Biotechnology and Genomics

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Biotechnology and Genomics

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%	0%	5%	5%
135	Aquatic and Terrestrial Wildlife	5%	0%	5%	5%
136	Conservation of Biological Diversity	5%	0%	5%	5%
201	Plant Genome, Genetics, and Genetic Mechanisms	25%	0%	25%	25%
206	Basic Plant Biology	5%	0%	5%	5%
212	Pathogens and Nematodes Affecting Plants	5%	0%	5%	5%
302	Nutrient Utilization in Animals	5%	0%	5%	5%
303	Genetic Improvement of Animals	5%	0%	5%	5%
304	Animal Genome	10%	0%	10%	10%
311	Animal Diseases	10%	0%	10%	10%
721	Insects and Other Pests Affecting Humans	10%	0%	10%	10%
722	Zoonotic Diseases and Parasites Affecting Humans	10%	0%	10%	10%
	Total	100%	0%	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	1.0	0.0	10.0	0.0
Actual	1.9	0.0	1.1	1.0

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

Extension		Research	
Smith-Lever 3b & 3c 44205	1890 Extension 0	Hatch 31796	Evans-Allen 52000
1862 Matching 44237	1890 Matching 0	1862 Matching 96367	1890 Matching 100000
1862 All Other 107055	1890 All Other 0	1862 All Other 178773	1890 All Other 0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Processes of research studies, Dissemination of research results, Papers and citations, Commercialization of techniques and products, Development and implementation of educational programs/workshops, Dissemination of educational programs/workshops, Conduct research experiments, Conduct workshops, meetings, Develop products, curricula, resources, Conduct assessments/evaluation, Provide training, Work with media and establish and sustain partnerships.

2. Brief description of the target audience

Research scientists, Graduate students, and Teachers

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	250	1250	0	0
2008	238	1620	75	0

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

Patent Applications Submitted

Year	**Target**
Plan:	0
2008:	4

Patents listed

1. Expression System for Enzymes that Desaturate Fatty Acids
2. Filed disclosure with VTIP entitled: Genetic basis of the low phytate trait in the soybean line CX1834.
3. Method of Purifying Acidic Proteins Expressed in Plants
4. Reverse Engineering Genome-Scale Metabolic Network Reconstructions for Organisms With Incomplete Genome Annotation and a Completed Network for the Solventogenic Clostridium Acetobutylicum ATCC 824'

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	**Research**	**Total**
Plan	0	10	
2008	0	65	65

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

Number of research projects in program areas

Year	Target	Actual
2008	10	25

Output #2

Output Measure

Number of peer reviewed research papers published

Year	Target	Actual
2008	30	65

Output #3

Output Measure

Number of presentations

Year	Target	Actual
2008	40	100

V(G). State Defined Outcomes

O No.	Outcome Name
1	Number of samples evaluated by current and improved plant diagnostics methods related to biotechnology and leading to better detection and control procedures by producers
2	Number of projects determining parameters for environmental risk assessment for growth hormone transgenic Atlantic salmon
3	Number of projects addressing genetic improvement of aquaculture stocks through biotechnology
4	Number of projects on characterization of genes regulating wood formation in Arabidopsis and poplar
5	Number of projects maximizing tree growth and architecture for biomass production per unit of land area
6	Number of projects exploring genomics for developing disease resistant soybean cultivars
7	Number of projects focused on understanding the genetic basis of cyprinid herpes virus-3 resistance in common carp
8	Number of projects focused on identification of a potential marker in chickens for avian coccidiosis response
9	Number of projects exploring novel chemicals to block transmission of mosquito-borne infectious diseases
10	Number of projects addressing measures of dietary control of nutrient transporter expression in chickens
11	Number of projects exploring modulation of pathogenesis in disease vector mosquitoes by small RNAs
12	Number of projects exploring genomics of parasitic plants

Biotechnology and Genomics
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

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

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
Competing Public priorities
Competing Programmatic Challenges

Brief Explanation

Goals were basically met. There is considerable overlap of scientists working in this Planned Program and several others, namely 1-3 and 8-10, as biotechnology and genomica are used in addressing a wide range of activities in agricultural research. Government regulations and public policy affect the development and use of transgenic plants, but may encourage the use of other products of biotechnology for human or animal disease management.

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

1. Evaluation Studies Planned

Other (research)

Evaluation Results

Key Items of Evaluation