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OWNER EXPERIENCES *with* FARM PONDS *in* EAST-CENTRAL ALABAMA



AGRICULTURAL EXPERIMENT STATION
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Owner Experiences with Farm Ponds in East-Central Alabama*

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IN 1872, THE first Federal funds were appropriated to encourage building ponds for fish production. These funds were to provide free distribution of fish for stocking ponds. Today, in addition to furnishing fish for stocking, State and Federal agencies offer advice and aid in planning and constructing ponds. Federal agencies also offer financial aid to farmers who build ponds for soil and water conservation.

Objectives of the study reported here were to determine initial and annual costs of private ponds used for various purposes other than industrial, physical, and monetary returns.

METHOD and SCOPE of STUDY

A list of private ponds in Lee County, located in east-central Alabama, was compiled from records of the State Conservation Department, the State Health Department, and the Extension Service of The Alabama Polytechnic Institute. These ponds were classified as commercial and noncommercial.¹ Commercial ponds were divided into three groups for sampling purposes: (1) those

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*** The authors acknowledge the assistance and cooperation of the 51 pond owners in Lee County, Alabama, who supplied the basic data upon which this study was based. Secondary data were obtained from the Alabama Department of Public Health, the Alabama Conservation Department, and the Agricultural Experiment Station and Extension Service of The Alabama Polytechnic Institute. Appreciation is also due to members of the Department of Zoology and Entomology and the Department of Agricultural Economics for assistance in planning the study, in reviewing the results of the study, and in criticizing the earlier drafts of this report.

¹ Commercial ponds are private ponds used for purposes other than fishing by family and friends. Noncommercial ponds are those used primarily for fishing by family and friends.

owned by or rented to clubs, (2) those used for selling day fishing permits, and (3) those used for irrigation. Noncommercial ponds were also separated into three groups: (1) small (0.25 to 1.99 surface acres), (2) medium (2.00 to 5.99 surface acres), and (3) large (6.00 surface acres and over). Ponds in each of the six groups were numbered, and a sample was chosen.²

Fifty-one pond owners were interviewed to obtain information.

This sample was designed specifically to represent ponds in Lee County. Results of this study, with minor economic adjustments, however, will apply to other areas with similar climatic conditions, soils, and topography.

GENERAL INFORMATION about SAMPLE PONDS

Number and Location. From the data available, it was estimated that there were approximately 470 ponds in Lee County and that their combined area amounted to approximately 2,195 surface acres on October 1, 1956.³

Privately owned ponds were evenly distributed throughout the County. Most ponds were not more than 10 miles from a city (12,000 plus population) and were located near all-weather roads, which make them accessible for selling fishing permits.

Size. Noncommercial small, medium, and large ponds were positively correlated with size of farms, Table 1. The largest

TABLE 1. NUMBER, AVERAGE SIZE, AND RANGE IN SIZE OF FARMS AND PONDS, BY USE, LEE COUNTY, ALABAMA, 1956

Use	Farms	Size of farms			Ponds	Size of ponds		
		Aver- age	Range			Aver- age	Range	
			Low	High			Low	High
	No.	Acres	Acres	Acres	No.	Acres	Acres	Acres
Commercial								
Club	5	259	30	542	6	8.9	1.0	20.0
Fishing permits...	8	235	40	750	9	9.6	2.8	25.0
Irrigation.....	5	1,056	38	2,433	8	11.6	2.0	60.0
Noncommercial								
Small.....	10	182	12	535	10	1.0	0.2	1.9
Medium.....	9	228	60	370	9	3.3	2.0	5.9
Large.....	9	298	25	760	9	18.7	6.0	55.0

² Number of ponds in each group in the sample was not proportionate to the number of ponds in Lee County. Ponds were chosen at random.

³ H. S. Swingle "Storing Water for Use in Irrigation," *Proceedings, Water Resources and Supplemental Irrigation Workshop, 1955*, Agricultural Experiment Station of The Alabama Polytechnic Institute, Data revised, October 1, 1956.

pond was used for irrigation, whereas the smallest was used for watering livestock. Commercial ponds varied in size from 1-acre club ponds to 60-acre irrigation ponds.

Reasons for Building and Uses Made of Ponds. Family fishing was by far the most frequently reported reason for building ponds in Lee County. Source of water for livestock ranked second.

Irrigation ponds were used for family fishing, for other recreational activities, and for watering stock. However, such uses were of minor importance compared to irrigation. One-third of those selling day fishing permits reported family fishing to be more important than sale of permits.

The principal uses of small and medium size noncommercial ponds were about equally divided between family fishing and water for livestock. One-third of the owners of large noncommercial ponds reported the principal use of their ponds was family fishing. Another one-third of large noncommercial pond owners indicated that ponds were built principally for site improvement and for water for livestock.

Several pond owners reported a decline in their interest and hours spent in fishing after the newness of ponds wore off.

General Information about Sites and Ponds. The topsoil where ponds were built ranged from sand to clay. Sandy loam was the predominant type, with about half of the pond owners reporting sandy loam on pond sites. All 51 sample pond sites had a clay subsoil, and almost all dams had a clay core or the entire dam was made of clay.

Most pond owners who knew the slopes on their dams said that dams were built with at least a 2-to-1 slope, which is in accordance with Experiment Station recommendations.⁴ Average dimensions of dams for ponds included in this study are given in Appendix Table 4.

Average age of ponds in Lee County (using number of ponds in the county as a basis for weighting, Table 2) was 7.4 years. Average ages in the different groups ranged from 4 years for irrigation ponds to almost 16 years for club ponds. Club ponds had the greatest range in age, from less than 0.5 year to 39 years. Among the noncommercial group, larger ponds were older.

⁴ J. M. Lawrence, *Construction of Farm Fish Ponds*, Agricultural Experiment Station of The Alabama Polytechnic Institute, Circular No. 95, June 1949, p. 17.

TABLE 2. AVERAGE AGE AND RANGE IN AGE OF SAMPLE PONDS, BY USE, LEE COUNTY, ALABAMA, 1956

Use	Average age	Range in age	
		Low	High
	Years	Years	Years
Commercial			
Club.....	15.7	1	39
Fishing permits.....	5.6	2	10
Irrigation.....	4.0	1	8
Noncommercial			
Small.....	5.9	1	15
Medium.....	7.3	1	25
Large.....	10.8	1	26
WEIGHTED AVERAGE ²	7.4		

¹ Less than 0.5 year old.

² The number of ponds in each use group in Lee County was used as the basis for weighting the ages.

Other General Information. To learn more about ponds, owners were classified into three groups, (1) farmers—those receiving most of their income from farming operations, (2) part-time farmers—those receiving more than half of their income from off-farm employment, and (3) nonfarmers—those receiving all of their income from nonfarm sources.

Part-time farmers comprised the greatest proportion of pond owners and amounted to approximately two-fifths of the total. About one-third of the owners were nonfarmers; the remainder were full-time farmers.

In Lee County, noncommercial ponds were by far the greatest in number. They accounted for 89 per cent of all ponds, and 80 per cent of total pond acreage. Approximately 5 out of 6 noncommercial ponds were owned by either part-time farmers or nonfarmers, and about half (46 per cent) of these owners lived off the farm.

The pond owners interviewed were asked to comment on the demand for ponds for fishing. A large majority of those not selling fishing permits said the demand for good fishing areas was greater than the supply. Owners selling fishing permits reported the opposite.

Owners of large ponds who had dairies and row crops used their ponds for irrigation. Most of the irrigation pond owners were dairy farmers.

Eighty-eight per cent of the pond owners reported they received technical advice before or during the time of construction

of ponds. Approximately 2 out of 5 owners received such advice from the Extension Service, which was by far the most often reported source.

Private ponds in Lee County could supply enough water to irrigate approximately 13,000 acres of crops,⁵ Appendix Table 1. Some ponds, however, were not located for economical irrigation. A large number not used for irrigation could have been used for this purpose.

COSTS and RETURNS

Total Investment. Total investment, as used in this study, included the value of land, and costs of materials and construction. Owners were asked to estimate the land value of pond sites as of the dates ponds were built. These estimates were adjusted to 1956 values by use of an index of farm real estate values. Although the land in sites chosen for ponds was less desirable for crop production, there was considerable variation both in reported and in adjusted land values.

The average estimated total investment per surface acre of water for all ponds was \$336, Table 3. Per acre investment in commercial ponds was greatest for those used by clubs and least for those used for irrigation; whereas, for noncommercial ponds, the per acre investment was inversely related to size. Investment

TABLE 3. NUMBER OF PONDS, TOTAL AND AVERAGE ACRES, AND AVERAGE INVESTMENT PER ACRE AND PER POND, BY USE, 51 SAMPLE PONDS, LEE COUNTY, ALABAMA, 1956

Use	Ponds	Acres		Average investment ¹	
		Total	Average	Per acre	Per pond
	<i>Number</i>	<i>Acres</i>	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>
Commercial					
Club.....	6	53.5	8.9	420	3,736
Fishing permits.....	9	86.2	9.6	392 ²	3,762
Irrigation.....	8	92.5	11.6	269	3,118
Noncommercial					
Small.....	10	10.4	1.0	649	649
Medium.....	9	29.4	3.3	370	1,220
Large.....	9	168.5	18.7	294	5,489
TOTAL.....	51	440.5	---	---	---
WEIGHTED AVERAGE.....	---	---	---	336	2,904

¹ Includes values of land adjusted to 1956 values.

² Excluding one pond built in a swamp.

⁵ Based on 1 acre-foot of water per acre of crops irrigated.

per acre in large ponds averaged less than half that of small ponds.

Construction Costs. Construction cost per surface acre averaged nearly \$600 for small ponds and about \$200 for irrigation ponds, Table 4. Of the commercial ponds studied, those used for irrigation averaged larger, and cost less to build than did other groups of commercial ponds. For noncommercial ponds, there was a direct relationship between construction cost per surface acre and size.

TABLE 4. NUMBER OF PONDS, TOTAL AND AVERAGE ACRES, AND AVERAGE PER ACRE AND PER POND COST OF CONSTRUCTION, 51 SAMPLE PONDS, BY USE, LEE COUNTY, ALABAMA, 1956

Use	Ponds <i>Number</i>	Acres		Cost of construction	
		Total <i>Acres</i>	Average <i>Acres</i>	Per acre <i>Dollars</i>	Per pond <i>Dollars</i>
Commercial					
Club	6	53.5	8.9	358	3,187
Fishing permits.....	9	86.2	9.6	342 ¹	3,283
Irrigation.....	8	92.5	11.6	203	2,349
Noncommercial					
Small.....	10	10.4	1.0	590	590
Medium.....	9	29.4	3.3	306	1,011
Large.....	9	168.5	18.7	211	3,946
TOTAL.....	51	440.5	---	---	---
WEIGHTED AVERAGE.....	---	---	---	268	2,313

¹ Excluding one pond built in a swamp.

Construction costs per acre-foot of water were calculated for ponds for which adequate cost data were available.⁶ These costs varied from approximately \$800 per acre-foot of water for a 0.6-acre pond to \$7 for a 35-acre pond, Table 5. Great variation was evidenced by the fact that an acre-foot of water in a pond of a given size might cost four times that in another pond of equal surface area. When cost data for ponds with less than 2.0 acres, 2.0 to 5.9 acres, and 6.0 acres and above were averaged, size of pond and construction costs per acre-foot of water showed an inverse relationship. Construction costs per acre-foot of water for ponds with less than 2 acres averaged approximately five times those for ponds of 6.0 acres and over.

Because of wide variation in costs when calculated on the basis of surface acres and acre-feet of water, further effort was made to obtain a more meaningful cost figure. Available data for 25

⁶ Acre-feet of water were calculated by multiplying the surface acres by the average depth.

TABLE 5. SIZE OF PONDS AND CONSTRUCTION COSTS PER ACRE-FOOT OF WATER, BY SIZE GROUPS, 38 PONDS, LEE COUNTY, ALABAMA, 1956

Small (0.25 to 1.99 surface acres)		Medium (2.00 to 5.99 surface acres)		Large (6.00 surface acres and over)	
Size of pond	Construction costs per acre-foot of water	Size of pond	Construction costs per acre-foot of water	Size of pond	Construction costs per acre-foot of water
<i>Acres</i>	<i>Dollars</i>	<i>Acres</i>	<i>Dollars</i>	<i>Acres</i>	<i>Dollars</i>
0.50	148	2.0	50	6.0	52
0.60	797	2.0	68	6.0	35
0.75	217	2.4	36	6.5	38
1.00	180	2.5	77	8.0	63
1.00	112	2.5	201	8.5	38
1.00	51	2.8	179	10.0	35
1.50	71	3.0	93	10.0	14
1.75	82	3.0	112	11.0	21
		4.0	45	16.0	28
		4.0	47	20.0	13
		4.0	160	22.5	30
		4.5	28	25.0	205
		5.0	9	35.0	7
		5.0	16	55.0	15
		5.0	23		
		5.0	26		
TOTAL	1,658	---	1,172	---	594
AVERAGE	207	---	73	---	42

ponds showed that on the average the volume of dirt used in the dam increased in proportion to the increase in average size between small and medium ponds, Table 6. The average size of medium ponds was approximately three times that of small ponds, and the volume of dirt in the dam for an average medium pond was about three times that in the dam for an average small pond. The average large pond was approximately five times the size of the average medium pond, but the volume of dirt in the dams of large ponds was only 2.6 times greater than that in the dams of medium ponds. When total costs for dams were divided by the estimated number of cubic yards of dirt in the dams, there was little difference in average cost per cubic yard among ponds of various sizes.

TABLE 6. VOLUME OF DIRT IN AVERAGE DAM AND AVERAGE COST PER YARD FOR MOVING DIRT, BY SIZE OF POND, 25 PONDS, LEE COUNTY, ALABAMA, 1956

Range in size of pond	Average size of pond	Volume of dirt in average dam	Average cost per yard for moving dirt
<i>Acres</i>	<i>Acres</i>	<i>Cubic yards</i>	<i>Cents</i>
0.25-1.99.....	1.1	1,445	25.7
2.00-5.99.....	3.5	4,341	24.6
6.00 and over.....	17.0	11,328	27.3

Source: Calculated from data shown in Appendix Table 3.

Based on data for 25 ponds, the cost of dams amounted to 71 per cent of total construction costs.

A few of the oldest ponds were built with man and mule power. One owner who had recently completed his pond used a farm tractor and a tractor scoop. The remainder of the ponds were constructed with bulldozers and pans, or with draglines in some of the swampy sites. Most of the contractors who built ponds contracted by the job; however, several contractors worked on an hourly basis.

Annual Costs and Returns. The annual cost per acre of pond ranged from a low of \$7.24 for irrigation ponds to a high of \$30.81 for commercial ponds owned by or rented to clubs, Table 7. Irrigation ponds were not fertilized and there was almost no mowing around these ponds. Five out of 8 irrigation ponds were located on dairy farms, and cows grazed around 4 of these 5 ponds. Owners of large noncommercial ponds followed less intensive management practices, which helped them to hold down annual costs to \$10.98 per surface acre. Annual costs for ponds, other than those used for irrigation and the large noncommercial ponds, were about \$30 per acre.

Six ponds were owned by or rented to clubs. One hundred and thirty-five families had access to these ponds. An average of 22 families used each pond. The number of persons in each club member's family was not available. In addition to their families, club members were permitted to bring guests. Club ponds in-

TABLE 7. AVERAGE ANNUAL COSTS PER ACRE FOR FERTILIZER, MOWING, TAX, AND INTEREST ON INVESTMENT, AND OTHER MANAGEMENT PRACTICES, BY USE, LEE COUNTY, ALABAMA, 1956

Use	Fertilizer	Mowing	Tax	Interest on in- vestment ¹	Other manage- ment practices ²	Annual cost per acre
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Commercial						
Club	19.10	0.99	0.23	10.49	0.00	30.81
Fishing permits.....	9.06	3.76	.27	9.80	5.57	28.46
Irrigation.....	.00	.26	.26 ³	6.72	.00	7.24
Noncommercial						
Small	10.85	3.43	0.25	16.22	0.00	30.75
Medium	15.97	3.81	.29	9.24	.14	29.45
Large	1.22	2.14	.28	7.34	.00	10.98

¹ Computed at the rate of 2.5 per cent on total investment per acre.

² Includes poisoning ponds, chemical weed control, and general maintenance.

³ Estimated by using an average for other groups.

cluded in this study had a total of 53.5 acres, or about 0.4 acre of water per family. The average yearly cost per family was \$16.64 or \$41.60 per surface acre.

Ponds that were rented to clubs netted pond owners \$75 per surface acre of water per year. Most club ponds were also used for recreational purposes other than fishing.

Fishing permits were sold for a total of 86.2 surface acres of ponds included in this study. The average annual cost per surface acre of ponds used for selling fishing permits was \$28.46. Average income from fishing permits was \$44.26 per acre, which left a net return of \$15.80. This net return was computed without charging for family labor when members of the owner's family collected the money from those who fished. If family labor had been charged at the going rate, these ponds would have shown a deficit. Ponds for which fishing permits were sold were also fished to a limited extent by the owner, his family, and friends. The time thus spent amounted to an average of 7.5 hours per surface acre of water per year (based on only 38 acres on which information was available). The estimated value of edible fish caught by nonpaying fishermen was \$5.97 per surface acre of pond.⁷ Only 9 acres of ponds for which fishing permits were sold were used for boating and swimming. Some of these ponds were used to furnish water for livestock, but a value was not placed on this use.

Eight sample ponds used for irrigation contained 92.5 surface acres and 703 acre-feet of water. These ponds were used to irrigate 198 acres of pasture, small grain, and silage crops, 58 acres of cotton, and 2 acres of nursery stock. All pond owners who irrigated used sprinkler irrigation systems. Two of the eight owners reported that their ponds were not adequate sources of water for irrigation purposes.

Data showing monetary returns were available from half of the irrigation ponds. In analyzing returns from these ponds, all fixed and variable costs of irrigation systems were computed on the basis of acre-inches of water applied to crops.

The cost of irrigating pastures, silage crops, and small grains was \$4.40 per acre-inch of water applied to these crops. This cost was approximately the same as the \$4.65 per acre-inch of water reported in a study of sprinkler irrigation systems in eastern Arkansas.⁸ The cost of sprinkler irrigation of cotton was somewhat greater, \$7.95 per acre-inch of water. However, this greater

⁷ Average value, \$0.39 per pound using pond owners' estimates of value.

⁸ James H. White, *Sprinkler Irrigation in Eastern Arkansas*, Report Series 62, Agricultural Experiment Station, University of Arkansas, December 1956, p. 14.

cost can be at least partially explained by an investment in extra irrigation equipment by some owners. Accurate costs and returns were not available for ponds used for nursery irrigation.

The net return per acre-inch of water applied to pastures, small grains, and silage crops was \$0.51. The water applied to cotton netted \$6.48 even with the high cost per acre-inch of water. These returns cannot be taken as the maximum value that could be expected from irrigation because 1956 was an average year in regard to amount and distribution of rainfall based on weather data. These returns represent the value of irrigation for increasing yields during normal years. Another value derived from irrigation is that of preventing crop failures during years of drought.

Owners of irrigation ponds who also sold fishing permits realized from this source a net return of \$9.76 per acre in 1956. Fish caught by family and friends from 60 of the 92.5 acres of irrigation ponds were valued at \$234 or \$3.90 per acre of pond per year. The data available were insufficient to determine values for other uses of irrigation ponds.

Size of noncommercial ponds ranged from 0.25 to 55 surface acres of water. Uses made of these ponds varied from almost none to intensive use for fishing, water for stock, site improvement, boating, swimming, and outings. Some ponds were constructed near homes, in pastures, and in other locations to improve the scenery.

Owners of small noncommercial ponds reported that their ponds were fished an average of 290 hours per surface acre per year, with an estimated catch of 192 pounds of fish per surface acre. The value of fish caught was estimated to be \$74.88 per surface acre per year. Eight of the 10 ponds were used for livestock water, with an average of 19 cows per acre of pond. Most owners of these small ponds had other sources of water. However, ponds provided a convenient source of water and a supply during an emergency such as drought. Other uses of noncommercial small ponds included fishing for employees, and recreational and other miscellaneous uses for which returns per acre were not available.

Medium-size noncommercial ponds were fished 80 hours per surface acre per year, which means that they were fished less intensively than were the small ponds. The average catch was 135 pounds of fish per surface acre of pond, with an estimated value of \$52.77. Seven out of the 9 noncommercial medium ponds were used for livestock water, with an average of 14 animals having access to each acre of water.

SUMMARY

The 470 ponds in Lee County, located in east-central Alabama, contain about 2,200 surface acres of water. About 320 of them are private ponds and contain 1,640 surface acres, or 13,000 acre-feet of water.

Government agencies rendered valuable assistance to pond owners in planning, constructing, and managing ponds. Eighty-six per cent of the sample pond owners received technical assistance from government agencies.

Per acre cost of constructing noncommercial ponds was inversely related to pond size, and ranged from a low of \$211 for large ponds to \$590 for small ponds. Ponds used for irrigation had the lowest average per acre cost of construction, \$203. Average per acre cost of construction of all sample ponds was \$268. None of the pond owners reported receiving financial aid for pond construction from government agencies.

Annual costs varied from a low of \$7.24 per surface acre for commercial ponds used for irrigation to \$30.81 for ponds used by clubs. Annual costs were about \$30 for 4 of the 6 groups of ponds. Groups for which average annual per surface acre costs were most different were large noncommercial ponds with costs of \$10.98 and irrigation ponds with costs of \$7.24.

Ponds rented to clubs returned a net income of \$75 per surface acre.

Net returns to owners who sold fishing permits averaged \$14.80 per surface acre when no charge was made for family labor involved in selling permits. When the prevailing wage rate was applied to the hours of family labor involved, these ponds showed a deficit in net returns.

The estimated net return per acre-inch of water applied to pastures, small grains, and silage was \$0.51, and for cotton, \$6.48.

Owners of small ponds reported an average catch of 192 pounds of fish in 290 hours of fishing per surface acre of pond. An average of the reports from owners of medium-size ponds showed 135 pounds of fish caught in 80 hours of fishing per surface acre.

Five of the 6 groups of ponds yielded profitable monetary returns to their owners. Monetary returns from large noncommercial ponds could not be computed because adequate data were unobtainable. In addition, most of these ponds were used for recreational purposes, for which no dollar value was determined. Some individual ponds were not profitable.

APPENDIX

APPENDIX TABLE 1. SURFACE ACREAGE, AVERAGE DEPTH, AND VOLUME OF WATER IN 51 PONDS AND ESTIMATED VOLUME OF WATER IN PRIVATE PONDS, BY USE, LEE COUNTY, ALABAMA, 1956

Use	Total sample acres	Average depth of sample ponds	Volume of water in sample ponds	Estimated volume of water in private ponds in Lee County
	<i>Acres</i>	<i>Feet</i>	<i>Acre-feet</i>	<i>Acre-feet</i>
Commercial				
Club	53.5	7.3	391	716
Fishing permits ..	86.2	8.1	699	1,008
Irrigation	92.5	7.6	703	790
Noncommercial				
Small	10.4	4.8	50	494
Medium	29.4	6.5	191	3,125
Large	168.5	9.1	1,533	6,644
TOTAL	440.5	---	3,566	12,778

APPENDIX TABLE 2. NUMBER, AVERAGE SIZE, AND ACRES IN SAMPLE PONDS, NUMBER AND ESTIMATED ACRES IN PONDS, LEE COUNTY, ALABAMA, 1956

Use	Number of ponds in sample	Average size of sample ponds	Acres in ponds in sample	Number of ponds in county	Estimated acres of private ponds in Lee County
	<i>Number</i>	<i>Acres</i>	<i>Acres</i>	<i>Number</i>	<i>Acres</i>
Commercial					
Club	6	8.92	53.5	11	98
Fishing permits ..	9	9.58	86.2	13	124
Irrigation	8	11.56	92.5	9	104
Noncommercial					
Small	10	1.04	10.4	99	103
Medium	9	3.27	29.4	147	481
Large	9	18.72	168.5	39	730
TOTAL	51	---	440.5	318	1,640

APPENDIX TABLE 3. SURFACE ACRES OF PONDS, AGE OF PONDS, ESTIMATED VOLUME OF DIRT MOVED, TOTAL AND PER YARD COST FOR MOVING DIRT, INITIAL COST, AND PER CENT DAM IS OF INITIAL COST, SAMPLE PONDS, LEE COUNTY, ALABAMA, 1956

Surface acres	Age	Dirt moved	Total cost of moving dirt	Cost per cubic yard of dirt in dam	Initial cost	Per cent dam is of initial cost
<i>Acres</i>	<i>Years</i>	<i>Cu. yards</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Per cent</i>
0.25	2	147	50	0.34	50	100
0.50	7	1,408	250	0.18	278	90
1.00	6	1,530	175	0.11	228	77
1.00	10	1,916	775	0.40	992	78
1.25	3	2,485	550	0.22	761	72
1.75	1	1,956	575	0.29	716	80
2.00	5	978	275	0.28	542	51
2.40	2	5,689	650	0.11	765	85
2.50	8	3,502	1,857	0.54	2,518	74
2.75	10	2,898	1,175	0.41	2,898	40
4.00	9	2,967	1,251	0.42	1,868	67
4.00	1	9,500	800	0.08	930	86
4.00	2	3,610	1,200	0.33	1,290	93
4.50	3	5,103	960	0.19	1,446	66
5.00	2	4,166	378	0.09	490	77
5.00	1	3,963	308	0.08	458	67
5.00	12	3,389	600	0.18	970	62
6.00	2	2,644	1,600	0.61	1,944	82
6.00	2	23,780	2,900	0.12	3,629	80
7.00	3	5,037	1,100	0.22	1,360	81
10.00	9	13,637	1,100	0.08	1,925	57
10.00	5	12,000	2,400	0.20	6,325	38
11.00	25	6,861	1,132	0.16	1,856	61
55.00	1	11,809	5,000	0.42	6,301	79
60.00	8	3,172	1,200	0.38	2,640	45

[15]

APPENDIX TABLE 4. AVERAGE LENGTH, HEIGHT, AND TOP WIDTH OF DAMS, WITH RANGES, SAMPLE PONDS, BY USE, LEE COUNTY, ALABAMA, 1956

Use	Length of dam			Height of dam			Top width of dam		
	Average	Range		Average	Range		Average	Range	
		Shortest	Longest		Low	High		Narrowest	Widest
	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>
Commercial									
Club.....	207	120	300	18.5	12	25	13.8 ¹	8	25
Fishing permits.....	271 ²	120	2,640	19.3	10	30	12.5	8	20
Irrigation.....	378	140	635	21.3	11	36	11.0	5	16
Noncommercial									
Small.....	183	45	275	11.1	8	18	11.4	6	18
Medium.....	261	100	600	17.0	12	24	11.3	6	20
Large.....	558	92	1,476	24.7	14	33	18.0	12	30

¹ Excluding one concrete dam.

² Excluding one dam that was abnormally long.