

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Global Food Security and Hunger - Integrated Pest Management

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation	8%		10%	
202	Plant Genetic Resources	2%		4%	
205	Plant Management Systems	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	15%		20%	
212	Pathogens and Nematodes Affecting Plants	6%		20%	
213	Weeds Affecting Plants	10%		5%	
215	Biological Control of Pests Affecting Plants	8%		5%	
216	Integrated Pest Management Systems	36%		20%	
601	Economics of Agricultural Production and Farm Management	4%		5%	
901	Program and Project Design, and Statistics	1%		1%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	3.5	0.0	2.0	0.0
Actual	5.0	0.0	5.8	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
150000	0	244043	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
150000	0	244043	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
670000	0	1561821	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct targeted research on pest status, suppression and IPM approaches
 Develop and deliver IPM programs to stakeholders
 Develop pesticide applicator education and pesticide information
 Assess impact of educational activities on stakeholder IPM

2. Brief description of the target audience

Agricultural Producers, Agricultural Groups, Commercial Growers, Retailers, Agricultural Professionals (private, commercial and non-commercial), and landowners, nurseries, individual stakeholders.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	1000	4600	0	0
Actual	6798	105400	200	0

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	4	4	
Actual	45	4	49

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Stakeholder assessment

Year	Target	Actual
2010	0	14

Output #2

Output Measure

- IPM schools, conferences and workshops

Year	Target	Actual
2010	10	26

Output #3

Output Measure

- Pesticide applicator education schools and workshops

Year	Target	Actual
2010	21	21

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Peer reviewed research publications and extension publications
2	Increased use of pest management approaches for targeted cropping system acres
3	Number of trained certified pesticide applicators
4	Increase in percent of growers with knowledge of and adoption of Glance n Go aphid sampling procedure in wheat
5	Acres of canola under aphid management

Outcome #1

1. Outcome Measures

Peer reviewed research publications and extension publications

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5	49

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Increased use of pest management approaches for targeted cropping system acres

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	4500	27000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Prior to the last two years cotton yield losses due to horseweed (*Conyza canadensis*) have been steadily increasing. Many times producers have stated (and visual surveys around the state confirmed) that uncontrolled or under controlled populations have become so severe that their cotton is deemed un-harvestable. Uncontrolled weeds are often responsible for some of the discrepancy between planted and harvested acres in Oklahoma.

What has been done

Several research projects have been initiated focusing on effective control measures for horseweed in no-till cotton production. The results of these projects have been distributed across the state each year to individual growers, cotton gins and county agricultural educators in order to publicize the effectiveness of these programs and increase awareness of effective control strategies. In addition to these materials, effective control strategies have been presented at over a dozen grower meetings in the states cotton growing regions as well as at national meetings.

Results

As a result, Oklahoma's ratio of harvested to planted acres has increased in both 2009 and 2010 (>94%). In 2010 growers communicated (and visual surveys confirmed) that fewer acres were lost to uncontrolled horseweed than prior years. Oklahoma planted 285,000 acres and harvested 270,000 of those acres in 2010 (an increase of 75,000 from the year before). In addition the state's average yield was one of the highest on record at approximately 740 lbs/Acre. Many growers have personally commented on the effectiveness of our recommendations and our message about "timely" control for horseweed in no-till cotton. Implementing these recommendations has proven very effective for many no-till cotton producers across the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Number of trained certified pesticide applicators

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

213	Weeds Affecting Plants
216	Integrated Pest Management Systems
901	Program and Project Design, and Statistics

Outcome #4

1. Outcome Measures

Increase in percent of growers with knowledge of and adoption of Glance n Go aphid sampling procedure in wheat

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

We had research and extension IPM programs targeted at SW Oklahoma wheat growers and their needs to improve yields and net profit per acre. Ten programs were conducted on diseases and insects that effect wheat. Programs included discussions on identification, evaluation of populations, economic thresholds, remedial control and loss prevention.

What has been done

Demonstrations on varieties, diseases and insect tolerance and seed treatment testing were located in nine strategic locations in SW Oklahoma. Plot tours with control and prevention techniques were discussed at these locations. In addition ten meetings were held that offered results of wheat research on disease and insect IPM. Information on IPM was discussed and results were used by growers in making control decisions. Pest identification, damage and control measures were implemented by growers in the region. More than 500 growers attended wheat IPM meetings and 1,050 growers used IPM disseminated in SW Oklahoma.

Results

Growers replaced former varieties with Duster which is resistant to the Hessian Fly. This saved at least 15 bushels per acre from loss to the HF on 50% of the acres in SW Oklahoma. In addition the Glance and Go method of evaluating greenbug damage saved an average of \$5 per acre on 40% of wheat acres in SW OK. Information in winter Grain Mite and Brown Wheat Mite saved an average of \$5 per acre on 10% of the acres in SW OK. These savings were a result of using control measures only when economically feasible and using the most effective product for

control.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

Acres of canola under aphid management

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	75000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Canola acreage has increased from 5000 acres to more than 80000 in 2010. Key pests of canola include an aphid complex that includes the cabbage aphid, the green peach aphid and the turnip aphid. In addition, army cutworm was considered to be a problem in substantial acres in 2010.

What has been done

A survey of canola growers conducted in 2006 indicated that 90% of growers were either highly or moderately concerned with managing insect pests in canola, and 83% indicated that aphids were the most important pest.

Results

An aphid pest management plan was developed from research conducted by Dr. Kristopher Giles that combined seed treatment with field scouting and was able to save growers an average of \$30 per acre in spray costs. This resulted in a potential reduction of \$3 million in 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}