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Improving Market Coordination in the Catfish Industry in West Alabama

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HIGHLIGHTS

Problems within the Alabama catfish industry which limit market coordination, as perceived by producers and processors, were identified in this "mirror-image" survey study. Such information will allow improved market coordination to benefit both producers and processors as the industry expands. The specific findings are highlighted in the following 15-point summary.

(1) The most desirable marketing practice ranked highest by both producers and processors as needing improvement was market promotion. Primary catfish markets are currently concentrated in the Southeastern United States; therefore, increasing market promotion of farm-raised catfish in other regions would expand the potential of the industry.

(2) Both producers and processors strongly desired feedmills to label on bagged feed the percentage of raw ingredients used. This practice would help producers in selecting feeds which best satisfy the nutritional requirements for their catfish operation.

(3) Catfish feed is the major operating cost for producers. Both producers and processors desired improving the feed supply system by establishing a producer cooperative feed mill in west Alabama with the intention of lowering feed cost. Cooperative buying in bulk from present suppliers was also ranked as another important alternative for decreasing feed cost.

(4) Timely payment was ranked as the producers' most desired need. Producers preferred payments for catfish within 10 days after harvest.

(5) Producers with small and medium-sized operations strongly desired advanced scheduling of catfish harvest, while larger producers felt no need for improvement in this marketing service.

(6) Processors strongly desired a change in the method of weighing. Improved equipment such as an electronic scale with printed ticket records was suggested.

(7) "Hold-over" fish have been a recurrent problem. Processors strongly believed producers should alleviate this problem.

(8) If custom harvesting were available, live hauling would be an alternative market outlet for producers. Producers indicated the desire to utilize this service in marketing their own catfish when demand by processors was less.

(9) Producers desired a price premium for catfish harvested in late spring or early summer. By offering such a price premium, processors would help producers with their expenses of keeping the fish longer as well as spreading the fish supply over the year.

(10) Liability for the catfish during harvest has caused some problems. Producers believed liability for the fish at this stage fell totally on processors since they were doing the harvesting; however, some processors want to share this responsibility.

(11) Price establishment based on the relationships with Mississippi price at time of harvest was desirable for producers. Many producers suggested, as an alternative pricing agreement, the development of a "booking" process in which feed and catfish prices were "locked-in" 6 to 9 months in advance. Such an agreement would allow better production planning and financial management (cash flow) and decrease producers' risk in marketing their fish.

(12) For performance specifications and the pricing system, producers noted a desire for written contracts. Processors strongly desired to stay with the current method of using oral contracts.

(13) Lack of communication was identified as the reason for many of the differences between producers and processors.

(14) Reporting predicted volume of fish needed by processors for the next month was desired by the producers. Processors did not believe such a report could be developed because of time, money, and limited prior market information.

(15) Meetings and establishment of a bargaining association were ranked desirable by both producers and processors. These developments would help in fostering communication between the two groups.

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Improving Market Coordination in the Catfish Industry in West Alabama

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INTRODUCTION

THE CATFISH INDUSTRY in Alabama has seen rapid growth over the last decade. The growth has been centered in six counties in west Alabama where there were two large processing plants and 198 producers in 1983. In recent years, the rapid expansion has led to surpluses and declining prices for both producers and processors. However, a renewed expansion of the industry is expected over the next several years as producers respond to rising prices which will result from increased demand for catfish.

A major concern for the catfish industry in Alabama is its smooth and orderly growth. This can be accomplished by improving coordination of information and product flows from producers to consumers. The objective of this study is to identify and prioritize perceived problems within the catfish industry in west Alabama which limit market coordination from producers to consumers.

PROCEDURES

Information on current marketing practices was obtained from both producers and processors in west Alabama *(5)*. A field survey was conducted in five of the six counties in the production area: Hale, Dallas, Tuscaloosa, Perry, and Greene. A "mirror-image" survey, designed to compare producers' and processors' opinions about issues of mutual concern, was administered in a 5-week period during June and July 1983. This type of survey allowed for measurement of degree of

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[1] Former Graduate Research Assistant and Assistant Professor of Agricultural Economics and Rural Sociology, respectively.

market coordination between producers and processors and identification of bottlenecks in the marketing system *(3,4)*.

Total number of commercial catfish producers in the five-county study area is approximately 190. A cross-section of large- and small-scale producers was selected with assistance from the area extension agent. Thirty-nine producers, approximately 20 percent of the total, were interviewed.

Management personnel in key positions in the area's two large processing plants were selected and interviewed individually. Three individuals were chosen from each plant.

DESCRIPTION OF THE STUDY AREA

Land Characteristics

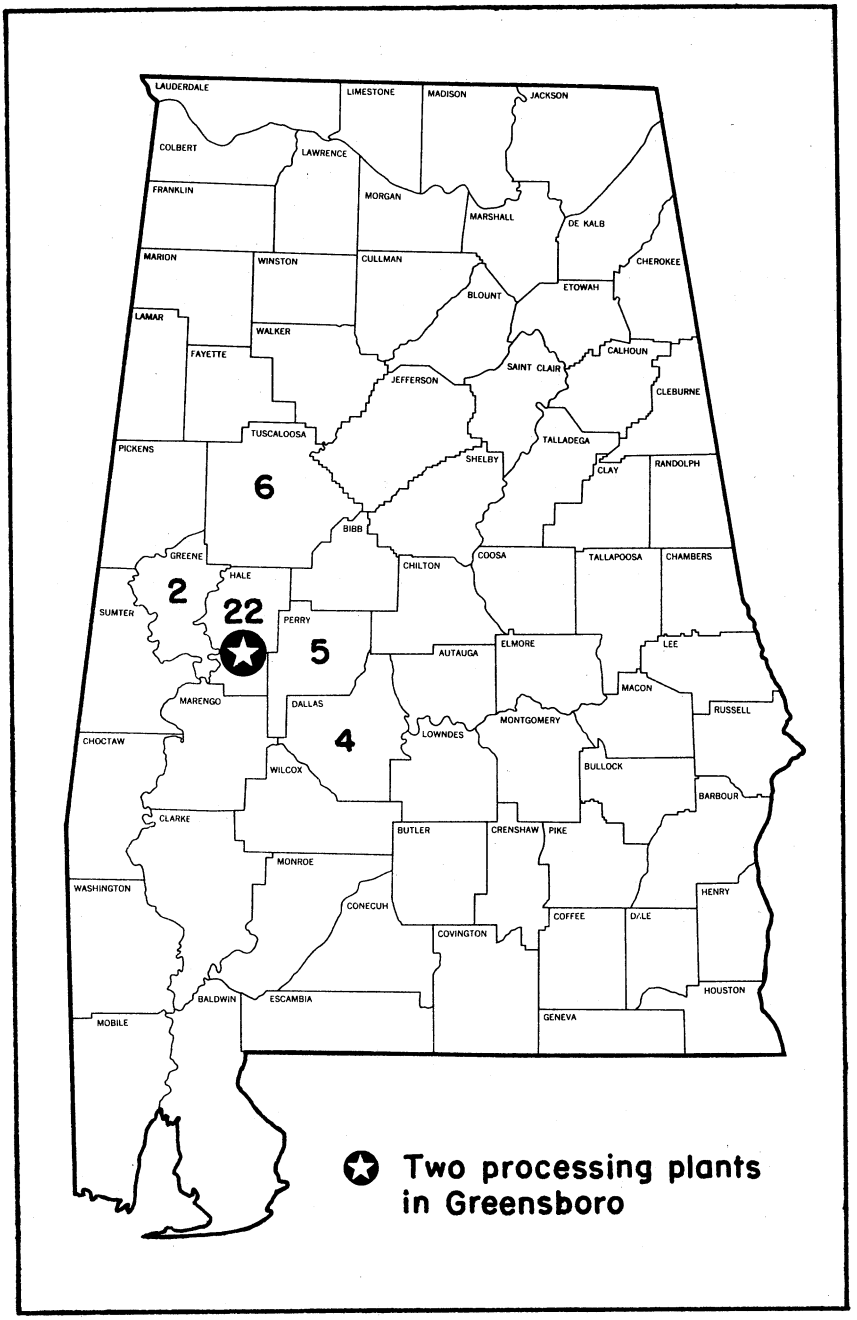
Hale, Dallas, Perry, and Greene counties lie in the Alabama Black Belt area and Tuscaloosa County lies in the Alabama Upper Coastal Plain area *(1)*. None of these counties is entirely within the Black Belt, and various other soil types are associated with them. The general topography of all these counties is gently rolling hills with some areas ranging from level to hilly terrains. This type of land is most suitable for constructing "hill" ponds. (See glossary for description of aquaculture terms.)

Catfish Production Area

Alabama has 8,600 acres of water used for channel catfish foodfish production *(2)*. The five counties surveyed currently contain 6,805 acres of water used for catfish production, which is 80 percent of the total for the State. Producers interviewed owned 4,680 acres of water, representing about 70 percent of the total acres of water in the study area and slightly over 50 percent of the State's total.

Producers

Producers surveyed can be categorized into three groups: (1) small-scale (1 to 30 acres); medium-scale (31 to 100 acres); and large-scale (over 100 acres). Owners of 9 small-scale, 15 medium-scale, and 15 large-scale operations were interviewed. Locations of the operations were 2 in Greene, 22 in Hale, 5 in Perry, 4 in Dallas, and 6 in Tuscaloosa County, see map. Producers averaged 8 years of experience in fish farming with a range from 2 to 30 years.



Numbers and locations of catfish producers and processors interviewed in west Alabama.

Processors

The two major processing plants are located in Greensboro in Hale County. Both firms currently operate plants in Mississippi. The three management personnel interviewed in each plant were asked identical questions in separate interviews.

RESULTS

Preference Types for Catfish by Producers and Processors

Both producers and processors were asked to identify the most desirable liveweight of catfish for processing whole-dressed and fillet products, table 1. Producers and processors agreed that a preferred liveweight fish for a whole-dressed product is from 0.5 to 1.5 pounds. Thirty-two percent of the producers commented that the ideal range was 0.75 to 1.25 pounds liveweight, while 50 percent of the processors commented that ideally a range of 1.0 to 1.25 pounds liveweight was needed for the whole-dressed product. Producers and processors were also in agreement on the proper size for a fillet product, but there is a wider range in responses by both groups. Seventy percent of the producers responded that the processors wanted catfish greater than 1.5 pounds or more liveweight for a fillet product.

TABLE 1. PRODUCERS' AND PROCESSORS' OPINIONS ON DESIRED LIVEWEIGHT OF CATFISH FOR PROCESSING WHOLE-DRESS OR FILLET PRODUCTS, WEST ALABAMA, 1983

Item	Producers		Processors	
Whole-dress product in live weight	*No.*	*Pct.*	*No.*	*Pct.*
Less than 0.5 lb.	—	—	—	—
0.5-1.0 lb.	27	71	3	50
1.0-1.5 lb.	10	26	2	33
1.5-2.0 lb.	—	—	—	—
2.0-2.5 lb.	—	—	—	—
Greater than 2.5 lb.	—	—	—	—
Didn't know	1	3	1	17
Total	38	100	6	100
Fillet product in live weight				
Less than 0.5 lb.	—	—	—	—
0.5-1.0 lb.	1	3	—	—
1.0-1.5 lb.	2	5	2	33
1.5-2.0 lb.	10	27	2	33
2.0-2.5 lb.	9	24	1	17
Greater than 2.5 lb.	7	19	—	—
Didn't know	8	22	1	17
Total	37	100	6	100

Producers and processors were asked what type of processed catfish product is most demanded at the wholesale level, table 2. Both groups agreed that whole-dressed catfish were in greater demand. One processor commented that further processing for fillets is more expensive, requiring increased labor and resulting in a lower dress-out weight. This possibly explained why processors strongly desired the whole-dressed product over the fillet product.

Taste testing for "off-flavor" or "on-flavor" catfish is conducted at Alabama processing plants by a selected panel of employees. "Off-flavor" is subjected to numerous types of descriptive taste; however, four major types were most often used by the two processing plants: green, sewage, musty, and muddy. "Off-flavor" catfish is one of the major limiting factors in the industry preventing the marketing of catfish by producers and processors. Both producers and processors agreed that they could differentiate between "on-flavor" and the various types of "off-flavor" catfish, table 3.

Both producers and processors indicated that marketing "off-flavor" catfish would hurt their business, but some producers commented that there were inconsistencies with the

TABLE 2. PRODUCERS' AND PROCESSORS' OPINIONS OF MOST DESIRED TYPE OF PROCESSED PRODUCT (WHOLE-DRESS OR FILLET PRODUCTS), WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Whole-dress	1.00	1.17	1.19	1.14	1.17
Fillet	2.75	2.17	2.09	2.19	1.83

Note: Average score is based on scale: strongly desired = 1, desired = 2, slightly desired = 3, not desired = 4, strongly not desired = 5.

TABLE 3. PRODUCERS' AND PROCESSORS' LEVEL OF UNDERSTANDING DESCRIPTIVE TERMS OF TASTE (OFF-FLAVOR VS. ON-FLAVOR), WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Off-flavors					
Green	3.14	2.42	2.12	2.42	1.33
Sewage	2.71	2.83	2.31	2.57	1.83
Musty	2.43	2.50	1.94	2.22	1.33
Muddy	2.43	2.50	1.94	2.22	1.33
On-flavors	2.43	1.50	2.53	1.71	1.33

Note: Average score is based on scale: strongly understood = 1, understood = 2, slightly understood = 3, not understood = 4, strongly not understood = 5.

results of processors' taste-testing depending on the market situation. Thirteen producers and one processor suggested that the testing of catfish should be handled by an independent taste-testing panel thus avoiding any misunderstanding between producers and processors about the condition of their fish.

Preference of Pricing Systems

Both producers and processors were asked to evaluate their preference of the following categories related to pricing: pricing mechanisms, agreements, contracts, and price differentials, table 4. Each category included various choices which were scored on a scale of 1 to 5 with 1 as strongly desired and 5 as strongly not desired.

Pricing Mechanisms. Preferences were determined for both producers and processors, table 4. Producers gave the highest ranking to price establishment based on the relationship with the Mississippi price of catfish at time of harvest. A continuation of the current method was ranked significantly more desirable to processors than producers. The current method used by processors is based on the relationship of supply and demand; however, prices can vary by 5-cent-per-pound increments without advance notice to the producers throughout the year. Some producers commented that if this method continues they would like to see smaller adjustments per pound.

Approximately 39 percent of producers did not prefer any of the choices on pricing mechanisms but strongly desired a "booking" process in which feed and catfish prices were "locked-in" 6 to 9 months in advance in order to better plan production and financial management (cash flow). Auction bidding or submitting sealed bids for catfish was not favored by either group.

Price Agreements. Preferences for time of payment were ranked by producers and processors, table 4. Advanced pricing of market-size catfish before stocking fingerlings was significantly more desirable for producers than processors. Processors strongly desired the current method of pricing, which is at time of harvest; the producers' response was significantly different. A contract price during production was slightly desired by both groups. Medium-scale producers did feel this practice was desirable. One processor commented that the current

pricing agreement method was strongly desired by him, but mentioned that advance pricing before stocking fingerlings was a possibility if processors were protected in the market place from a drastic decline of wholesale prices.

Types of Contracts for Pricing Agreements. Producers ranked written or bonded-written contracts as desired to slightly desired (2.65). A bonded-written contract was significantly more desired by producers than processors. The current method of an oral contract was ranked the highest (2.00) by processors and was significantly different from producers' rating.

TABLE 4. PRODUCERS' AND PROCESSORS' OPINIONS ON PRICING MECHANISMS, AGREEMENTS, CONTRACTS, AND DIFFERENTIALS, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Pricing mechanisms					
Auction bidding	4.33	4.40	4.25	4.31	5.00
Close bidding	4.33	3.27	4.44	4.06	5.00
Price based on Mississippi prices	2.25	2.50	2.47	2.43	3.67
Current method	3.88	3.58	2.88	3.35**	1.25
Timing of pricing agreements					
Forward pricing before fingerlings stocked	2.00	2.00	2.59	2.26*	4.00
During production but before harvest	4.00	2.50	3.24	3.18	3.50
At time of harvest	3.44	3.50	3.31	3.41**	1.00
Types of contracts					
Oral	3.56	3.75	3.47	3.58*	2.00
Written	2.33	2.33	2.94	2.60	3.67
Bonded-written	3.22	2.42	2.63	2.70**	5.00
Pricing differentials					
Uniform size	1.83	1.67	2.00	1.85	1.80
Late spring/early summer	1.89	1.82	1.94	1.89**	3.50
Harvest					
1) Seine through	3.75	2.90	3.53	3.40	4.40
2) Drained	4.29[2]	2.73	3.29	3.31	4.40
All weather access	3.78[3]	1.92	1.71	2.26	3.20
Mileage allowance	3.44[1]	2.64	1.92	2.59	3.20

Note: Average score is based on scale: strongly desired = 1, desired = 2, slightly desired = 3, not desired = 4, and strongly not desired = 5.

*,** Mean score for total of producers differs from processors at 0.1 and 0.05 probability levels, respectively.

[1] Mean score for small-scale producers differs from large-scale producers at 0.10 probability level.

[2] Mean score for small-scale producers differs from medium-scale producers at 0.10 probability level.

[3] Mean score for small-scale producers differs from medium- and large-scale producers at a 0.10 probability level.

From these first three categories, pricing mechanism, agreements, and contracts, it is obvious that producers and processors differ significantly between changing and retaining the current method, respectively. Both producers and processors commented that better communication could help improve these differences in the pricing system.

Pricing Differentials. Differences in opinions were indicated between producers and processors as well as among the producers on whether price differentials should be paid to producers in the production area, table 4. Both groups strongly desired a price premium for catfish of uniform size. Supplying catfish in late spring to early summer (May, June, July) to processing plants in return for a price premium was significantly more desirable to producers than processors. This was especially desired by producers who must drain their ponds to harvest. The reason is that after harvest, producers must depend on the watershed and/or costly pumping of well water to refill ponds before production can continue. In most cases, producers with "drained" ponds would be out of production during most of the production season (April through October) if catfish were harvested in late spring to early summer. Thus, they would need to be compensated.

Ranking of price premiums according to harvest method, seine-through and drained ponds, indicated that the producers and processors agreed that this factor was only slightly desired to not desired (average of 3.35 and 4.4). Small and medium-size producers disagreed significantly on a price premium for harvest of "drain" ponds with scores of 4.29 and 2.73, respectively. Medium-scale producers felt that any premium would help in the long-run by expanding their production facility; whereas, small-scale producers did not have the same goals.

Receiving a price premium for all-weather access to ponds and mileage from the processing plants were ranked significantly higher by large and medium-size producers than by small-size producers. The larger production operations require extra cost of gravel for constructing levees. These producers believed that all-weather access is beneficial to the processing plants because catfish could be harvested year-round without delay in harvesting time at the pond sites. Small-scale producers

disagreed with the other groups probably because there were not enough harvesting visits to justify having all-weather access. Processors only slightly desired (3.20) a price premium for all-weather access, commenting that ease of access would "take care of itself." The implication was that ponds which are maintained better would be harvested more frequently than other ponds.

A price premium for shorter distances from the processing plant was significantly more desirable for large-scale producers than for small-scale producers. This result should be expected because many small producers are not as close as large-scale producers. One processor commented that offering a price premium to a producer because of distance from the processing plant created adverse publicity. The close proximity of the plants to each other precludes each plant from charging for transportation.

Four producers commented that harvesting frequency has declined in the last 2 years because of distance from the plants coupled with the increase in production nearer the plants. These producers said they would be willing to pay a service charge on distance in order to have their fish harvested.

Marketing Agreements: Rating of Producer's and Processor's Needs

Both producers and processors were asked to rate the marketing needs of each group, table 5. Producers' and processors' rankings of processors' needs were close and very important. The differences between groups were not significant. An interesting point is that producers do have a clear sense of processors' needs for them to operate efficiently. On-flavor of fish received the highest ranking. Requirement of fish being of a specified size was ranked slightly less than the other criteria selected.

Rating producers' needs showed producers giving more importance to each of the criteria evaluated than did processors. Timely payment and advance scheduling of harvest were significantly more important to producers than processors. All individual size groups of producers were consistent in identifying these needs as important. Processors ranked method

of weighing as the highest priority for producers. Producers concurred on this point. Three producers and one management person suggested improved weigh scales, such as an electronic scale with printed ticket records. Four producers suggested regular state inspection of scales at either the pond banks or at the plants.

Both producers and processors ranked as important the mandatory holding of weighbacks for the producers. One processor commented that weighbacks at the present were held only upon a producer's request due to a United States Department of Commerce ruling that weighbacks must be kept refrigerated for sanitary reasons. The practice of holding all weighbacks decreases the refrigerator space for processed catfish, thereby reducing processing capacity at the plants.

TABLE 5. PRODUCERS' AND PROCESSORS' RATING OF IMPORTANCE OF PRODUCERS' AND PROCESSORS' NEEDS, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Rating of processors' needs					
On-flavor fish	1.00	1.25	1.12	1.13	1.00
Water at pre-agreed level	1.44	1.67	1.82	1.68	1.17
Ease of access	1.78	1.50	1.41	1.53	1.17
Specified amount	1.67	1.83	1.24	1.53	1.17
Required size	2.00	1.50	1.65	1.68	1.67
Rating of producers' needs					
Timely payments	1.22	1.18	1.00	1.11**	1.50
Liability/damage or mortality	1.67[2]	1.40	1.00	1.28	1.40
Scheduled harvest	1.22	1.00	1.24	1.16***	2.40
Fairness in off-flavor	1.50	1.00	1.24	1.23	1.50
Complete harvest	1.44	1.18	1.18	1.24	1.60
Method of weighing	1.22	1.27	1.13	1.19	1.25
Weighbacks[1]	1.78	1.73	1.38	1.58	2.00

Note: Average score is based on scale: very important = 1, important = 2, slightly important = 3, unimportant = 4, and very unimportant = 5.

[1] Weighbacks are classified as catfish too small to process < 0.75 lb. and/or trash fish (shad, bream, etc.) and turtles which are weighed and deducted at the plant from the total weight of catfish.

[2] Mean score for small-scale producers differs from large-scale producers at 0.10 probability level.

,* Mean score for total of producers differs from processors at 0.05 and 0.01 probability levels, respectively.

Types of Contracts Preferred by Producers and Processors

Producers and processors were asked to indicate their preferences for types of contracts for performance criteria. Both groups could choose among oral, written, bonded-written, and no contract. Numbers and frequencies are presented in tables 6 and 7.

Processors' Needs. Preferences for types of contracts for meeting performance criteria important to processors are listed in table 6. Producers chose written contracts as their most preferred contract type, while processors mentioned oral contracts most often. Some producers preferred having no contract with processors for meeting their needs. The distribution indicates that certain producers repeatedly wanted written contracts and certain processing personnel preferred oral contracts.

Producers' Needs. Producers were consistent in again preferring a written contract in having processors meet certain specifications. Producers indicated a higher preference for bonded-written contracts especially on payment, liability, and method of weighing. Processors again preferred oral contracts with producers.

In both incidences, processors would prefer to remain with the current method by using an oral contract for all relevant performance criteria. One processor commented that any other type of contract could legally penalize both parties by limiting producers' and processors' capabilities in the expanding catfish industry. Producers responded that the current method of contracting is not working for them and would prefer to have a tighter contract. For example, a written contract for both processors' and producers' needs would be preferred. Producers believe that both parties would benefit by more accurate information from a legal contract that improves the coordination in the catfish industry.

TABLE 6. PRODUCERS' AND PROCESSORS' OPINIONS FOR TYPES OF CONTRACTS FOR PERFORMANCE SPECIFICATIONS FOR PROCESSORS, WEST ALABAMA, 1983

Item		Producers' opinions					Processors' opinions				
		Oral	Written	Bonded-written	No contract	Total	Oral	Written	Bonded-written	No contract	Total
Off-flavor	N	9	13	7	7	36	3	2	—	—	5
	Pct.	25	36	20	19	100	60	40	—	—	100
Water level	N	11	14	6	5	36	3	2	—	—	5
	Pct.	30	39	17	14	100	60	40	—	—	100
Access ease	N	9	16	6	6	37	3	2	—	—	5
	Pct.	25	43	16	16	100	60	40	—	—	100
Specified amount	N	12	16	5	5	38	3	2	—	—	5
	Pct.	32	42	13	13	100	60	40	—	—	100
Required size	N	11	16	5	5	37	3	2	—	—	5
	Pct.	30	43	14	13	100	60	40	—	—	100
Total	N	52	75	29	28		15	10			
	Pct.	29	41	15	15		60	40	0	0	

TABLE 7. PRODUCERS' AND PROCESSORS' OPINIONS FOR TYPES OF CONTRACTS FOR PERFORMANCE SPECIFICATIONS FOR PRODUCERS, WEST ALABAMA, 1983

Item		Producers' opinions					Processors' opinions				
		Oral	Written	Bonded-written	No contract	Total	Oral	Written	Bonded-written	No contract	Total
Payment	N	5	16	15	1	37	3	1	1	—	5
	Pct.	13	43	41	3	100	60	20	20	—	100
Liability	N	4	18	14	1	37	2	2	1	—	5
	Pct.	10	49	38	3	100	40	40	20	—	100
Scheduled harvest	N	7	22	6	2	37	3	1	—	1	5
	Pct.	19	60	16	5	100	60	20	—	20	100
Fairness in off-flavor	N	7	19	9	2	37	4	1	—	—	5
	Pct.	19	52	24	5	100	80	20	—	—	100
Complete harvest	N	7	18	9	3	37	4	1	—	—	5
	Pct.	19	49	24	8	100	80	20	—	—	100
Method of weighing	N	5	16	14	2	37	4	1	—	—	5
	Pct.	14	43	38	5	100	80	20	—	—	100
Weighbacks	N	6	17	11	2	36	4	1	—	—	5
	Pct.	17	47	31	5	100	80	20	—	—	100
Total	N	41	126	78	13		24	8	2	1	
	Pct.	16	49	30	5		69	23	5	3	

Payment for Catfish to the Producer

In order to better understand the producers' needs for timely payment, both producers and processors were asked to specify at what time producers should receive payment after harvest of their catfish, table 8. Eighty-seven percent of the producers indicated they wanted payment from 1 to 10 days after harvest. Processors indicated a longer waiting period before payment. Eighty-three percent of the processors preferred a waiting period from 5 to 30 days after harvest. Another producer commented that they should receive interest on their money from the processors after a 10-day waiting period. One processor said payment should be after product is sold. Results in tables 7 and 8 on payment indicate the evident difference of opinions between producers and processors on this matter.

TABLE 8. PRODUCERS' AND PROCESSORS' OPINIONS ON THE TIME PERIOD FOR PAYMENT AFTER HARVEST, WEST ALABAMA, 1983

Item	Producers		Processors	
	No.	*Pct.*	*No.*	*Pct.*
Time period for payment				
At harvest	1	2	—	—
1-5 days	13	34	—	—
5-10 days	20	53	2	33
11-20 days	4	11	1	17
21-30 days	—	—	2	33
After product is sold	—	—	1	17
Total	38	100	6	100

TABLE 9. PRODUCERS' AND PROCESSORS' OPINIONS ON ADVANCE SCHEDULING OF CATFISH HARVEST, WEST ALABAMA, 1983

Item	Producers								Processors	
	Small		Medium		Large		Total			
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
Advanced scheduling										
< 1 week	2	22	—	—	1	7	3	8	—	—
1-2 weeks	2	22	3	23	7	51	13	36	2	40
3-4 weeks	2	22	3	23	2	14	7	20	—	—
> 1 month	2	22	6	46	2	14	9	25	3	60
Fingerlings are stocked	1	12	1	8	2	14	4	11	—	—
Total	9	100	13	100	14	100	36	100	5	100

Advance Scheduling of Harvest

Both producers and processors were asked to specify what advance notice the producers should have before harvesting, table 9. Producers and processors disagreed on advance scheduling of harvest with producers placing significantly more importance on it than processors, table 5. Among size of operations, 51 percent of the large-scale operations required a shorter advance scheduling notice (1 to 2 weeks) while 46 percent of the medium-scale operations required more than a month's advance notice. Large-scale producers can queue up more quickly than medium-scale producers who would like a longer time to ready their ponds for harvest.

Liability for Catfish

Both producers and processors were asked who was liable for the catfish if damage or mortality resulted during various stages of draining, harvesting, transporting, or at the processing plant, table 10. Producers and processors were in close agreement on liability for fish during draining; however, some producers commented that they should be liable during draining only if processors' harvesting crews come when scheduled. During transportation and while at the processing plant, processors should be liable for the catfish.

Processors and producers disagreed on liability for the catfish during the harvesting stage. Seventy percent of producers believed processors were liable and of these producers, 80 percent commented that once the processors' harvesting crew surrounds the fish with the net, the processor is liable for the catfish if damage or mortality results. Eighty percent of the processors disagreed, responding that the producers and processors should share in liability of the fish during harvest. The reason for this choice was based on some of the problems that have occurred in the past during harvest with dissolved oxygen (DO) depletion without access to a paddlewheel, harvesting diseased fish requested by producers, and complete draining of pond with too many fish to "scrap" (see glossary). These problems explain why processors do not feel they should be totally liable for the fish at this stage.

TABLE 10. PRODUCERS' AND PROCESSORS' OPINIONS ON LIABILITY FOR CATFISH DURING DRAINING, HARVESTING, TRANSPORTING, AND PROCESSING AT THE PLANT, WEST ALABAMA, 1983

Party assuming liability	Draining		Harvest		Transporting to plant		Processing plant	
	Producer	Processor	Producer	Processor	Producer	Processor	Producer	Processor
	No. Pct.	*No. Pct.*	*No. Pct.*	*No. Pct.*	*No. Pct.*	*No. Pct.*	*No. Pct.*	*No. Pct.*
Processor	3 9	— —	26 70	1 20	38 100	5 100	38 100	5 100
Insurance company	— —	— —	— —	— —	— —	— —	— —	— —
Producer	22 65	3 60	— —	— —	— —	— —	— —	— —
Producer-processor share	9 26	2 40	11 30	4 80	— —	— —	— —	— —
Total	34 100	5 100	37 100	5 100	38 100	5 100	38 100	5 100

Disposal of "Hold-over" Catfish

A recurrent problem facing producers is an oversupply of catfish, requiring producers to "hold-over" fish to next season. Possible strategies to rectify the situation were proposed to producers and processors, table 11. While processors believed "hold-over" was a problem for producers, they were opposed to assuming any responsibility in correcting it. Producers did not strongly agree or disagree to any recommendations to correct the situation.

TABLE 11. PRODUCERS' AND PROCESSORS' OPINIONS ON DISPOSAL OF "HOLD-OVER" CATFISH, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Processors buy and freeze ..	2.00	3.50	3.25	3.09*	4.50
Producer's responsibility	3.86	2.91	2.88	3.09***	1.00
Processors process and freeze but producer has ownership	3.71	3.09	3.94	3.62	4.50

Note: Average score is based on scale: strongly agree = 1, agree = 2, slightly agree = 3, not agree = 4, and strongly not agree = 5.
*,*** Mean score for total of producers differs from processors at 0.1 and 0.01 probability levels, respectively.

Improvements in Purchase of Inputs

Major operating costs for producing catfish are fingerlings, feed, and chemicals. Producers and processors were asked to rate the need for improvement in the costs of purchasing these inputs, table 12. Of the three cost components, feed costs were of most concern to producers. The processors' rating was significantly different and indicated less need for any improvement in this area.

TABLE 12. PRODUCERS' AND PROCESSORS' OPINIONS ON IMPROVEMENT IN PURCHASE OF INPUTS, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Cost of fingerlings	3.89	3.23	3.63	3.55	4.67
Cost of feed	2.11	1.62	1.82	1.82**	3.67
Cost of chemicals	2.50	2.50	1.94	2.21	2.67

Note: Average score is based on scale: strongly improve = 1, improve = 2, slightly improve = 3, not improve = 4, and strongly not improve = 5.
**Mean score for total of producers differs from processors at 0.05 probability level.

The cost of chemicals showed a need for improvement but was less important than feed cost. Fingerling cost was ranked the lowest by both producers and processors. Sufficient competition exists in the industry that producers can readily purchase fingerlings at a fair price.

General Improvements for the Catfish Industry

Both producers and processors were asked to evaluate a series of items that might improve the Alabama catfish industry, tables 13, 14, and 15. Each item was scored on a scale of 1 to 5 with 1 as strongly desired and 5 as strongly not desired.

For improvements in catfish feed supply and production services, producers ranked in order of importance: labelling the percent of raw material for ingredients on bags of feed, developing a producer cooperative feed mill, and cooperative buying by producers from present suppliers as highly desirable improvements. Processors agreed that such improvements would also be desirable to them, especially that concerning a producer cooperative feed mill. The current method of obtaining feed supplies was significantly more desirable to processors than producers. Currently, producers have basically

TABLE 13. PRODUCERS' AND PROCESSORS' OPINIONS ON DESIRABLE CHANGES IN CATFISH FEED SUPPLY AND PRODUCTION SERVICES, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Feed supply improvements					
Producer co-op feed mill	1.38	2.31	1.88	1.92	1.00
Import feed by barge	3.22	3.85	3.00	3.35	2.00
Current method	4.00	3.45	4.20	3.91**	2.00
Co-op buying from present suppliers	1.44	2.42	1.83	1.94	2.00
Percentage of raw ingredients labelled	1.75	1.08	1.31	1.33	1.25
Production service for advice					
Feed supplies	3.22	3.62	4.33	3.76	4.00
Vet supplies	3.22	3.33	3.25	3.27	4.00

Note: Average score is based on scale: strongly desired = 1, desired = 2, slightly desired = 3, not desired = 4, and strongly not desired = 5.

**Mean score for total of producers differs from processors at 0.05 probability level.

two options in purchasing feed: directly from independent feed mills or from one catfish processing plant in Alabama. Producers want a cooperative feed mill to be established if it is economically feasible, or development of a cooperative buying arrangement from present suppliers. At the time of the survey, bulk feed was 10-15 percent higher in Alabama than in Mississippi.

A producers' cooperative feed mill was ranked the highest by processors. Some processing personnel commented that the feed supply service offered by one processing plant was initially established to help producers with the cost of feed. Processors said this service could be discontinued if a more feasible source were developed.

In the area of marketing catfish, both producers and processors ranked increases in market promotion as strongly desired, table 14. Both producers and processors indicated less desire to identify processed catfish as farm-raised from Alabama. However, they commented that differentiating between "wild caught" and "farm-raised" catfish at the retail level could improve marketing of catfish in other parts of the United States.

TABLE 14. PRODUCERS' AND PROCESSORS' OPINIONS ON DESIRABLE CHANGES FOR MARKETING CATFISH, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Increase market promotion	1.44	1.38	1.13	1.29	1.00
Identification that catfish are farm-raised in Alabama	2.11	2.62	3.18	2.74	3.83
Harvesting association					
Custom	2.56	2.23	2.31	2.34	2.17
Processor	2.75	2.58	2.67	2.66	2.00
Producer	3.00	2.77	3.00	2.92	2.83
Live-hauling					
Utilize custom harvester	1.33	1.46	1.60	1.49***	3.00
Utilize processor's harvester	3.00	2.50	3.07	2.86	3.60
Fee-fishing	3.67	4.08	4.00	3.95	3.00

Note: Average score is based on scale: strongly desired = 1, desired = 2, slightly desired = 3, not desired = 4, and strongly not desired = 5.

***Mean score for total of producers differs from processors at 0.01 probability level.

TABLE 15. PRODUCERS' AND PROCESSORS' OPINIONS ON MARKET COORDINATION IMPROVEMENTS, WEST ALABAMA, 1983

Item	Producers				Processors
	Small	Medium	Large	Total	
Processors report volume predicted for needs for next month	1.11	1.62	1.76	1.56**	3.00
Meetings	1.89	2.15	1.56	1.84	1.67
Bargaining association[1]	1.88	2.00	1.94	1.95	2.50

[1] Bargaining association based on the "opponent gain" bargaining power concept in which the advantages that one market party can offer to the other in exchange for accepting terms. Cooperation dominates the negotiating.

Note: Average score is based on scale: strongly desired = 1, desired =2, slightly desired = 3, not desired = 4, and strongly not desired = 5.

**Mean score for total of producers differs from processors at 0.05 probability level.

Two alternative market outlets were included in the survey for producers' and processors' consideration. Producers and processors differed significantly on the use of a custom harvester for live hauling fish. Most producers are presently dependent on processors to harvest their ponds, thereby preventing marketing of catfish to live-haulers. If custom harvesting were available, producers indicated the desire to utilize this service in marketing their own catfish when processors' demand was less. Producers and processors agreed that fee-fishing is not a desirable market outlet for catfish in most parts of western Alabama because of the long distance customers would have to travel from large metropolitan areas. Also, producers would have to allocate more time and money for monitoring fishing.

Producers and processors were asked to rank proposed improvements for market coordination, table 15. Producers gave their highest rating to processors reporting projected volume of catfish required. Processors explained that such predictions were not possible by them. Some producers and one processor did suggest if a computer data base were established for the producers to deal directly with the buyers, the forecasted volume for the next month could be more accurate and beneficial.

Both producers and processors felt that there was a lack of communication between the two groups. Both agreed that more meetings could provide better communication. Some processors, however, commented that small group meetings (3:1) would be more beneficial than large meetings.

Both producers and processors agreed that a bargaining association was desired for better coordination and cooperation. However, most of them commented that more information would have to be given before considering the establishment of such an association.

Check-Off Programs

Check-off programs have been established for several commodities to improve promotion and research for these agricultural products. At present, Catfish Farmer of America has a check-off program with many feed mills in which money is donated based on the volume of feed sold. This money is used to promote marketing of farm-raised catfish in the United States.

Both producers and processors were asked if they knew of such a check-off program and if they would be willing to participate in other check-off programs for improving the industry in Alabama, table 16. Seventy-seven percent of the producers and 80 percent of the processors knew of the check-off program for farm-raised catfish. About 82 percent of the producers said they would be willing to participate in more "check-off" programs for promoting catfish; however, only 40 percent of the processors were willing to participate in a check-off program. Two producers commented that producers and processors should give equal amount of money to the program for promoting catfish, while one producer said processors should give 2 to 3 times more money. Some of the producers who were not willing to participate in such a program commented that either check-off programs do not work or processors should be responsible for all promotion.

TABLE 16. PRODUCERS' AND PROCESSORS' OPINIONS OF A "CHECK-OFF" PROGRAM FOR MARKET PROMOTION, WEST ALABAMA, 1983

Item	Producers						Processors					
	Yes		No		Total		Yes		No		Total	
	No.	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*	*No.*	*Pct.*
Knowledge of a "check-off" program for catfish ...	30	77	9	23	39	100	4	80	1	20	5	100
Willingness to participate in a program ...	31	82	7	18	38	100	2	40	3	60	5	100

SUMMARY

The mirror-image survey indicated the west Alabama catfish producers and processors were in agreement in the following areas: desired sizes, forms, and "on-flavor" taste of catfish, increasing market promotion, and improving the feed delivery system. These areas are important to the producers and processors for them to compete in the catfish industry. Efficient production and marketing of catfish require coordination by producers and processors. Certain sizes of catfish must be "on-flavor" before the processors agree to buy the fish. These fish are processed primarily into either whole-dressed or fillet products. Whole-dressed catfish is the most predominant form, with markets currently concentrated in the Southeastern United States. Producers and processors agreed that increasing market promotion of farm-raised catfish in other regions expands the potential of the industry.

Purchase of catfish feed is the major operating cost for a catfish producer. Improving the feed delivery system by establishing a producer cooperative feed mill in west Alabama was important to producers and processors. If a cooperative feed mill is found to be economically feasible for the area, feed cost could decrease and thus improve profits for producers. In the areas directly involving the interdependence of producers and processors, the processors indicated that continuation of current methods in these areas was significantly more desirable than did the producers.

Major conflicting areas between producers and processors were the following: pricing mechanisms and agreements, length of time before receiving payment for catfish from the processors, advance scheduling of harvest, elimination of "hold-over" catfish, liability for catfish during harvest, forms of contracts, and communication.

Producers would like to have the price of catfish in Alabama based on the price of catfish in Mississippi. Alabama processors could forward-price with producers before stocking fingerlings. Many of the producers commented that establishing contracts with processors could reduce price uncertainty. Processors, however, felt continuation of the current method of offering the prevailing market price at time of harvest, based on supply and demand conditions, was best for west Alabama catfish producers and processors.

The most noted area of conflict between producers and processors was length of time before receiving payment for catfish. Producers indicated that they should not have to wait any more than 10 days after harvest to receive payment. Processors disagreed with producers, preferring to make payment over a longer period of up to 1 month after harvest. This longer payback period adversely affects producers who have loans or other outstanding bills to pay.

Advance scheduling of a catfish harvest was found to be significantly more important to producers than processors. The size of a producer's operation was found to influence the time required for scheduling harvest. Large-scale producers required a shorter advanced scheduling notice than medium-scale producers.

"Hold-over" fish have been a major problem for many west Alabama catfish producers. These fish are not harvested mainly because of an over-supply requiring producers to hold the fish at their expense in the ponds during the winter months. Processors believed producers are solely responsible for preventing this problem. Producers recognized the problem, but believed processors could help by informing them of projected supply needs or by giving harvest priority to producers that have overwintered catfish. Producers would like processors to make projections of the amount of fish each processing plant will require. Suggestion of a monthly mail-out report for the above purpose received a high ranking by producers. Processors did not believe such a report could be developed because of time, money, and market knowledge limitations.

A discrepancy was found to exist between producer and processor for liability during harvest. Producers felt that the processors should be liable for the fish once the net is placed around them. Processors, however, believed the producer and processor should share in the responsibility during this stage.

Producers and processors differed on types of contracts they would desire in improving coordination within the industry. Producers preferred to have a written contract on performance guarantees. Some producers believed more accurate information would be obtained from both parties if contracts were made. Processors, however, wanted to continue with the current method of oral contracts. Processors believed any legal binding by contracts could penalize both parties and potentially harm the catfish industry.

IMPLICATIONS AND RECOMMENDATIONS

Two issues become very evident from the study in the operation and coordination of the marketing system for catfish in west Alabama. Producers and processors are both attempting to reduce their risks in producing, processing, and marketing catfish. Producers seek ways to reduce the risk of receiving lower prices or having to overwinter catfish. Processors want to avoid having to pay high prices for the catfish. Processors also want to avoid surplus processed fish in cold storage. The ability of each group to shift the risk to the other party depends on which has the greater negotiating power.

Improvement in market communication between both groups could reduce risks perceived by both producers and processors. Clearer understanding about the magnitude of the risks could allow each group to adopt practices which could make the industry more efficient and profitable to both groups.

Several recommendations are presented which could be appropriate for the industry. Further research is needed to assess feasibility and implementation of each recommendation presented.

1. Establishment of a system of regular meetings between producers and processors. Participation would be voluntary. With supervision from a neutral third party, the meeting format could evolve into a loosely designed bargaining association for producers and processors. The main objective for this bargaining association is enhanced cooperation through better communication.

2. Coordinate a market promotion plan to expand the consumption of catfish. This program can also be directed at estimating seasonality in demand and coordinating production and marketing to these periods. Market research needs to be initiated that can provide timely information to producers and processors.

3. Develop a computer information data base that provides up-to-date records on each producer, such as the volume of fish per pond, date of stocking, estimated size of fish, and any additional information, e.g., off-flavor in a pond and when last tested. This information data base could be used by processors to improve efficiency in timely harvesting and marketing of catfish.

4. Evaluate the economic feasibility of establishment of a custom harvesting operation that could supply live-haulers with catfish. This could provide a market outlet when surplus fish occur as well as a mechanism for alternative markets when demand for processed fish is seasonally low.

5. Establishment of a taste testing procedure that would have an independent person or agency test catfish for off-flavor.

6. Develop guidelines for harvesting and weighing fish with liability clearly understood between producers and processors. Weigh scales could be state inspected with paper weigh tickets issued by processors.

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GLOSSARY

1. "Hill" pond—impounded watershed runoff with an earthen dam in a valley between two hills. This type of pond referred to as a "drain pond" must be drained down to a catch basin in order to harvest channel catfish.
2. Levee pond—excavated pond, usually rectangular in shape, constructed on level land filled with well water. Harvest of channel catfish can be done without draining the pond and is also referred to as a "seine-through" pond.
3. Weighbacks—a term classifying sub-marketable channel catfish (0.75 pound), dead channel catfish, trash fish (shad, bream, etc.), and other undesirable organisms which are weighed and deducted from the total weight of fish at the processing plants.
4. All-weather levee—an earthen dam covered with a cubic yard of gravel per 10 linear feet of levee.
5. Hold-over fish—catfish that must be held in the pond at producers' expense until next season due to oversupply of fish because of limited markets or fish with off-flavor problem.
6. Bonded-written contract—a contract secured by a certificate of ownership of a specified portion of a debt due to be paid by a government or corporation to an individual holder and usually bearing a fixed rate of interest.
7. Scrap—the process of picking up catfish that are left on the pond bottom after complete draining of the pond.
8. Bargaining association—based on the concept that the advantages that one marketing party can offer to the other in exchange for acceptance of marketing agreements. Cooperation dominates the negotiation between the two groups.

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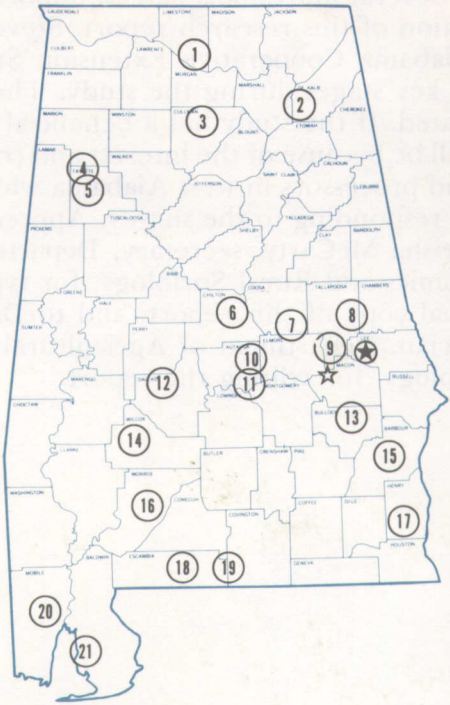

Research Unit Identification

★ Main Agricultural Experiment Station, Auburn.
☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Chilton Area Horticulture Substation, Clanton.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Plant Breeding Unit, Tallassee.
10. Forestry Unit, Autauga County.
11. Prattville Experiment Field, Prattville.
12. Black Belt Substation, Marion Junction.
13. The Turnipseed-Ikenberry Place, Union Springs.
14. Lower Coastal Plain Substation, Camden.
15. Forestry Unit, Barbour County.
16. Monroeville Experiment Field, Monroeville.
17. Wiregrass Substation, Headland.
18. Brewton Experiment Field, Brewton.
19. Solon Dixon Forestry Education Center, Covington and Escambia counties.
20. Ornamental Horticulture Substation, Spring Hill.
21. Gulf Coast Substation, Fairhope.