

Plant and Animal Protection

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Plant and Animal Protection

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		10%	
212	Pathogens and Nematodes Affecting Plants	25%		25%	
213	Weeds Affecting Plants	20%		20%	
215	Biological Control of Pests Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	20%		20%	
312	External Parasites and Pests of Animals	5%		5%	
315	Animal Welfare/Well-Being and Protection	15%		15%	
Total		100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	1.8	0.0	11.2	0.0
Actual	4.6	0.0	10.7	0.0

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

Extension		Research	
Smith-Lever 3b & 3c 249596	1890 Extension	Hatch 313919	Evans-Allen
	0		0
1862 Matching 249596	1890 Matching	1862 Matching	1890 Matching
	0	313919	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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- Research procedures and technology
- Papers, citations, patents
- Train students
- Dissemination of research results
- Educational workshops
- Conferences
- Commercialization of techniques and products

- Events began in mid winter with a Bovine Trichomoniasis meeting with 98 in attendance. Next were a series of workshops and a table top exercise on Agricultural Biosecurity.

An advisory council was formed to educate Quay commissioners on endangered species and the Grey wolf reintroduction program. Attendance reached more than 60% of Quay county producers with an average of 92% stating that they came away from the program with more information and knowledge than they had before the program.

- Field trials were conducted on commercial farms to determine how much impact alfalfa has on predation in pecan and cotton. The data in cotton suggests that our initial theory based on data from other states may not be appropriate for New Mexico. Data collected the last two years suggests that cotton in the Pecos Valley at least, depends on relatively constant immigration of predators from hay rather than periodic sudden influxes at cutting. If this holds true then hay is critically important for pest control in cotton and pecan in the Pecos Valley.

- Hay: Assuming conservatively just 1 application on 50% on the Pecos Valley acres and that we could reduce applications by only 75% (less than other states have accomplished), we would save over \$600,000 in the Pecos Valley alone. Similar results in other counties in NM would easily put savings over 1 Million per year.

- Cotton: Our data suggests that insecticide applications for square injury by bollworm could be almost eliminated in southern New Mexico. A 50% reduction of insecticide applications on non transgenic cotton is ambitious but achievable. Reducing inputs will help in retention of cotton as a rotation crop in the Pecos Valley, and would be the most important impact.

- Pecan: Our primary impact on pecan will be to avoid losses in yield from insect pests particularly as the landscape changes to a more monoculture environment favoring more insect pest outbreaks. Our strategy is to determine how to use smaller acreage of alfalfa to maintain populations of beneficial arthropods in pecan orchards.

- This year, the diagnostic clinic identified 5 new diseases previously not known to occur in NM – 2 fungal leaf diseases in Pistachio (Septoria leaf spot and Alternaria Late Blight), 1 bacterial disease in Catalpa (Xylella fastidiosa), 1 virus disease in Hops (Apple Mosaic Virus), and 1 virus disease in cowpea (Tomato Spotted Wilt Virus). Data on disease occurrence in the state is uploaded to the National Plant Diagnostic Network as part of our role as a state support lab for the Network.

- Participated in the National Legume IPM PIPE Survey. This project surveyed sentinel bean plots for viruses, foliar and soil-borne diseases. In New Mexico, we planted and maintained 5 sentinel plots (2 at the Clovis Ag Science Center and 3 at Leyendecker Plant Science Center). This project involved weekly plant status reports on growth and development as well as disease status. Twice during the growing season, 150 plant samples were collected and processed for 2 specific rust diseases (soybean rust and common rust) and 3 specific virus diseases (alfalfa mosaic virus, bean common mosaic virus and beet curly top virus). Data was uploaded on a weekly basis to the National IPM PIPE database which provided real time disease assessment for researchers and growers. Results from this year's survey found a new virus disease in cowpea.

- Plant pests and diseases are responsible for substantial economic losses every year in New Mexico and across the Southwest. First Detector Training Courses are designed to teach people the importance of early detection and mitigation of plant pest problems. Three First Detector Training Courses were conducted in this reporting period 9October 2007 – September 2008. Pre- and post-training exams were administered at the trainings. The overall score on the pre-tests was 80% and the overall score on the post-tests was 95% indicating a 15% increase in knowledge gained through the training. 86% of the participants indicated that the training gave them a considerable amount of new information and 11% indicated that the training gave them some new information. 100% of the participants said the training provided enough information to help them understand crop biosecurity issues. 100% of the participants indicated that as a result of the training they know who to contact if they think they have found an exotic or "high risk" pest.

- Grower Conference and Workshops: Educational programs on various subjects related to plant health

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management. 87 percent of the people in attendance at these conferences felt that they had increased their knowledge of the subject matter either "to a great extent" or "to a good extent.". A majority (over 81%) of the people in attendance indicated that they would attend other workshops on related subject matter as available.

- Additionally 86% of trainees indicated that they would change some aspect of their basic plant management practices based on knowledge gained in the training.

A predictive model for curly top in southern New Mexico developed by NMSU scientists has given growers information on the disease so that they can make informed choices on which management methods they will need to use to handle the disease pressure.

A better understanding of the role that the fungal endophytes of locoweed play in locoism, the genetics of the fungi, and the factors that influence toxin production will lead to new options to mitigate the disease locoism and its impact. Information generated thus far by NMSU researchers has changed knowledge significantly, in that fungal endophytes were not previously been known to be involved in locoism, much less responsible for the problem. Locoism is estimated to cost the NM livestock industry about \$2 million per year.

Information generated by NMSU scientiests regarding the effect of the pecan root-knot nematode on growth and nitrogen partitioning in pecan will aid producers in understanding the effects of this emerging nematode pest on infected trees. Such information is likely to be useful to producers interested in modifying orchard management strategies to reduce the impact of the nematode on pecan production.

2. Brief description of the target audience

Attention will be given to commodity organizations in or serving New Mexico producers as well as pesticide applicators, Master Gardeners and garden clubs, youth (4H, Future Farmers of America and other groups and conferences) and the general public.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2008	0	32	32

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

The specific output measures will vary according to the specific project being monitored. The development of research procedures and technology, training of students, publishing research papers, and disseminating research results via educational workshops, conferences, and Extension media are important outputs for the various projects falling under this planned program.

Year	Target	Actual
2008	0	0

V(G). State Defined Outcomes

O No.	Outcome Name
1	# of trained professionals
2	# of research publications
3	# of Extension publications
4	% producers adopting NMSU recommendations to protect plants and animals
5	Successful agricultural enterprises

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

Public Policy changes

Government Regulations

Competing Public priorities

Brief Explanation

New Mexico continues in a serious drought. Land use disputes exacerbate tensions between industry, agriculture, urban and domestic users.

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

1. Evaluation Studies Planned

During (during program)

Time series (multiple points before and after program)

Case Study

Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Comparison between locales where the program operates and sites without program intervention

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}