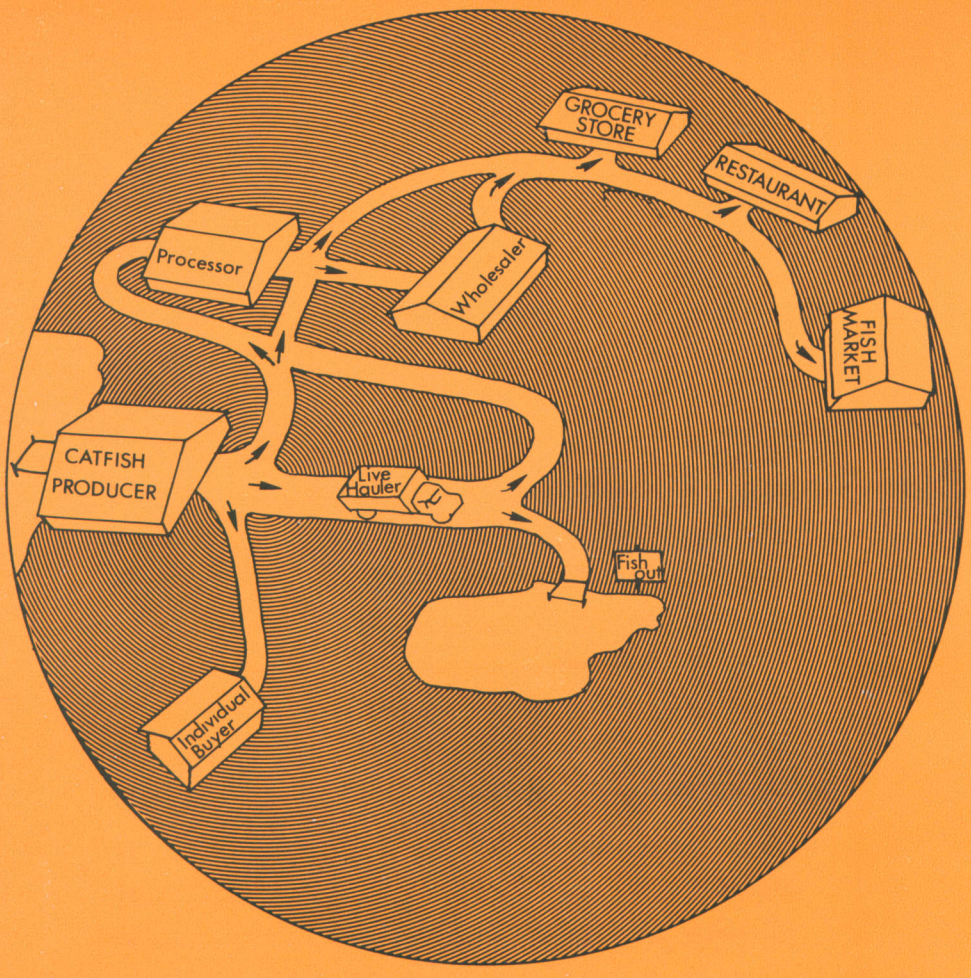

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Catfish Marketing and Related Production Factors

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Catfish Marketing and Related Production Factors*

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ECONOMIC ACTIVITY can be divided into production, marketing, and consumption phases. The region of demarcation between phases is often hazy. For example, the consumption phase for some goods is within the production or marketing phase of another product. Although people ultimately represent final consumption, all goods consumed do not reach people in their original form. Unless the product reaches consumers in an acceptable form, the most efficient means of production and marketing will be of no avail.

The task of marketing is to move goods from the area of production to the area of consumption at the time and in the form desired by consumers. Problems naturally arise in new industries when desired quantities and forms of the product are not perfectly understood. Temporary gluts or shortages often exist in the market, and irregularity in supply prevents establishment of consumption patterns.

Catfish production in ponds represents a relatively new industry in the United States. The industry has an even shorter history in Alabama. Research to determine optimum production practices has been carried on for several years, and results indicate a profitable level of production can be attained under existing levels of technology.[1] However, little knowledge is available regarding the channels used in moving fish from production to consumption. This study was undertaken with two objectives:

1. To determine the marketing procedures used by Alabama catfish producers, and

* This study was conducted under research project Hatch 630R(S-83), supported by State and Federal funds.

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[1] ADRIAN, J. L. AND E. W. McCOY. 1971. Cost and Returns of Commercial Catfish Production in Alabama. Auburn Univ. (Ala.) Agr. Exp. Sta. Bull. 421.

2. To determine the primary marketing problems encountered by Alabama producers.

METHOD OF STUDY

A complete inventory was taken in 1971 of all catfish producers in Alabama who stocked more than 1,000 fish. Data regarding catfish production in each county were provided by Soil Conservation and Cooperative Extension Service personnel. Questions regarding level of production, harvesting, and marketing problems were asked of each of the 727 producers interviewed. The questionnaries were returned to Auburn and initially edited by the field interviewers. Each interviewer returned to Auburn for a debriefing session following completion of interviewing in each county. Secondary questionnaire editing was performed by office personnel. Interviewers' recall, telephone inquiries, and mailout questionnaires were used to complete data collection. After final editing, 703 usable responses were validated for analysis. The 24 excluded responses did not meet the criteria of at least 1,000 catfish stocked.

Data from the questionnaires were transmitted to cards for computer processing. The data were divided into four groups, commercial, combination, fishout, and personal, based on type of production. Data from commercial and combination producers were subjected to further analysis. Fishout and personal use data were analyzed separately for inclusion in a subsequent report. Data from 169 commercial producers and 152 combination producers were used in the study.

DESCRIPTION OF PRODUCERS

Four distinct types of production were involved. Commercial production involved the stocking of fingerling size fish, feeding these fish until they attained a weight of about 1 to 1½ pounds, and harvest and sale of the fish through commercial channels. Fishout production followed the procedure outlined for commercial except the fish were marketed by fishermen who paid for the privilege of fishing. Combination producers allowed some fishout in ponds before harvesting and marketing through commercial channels. Not all catfish produced in ponds were intended for sale, however, since there were many individuals raising catfish for personal use. Only producers and their friends had access to harvesting these fish.

There were 169 commercial producers in Alabama in 1971. In addition, 18 individuals stocked more than 1,000 catfish, yet did not precisely fit in the defined groups. Several of these stocked catfish with bass and bream and a few raised caged catfish in stock watering or other ponds or streams. All of the fish were for personal use, yet method of production varied too much for their inclusion in the sample. Numbers of producers by types were as follows:

Type of production	*Number*
Commercial	169
Fishout	165
Personal	199
Combination	152
Other	18
Total	703

Certain advantages accrued to combination producers. First, the fishout results were generally favorable since the fully stocked ponds provided good fishing and returns were higher than for any alternate method of sales. Second, remainder of fish were marketed through commercial sales to restaurants, individuals, processors, and other buyers. Additional costs were involved in commercial sales since the pond had to be drained and the fish netted. Harvest labor costs generally were higher than all of the other labor costs involved in catfish production.

Time in Business

Catfish production was relatively new in Alabama in 1970. Among the combination producers, however, over half had been in business more than 2 years, Table 1. Earlier studies indicated profits from catfish production were increased with experience.[2]

[2] Adrian, J. L. and E. W. McCoy. 1972. Experience and Location as Factors Influencing Income from Commercial Catfish Enterprises. Auburn Univ. (Ala.) Agr. Exp. Sta. Bull. 437.

Table 1. Number of Commercial and Combination Catfish Producers by Time in Business, Alabama, 1970

Months in business	Producers reporting	
	Commercial	Combination
	No.	*No.*
More than 24	75	86
19-24	42	30
13-18	11	11
6-12	29	13
Less than 6	12	12
Av. time in business, months	*34.2*	*36.8*

Some of the combination producers began with recreational catfish ponds and added commercial sales as markets developed. Fishout operations were continued, but the ponds were drained and harvested after the initial flurry of fishout activity subsided.

Commercial producers generally had less experience than combination producers, with fewer than half having been in the business as long as 2 years. Many of these producers constructed ponds for the expressed purpose of commercial production. Such ponds generally were easier to drain, and harvesting of fish was much more efficient. The number of commercial producers with long experience was limited by lack of available markets in previous years. Commercial production came about with the advent of catfish processing plants, catfish restaurants, and sales of catfish in supermarkets that provided increased opportunities for sales. During the same period, Soil Conservation Service began an active program of assistance in construction of catfish ponds to further stimulate interest in production.

During the last few years the movement of catfish producers from category to category has been high. For example, producers who intended to sell their fish commercially may have used them for personal use or fishout because of limited markets. On the other hand, some producers who planned fishout operations found an opportunity to sell to a processor and became commercial producers for the year. As the industry stabilizes, there will be less shifting between types of production.

Number and Size of Ponds

Catfish producers with more than one pond gain certain advantages, whether the ponds are used for commercial or fishout purposes. Ponds in sequences can utilize the same water supply and in the event some mishap occurs while a pond is drained,

TABLE 2. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY NUMBER OF PONDS IN PRODUCTION, ALABAMA, 1970

Number of ponds	Producers reporting	
	Commercial	Combination
	No.	*No.*
1	81	53
2	33	30
3	12	26
4, 5, or 6	26	29
7, 8, or 9	4	6
10 or more	13	8
Av. ponds per producer	*3.1*	*3.5*

the fish can temporarily be moved into another pond. The raceway concept of many ponds in sequence is a logical extension of the multiple pond idea. An apparent disadvantage of interconnected water supply is the possibility of spreading disease from one pond to another.

Most combination and commercial producers in Alabama had more than one pond. However, more producers had only one pond than any other specific number. On the average, commercial producers had about three ponds and combination producers had nearer to four, Table 2.

Most of the catfish ponds in Alabama were not constructed, in the strict sense of the term. Natural terrain features were utilized to catch runoff waters or to dam streams. The number of ponds often was determined by availability of pond sites on the farm. Costs of pond construction were minimized by using terrain advantages. This is in contrast to the situation in the Mississippi Delta region. In that flat area where production water is supplied by pumping, catfish ponds are constructed in the size and shape desired by the operator. Experiments indicated 20, 40, or 80-acre ponds were most efficient.[3]

Under Alabama conditions, small ponds were most common. About 45 per cent of both commercial and combination producers had less than 5 acres of water in production, Table 3. Commercial producers averaged slightly more water in production than the combination. Since commercial producers also had fewer ponds, their pond size averaged somewhat larger than the average combination pond. Terrain within the State is such that constructing six or eight 20-acre ponds on 160 acres of land normally required a great deal of earth moving, cutting, and filling and was not economically feasible under existing marketing conditions.

[3] FOSTER, T. H. AND J. E. WALDROP. 1972. Cost-Size Relationships in the Production of Pond-Raised Catfish for Food. Miss. State Univ. Agr. and For. Exp. Sta. Bull. 792.

TABLE 3. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY ACRES OF WATER IN PRODUCTION, ALABAMA, 1970

Acres of water	Producers reporting	
	Commercial	Combination
	No.	*No.*
5 or less	79	67
5 to 15	54	52
More than 15	36	33
Av. water acreage	*14.5*	*14.0*

Stocking Rate

The number of catfish harvested from a pond results from an interaction of many factors, but stocking rate was a primary factor. Producers attempted to minimize the difference between the number stocked and the number harvested. Correct stocking rate depends on water conditions and other factors, but about 2,000 fingerlings per acre was the normal recommendation for a pond with relatively good aeration. Most producers stocked between 1,500 and 2,500 fish per acre, Table 4. However, one-fourth of the combination producers assumed that several hundred pounds of fish could be sold through fishout and enough fish would remain to warrant draining and harvesting the pond. These producers stocked more than 2,500 per acre of pond.

TABLE 4. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY STOCKING RATE PER ACRE, ALABAMA, 1970

Stocking rate, number per acre	Producers reporting	
	Commercial	Combination
	No.	*No.*
More than 2,500	21	38
1,501 to 2,500	122	105
1,500 or less	26	9
Av. stocking rate	*2,123*	*2,429*

Production Problems

As the number of fish per acre increased, production problems also increased. Lack of oxygen was the major problem experienced by combination producers, Table 5. Heavy stocking of a pond created dual oxygen stress: (1) oxygen requirements of the fish were increased because of the increase in numbers, and (2)

TABLE 5. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY TYPE OF PRODUCTION PROBLEMS, ALABAMA, 1970

Production problems	Producers reporting	
	Commercial	Combination
	No.	*No.*
Disease	25	23
Oxygen	30	58
Algae	42	4
Pond runoff	13	19
Low quality fingerlings	34	16
Trash fish	13	8
Lack of information on raising catfish	8	20
Other	4	4

the oxygen requirements for breakdown of waste materials were increased because more materials were present.

Difficulties encountered in production generally reduced the number of fish available for harvest. No data on number of fish were obtained, but on the basis of 1 pound of harvest for each fingerling stocked, the average producer harvested only 64 per cent of the stocked fish or about 1,280 pounds per acre. Losses were attributed to disease, poaching, snakes, and other predators. In some instances producers thought the original fingerling count was faulty.

Some of the producers interviewed indicated they had entered the business without sufficient knowledge regarding catfish production. Disease identification and treatment were special areas requiring additional information. Producers whose water supply was from running streams or lakes were bothered by trash fish entering their ponds. Not only did these unsalable fish compete for food and oxygen supplies, but they caused increased harvest labor for separating trash fish from catfish before sale.

Growing Period

Catfish feed and grow during warm weather. When water temperature drops below 70 degrees the catfish begin to live off accumulated body fat. Even with a maintenance diet fed during the winter months, the fish may begin the spring somewhat lighter than they were in the fall. A large fingerling 6 to 8 inches long can be grown to a weight of a pound during the summer months. For more efficient operation, stocking in the winter or early spring and harvesting in the fall allows a yearly crop of fish. About one-third of the catfish producers were able to operate in this manner, Table 6. Some producers stocked fingerlings which were too small or did not attain high enough growth rates and the harvest period was delayed. A few retained fish in their

TABLE 6. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY AVERAGE LENGTH OF GROWING SEASON, ALABAMA, 1970

Average growing period, months	Producers reporting	
	Commercial	Combination
	No.	*No.*
More than 24	10	13
13 to 24	45	50
9 to 12	59	48
8 or less	55	41
Av. growing period, days	*375*	*405*

ponds more than 2 years because buyers for larger fish could not be found.

A growing period of around 180 days is ideal if the pond is drained for harvest. The pond can be treated and refilled from winter rains, and needed maintenance work on banks or the dam can be done during the winter. The pond is then ready for restocking when water temperatures reach the appropriate level.

Harvesting Problems

Catfish normally are netted from the pond and transported live to holding tanks before processing. Processors will harvest fish if the producer is located within a reasonable distance from the plant. For sales to other outlets, producers usually must provide for harvest.

Many producers discovered their ponds were improperly constructed for harvesting catfish, Table 7. The improper construction took many forms, but the primary complaint was inability to restrict the fish to one location. No catch basin was in the pond and the catfish could not be localized for catching. Another common problem was inadequate drain pipe size resulting in slow drawdown of the pond.

TABLE 7. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY TYPE OF HARVESTING PROBLEMS, ALABAMA, 1970

Harvesting problems	Producers reporting	
	Commercial	Combination
	No.	*No.*
Lack of oxygen	12	19
Improper pond construction	113	99
Processor's problems	22	24
Labor	22	10

Summer oxygen problems resulted when fish were restricted to less water for harvesting. All of the fish could rapidly be lost if harvesting was delayed after the pond was drained. Such losses generally resulted from misunderstandings and other problems when harvesting was done by processor crews. When the harvest crew did not arrive as expected after water was drained from the pond, the benefits of alternative ponds were especially appreciated.

General Production Situation

Alabama was characterized by a relatively large number of small producers who were new to the catfish production business.

Basic knowledge regarding catfish production practices was not available although feeding techniques were generally recognized. Many problems of disease, faulty pond construction, and oxygen starvation were experienced by the earlier producers. Their experiences were utilized in designing new ponds, aeration devices, and methods of disease control. All of these efforts are continuing. Despite the importance of proper production and harvesting practices, however, these efforts are of little avail if the catfish cannot be sold. The producers encountered many more problems in selling fish than in raising them.

MARKETING CATFISH

The precise stage when catfish move from production to marketing varies with the enterprise. In the case of combination producers, fishout sales represented marketing while the commercial sales required a harvesting operation with added costs in marketing. For reasons of convenience, harvesting was considered as a function separate from production or marketing. Some harvesting was done by processors but generally the price per pound was reduced. Marketing then was designated as the process of final farm sale of the fish.

Buyers

The majority of commercial sales were to processors, although catfish also were sold to individuals, grocery stores, restaurants, fish markets, live haulers, wholesalers, and others, Table 8. Smaller producers often performed additional services for their buyers, including dressing and delivering the fish. Additional income from these services was deducted from the sale price to make all sales comparable.

TABLE 8. NUMBER OF PRODUCERS AND AVERAGE PRICE PER POUND RECEIVED BY COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY TYPE OF BUYER, ALABAMA, 1970

Buyer	Commercial		Combination	
	Producers	Av. price	Producers	Av. price
	Number	*Dollars*	*Number*	*Dollars*
Processors	105	0.39	76	0.34
Individuals	35	0.49	56	0.52
Grocery stores	3	---	4	0.73
Restaurants	10	0.52	7	0.51
Fish markets	12	0.40	3	0.35
Other	4	0.55	6	0.31

TABLE 9. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY AVERAGE PRICE RECEIVED FOR ALL CATFISH SALES, ALABAMA, 1970

Price per pound	Producers reporting	
	Commercial	Combination
	No.	*No.*
More than 70¢	4	9
46 to 70¢	14	23
25 to 45¢	147	120
Less than 25¢	4	0
Av. price per lb., cents	39	42

Grocery stores paid the highest average price for fish. Only three commercial producers made direct sales to grocery stores, however, since these stores generally buy from wholesalers or processors. Direct sales to restaurants and individuals were more feasible. Size of operation was no hindrance for sales to individuals since the market could be limited to the available supply of fish. Supplying restaurants required a constant quantity over longer time periods and could be attempted only by larger catfish producers.

Only the commercial sales of combination producers were included in the analysis. Sales to individuals by these producers represented sales other than by fishout, but some undoubtedly were to fishout customers who desired additional fish beyond those taken by hook and line. Several combination and commercial producers maintained a supply of dressed fish in a freezer for customers who came to the pond for purchases. The sale price varied from $0.70 to $1.00 per pound, which included a charge for harvesting and dressing the fish.

Combination producers on the average received higher prices for their fish. These producers had been in business longer and were able to establish better markets for their fish. About twice as high a percentage of the combination producers received prices in the 45¢ to 75¢ range as did the commercial producers, Table 9. All processors paid about the same price for fish and most commercial sales were to processors. The average price was increased by direct sales to individuals and restaurants. Other Alabama studies indicate that catfish production can be very profitable with sales at 38¢ per pound.[4]

[4] ADRIAN, J. L. AND E. W. MCCOY. 1972. Experience and Location as Factors Influencing Income from Commercial Catfish Enterprises. Auburn Univ. (Ala.) Agr. Exp. Sta. Bull. 437.

Catfish producers have little influence on the price received for catfish. Processors have labor and other costs to cover in marketing fish; therefore, they have an upper limit on the price they can pay. Similarly, restaurants and grocery stores purchase for resale and must consider the price at which the fish will move in the consumer market. Direct sales by the farmer also must compete with processor and wholesaler sales. The farmer's price cannot exceed the price of similar products in the same market.

Combination producers sold fish at a heavier weight than did commercial producers. The fishout part of the combination operation could not be successful until the fish reached ¾ to 1 pound in weight. Fish remaining in the pond continued to gain weight until harvest, with the result that fish from combination producers averaged ⅓ to ½ pound heavier at sale than those from commercial producers, Table 10. Interviews with the various buyers indicated the highest demand was for dressed fish weighing 6 to 8 or 8 to 10 ounces. A 1-pound catfish will dress out at around 8 to 10 ounces.

The fish from combination producers were somewhat larger than the market desired. Individuals desired a heavier fish while processors and restaurants desired a fish weighing around 1 pound before being dressed. A few producers with larger fish increased the overall average for the entire group. However, buyer preference was in the order indicated for commercial producers and there was little fluctuation in size bought by various buyers.

Individuals and fish markets will accept larger fish since home preparation is assumed. Grocery stores also assume home consumption of the fish, but they need a smaller fish to present a more attractive package with an acceptable price. Processors must consider their institutional customers, mainly restaurants, when buying fish. Different restaurants desired different sizes of

TABLE 10. NUMBER OF PRODUCERS AND AVERAGE WEIGHT OF CATFISH SOLD BY COMMERCIAL AND COMBINATION CATFISH PRODUCERS, ALABAMA, 1970

Type of buyer	Commercial		Combination	
	Producers	Av. fish weight	Producers	Av. fish weight
	No.	*Lb.*	*No.*	*Lb.*
Processors	105	1.15	76	1.46
Individuals	35	1.47	56	1.61
Grocery stores	3	1.25	4	1.62
Restaurants	10	1.14	7	1.42
Fish markets	12	1.36	3	1.50
Other	4	1.07	6	1.75

fish, but smaller fish were generally preferred. Two 6-ounce fish (dressed size) plus hush puppies and slaw was considered as an attractive offering. Wholesale cost of the fish would be about 60¢. Additional costs then would allow catfish to be listed on the menu for less than $2.00.

The only data indicating size preference by consumers are based on sales to individuals for home consumption. In purchases of this type, consumers indicated a desire for fish dressing out at about 1 pound. The larger fish required fewer cooking steps for the housewife, so she preferred to prepare a single 1-pound fish per person rather than two 8-ounce fish. Until direct sales to homemakers through supermarkets increase substantially, however, the major demand will be for smaller size fish.

Most Alabama producers have relatively limited sales of catfish. Commercial producers had greater sales through drain and harvest than the combination. Over 50 per cent of the combination producers sold less than 2,500 pounds of fish to their major buyer, Table 11. Processors were the major buyer for most operations, although substantial sales were made to individuals. One combination producer sold over 15,000 pounds of fish to a restaurant and another more than 15,000 pounds to a fish market. In both instances the sales were accounting operations in that the producers also were owners of the restaurant and the fish market.

Forty-six combination and commercial producers each sold more than 15,000 pounds of catfish to their major buyer, while 139 producers sold less than 2,500 pounds each to their major

TABLE 11. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY TYPE OF BUYERS AND NUMBER OF POUNDS OF CATFISH SOLD, ALABAMA, 1970

Pounds sold	Producers reporting sales to					
	Processors	Individuals	Grocery stores	Restaurants	Fish markets	Other
	No.	*No.*	*No.*	*No.*	*No.*	*No.*
Commercial producer						
More than 15,000	23	2	0	0	0	1
5,001-15,000	29	8	0	1	2	1
2,501-5,000	31	6	1	1	0	1
2,500 or less	22	19	2	8	10	1
TOTAL	105	35	3	10	12	4
Combination producer						
More than 15,000	14	3	0	1	1	1
5,001-15,000	20	4	1	2	0	1
2,501-5,000	15	10	0	0	0	2
2,500 or less	27	39	3	4	2	2
TOTAL	76	56	4	7	3	6

buyer. Producers with more than one pond occasionally sold approximately equal quantities of fish to different buyers. In most cases the different buyers were in the same category, however. For example, a producer sold the harvest from pond A to processor A. Dissatisfied with price or service, the harvest from pond B was sold to processor B. In addition, sales to individuals were made according to demand prior to harvest of the ponds. Fish for individual sales were caught by trap nets or by seining.

Processors were the only buyers capable of purchasing a large volume of fish from many producers. Occasionally a producer could market his fish with local grocery stores, restaurants, or fish markets. In these instances the seller, typically, was required to dress the fish and transport them to the buyer. Many producers were unable or unwilling to provide the additional services required for this type of sale. The producer desired ownership of the fish to terminate on the pond bank and preferred that the buyer harvest the fish. He might be willing to dress limited quantities for sale to individuals, but dressing 1,500 to 2,000 pounds was not considered feasible by most producers.

TABLE 12. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY DISTANCE TO MAJOR BUYERS, ALABAMA, 1970

Distance to buyer, miles	Producers reporting	
	Commercial	Combination
	No.	*No.*
More than 300	4	3
151 to 300	4	5
51 to 150	39	36
50 or less	122	108
Av. distance, miles	*53.4*	*56.0*

Continuing sales to processors with harvesting provided by the buyer required locating production facilities near catfish processing plants. The average distance from ponds to major buyer was 53 miles for commercial producers and 56 miles for combination producers, Table 12. Sixteen buyers were located over 150 miles from the producer, of which seven were more than 300 miles away. Processors preferred not to harvest ponds over 50 miles from the plant and would not travel 300 miles unless fish were unavailable within a closer radius. In addition, processors would not travel excessive distances unless 15,000 to 20,000 pounds could be acquired in one trip. All sales were not to processors, however, and some buyers were located farther from the production area than the distance to the nearest processor. None of

TABLE 13. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY DISTANCE TO PROCESSOR, ALABAMA, 1970

Distance to processor, miles	Producers reporting	
	Commercial	Combination
	No.	*No.*
More than 300	4	0
151 to 300	2	6
51 to 150	48	53
50 or less	115	93
Av. distance to processor, miles	*53*	*56*

the combination producers were located over 300 miles from the nearest processor, Table 13, although three sold to buyers farther away than 300 miles. Generally, the producers sold fish to the highest bidder. In many instances only one buyer was contacted, thus fish in the same area were selling for 25¢ to 40¢ per pound. Producers were aware of problems involved in marketing fish. Because of lack of marketing opportunities, several producers felt they were unable to influence the price paid for fish.

Marketing Problems of Catfish Producers

When catfish producers were queried regarding the principal problem involved in marketing fish, lack of buyers was mentioned most frequently by both commercial and combination producers, Table 14. This problem was not recognized until the fish were ready for harvest. The producers were so involved in production they failed to arrange in advance for sale of the fish. In spite of the problems involving buyers, most producers were not interested in contracting for sale of their fish.

TABLE 14. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY TYPE OF MARKETING PROBLEMS, ALABAMA, 1970

Marketing problems	Producers reporting	
	Commercial	Combination
	No.	*No.*
Lack of buyers	46	43
Price too low	42	32
Unreliable market for fish produced	23	26
Poor treatment from processor	24	15
Wants to harvest year round	9	6
Member of floundering cooperatives	5	4
Cannot get assistance and expand	4	4
Loss of fish from pond by theft	4	11
Desires governmental assistance	3	7
Lack of producers	3	3
Irregular size of fish	2	2
Foreign competition	2	1

The second major problem was low price for the fish sold. Producers had anticipated receiving about 50¢ per pound for fish, but the sale price in 1970 was nearer 35¢. The 1970 price changed the expectations of producers. For example, in 1971 commercial producers expected about 40¢ per pound and combination producers about 45¢ per pound. On the basis of low production levels and unsatisfactory price, some producers decided to discontinue catfish production.

The general term "unreliable market for catfish" covered a multitude of complaints: fluctuation of prices over the season, the difficulty in finding a buyer when the fish were available for harvest, and lack of valid information regarding prices paid for catfish.

The fourth problem represented an amalgamation of producer and processor mistakes and misunderstandings. In a few instances the processor-buyer refused to pay the agreed-on price after the pond was drained. The producer had to accept the pond bank offer since his fish literally were gasping "like fish out of water." All such instances were attributable to one processor who subsequently went out of business. Misunderstanding resulted when processor harvest crews arrived and the pond had not been drained. Lack of coordination was prevalent in producer-processor relations.

Lack of sufficient supply to justify harvest equipment was the basis for marketing problems for some producers. The production operation was located too far from processors for processor harvesting, so harvesting and delivery had to be performed by producers. However, this was not economically feasible with the limited quantities of production available.

Stages of marketing for catfish include harvesting, transporting, processing, storing, and ultimate sale to the final consumer. The producer is typically not concerned with any of the market functions. In the case of catfish producers, they desired to sell fish pond-run and leave the marketing sector to the buyer. Thus, the marketing problem was centered on finding buyers who would pay a fair price for the catfish.

Even though several producers were planning on leaving the business, new producers were entering. Some producers interviewed had not marketed their first crop of fish. During 1970 only 26 commercial producers sold more than 15,000 pounds of fish. By 1971, 57 producers expected to sell more than 20,000

TABLE 15. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY EXPECTED 1971 PRODUCTION, ALABAMA, 1970

Expected production, pounds	Producers reporting	
	Commercial	Combination
	No.	*No.*
20,000 or more	57	42
10,000-19,999	34	43
5,000-9,999	42	25
1,000-4,999	28	39
Less than 1,000	8	3
Av. expected 1971, pounds	*39,872*	*23,019*

pounds, Table 15. Almost all of the producers anticipated future increases in sales. The added experience in production would enable them to increase production while additional marketing knowledge would lead to stabilized sales. A degree of shifting was planned in production. Some combination producers planned to shift to commercial, while others were shifting completely to fishout. The outcome of all the shifts left about the same number of producers of each type, however, the location of types of production was changed. Producers with stable markets within a 50-mile radius tended to shift to commercial production. Those at greater distances from markets shifted toward combination or fishout production.

Combination producers also expected to increase production. In 1970, there were 20 combination producers who sold more than 15,000 pounds of catfish. By 1971, 42 producers expected to produce more than 20,000 pounds. Average expected production for all combination catfish producers was over 23,000 pounds. All of the combination production would not be sold following drain and harvest. Some would be sold through fishout and some consumed by the producer.

Home consumption of catfish averaged about 250 pounds for commercial producers and 230 pounds for combination producers, Table 16. Home consumption represented lost revenue from

TABLE 16. NUMBER OF COMMERCIAL AND COMBINATION CATFISH PRODUCERS BY NUMBER OF POUNDS OF HOME CONSUMPTION, ALABAMA, 1970

Pounds consumed per year	Producers reporting	
	Commercial	Combination
	No.	*No.*
500 and over	7	5
200 to 499	35	38
100 to 199	33	45
Less than 100	94	64
Av. home consumption, pounds	*249*	*233*

sales—$97.50 for commercial producers and $97.71 for combination producers, based on average price received. Producers normally did not compute the value of home consumption when determining the profitability of their catfish operation. An operator should have been quite satisfied if catfish sales returned a profit over all costs of production and in addition provided home consumption of catfish.

SUMMARY

A survey of 703 catfish producers was completed in 1971. The producer data were subdivided into groups based on type of production. There were 169 commercial and 152 combination producers identified and interviewed for the study.

More than half of the combination producers had been in business longer than 2 years, while less than half of the commercial producers had been producing catfish that long. Combination producers sold a portion of their fish by fishout and harvested the remainder. Commercial producers harvested their entire output. Some shifting occurred from year to year in the two types.

Most of the catfish ponds in Alabama were constructed using natural terrain features. On the average, commercial producers had about three ponds and combination producers about four. About 45 per cent of each type had less than 5 acres of water in production. Most of the producers stocked about 2,000 fingerlings per acre. On the basis of acreage and stocking rate, the average producer stocked about 10,000 fingerlings. Only 1,280 pounds of catfish per acre were harvested. About one-third of the producers were able to produce a crop of fish in 8 months or less.

Catfish were sold to processors, individuals, grocery stores, restaurants, live haulers, wholesalers, and others. The majority of sales were to processors. The scope of individual production limited the amount of sales to institutional buyers. The more experienced combination producers sold larger quantities of fish to individuals and restaurants and received a higher average price. In general, combination producers sold heavier fish.

The majority of producers sold less than 2,500 pounds of catfish to their major buyer. Processors represented the major buyer for most of the operations. For continuing sales to processors the producers had to be within 50 miles of the processing plant. Beyond this distance processors were reluctant to harvest and transport the fish.

Producers experienced several marketing problems. The major one was lack of buyers, followed by instability of price and lack of reliable information regarding the market. In spite of marketing problems, producers were planning increases in production.

CONCLUSIONS

Agricultural production in the United States in most cases has a well defined marketing system. The free enterprise system, through the means of rewards for correct decisions and financial punishment for incorrect decisions, shifts resources into areas of greatest need. In some instances producers have requested governmental assistance to ensure orderly marketing. The marketing system for a product does not spontaneously spring into being but rather evolves over time. Catfish have been sold for many years, but there were limited marketing arrangements for the wild or river catfish. Only during recent years has production in farm ponds occurred, and marketing arrangements for pond raised catfish developed as production has expanded.

Problems in marketing developed. The limited scope of production in specific areas was inadequate for development of intermediate levels of marketing. Brokers, auctions, and other forms of sale existing for other farm products were either not conducive or not available for catfish producers. Direct sales to individuals, fish markets, restaurants, and grocery stores served for some producers. The requirements for large volumes of standardized sizes of fish precluded most producers from sales to chain operations. The only segment of the catfish industry capable of furnishing a stable supply of fish for major contracts was processors. Processors could assemble fish from many producers, process and grade, and sell in quantity to many buyers. Only large catfish operations with their own processing facilities could attempt the same task.

Processors were reluctant to travel great distances to harvest limited quantities of fish. Producers located over 50 miles from processing plants could only market fish when processors required additional supplies to meet contract commitments. The production of commercial catfish has tended to gravitate into an area around processing plants.

The ultimate form and structure of the catfish industry has not been determined. Production is spread throughout the Southeastern United States, with heavy concentration of producers in

the Mississippi Delta region of Arkansas and Mississippi. Processing plants are distributed throughout the Southeast, but all plants constructed within the last 2 years were in the Delta region.

Individual catfish producers can exist in the industry even though located some distance from processing plants. Producers can arrange sales to individuals, local fish markets, and restaurants. The producer can harvest and dress the fish immediately after sale. In addition, revenue can be obtained by allowing fishout from a pond which is destined for drain and harvest. While there is room within the industry for large and small producers, large producers should be located close to processing plants unless they are assured of alternate sales outlets for their fish.

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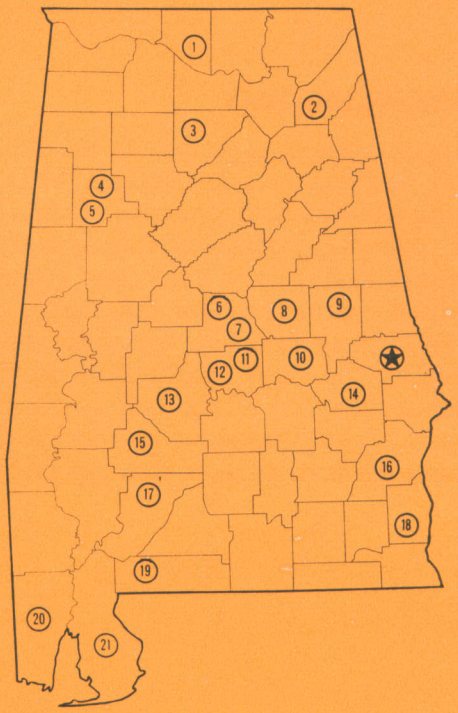
AGRICULTURAL EXPERIMENT STATION SYSTEM OF ALABAMA'S LAND-GRANT UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

★ Main Agricultural Experiment Station, Auburn

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. Thorsby Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. Tuskegee Experiment Field, Tuskegee.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Ornamental Horticulture Field Station, Spring Hill.
21. Gulf Coast Substation, Fairhope.