

# Commodity Crop Production

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## V(A). Planned Program (Summary)

### 1. Name of the Planned Program

Commodity Crop Production

## V(B). Program Knowledge Area(s)

### 1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		20%	
204	Plant Product Quality and Utility (Preharvest)	20%		20%	
205	Plant Management Systems	30%		20%	
206	Basic Plant Biology	10%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		10%	
212	Pathogens and Nematodes Affecting Plants	10%		10%	
213	Weeds Affecting Plants	10%		5%	
216	Integrated Pest Management Systems	10%		10%	
<b>Total</b>		100%		100%	

## V(C). Planned Program (Inputs)

### 1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	11.9	0.0	98.2	0.0
<b>Actual</b>	11.4	0.0	149.9	0.0

### 2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c 262959	1890 Extension	Hatch 820564	Evans-Allen 0
1862 Matching 419783	1890 Matching 0	1862 Matching 10721793	1890 Matching 0
1862 All Other 65686	1890 All Other 0	1862 All Other 11253797	1890 All Other 0

**V(D). Planned Program (Activity)****1. Brief description of the Activity**

In 2007, 690 events and many other consultations reached the commodity crop industry in 2007. Wide dissemination of information to targeted media provided research-based information on current topics to address dramatic changes and challenges in Minnesota's commodity crops industry this year. Over 50 media updates addressed bio-diesel byproducts, farm bill changes, organic farming, fluctuations in prices, the effects of drought on farm safety, carbon credits, diseases, global warming and more. Popular web sites include crops E-news and a site targeted at managers of pesticides.

Research focused on management systems for profitability, control of pests and fungal diseases, development of crop varieties, and basic research in genomics. Some specific projects are reported under the outcomes section. Important progress in research on commodity crops in 2007 include:

- As a result of research on biological control of soybean aphid, permission was granted to release the Chinese parasitoid *Binodoxys communis* against the soybean aphid and releases began in the summer of 2007. These releases were the first-ever releases of an exotic soybean aphid parasitoid that was collected on soybean aphid in Asia in North America. The potential impact of these releases is a substantial decrease in the need for insecticide sprays against this pest.
- Progress in nitrogen management in sugarbeet production has increased purity in the extraction process by 2% and reduced nitrogen applications over 120,000 acres by 30 pounds per acre.
- Oat-maize addition lines allow the rapid mapping of maize DNA sequences to their respective chromosome. The lines have been distributed to approximately 70 research groups around the world and are being used in various gene mapping projects and many other applications.
- To increase the diversity of rust resistance in barley, 318 Wild Barley Diversity Collection accessions from the Fertile Crescent, Central Asia, North Africa and the Caucasus region were evaluated for resistance to leaf rust and stem rust. The results indicate that wild barley is a rich source of rust resistance genes for cultivated barley improvement.

**2. Brief description of the target audience**

The primary audiences are the producers of corn, soybean, small grains and sugar beets. The secondary audience is the consultants who have commodity crop producers as their customers.

**V(E). Planned Program (Outputs)****1. Standard output measures****Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	36300	20000	0	0
2007	46967	25317	3260	0

**2. Number of Patent Applications Submitted (Standard Research Output)****Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	3
2007:	1

**Patents listed**

PVP for RB07--new hard red wheat variety

**3. Publications (Standard General Output Measure)****Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>			
2007	10	190	200

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

Conduct regional and local events to provide producers with latest applied research for improved crop management. (Target expressed as number of events)

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2007	100	690

**Output #2**

**Output Measure**

On-farm research will be conducted and result in findings that will inform producers about best management practices.

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2007	0	0

**V(G). State Defined Outcomes**

<b>O No.</b>	<b>Outcome Name</b>
1	Improve irrigation water use efficiency by having irrigating farmers use at least two irrigation water monitoring tools to support their irrigation water scheduling decisions. (Target expressed as percentage of farmers adopting tools)
2	At the completion of each training event, participants will show increased knowledge of appropriate crop technology production practices (Target expressed as a percentage of participants.)
3	Participants will gain research-based knowledge in crop and water management and workplace safety. (Target expressed as the number of direct person contacts reporting new research-based knowledge.)
4	Participants will act on university-based research they learned. (Target expressed as the number of direct person contacts from meetings who acted on information associated with their Extension learning.)
5	Research on existing and emerging crop diseases will raise grower awareness on management strategies.

**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

Natural Disasters (drought, weather extremes, etc.)

Economy

**Brief Explanation**

The content of programming and outreach in 2007 responded to new public policy (e.g., carbon credits) and disasters that profoundly affected crops managers this year.

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

Retrospective (post program)

**Evaluation Results**

An evaluation of the SE Minnesota research and demonstration program included responses from 499 farmers. The 2007 Pest Management Assessment showed that 47% of respondents regularly used University or independent research-based resources and website, over 34% using private industry resources. When asked what sources they valued most when selecting crop varieties, not surprisingly, 74% trusted their own past experience with those varieties. But second in importance (48%) was information from University or research-based variety trials.

**Key Items of Evaluation**

This evaluation showed that, as a result of Extension programming

•60% of respondents now keep more detailed field records. •53% have implemented more safety precautions when working with pesticides. •57% have increased the frequency of crop monitoring and field scouting.