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Costs of Growing Broilers Under Contract

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WITH FEW EXCEPTIONS, Texas broilers are now grown with some type of contractual arrangement. The contractor plays the role of supplier, financier, risk-bearer and general manager of the operation. He provides the baby chicks, all the feed and litter and pays for debeaking and medication.

The grower furnishes the buildings and other facilities and all of the labor to care for the birds. Also, Texas growers commonly furnish electricity and heat for brooding.

In general, broilers are produced under three systems of operation. In the first system, growing broilers is only a part-time job and includes those farms where broilers are not the major farm enterprise. Other part-time growers have an off-farm job, and broilers are raised to supplement the family income. Usually the part-time grower owns one or more broiler houses and has capacity to raise from 3,000 to 12,000 birds at a time.

With the second system, broiler growing is a large enterprise and is primarily a full-time farm operation. In some instances the enterprise is large enough to require hired help in addition to the operator and his family. A man who operates a full-time broiler enterprise usually has capacity for growing 30,000 to 48,000 birds at a time.

Growers included in the third system of production own the houses and all facilities but do little or none of the work of raising broilers. Labor required for the enterprise is all hired. Frequently, the grower has an urban business which occupies most of his time. This system usually involves a relatively large operation with capacity to raise 50,000 to 60,000 or more birds per batch. The grower has a large investment from which he expects a return similar to what his capital would earn in other investment opportunities.

As production has continued to expand, many questions have been raised concerning the grower's costs and returns when broilers are raised under contract. Such questions concern operators of both part-time and full-time enterprises.

Contracts for broiler production vary in Texas. The grower may be paid a stipulated amount per bird or per pound of live weight marketed. The contract frequently includes a relatively low guarantee, plus some type of incentive payment. Incentive payments may be associated with one or more of the following: (1) feed conversion, (2) weight of birds sold, (3) mortality, (4) the price of broilers and (5) a share of the overall profits of the enterprise.

Growers need information concerning costs to evaluate broiler production in comparison with other alternative enterprises and in evaluating the numerous kinds of broiler contracts being used.

A study was initiated in 1961 to determine the costs incurred by the growers of contract birds and to determine the feed conversion, mortality rates and broiler weights.

PROCEDURES

The cooperation of nine Shelby County broiler growers was obtained for the study, Figure 1. First, an inventory was made of all buildings and other facilities associated with the broiler enterprise. Information was then obtained for each batch of broilers raised during 1961 and 1962. These data included the number of chicks put in, death losses, number of birds marketed, age at which birds were marketed, total live weight of birds sold, total amount of feed used, litter requirements, brooding and electricity costs and the expenses incurred in the upkeep of broiler houses and other facilities. Also obtained was the amount of labor used in growing broilers as well as the cost of all labor hired to care for the birds and for catchers and for cleaning out the houses. The contractor's cost for debeaking, vaccination and other medication was secured also.

These data were used as the basis for setting up models for estimating the grower's costs and returns from both a typical part-time and full-time broiler enterprise.

BROILER PRODUCTION—SHELBY COUNTY GROWERS

Shelby County broiler producers raised from 4 to 5 batches of birds per year. The average was approximately 9 batches in 2 years or 4½ batches annually, Table 1. Data were obtained for production of approximately 1 million broilers. By having 2-year records, seasonal difference in efficiency due to temperature was overcome.

Throughout the study, death losses were relatively low. Among individual growers, losses ranged from less than 2 percent to 4.1 percent and averaged 2.62 percent. It should be noted that this loss did not include the usual 2 percent "extra" chicks furnished by hatcheries.

The age of broilers marketed varied from 62 to 66 days and averaged approximately 9 weeks.

The average weight of birds marketed was 3.42 pounds. On the average, 2.31 pounds of feed was used for each pound of live weight marketed, Table 1. In other words, these growers marketed an average of 43.3 pounds of live broilers per 100 pounds of feed used.

The details of the contracts under which broilers were produced varied substantially among growers. Also, the contract was sometimes adjusted between batches of broilers raised by the same grower. Changes in the broiler market were usually responsible for such adjustments. Contracts were reported in which the grower was paid according to the num-

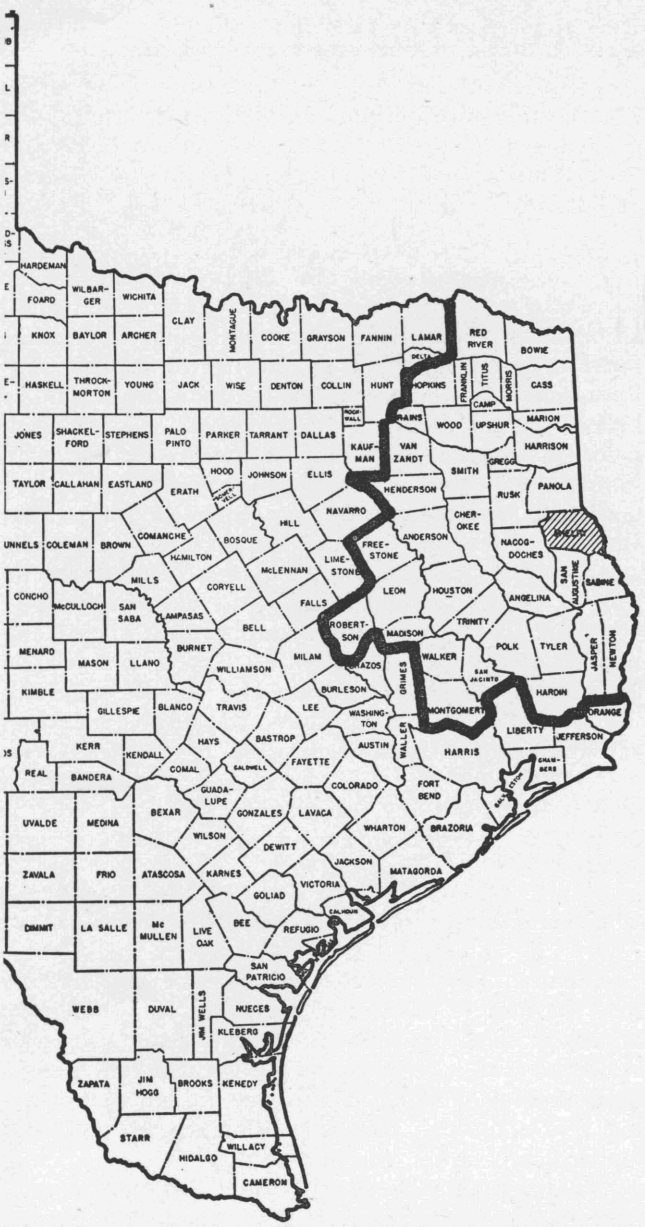

Figure 1. The shaded area shows Shelby County, where the study was made. East Texas is a major broiler-producing area.

ber of birds marketed at rates ranging from 4 to 6 cents per bird. Other contracts provided for payment based on the pounds of live birds marketed. Here the rate ranged from 1½ to 2 cents per pound.

A few contracts called for the grower to receive a guaranteed amount per bird or per pound of live weight marketed, plus a bonus. The bonus might be based on a feed conversion rate above a specified minimum or based on a share of the profits from the enterprise.

FACILITIES REQUIRED FOR A COMMERCIAL BROILER ENTERPRISE

A few of the older broiler houses included in the study were of 3,000 to 9,000-chick capacity. However, a large proportion of the houses were recently constructed, measured 252 feet by 40 feet, and housed 12,000 chicks. Table 2 gives data for housing units of 12,000-bird capacity, since almost all the newly constructed broiler houses in Shelby County were of this size. It should be noted that investment expenses shown in Table 2 are the cost of new facilities in all instances and are typical of the investment for facilities required to start a broiler enterprise now.

Land

There should be ample open area around broiler houses for convenience in loading out the birds, cleaning out the houses and unloading feed. These conditions are usually met by having about twice as much open area as the house occupies. On this basis, one house with a 12,000-bird capacity should be located on approximately 1 acre, and a four-house unit on 3 acres of land. The investment cost for land was calculated at $100 per acre, Table 2.

Broiler Houses and Building Accessories

The $4,000 cost for a new broiler house, 252 feet by 40 feet, was for a building without insulation. None of the houses on the farms studied were insulated. Hardware for accessories was included in the above cost. The useful life of such a building was estimated at 20 years and was the basis on which depreciation was calculated.

TABLE 1. BROILER PRODUCTION—NINE EAST TEXAS GROWERS, 1961-63

Items	Unit	Average for nine growers	Range for nine growers	
			From	To
Batches of broilers per grower (2 years)	Number	9	8	10
Chicks started (2 years) [1]	Number	987,100	20,900	317,100
Broilers sold (2 years)	Number	961,283	20,226	310,151
Mortality rate, all farms[2]	Percent	2.62	1.8	4.1
Total live weight broilers sold, (2 years)	Pound	3,292,130	71,190	1,045,800
Average weight per broiler, all growers	Pound	3.42	3.35	3.54
Age of broilers sold	Day	63.7	62.	66.
Total feed used, all farms (2 years)	Pound	7,597,710	158,735	2,442,935
Average feed per pound live broiler	Pound	2.31	2.34	2.25
Average feed conversion, all growers[3]	Percent	43.33	42.81	44.85

[1]Does not include the 2 percent "extra" chicks commonly furnished at no extra cost.

[2]Mortality rates are over and above the 2 percent "extra" furnished by hatcheries.

[3]Pounds of live broilers marketed per 100 pounds of feed used.

Building accessories as calculated for Table 2, included a synthetic curtain for each side of the building. It was estimated that these would have to be replaced every 5 years.

Feeders

Four rows of mechanical feed troughs, providing about 2 inches of feeder space per bird, were commonly used for 12,000-bird capacity houses. This equipment was expected to last 15 years and could be installed for $1,500 per house in 1962.

Water Troughs and Water Systems

Houses of the size being considered were usually equipped with 40 automatic waterers per house. About ⅔ inch of trough space was provided per bird. In addition, 60 to 80 water jugs were required. At 1962 prices, the new cost of such equipment approximated $300 per house of this size. This investment would likely be replaced every 5 years.

Most growers had a separate well in order to have ample water for broilers. The cost of the water system was not uniform from farm to farm but tended to vary with the depth to water. The investment for the water systems shown in Table 2 approximates the average cost reported by cooperators with similar-sized operations. Growers with a relatively large enterprise reported less investment per house than those with only one house. Depreciation for the well, the water storage and pipe was calculated on an expected life of 20 years.

Brooders

Twelve brooders of 1,000-bird capacity each were provided for the 12,000 chicks in each house. In only a few instances was an extra brooder kept for use in case of emergency. Growers reported that the cost of a new brooder ranged from $47.50 upward. It was estimated that equipment of this quality had a useful life of 15 years.

Feed Tanks

Usually the broiler grower furnished storage for the feed used. This was normally a metal tank costing about $500 per house. When butane was used for brooding, it was sometimes necessary for the grower to provide butane storage. This would be a cost over and above the amount shown in Table 2.

For the typical 12,000-bird broiler units constructed in 1962, the land, a new house and other new facilities required an investment of $7,600. The investment increased almost proportionately with each unit added to the enterprise.

OWNERSHIP AND UPKEEP COSTS—BROILER FACILITIES

The costs incurred by a typical Shelby County broiler grower are shown in Table 3. The summary is for one unit with a 12,000-bird capacity.

When the grower and/or his family did all the work of raising contract broilers, the items associated with owning and maintaining the houses and equipment made up approximately two-thirds of the grower's cost. These items included depreciation, upkeep and repairs, interest on the investment and taxes.

Depreciation

Annual depreciation of buildings and equipment amounted to 4 cents per bird capacity. When 4 batches of birds were raised annually, the depreciation cost for all facilities was 1 cent per broiler. When 5 batches were raised yearly, this cost was reduced to 0.8 cents per bird. Total annual depreciation was considered to be the same regardless of the extent of use.

The estimated annual depreciation for a 12,000-bird capacity unit was $485 and was the largest item of cost in Table 3. This cost must be met over time if the grower is to keep his capital intact.

Upkeep and Repairs

The repair cost for a new broiler house and equipment was relatively low but increased with age. Producer experience over a period of years indicated that the repairs and upkeep for a broiler enterprise will average 0.5 percent of the new cost of buildings and other equipment for each batch

TABLE 2. TYPICAL FACILITIES USED IN BROILER PRODUCTION AND ANNUAL CHARGES FOR USE, 1961-62

Items	12,000-bird capacity unit—1 house				48,000-bird capacity unit—4 houses			
	Investment cost, new	Estimated life	Depreciation	Interest charge[1]	Investment cost, new	Estimated life	Depreciation	Interest charge[1]
	Dollars	Years	Dollars	Dollars	Dollars	Years	Dollars	Dollars
Land	100			6	300			18
Broiler house (252'x40')	4000	20	200	120	16,000	20	800	480
Building accessories	200	5	40	6	800	5	160	24
Mechanical feeders	1500	15	100	45	6,000	15	400	180
Water troughs	300	5	60	9	1,200	5	240	36
Water system	400	20	20	12	1,000	20	50	30
Brooders	600	15	40	18	2,400	15	160	72
Feed tank	500	20	25	15	2,000	20	100	60
Total	7600		485	231	29,700		1910	900

[1]Interest on land at 6 percent; all other interest at 6 percent of the average depreciated value which was half the new cost.

TABLE 3. COST ITEMS FURNISHED ANNUALLY BY THE GROWER FOR BROILERS RAISED ON CONTRACT, 1961-62

Grower's expense items	Unit	12,000-bird capacity unit 4½ batches of broilers Amount	Cost
Cash costs			
Heat for brooding			$225.
Electricity for lighting			135.
Labor, regular care	Hour	756.	[1]
Labor, catching birds	House	4.5	144.
Haul out manure	House		[2]
Overhead costs			
Depreciation			485.
Upkeep and repairs			171.[3]
Interest			231.
Taxes	House		17.[4]
Total grower's cost			$1,408.

[1]Labor furnished by grower and/or his family at rate of 14 hours per 1,000 broilers.

[2]No cost calculated. It was a common practice for someone to clean the house for the manure.

[3]Calculated at 0.5 percent of new cost of buildings and facilities for each batch of broilers.

[4]Calculated on basis of information supplied by Shelby County tax collector.

of broilers raised. This item amounted to about 0.3 cents for each broiler produced.

Interest

For this study, interest on land was figured at 6 percent annually. Interest on the broiler house and all other facilities was calculated at 6 percent of half the new cost.

Interest on investment capital was a cash cost for money that was borrowed. For the grower who invested only his own money in the broiler business, interest was an item of overhead cost. Interest on the grower's investment averaged nearly 0.5 cent per broiler raised.

Taxes

The county tax assessor furnished information concerning taxes. In 1962 the tax rate for Shelby County was $2.451 per $100 valuation. Buildings and equipment for a 12,000-bird capacity broiler enterprise was valued at about $700 for tax purposes.

OTHER COSTS OF THE BROILER GROWER

In addition to the broiler-raising facilities, the grower provided heat for brooding, electricity used in the houses and all labor for growing and for loading out birds at market time. Also, the grower was responsible for cleaning out and disposing of the manure that accumulated.

Heat for Brooding

Heat was used with chicks put down during the late fall, winter and early spring. This usually involved approximately half the broilers raised. No heat was provided for chicks going into the houses during warm weather. Natural gas, butane and electricity were the sources of heat used by different growers. The average brooding cost for a 12,000-bird capacity house was $225 annually, Table 3.

Electricity for Lighting

All houses were equipped with electric lights. The cost incurred by producers for electric current averaged $30 per batch of 12,000 birds.

Labor—Regular Care

On the average, 168 hours of labor were used to care for 12,000 broilers from the time the chicks went in the house until they were ready to market. In calculating the costs shown in Tables 3 and 4, it was assumed that the grower and his family furnished all of the labor for an enterprise of this size. Consequently, labor was not included as a cash cost.

Several instances were observed where one full-time man was caring for four broiler houses each with a capacity of 12,000 birds. This work was done either by the grower or was hired. In 1962 it was possible to hire labor that was closely supervised for 75 cents an hour. However, a hired worker capable of caring for a broiler enterprise with little or no supervision could seldom be hired for less than $1 an hour. This was the price used in calculating the cost of regular labor for the four-house enterprise for which summaries are shown in Table 5.

Labor—Catching Birds

It was customary for the grower to pay the hands who caught the birds at market time. This was a contract job with the cost based on the capacity of the house from which broilers were marketed. The 1962 rate for catching and loading broilers in a 12,000-bird capacity house was $32.

Cleaning Out Manure

Manure is a by-product of the broiler enterprise and is useful for crop or improved pasture production. It was a common practice to clean the manure out of broiler houses after 2 batches of birds. Many of the cooperating broiler growers did not use the manure that accumulated. Instead, arrangements were made to give the manure to someone who would clean out the houses and haul the manure away. Here the benefits of the manure were exchanged for the cost of cleaning out, hauling and distributing the manure. Because of the frequency of this practice, no cost was calculated for this item as shown in Tables 3, 4 and 5.

A grower who hired no labor, had capacity for 12,000 birds and owned these facilities debt free, incurred cash expenses of $692 in raising 4½ batches of broilers annually, Table 3. This amounted to approximately 1.3 cents per broiler marketed. Noncash costs increased this total to $1,408 per year or 2.7 cents per bird marketed.

COSTS AND RETURNS—CONTRACT BROILER PRODUCTION

A summary of the typical production, grower's production costs and the income associated with grow-

TABLE 4. ANNUAL PRODUCTION, GROWER'S PRODUCTION COSTS AND INCOME ASSOCIATED WITH GROWING BROILERS ON CONTRACT, PART-TIME ENTERPRISE

Items	One-house enterprise—12,000-bird capacity Producing annually		
	4 batches	4½ batches	5 batches
	Number	Number	Number
Broiler production			
Birds sold annually	46,744	52,587	58,430
Weight per bird sold, pounds[1]	3.42	3.42	3.42
Total pounds live weight sold	159,864	179,848	199,831
Grower's gross income, contract paying	- - - - - - - Dollars - - - - - - -		
6 cents per bird	2,805	3,155	3,506
5 cents per bird	2,337	2,629	2,922
4 cents per bird	1,870	2,103	2,337
2 cents per pound live weight	3,197	3,597	3,997
1¾ cents per pound live weight	2,798	3,147	3,497
1½ cents per pound live weight	2,398	2,698	2,997
Grower's expense, operating			
Heat for brooding	200	225	250
Electricity for lights	120	135	150
Labor, regular care[2]			
Labor, catching birds	128	144	160
Haul out manure[3]			
Ownership of facilities			
Depreciation	485	485	485
Upkeep and repairs[4]	152	171	190
Interest	231	231	231
Taxes	17	17	17
Total cost to grower	1,333	1,408	1,483
Grower's cost per bird sold	.029	.027	.025

	Total annual return[5]	Return per hour labor[2]	Total annual return[5]	Return per hour labor[2]	Total annual return[5]	Return per hour labor[2]
Grower's income, contracts paying	— — — — — — — Dollars — — — — — — —					
6 cents per bird	1,472	2.19	1,747	2.31	2,023	2.41
5 cents per bird	1,004	1.49	1,221	1.62	1,439	1.71
4 cents per bird	537	.80	695	.92	854	1.02
2 cents per pound live weight	1,864	2.77	2,189	2.90	2,514	2.99
1¾ cents per pound live weight	1,465	2.18	1,739	2.30	2,014	2.40
1½ cents per pound live weight	1,065	1.58	1,290	1.71	1,514	1.80

[1]Average weight reported by cooperating growers.
[2]Labor furnished by grower and/or his family.
[3]No cost calculated; assume houses are cleaned out for the manure.
[4]Calculated at half percent of new cost of buildings and facilities for each batch of broilers.
[5]Returns to grower's labor and management.

ing broilers under contract is shown in Tables 4 and 5. Data for a one-house, part-time operation are included in Table 4 and for a four-house, full-time enterprise are given in Table 5. Also, data are shown for management systems by which 4, 4½ and 5 batches of broilers were raised annually.

Cooperating growers who were compensated according to the number of broilers raised, received payments at the rate of 4, 5 or 6 cents per bird. Other cooperators had contracts that called for payments to the grower of 1½, 1¾ or 2 cents per pound of live weight marketed.

Grower's gross returns and labor-management returns have been estimated, using each of the above rates of compensation for contract broilers.

The average mortality rate (2.62 percent of the birds purchased) reported by cooperating producers was used in calculating the number of broilers sold. The same rate was applied to both systems of production and to both the part-time and the full-time enterprise. Also, the weights of broilers sold in each situation were calculated at 3.42 pounds per bird as reported by producers.

Expense items previously discussed were the basis for calculating the grower's cost for each of the six production situations summarized in Tables 4 and 5.

Part-time Broiler Enterprise

A broiler house having about 10,000 square feet of floor space and having capacity for 12,000 birds is typical of the trend in size of facilities among part-time broiler growers. Annual gross receipts from such an enterprise varied from $1,870, when four batches of broilers were raised for 4 cents per bird, to $4,000, when five batches were grown for 2 cents per pound, Table 4. In each instance, gross income was increased proportionately by growing 5 rather than 4 batches.

When there was no charge for labor, the grower's costs ranged from an average of 2.5 cents per bird for a 5-batch enterprise to 2.9 cents per bird when only 4 batches were grown.

The grower's labor-management return as shown in Table 4 was the amount received annually by the grower after all operating costs were paid and deductions made for depreciation and interest. The part-time operator put in an average of 2 hours and 20 minutes per day for the 9 weeks required for raising a batch of 12,000 broilers.

It was calculated that when 2 cents were paid per pound of live weight marketed, the grower who had no labor expense and raised 5 batches of 12,000 birds each received a labor-management return of $2,500. This amounted to $3 per hour of time put in by the grower and/or his family.

When only 4 rather than 5 batches were grown at 2 cents per pound, the annual return to labor-management was reduced 26 percent and the return per hour of labor was reduced by 22 cents.

All the contract rates considered in Table 4, offered a part-time grower an opportunity to increase family earnings.

Of the part-time situations considered, the one that was the least profitable to the grower involved 4 batches of broilers grown for 4 cents per bird. For birds averaging 3.42 pounds, contract payment of 4 cents per bird was equal to a payment of 1.17 cents per pound of live weight marketed. With this arrangement, it was estimated that the grower received only 80 cents an hour for his time after provisions were made for all costs.

With this type of contract, growing 5 rather than 4 batches of broilers annually increased total earnings nearly 60 percent and increased the return per hour of labor by 22 cents.

The grower who invests money in facilities for raising broilers incurs certain annual overhead costs such as depreciation, interest and taxes, regardless of how much the equipment is used. Consequently, the part-time grower may gain by keeping broiler facilities busy as long as he is compensated for his costs and receives a return for labor that is acceptable to him.

TABLE 5. ANNUAL PRODUCTION, GROWER'S PRODUCTION COSTS AND INCOME ASSOCIATED WITH GROWING BROILERS ON CONTRACT, FULL-TIME ENTERPRISE

Items	Four-house enterprise, 48,000-bird capacity Producing annually 4 batches	4½ batches	5 batches
		Number	
Broiler production			
Birds sold annually	186,976	210,348	233,720
Weight per bird sold, pounds[1]	3.42	3.42	3.42
Total pounds live weight sold	639,458	719,390	799,322
		Dollars	
Contract paying grower's gross income			
6 cents per bird	11,219	12,621	14,023
5 cents per bird	9,349	10,517	11,686
4 cents per bird	7,479	8,414	9,349
2 cents per pound live weight	12,789	14,388	15,986
1¾ cents per pound live weight	11,191	12,589	13,988
1½ cents per pound live weight	9,592	10,791	11,990
Grower's expense, operating			
Heat for brooding	800	900	1,000
Electricity for lights	480	540	600
Labor, regular care	2,688	3,024	3,360
Labor, catching birds	512	576	640
Haul out manure[2]			
Ownership of facilities			
Depreciation	1,910	1,910	1,910
Upkeep and repairs[3]	608	684	760
Interest	900	900	900
Taxes	68	68	68
Total cost to grower	7,966	8,602	9,238
Grower's cost per bird sold	.043	.041	.040
	Total annual returns[4]	Total annual returns[4]	Total annual returns[4]
Grower's income, contract paying:			
6 cents per bird	3,253	4,019	4,785
5 cents per bird	1,383	1,915	2,448
4 cents per bird	—487	—188	—11
2 cents per pound live weight	4,823	5,786	6,748
1¾ cents per pound live weight	3,225	3,987	4,750
1½ cents per pound live weight	1,626	2,189	2,752

[1]Average weight reported by cooperating growers.

[2]No cost calculated; assume houses are cleaned out for the manure.

[3]Calculated at half percent of new cost of buildings and facilities for each batch of broilers.

[4]Returns to grower's labor and management.

Full-time Broiler Enterprise

A four-house, 48,000-bird capacity enterprise is typical of the recently established, large-capacity broiler units in East Texas. Many growers in this category hire all of the labor used. The labor costs for regular care were based on average requirements reported by producers, Table 5. As calculated, these labor costs were proportionate to the number of birds raised. However, some growers hired year-round help for a weekly or monthly wage. When this was done, labor was a fixed expense and the cost per bird sold was substantially less when 5 rather than 4 or 4½ batches were raised annually.

With labor costs at $1 per hour, the grower's total expense per bird sold averaged 4.3 cents and 4 cents, respectively, with the production of 4 and 5 batches of birds annually.

Thus, the average grower who received 4 cents per bird sold or its equivalent, had to grow 5 batches of broilers annually to recover all cash expenses and to make depreciation and interest on the investment in facilities.

Many of the recent contract agreements figure to about 1¾ cents per pound live weight sold. At this rate, it was calculated that a grower who had facilities for 48,000 birds per batch and who took care of the birds himself had a labor-management return of from $5,900 to $8,100 depending on whether 4 or 5 batches were raised annually.

Growing 5 rather than 4 batches per year adds substantially to the efficiency with which broilers are raised under contract. However, the seasonal volume needed on the market may largely determine the number of batches raised during any particular year.

When all labor was hired, the return to the grower over and above interest and depreciation was $3,225 from 4 batches, Table 5. Increasing from 4 to 5 batches per year increased earnings by about 47 percent.

A large part of the grower's costs for broilers raised under contract are fixed costs. Consequently, one effective way to reduce costs per bird was to use the broiler facilities at full capacity.