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## New software estimates soybean yield losses

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## New software estimates soybean yield losses

### **Abstract**

The genetic yield potential of soybeans in the midwestern United States is estimated to be approximately 100 bu/acre based on results from small plot studies. However, field and statewide average yields are much lower each year. Do you ever wonder how much yield was lost from different stresses or management decisions made during the year? Iowa State University has developed a Web-based system to help you estimate yield losses due to different stresses and management practices. The software, called WebGro, was developed with funding from the Soybean Research and Development Council and is the culmination of six years of research to study the effects of interacting stresses on soybean yield.

### **Keywords**

Agricultural and Biosystems Engineering

### **Disciplines**

Agricultural Science | Agriculture | Bioresource and Agricultural Engineering

# INTEGRATED CROP MANAGEMENT

A photograph of a person in a field, possibly a farmer or researcher, with large, stylized text overlaid on the image. The text reads "INTEGRATED CROP MANAGEMENT". The background shows a field with tall grasses and a person in the distance.

## **New software estimates soybean yield losses**

The genetic yield potential of soybeans in the midwestern United States is estimated to be approximately 100 bu/acre based on results from small plot studies. However, field and statewide average yields are much lower each year. Do you ever wonder how much yield was lost from different stresses or management decisions made during the year? Iowa State University has developed a Web-based system to help you estimate yield losses due to different stresses and management practices. The software, called WebGro, was developed with funding from the Soybean Research and Development Council and is the culmination of six years of research to study the effects of interacting stresses on soybean yield.

WebGro is a Web-based soybean decision support system (DSS) built on the CROPGRO-Soybean model. The purpose of WebGro is to help soybean producers in the midwestern United States understand how different stresses interact to limit soybean yield in their fields. Stresses include water, soybean cyst nematode, herbicide injury, Rhizoctonia root rot disease and hail damage. The user can set up a field scenario by selecting variety, planting date, plant population, soil type and the nearest weather station using a Web form.

Different stress levels can then be entered and the soybean model can be run interactively, simulating the effects of one or more stresses at a time. The user can evaluate the yield loss relative to running the model with all stresses turned off (yield potential) to determine the effect of different combinations of stresses on yield. WebGro is available at <http://webgro.ae.iastate.edu>.

## **Training Workshops**

The Iowa Soybean Promotion Board has funded a one-year pilot project for us to provide WebGro training to approximately 100 crop consultants, extension specialists, agribusiness professionals and producers. The purpose of these workshops is to provide training and obtain feedback from users that will be used to enhance the software in the future. We will provide a short lecture covering the calculations behind WebGro, followed by "hands on" training. Each participant will have the opportunity to set up a field and run the software.

## **Registration and CCA Credits**

The workshops are free, however each participant must register in advance. The registration form can be downloaded or printed off the Internet at <http://webgro.ae.iastate.edu>. Click on the button called "Register Now for WebGro Training." Due to space limitations, only the first 20 applicants will be accepted for each workshop. Upon accepting your application, we will mail you details about meeting location and some background reading on WebGro.

Participants are encouraged to explore WebGro at the Web site before the workshop. We are applying for 2 Certified Crop Adviser credits for this workshop.

## Workshop Location and Dates

The training workshops will be offered on the following dates:

Date	Town	Time
Nov. 20, 2003	Carroll, IA	6:00-8:00 pm
Dec. 2, 2003	Ames, IA	4:30-6:30 pm
Dec. 4, 2003	Ames, IA	4:30-6:30 pm
Jan. 6, 2004	Sheldon, IA	4:00-6:00 pm
Jan. 15, 2004	Mason City, IA	4:00-6:00 pm
Jan. 16, 2004	Waterloo, IA	4:00-6:00 pm

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