

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Improving Hatchery Production Efficiency

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals		80%		80%
307	Animal Management Systems		20%		20%
	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	0.0	0.3	0.0	0.5
Actual	0.0	0.0	0.0	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
0	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	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

Conduct field trials
Conduct method demonstrations
Publish results

Give presentations

1. Conduct research to determine the relationship between egg size and size at hatch for hybrid striped bass.
2. Conduct research to re-define the relation between temperature and egg stage duration.
3. Conduct research to determine ways of reducing cannibalism in tank culture of hybrid striped bass
4. Partner with Keo Fish Farm, Inc. to acquire seed stock from specific males and females

2. Brief description of the target audience

- Catfish farmers throughout Arkansas
- County Extension agents Hybrid striped bass fingerling producers Hybrid striped bass grow-out facility operators

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	5	50	0	0
Actual	22	300	6	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	0	0	
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Abstracts

Year	Target	Actual
2010	2	11

Output #2

Output Measure

- Number of Presentations

Year	Target	Actual
2010	2	14

Output #3

Output Measure

- Number of Refereed Journal Articles

Year	Target	Actual
2010	2	1

Output #4

Output Measure

- Number of Popular Articles and Newsletter Articles

Year	Target	Actual
2010	0	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Scientists and Producers That Learned What We Know
2	Number of Scientists and Producers that Use What We Know
3	Percent of Increase in Hybrid Striped Bass Fingerlings Produced in Arkansas
4	Number of Arkansans Gaining Access to Hybrid Catfish Information
5	Number of Arkansans Adopting Hybrid Catfish Production
6	Number of Arkansans Increasing Efficiency, Profitability Through Hybrid Catfish Production

Outcome #1

1. Outcome Measures

Number of Scientists and Producers That Learned What We Know

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	30	114

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Examinations of artificial spawning practices. Catfish producers in the state of Arkansas are interested in producing hybrid catfish. This practice requires a novel approach to spawning catfish and the integration of experimental data into practical approaches for the farmer.

Goldfish producers desire more control over breeding lineages because certain characteristics bring higher market value.

What has been done

Ongoing collaborations and planning of future projects with USDA laboratories in Stoneville Mississippi and Stuttgart Arkansas continue. Three presentations were delivered by graduate student Nick Barkowski over the previous 12 months describing research examining hybrid striped bass culture. Ongoing collaborations with Baxter Land Company in 2010 tested three forms of spawning aids catfish pituitary, carp pituitary, and LHRH to induce artificial spawning to produce hybrid catfish. Examinations of a system of passive grading of female catfish broodstock to select those ready for artificial spawning were continued. Graduate student Mini Jose, defended her MS thesis describing the use of spawning aids to the INAD permit holder, the USFWS.

One demonstration of induced spawning, using McDonald jars was conducted.

Results

Field trials of induction of artificial spawning techniques continue at Baxter Land Company. The primary tests consist of evaluation of different compounds to induce artificial spawning. Tests in 2010 consisted of evaluations of carp pituitary extracts, LHRHa, and catfish pituitary; overall rates for these fish were 86%, 80% and 86%, respectively. A general improvement in ovulation rates for LHRHa fish has been observed over the years of testing at Baxter Land Company, however the time between the resolving dose and ovulation is more variable than pituitary extracts. This latter

feature imposes some difficulties planning for personnel but comments from the farmer/hatchery manager provide some anecdotal evidence that there may be a difference in egg quality between pituitary extracts and LHRHa. This topic will be examined further in future studies. Evaluations at Baxter Land Company have been performed since 2006. During 2006 the average ovulation rate over the spawning season was 51% versus 86% in 2010 illustrating a general improvement in spawning success across this five year period. Continued improvements are needed in egg incubation and the efficiency of broodstock selection.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #2

1. Outcome Measures

Number of Scientists and Producers that Use What We Know

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	15	14

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Artificial spawning of channel catfish

What has been done

Baxter Land Company currently is the only Arkansas fingerling producer investing capital and energy in the development of artificial spawning practices for the production of hybrid catfish.

Results

One goldfish producer continues major investment in improved hatchery production through induced spawning.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems

Outcome #3

1. Outcome Measures

Percent of Increase in Hybrid Striped Bass Fingerlings Produced in Arkansas

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #4

1. Outcome Measures

Number of Arkansans Gaining Access to Hybrid Catfish Information

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	60	110

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Artificial spawning of channel catfish

What has been done

UAPB personnel and personnel at Baxter Land Company continue to develop approaches to the production of hybrid fry

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #5

1. Outcome Measures

Number of Arkansans Adopting Hybrid Catfish Production

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	7	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Artificial spawning of channel catfish

What has been done

One fingerling producer, the Baxter Land Company, in Arkansas has invested significant capital and energy into the production of hybrid catfish. Numerous farmers express an interest in rearing hybrid catfish and current supply does not meet the regional demand.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #6

1. Outcome Measures

Number of Arkansans Increasing Efficiency, Profitability Through Hybrid Catfish Production

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	7	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Government Regulations

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

Key Items of Evaluation