com/cgi-bin/ext_colostate.cfg/php/enduser/home.php) is an interactive question and answer system, based on RightNow customer service software (<http://www.rightnow.com/poweredbyrnt.html>), developed by Colorado State University Cooperative Extension. We would break the Guide down into questions and answers to populate the AnswerLink database, and we would make the Guide authors available for specific questions from AnswerLink and Guide users. This feature would add interactivity to the Guide, which has not been possible to date.
2. **Providing Lucid keys to pests and diseases contained in the Guide.** Lucid is expert system software (<http://www.lucidcentral.com/about/>) that allows the development of identification and diagnostic tools. We would develop Lucid keys to the pests and diseases in the Guide, which would function as an interactive index to allow users to identify and diagnose unknown problems before accessing the crop pest and disease information. Currently the Guide is most useful to users who already know what problem they are dealing with.
3. **Developing portable versions of the Guide.** Currently, Guide users must be connected to the Internet to access Guide information. Pest management decisions,

however, are generally made in the field. Many users, therefore, would find it useful to be able to bring the Guide to the field. We would develop versions of the Guide that could be run from a CD-ROM or from a handheld computer or PDA.

4. **Improve the availability of digital images in the Guide.** The Guide currently has a limited ability to provide pest images from the Colorado State University AgImage database to viewers (<http://highplainsipm.org/HplPMImage/ImageSearch.exe>). We would improve the pest images by selecting and linking one or a few of the most appropriate images for each pest from the AgImage collection, and possibly add links to other collection.
5. **Add links to pest identification and diagnostic services.** As indicated in #3, users with unknown problems are limited in their ability to access Guide information. We would add links to the Great Plains Diagnostic Network, as well as to state identification and diagnostic clinics. This would help users find management information on unknown problems.