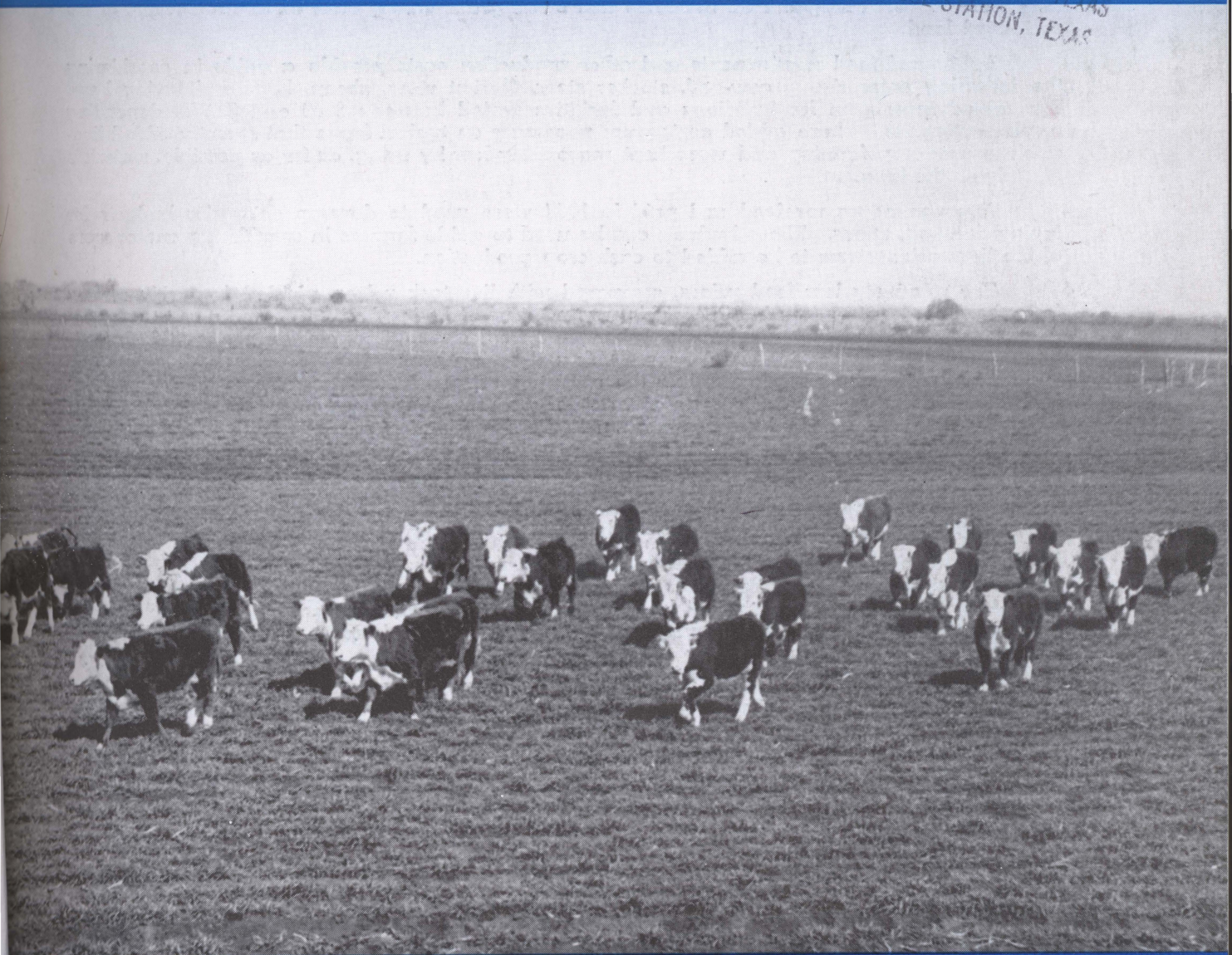


Combining Livestock with Cash Crops on Blackland Farms

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SUMMARY

Adjustments have been made on many Blackland farms since the beginning of World War II, when the number of people living on farms began to decline rapidly. The Blackland area was strictly a cash crop area raising cotton chiefly. Under the cotton acreage-control programs, grain sorghum and oats acreages have increased. Many farmers continue extensive cash crop production and have enlarged their operations by buying or renting more land. A smaller number have increased their businesses by adding one or more livestock enterprises. Operations on more than 100 farms were studied in 1957 to learn how farmers have combined livestock with cash crops to increase returns, to utilize available labor fully and to sell homegrown feeds and forage through meat animals and poultry.

The farms studied averaged 340 acres, with 235 acres in cultivation and about 100 acres in permanent grass. Cotton, the major source of income, was produced on about a third of the cropland, corn or grain sorghum on two-fifths and small grain, chiefly oats, on about a fourth of the cultivated land.

Labor and feed requirements and other production costs provide a guide in considering the following enterprises: cow-calf, stocker steer, feedlot steer, sheep, hogs and laying hens. The added investment for buildings and facilities varied between \$760 and \$2,750, depending on the enterprise. These added costs were necessary on typical farms that recently added livestock to row crop farming and were kept reasonably low by using, as far as possible, materials already on the farm.

Average prices received and paid in 1957 were used to develop enterprise budgets for typical farm situations. These budgets can be used to guide farmers in considering one or more of the livestock systems to be added to cash crop production.

The relatively low feed prices, compared with livestock prices, yielded favorable returns from the added enterprises in 1957. This was not true of laying hen flocks and market egg production. Average returns per hour of labor were beef cows, \$3.04; stocker steers, \$13.08; feedlot steers, \$6.68; ewes, \$2.22; brood sows, \$3.25; and laying hens, 68 cents. Favorable prices and low labor requirements made possible the attractive returns from stocker steers in 1957. Unfavorable egg prices in relation to costs account for the low labor returns from the market egg enterprise. However, some of the cooperating farmers received about \$2 per hen for their labor and management.

On farms with a cow-calf operation, herds numbered 10 to 30 cows. Three to 4 acres of native grass per cow are desirable, which often influenced the size of the enterprise. In general, creep feeding of calves was profitable.

Less time is required with stocker cattle than with other livestock. This enterprise can be profitable when grazing is available. For drylot feeding, animals usually were bought in the fall, grazed about 60 days and then fed for 150 days. Feedlot animals were sold prior to the beginning of spring crop operations. Drylot feeding is of particular interest to farmers with limited acreages of permanent grassland.

Sheep alone, or with other grazing livestock, were maintained on some farms in flocks of 25 to 150 head. Forage that will support one cow will support five ewes. Lambs marketed near Easter were more profitable than those marketed later.

Confined sow-pig production was the common hog enterprise. Only a few pastures in the area were developed primarily for hogs. Ten to 15 sows were handled economically. In starting a hog enterprise, equipment costs are high; they averaged \$275 per sow for a 10-sow herd.

Ordinarily, family labor was used to tend 500-hen flocks that required about 3 hours of labor per day. A poultry enterprise may be added on farms with little pastureland to keep grazing livestock. Floor feeding, housing and equipment cost about \$4 per layer. Costs ran higher for cage layers.

COVER PICTURE

Good quality stocker cattle on oats pasture during winter. Stocker cattle are easy to care for, interfere little with crop production and utilize much of the available grazing on Blackland farms.

Combining Livestock With Cash Crops on Blackland Farms

A. C. MAGEE and RALPH H. ROGERS*

SINCE COMMERCIAL AGRICULTURE became important in the Blacklands, farmers of the area have centered their attention on cash crops. For years, the basic cropping system included cotton and corn. About 90 percent of the income came from cotton.

The cotton acreage on Blackland farms has averaged about a third of the land in cultivation on participating farms since the farmers voted for the cotton allotment program. Cotton allotments have increased greatly the feed grain acreage. At the same time, the importance of soil conservation has caused some shift from row crops to close-seeded crops, chiefly oats. The trend also has been to shift acreage of row crops from corn to grain sorghum after combine-type sorghums were introduced.

Increased mechanization has added greatly to the acreage that one person can farm. The result has been an increase in farm size generally throughout the Blackland area. This adjustment, together with changes made as a result of the shift from cotton, has increased the total feed resources per farm. This is true for grazing facilities and grain. The recent shift from horse to tractor power has released additional feed supplies for other uses.

The adjustment of larger farm units resulted in a demand for land to buy or rent that exceeded the supply, and many Blackland farmers do not fully utilize their labor with crop production.

The most common adjustment to larger farm units has been the addition of livestock to utilize available grassland; and winter grazing from oats usually is utilized at the same time.

In the past, most farmers with small acreages of permanent grassland have not added grazing livestock and have not made use of possible grazing from oats. Some farmers with near average grazing supplies make little or no use of this resource.

Few Blackland farmers are experienced in handling livestock or poultry and with increased

supplies of grazing and grain, they have raised numerous questions concerning management problems of various livestock enterprises. These questions concern fitting the various livestock alternatives into a cash crop farming system, the usual production practices and production requirements for several such systems, the results that normally may be expected from different systems, the relative advantages of different enterprises and the conditions under which each is likely to be profitable.

An enterprise study was designed to answer questions such as these for Blackland conditions. The purpose of this study was to determine, under farm conditions, the requirements of labor and materials and the production likely to result from common livestock enterprises. It also was intended to indicate how each of these enterprises could be fitted into the organization of a typical Blackland farm on which cash crops were emphasized. An analysis of the total farm business is not undertaken in this bulletin; rather an evaluation is made of the input-output and cost and return relationships between selected enterprises, based on typical farm situations.

More than 100 farmers furnished detailed information concerning crop and livestock production and production practices for this study. Most of these farmers were concerned with livestock, poultry, or both, in addition to cash crops.

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In most instances, the livestock enterprise was a recent addition.

The cash crop farms studied averaged 340 acres with approximately 70 percent of the total farm in cultivation. Cotton was the main source of income, but in compliance with allotments, it was planted on about a third of the acreage in cultivation.

Land in grain sorghum or corn and that in small grain, mainly oats, averaged 42 and 24 percent, respectively. A small acreage of forage sorghums and Sudan was included on several farms to replace some sorghum for grain.

Some of the oats were seeded with clover. This practice is recommended for conservation, but it was not used extensively on the farms studied. Also, there were a few small acreages of clover seeded alone. However, for the group as a whole the acreage in clover was not important.

In general, the farms studied were well-equipped. A typical machinery inventory was

about \$13,000. Two-row tractor equipment was most common, although four-row equipment is increasing in the area. Most of the cooperating farmers owned combines but only a few had corn-pickers. Seldom did a farmer own both. Much of the corn was custom harvested, as was most of the hay raking and baling. Cotton strippers were included frequently on the inventory of the larger cotton growers.

LIVESTOCK ON CASH CROP FARMS

Beef cows, stocker steers, feedlot steers, sheep, hogs and laying hens were most commonly associated with cash crop farming in the Blacklands. Production requirements for each of these enterprises are discussed in order.

Average labor requirements, feed requirements and other costs associated with livestock production on cooperating farms are shown in Table 1. Production per animal obtained with these inputs is shown in Table 2.

TABLE 1. ANNUAL LABOR AND FEED REQUIREMENTS AND OTHER COSTS FOR LIVESTOCK ENTERPRISES ON BLACKLAND FARMS, 1957

Item	Unit	Livestock enterprises					
		Cow-calf	Stocker steer	Feedlot steer	Sheep	Hogs	Laying hens
Livestock to which data pertains	Number	1 cow	1 steer	1 steer	1 ewe	1 sow ¹	1 hen
Labor requirements	Hours	18	3	5	6	60	1.2
Feed for breeding and stocker animals							
Grain sorghum or corn	Pounds	150			30	1,200	
Ground oats	Pounds					400	
Wheat shorts	Pounds				30	400	
Alfalfa meal	Pounds					200	
Protein supplement	Pounds					200	
Cottonseed meal or cake	Pounds	100			30		
Laying ration	Pounds						88
Salt or mineral	Pounds	25	10		5	25	
Shell and grit	Pounds						2
Carbonaceous hay ²	Pounds	2,400	700		60		
Oats or legume hay	Pounds				40		
Creep feeding for market animals							
Grain sorghum or corn	Pounds	170			15		
Oats	Pounds	200			20		
Cottonseed meal	Pounds	30			2		
Oats or legume hay	Pounds				10		
Drylot feeding for market animals							
Grain sorghum or corn	Pounds			1,400		7,560	
Cottonseed meal	Pounds			300			
Protein supplement	Pounds					1,960	
Salt or mineral	Pounds			10		200	
Carbonaceous hay	Pounds			700			
Estimated cost of other requirements							
Sanitation and disease control	Dollars	1.00	.50	.50	.17	10.00	
Breeding costs ³	Dollars	3.00			.40	3.00	
Flock replacement	Dollars				3.75		1.75
Utilities, litter, etc.	Dollars						.40
Shearing and wool sacks	Dollars				.45		
Marketing expense	Dollars	2.50	2.85	3.60	1.00	10.00	
Upkeep and repairs-added equipment ⁴	Dollars	7.00	.30	3.40	1.40	15.00	.28

¹Two litters, seven pigs each, fattened to 200-pound average.

²In addition to the available permanent grass, small grain and a small acreage of Sudan was grazed.

³Includes all costs of owning 1 bull for 25 cows, 1 ram for 30 ewes and 1 boar for 10 sows.

⁴Applies only to buildings, fencing, water facilities and other facilities added especially for the individual enterprise. Estimates based on farmer experience.

Beef Cows and Calf Production

High beef prices during and immediately after World War II encouraged farmers to market available grazing and forage through beef cattle. In much of the Blacklands, forage resources consisted primarily of permanent and small grain pasture and stalk fields that had no other use except for grazing livestock.

Much of the early buildup of beef cattle in the area consisted of cow herds numbering 10 to 30 head. Calves either were sold at weaning time, weaned and put in the feedlot for more weight and finish or wintered as stockers and sold off pasture the following spring.

The farms studied had 3 to 4 acres of native grass available per cow, plus 2 to 3 acres of oats or oats-clover for winter and early spring use. The farms averaged $\frac{1}{4}$ acre of Sudan pasture per cow. Also, stalk fields usually provided cows at least 2 months grazing in summer and fall. Most farmers fed cottonseed cake or grain and a ton or more of hay per cow during the winter.

Creep-feeding calves was profitable on cooperating farms and grain and cottonseed meal for creep feeding is listed as a requirement for a beef cow in Table 1.

Cottonseed meal and minerals were the only feeds purchased for the cow-calf enterprise under normal conditions.

The total expense of keeping and replacing a bull averaged about \$70 per year regardless of the number of cows in the herd. Consequently, the breeding cost per cow for a herd of 25 cows was about \$3 but the cost per cow was higher for smaller herds.

Beef cows required little attention most of the year and the enterprise seldom interfered

with crop work. Usually, the herd watered near the farmstead and attention a few minutes a day was sufficient. Supplemental feeding was done during the winter when crop work was slack.

Few calves were lost on the farms studied. Usually not more than 5 percent of the cows failed to wean a calf. Creep-fed calves averaged 515 pounds when sold.

On the average, one cow in eight was culled from the herd each year. Cull cows either were old, had failed to raise a calf or were not of the quality desired. Most cull cows were in good flesh when marketed. Replacement heifers usually were selected from among those raised.

The remaining calves were sold after replacement heifers were selected. With creep feeding, the live weight of calves sold averaged 427 pounds per cow in the herd, Table 2.

Additional details for cow-calf herds on Central Texas farms may be found in Texas Agricultural Experiment Station Bulletin 840, "Fitting Beef Cattle into Central Texas Farming."

Stocker Steers to Utilize Grazing

Many Central Texas farmers prefer steers to cows because of the flexibility of the steer enterprise. Also, farmers whose main interest is cash crops prefer to spend little time with livestock except when crop work is not urgent.

Although stocker steers are fitted into cash crop farming in numerous ways, the most common practice was to buy relatively lightweight calves (350 to 400 pounds) in the late summer or fall. The animals grazed crop aftermath and permanent pastures in the fall, small grains in winter and then utilized the spring flush of grazing from permanent grassland. Usually, the steers were sold early in April before crop work

TABLE 2. ANNUAL PRODUCTION PER ANIMAL OR PER ANIMAL UNIT OBTAINED ON BLACKLAND FARMS, 1957

Item	Unit	Livestock enterprises					
		Cow-calf	Stocker steer	Feedlot steer	Sheep	Hogs	Laying hens
Livestock to which data pertains	Number	1 cow	1 steer	1 steer	1 ewe	1 sow ⁴	1 hen
Marketable production for sale							
Weaning calf live weight ¹	Pounds	427					
Cull cow live weight (1/8)	Pounds	115					
Steer gain live weight ²	Pounds		216	360			
Milk fat lamb live weight ³	Pounds				80		
Slaughter hogs live weight ⁴	Pounds					2,800	
Wool	Pounds				8		
Cull ewes	Pounds				24		
Market eggs ⁵	Dozen						18
Cull hens	Pounds						3.5

¹Marketable weight based on 95-percent calf crop, with calves weaned averaging 515 pounds, and a 12-percent annual replacement requirement.

²Stocker steer gain based on 1.2 pounds daily gain for 180 days of grazing, feedlot steer gain based on 2.4 pounds daily gain for 150-day feeding period.

³Market weight based on an average of one 80-pound lamb per ewe.

⁴Two litters, seven pigs each, fattened to 200-pound average.

⁵Eighteen dozen eggs per hen annually.

was heavy and when the market for stocker cattle is favorable.

The length of time steers were grazed on Blackland farms varied from farm to farm and from year to year. The number of steers which were grazing also varied. Production requirements for stocker steers, Table 1, are for a 180-day grazing period from about October 1 to April 1. On the average Blackland farm, three lightweight steers could be substituted during this period for each cow that could be grazed on a 12-month basis. Supplemental feeding during the winter totaled about a third of a ton of hay per steer. Stocker steers are easy to care for; they require less time and attention than other livestock enterprises common in the area.

On the average, steers grazed in this way gained about 1.25 pounds per head daily. With better than average oats pasture, higher gains were obtained. Ordinarily, death losses did not exceed 1 percent.

Steers Fed in Drylot

Some beef cow owners put their calves in a feedlot after weaning. However, a long creep-feeding period before weaning was more profitable on the farms studied.

Consequently, men who fattened steers in drylot usually bought feeders in the fall. This was done as soon as possible without interfering with fall harvest. Prices for feeder cattle usually are lowest in September and October. A popular plan was to graze the steers for about 60 days. The steers gained 1 pound per head daily with little cost during this time. Calves that go in the feedlot about November 1 can be fed 150 days without interfering with spring crop work, Figure 1.

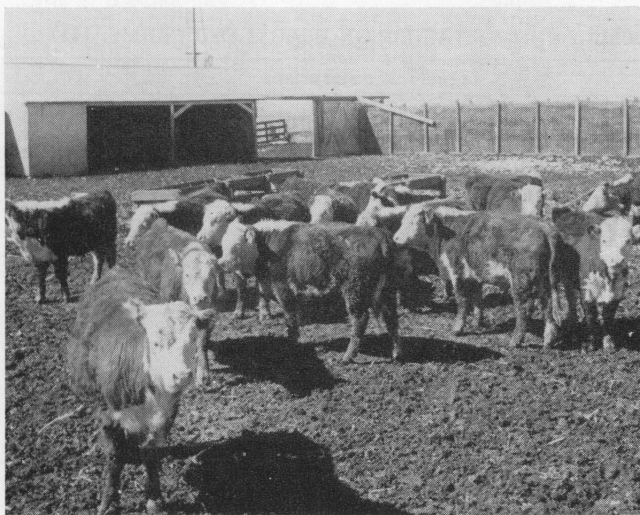


Figure 1. Recently, increasing numbers of cattle have been fed in drylot on Blackland farms. Stocker calves or yearlings purchased in the fall can be fattened for slaughter before spring crop work puts a heavy demand on the farmer's labor.

As a rule, steers were hand fed. It took 2 to 4 hours a day to feed 50 to 100 steers. Labor requirements for drylot feeding could be reduced by larger scale operations, more equipment, and in some instances, more convenient feedlot arrangements.

A gain of 2 pounds or more per day was obtained with steers fed 150 days on an average daily ration consisting of 9 pounds of milo or corn, 2 pounds of cottonseed meal and 5 pounds of hay. A few of the larger operators fed silage instead of hay. Cottonseed meal was the only item normally purchased, Table 1. Steers fed according to this plan graded good or better after being on feed 150 days. Ordinarily, death losses did not exceed 1 percent.

Cattle that were grazed before going into the feedlot usually could utilize the grazing from permanent grassland. But feedlot cattle normally were not grazed on oats.

For farms with a small acreage of permanent grass, the grazing period prior to going into the feedlot was short unless a large amount of field grazing was available.

Sheep

Some Blackland farmers have shown continuing interest in a ewe flock for lamb and wool production. The size of the flocks studied ranged from 25 to 150 head, depending on the amount of forage available. The forage that will support one cow will support five ewes. On some cooperating farms, sheep were the only grazing livestock. Other flockowners also kept some cattle.

The more successful flockowners bred for fall lambs to be marketed near Easter, Figure 2. When the lambs were old enough to eat, they were given supplemental feed to improve their weight and finish.

Flockowners in the study had an average of 0.7 acre of permanent grass and 0.5 acre of oats pasture per ewe, in addition to field aftermath and some Sudangrass pasture.

Ewes were fed at lambing time and until they could go on good oats grazing. An average of 90 pounds of concentrates (equally divided between cottonseed meal, oats and grain sorghum or corn) was fed per ewe. Also, each ewe received 100 pounds of hay, Table 1. Most of the time spent in caring for sheep came between November 1 and Easter.

Good results were obtained by giving lambs grain as soon as they were able to eat. Lambs were hand fed in a creep away from the ewes. The average lamb was given 35 pounds of grain, 2 pounds of cottonseed meal and 10 pounds of oats or legume hay. Some farmers bought alfalfa hay for lambs.

Shearing was done once a year by custom crews at 35 cents a head. Lambs were drenched twice a year to control internal parasites.

Normally, three rams were kept for each 100 ewes bred. The total cost of keeping and replacing a ram averaged \$11.50 per year or approximately 35 cents per ewe bred.

Farmers who sold Easter lambs usually purchased ewe replacements. When yearling ewes were purchased, the entire flock was replaced about every 4 years. Flock replacement was more often with the purchase of older ewes. However, the annual replacement costs usually ranged from \$3 to \$4 per ewe kept. This cost was partly offset by sale of cull ewes.

The lamb crop for these farm flocks averaged 100 percent. Enough ewes raised twins to compensate for losses of single lambs. The average weight of lambs marketed was 80 pounds, Table 2. The earliest lambs were heavier than 80 pounds but this was offset by lighter weights of the younger lambs.

Rambouillet breeding was predominant in the flocks studied. However, the farmers did not follow a program of selection or breeding for wool production and quality. The average fleece weighed approximately 8 pounds, Table 2.

Brood Sows and Market Hogs

In recent years, commercial hog feeding has been initiated on numerous Blackland farms. This was done to find a profitable way of disposing of the increased feed grain supplies. Even so, only a small proportion of Blackland farmers produce hogs at present. However, there is an increasing interest in and many questions are asked about the costs of "getting into business."

Hog feeding in the area has been largely in drylot, Figure 3. Few pastures have been developed primarily for hogs. A few farmers have grazed hogs on oats or barley. However, on most Blackland farms, hogs do not graze the permanent grassland or small grains. Most farmers with hogs also kept grazing livestock. The exception was the farmer who had relatively little grazing or forage.

At first, those who went into the hog business bought feeder pigs for fattening to market weight. However, the lack of feeder pigs has been a limiting factor. As a rule, the cooperating hog growers kept sows and raised their own feeder pigs.

Most of the farms studied had from three to six sows. These farms were equipped with self-feeders but few farmers made maximum use of labor-saving equipment. Hog raisers with large operations used labor more efficiently than those with a few hogs. It took only a little more time to fill a large self-feeder than it did to fill a small one. With good equipment, 10 to 15 sows were



Figure 2. A small flock of ewes are important on numerous Blackland farms. Many flockowners breed for fall lambs to be marketed near Easter.

hand fed with less labor per sow than were 3 or 4 sows. Labor requirements shown in Table 1 are for a 10-sow enterprise. Labor for three to six sows would be higher per sow.

Slaughter hogs were marketed when they weighed about 200 pounds. Farms with brood sows raised two litters of pigs per sow annually and weaned an average of seven pigs per litter. Data shown in Tables 1 and 2 were calculated on this basis.

Brood sows ate about 1,200 pounds of home-grown grain annually and an equal quantity of purchased concentrates, Table 1. After weaning, an average of approximately 4 pounds of concentrates were fed per pound of gain in live weight. The more experienced hog feeders purchased an average of 140 pounds of protein supplement for each pig marketed.



Figure 3. Hogs being fattened in drylot. An inexpensive shed shelters the self-feeder and provides shade. Hogs in this lot have access to a concrete wallow.

Farmers who did not own a boar paid \$3 to \$5 per litter for custom service. The total cost of keeping a boar averaged \$30 annually. Some farmers got much of this cost back by breeding sows for their neighbors; others preferred to breed only their sows. The breeding cost of having to breed 10 sows amounted to \$3 per sow annually.

Laying Flocks

Commercial egg production may be highly specialized or it may be combined with cash crop production. Commercialized flocks in the area usually are large and tend to be on small acreages where there is little opportunity for cash crops.

However, many cash crop farmers maintain laying flocks of 300 or more hens. This enterprise fits in well — particularly on small farms, farms with relatively little pasture on which to keep grazing livestock and farms with available family labor.

Farmers who had small acreages of grassland and who had laying flocks often kept a family milk cow or two as grazing livestock. But on farms with worthwhile acreages of permanent grass, a few beef cattle or sheep were commonly kept in addition to the milk cows.

About 1¾ hours a day were required to care for 500 hens and the eggs produced. Much of the work was done by members of the farm family other than the operator. This required more labor than currently is necessary for large, highly specialized market egg flocks.

The flocks studied produced market eggs and consisted of light Mediterranean-type birds. They were crossbreds, hybrids or white leghorns. These flocks ate 88 pounds of feed annually per layer, Table 1. A mixed feed in the form of crumbles, pellets or mash was fed on all farms. Some of the producers added grain (milo, corn or oats). Feed was before the hens at all times. Feeders were filled by hand, because no mechanical devices were used to distribute feed. Feed was the largest single cost item.

Most flock replacements were raised from day-old pullet chicks that cost 45 to 60 cents each. Some 6-week-old pullets were bought. In both instances, by the time replacement pullets were in 50-percent production, usually about 6 months, the total cost exclusive of labor was approximately \$1.75 per head. Most flocks were replaced each year. Utilities, medication, insecticides and other miscellaneous costs amounted to 40 cents per layer annually.

Annual production per hen averaged 18 dozen market eggs, Table 2. Death losses among laying flocks varied but averaged about 15 percent. Some culls were taken out from time to time and the rest of the flock was sold at the end of a year of production. The weight of hens sold averaged about 3½ pounds per layer kept.

Some flockowners had their birds in cages while other flocks were on litter-covered floors. Similar results were obtained with both methods. However, since a majority of the flocks were on floors, the data used herein are for flocks with floor equipment.

FACILITIES NEEDED FOR LIVESTOCK

Any new livestock enterprise requires some facilities that are not found on most Blackland farms where livestock is not kept. The facilities needed vary with the kind and number of livestock involved. For example, additional fencing, a larger water supply and minor remodeling of existing barns and corrals usually provide all necessary facilities for beef cows or for grazing 50 to 75 stocker steers. However, more expensive facilities were required before a substantial cattle-feeding operation was undertaken on most farms.

Water Supplies and Livestock

Water facilities in the Blackland area often are limited and in some places it is difficult to provide a dependable supply of stock water. Without ample water, any livestock enterprise is hazardous.

No farmer should attempt to add a livestock enterprise without sufficient water. On farms with a good supply of well water, about the only improvements made for livestock were to increase storage and to make stock water readily available. However, most Blackland farms lack a strong supply of well water and the water supply usually is increased by building one or more earthen tanks to store runoff water. Government assistance helped to keep the cost of the tanks low. In most instances, cattle drank directly from the earthen tanks, but water was piped to a drinking trough for sheep. Hog lots were equipped with running water as were most other feed lots. However, in a few lots, cattle had access to water in earthen tanks.

Other Facilities

With grazing livestock, the size of the farm largely determines the size of the enterprise. The size of the farm also influences the number of hogs or poultry kept.

The following land use and cropping system is typical of a 340-acre Blackland farm.

Item	Acres
Land in permanent grass	102
Cotton	78
Grain and forage sorghum	94
Sudan, for grazing	6
Oats	57
Total land in crops	235
Farmstead and lots	3
Total land in farm	340

According to Table 1, this farm will provide grazing for 25 beef cows, 70 stocker steers, 120 ewes or 60-day grazing for 100 steers before they

are fed in a drylot. On most farms, grazing supplies determined the number of beef cows, stocker steers or sheep kept. Ordinarily, grazing was not significant in determining the number of cattle put in the feedlot. The supply of labor was important here.

Hogs and hens are not dependent on grazing, but both enterprises have high year-around labor requirements. Thus, the amount of available labor was important in making plans to combine hogs and laying hens with cash crops. It was determined that 10 brood sows and their offspring, or 500 laying hens, would utilize all the time that cash crop farmers (with 235 acres in crops) are likely to have available for a livestock enterprise.

On the farms studied, sheds and barns left over from horsepower farming were remodeled to serve beef cows, stocker steers or sheep. The addition of new corrals, shelter and feed storage would cost more than the figures shown in Table 3.

Feedlots and troughs were needed on farms on which a substantial number of cattle were fed in drylot. Satisfactory pens and concrete bottom troughs were constructed for about \$6.50 per animal. With a large-scale operation for feeding several hundred head, the cost per animal would be less.

Most Blackland farms were partly fenced but some new fencing was added and much of the existing fence was repaired in preparation for cattle. New fences consisted of three or four strands of barbed wire. Electric fences were utilized in grazing fields and small isolated areas of permanent grass. The farms studied were equipped with about a third of a mile of new electric fence which cost \$70.

For sheep, two or more strands of barbed wire fence were added to existing fencing or, in a few instances, net wire was added. Farmers who added sheep spent nearly twice as much for fence improvement as did those who added a comparable cattle enterprise.

The improvement and equipment costs for cattle and sheep shown in Table 3 averaged approximately \$25 per head for beef cows, \$10 per stocker steer, \$13 per steer fed in drylot and \$9 per ewe.

One or two meat hogs have been common on farms in the area, but few farms are equipped for more than a brood sow or two. For successful hog production, it was necessary to provide ample water, dry and sanitary facilities for farrowing, self-feeders, a satisfactory feeding floor and ample shade.

When the hog enterprise consisted of two or three sows, farmers tended to depend on existing pens and buildings for breeding and fattening animals. Frequently, the buildings were not suit-

ed to hogs. However, farmers with five or more sows made a substantial investment in facilities.

As a rule, movable, individual farrowing houses were used. These were farm built and frequently included used material. Water was piped to the breeding herd and to the fattening pens. Suckling pigs were creep fed and fattening hogs were self-fed.

Sheds, which usually were floored with concrete, sheltered the self-feeder and provided shade. Hogs might or might not have access to space outside the shedded area. Some sheds were equipped to sprinkle animals in hot weather. Other farmers provided some form of wallow. For a 10-sow herd, the cost of new facilities was \$275 per sow.

The average Blackland farm is not equipped for modern poultry production. A laying flock requires additional housing and equipment. For light-breed floor flocks, an average of about 3 square feet was provided per bird. Farmers with cage houses used about the same amount of space per layer. A laying house with metal roof and metal or wooden walls cost an average of \$2.65 per bird in 1957. An additional 90 cents per bird was spent for floor equipment. Housing made up 75 percent of the cost for laying flocks. With cage flocks, the cost of equipment ran higher than for birds kept on the floor. Housing and equipment cost about \$4 per layer.

For farmers who are interested in a new enterprise, data summarized in Table 3 indicates the approximate cost of improvements and equipment needed for livestock production in Central Texas. The cost of the livestock also should be

TABLE 3. ADDED INVESTMENT FOR BUILDINGS AND FACILITIES FOR SPECIFIC LIVESTOCK ENTERPRISES ON A TYPICAL 340-ACRE BLACKLAND FARM, 1957 PRICES

Item	Beef cows	Stocker steers	Feedlot steers	Ewes	Brood sows	Laying hens
Size of enterprise	25	70	100	120	10	500
	----- Dollars -----					
Cost of new or remodeled facilities						
Barns, sheds, corrals, feed troughs	180 ¹	180 ¹	655	350 ¹		
Water facilities	250	250	350	250	200	200
Fencing	260	260	260	460	300 ²	
Creep feeder	70			75		
Farrowing houses and equipment					600	
Fattening shed and equipment					1,650	
Housing for layers						1,325
Equipment for layers						450
Total	760	690	1,265	1,135	2,750	1,975

¹Largely remodeling of buildings already on the farm.

²Includes some other improvements.

included. The latter changes from time to time but information about livestock prices is available.

ENTERPRISE BUDGETING TO COMPARE FARMING ALTERNATIVES

Data shown in Tables 1, 2 and 3 are based on farmer experience. They provide a practical basis for estimating the returns that can be expected from livestock when combined with cash crop farming in the Blacklands. The amounts of feed and other physical requirements tend to remain the same over a long period of time unless new technology is introduced. For this reason, production and production requirement in-

TABLE 4. ENTERPRISE BUDGETS SHOWING ADDED ANNUAL COSTS AND RETURNS FOR EACH OF SIX LIVESTOCK ENTERPRISES WHEN COMBINED WITH CASH CROP FARMING

Item	Beef cows	Stocker steers	Feedlot steers	Ewes	Brood sows	Laying hens
Size of enterprise	25	70	100	120	10	500
Cost of livestock enterprise	----- Dollars -----					
Stocker animals purchased		5,600	8,000			
Homegrown feeds						
Grain sorghum	144		2,520	97	1,577	
Oats	101			122	80	
Hay	600	490	700	132		
Purchased feed						
Wheat shorts					110	
Alfalfa meal					55	
Protein supplement					1,080	
Cottonseed meal or cake	114		1,050	134		
Laying ration						1,804
Mineral or grit	8	9	12	8	68	15
Legume hay				15		
Costs of other items						
Sanitation, disease control	25	35	50	20	100	
Breeding costs	75			48	30	
Flock replacement				450		875
Utilities, litter, etc.						200
Shearing and wool sacks				54		
Marketing expense	62	197	356	120	100	
Upkeep and depreciation ¹	76	69	127	103	265	170
Interest on added investment ²	203	204	398	151	185	119
Total	1,408	6,604	13,213	1,454	3,650	3,183
Sales from livestock						
Creep-fed calves	2,348					
Cull breeding animals	431			240		
Stocker steers		9,351				
Slaughter steers			16,553			
Milk fat lambs				2,256		
Wool				560		
Slaughter hogs					5,600	
Market eggs						3,330
Cull hens						262
Total enterprise sales	2,779	9,351	16,553	3,056	5,600	3,592
Total enterprise cost ³	1,408	6,604	13,213	1,454	3,650	3,183
Difference between sales and cost	1,371	2,747	3,340	1,602	1,950	409
Return per hour of labor	3.04	13.08	6.68	2.22	3.25	.68

¹For improvements and facilities added specifically for livestock.

²Includes investment in livestock, feed improvements and equipment.

formation is useful in comparing different farming alternatives prior to making farm business decisions. This comparison can be made by preparing enterprise budgets. The enterprise budget is a systematic way of estimating in advance whether an enterprise or practice will be profitable. Budgets also can be prepared to estimate which enterprise will be most profitable.

The first step in preparing an enterprise budget is to list all of the added costs likely to be incurred by the prospective enterprise or practice. Then list the expected added income. A comparison of the estimated added costs and added income gives the farmer a basis on which to make management decisions. Good cost and production information is needed for realistic budgeting.

Enterprise budgets for six livestock enterprises are summarized in Table 4. These budgets are based on production and production requirement data shown in Tables 1, 2 and 3. Prices used in preparing the budgets are shown in Table 5. These are 1957 prices which were obtained from farmers, feed dealers, farm suppliers, newspapers in the area and market reports.

The total estimated cost for 25 beef cows, Table 4, was the lowest of the enterprises considered. More than half of this cost was not a cash item; it was for homegrown feed. No charge was made for pasture because there was little alternative use for grazing resources not used otherwise. In budgeting such an enterprise, homegrown grain and hay are included as costs because they could have been sold for cash or put to some other use. Once the cow herd is established, little operating capital is required. For this reason, beef cows did not compete seriously with crops for seasonal operating capital. At 1957 prices, the calculated differences of sales over costs (\$1,371) was less than estimated for stocker steers, feedlot steers, sheep or hogs.

However, 25 cows did not require much labor and at 1957 prices gave an estimated average return of more than \$3 per hour. The satisfactory return for labor has made this enterprise popular. Because of low cash operating cost, even under adverse prices, the calves raised will sell for more than the cash expended for the enterprise. Also, cows clear of debt are good collateral if credit is needed.

Of the enterprises considered, the largest costs were for steer operations. In each instance, livestock were purchased annually and their cost was included as a part of the operating expense. Because of their nature, the steer operations required more operating capital than did the other enterprises. However, there was no "year-long" investment in livestock.

Cattle prices have been unusually favorable for grazing or for feeding steers in drylots during the last 2 years.

Grazing stocker cattle has been efficient in the forages that would be wasted if not grazed or utilized. With steers, a large proportion of the feed utilized adds to marketable live weight. Except for the purchase price of the steers, operating costs for stocker steers are low. Labor requirements also are low. The combination of favorable prices and low labor requirements resulted in a high return for the time spent with stocker steers.

The drylot feeding operation is the largest of the six enterprises studied. This is true from the standpoint of capital requirements and the number of animal units involved. The relatively large size (compared with the other enterprises) does not affect the return per hour of labor spent. However, since prices were favorable for profitable cattle feeding in 1957, the relatively large enterprise was favorable. Thus, large numbers account partly for the favorable difference between sales and costs for steers fed in drylot, Table 4. But cattle feeding is not always profitable. When cattle are fed at a loss, the larger enterprises have the greatest losses. Cattle feeding has the advantage of utilizing more labor during the winter.

Income from steers came at a time of rapidly rising crop costs and helped to relieve the pressure on operating capital.

Steer operations are flexible as to numbers purchased and the length of time that animals are kept. Steers can be cashed any time if feed supplies run low or if future market prospects appear unfavorable. However, some risk is involved because steers may sell for less than their cost in case of rapidly declining cattle prices.

About the same income could be expected from 120 ewes as from 25 beef cows with 1957 prices. However, the return per hour from sheep was less than from cows, hogs or either of the steer enterprises.

Dogs are a hazard to sheep in the area. Some farmers found that it was necessary to pen sheep at night to prevent losses. This added to the labor requirement. Otherwise, sheep interfere little with cash crops.

Lambs sold in the spring provide income at a convenient time because of rapidly increasing crop production costs in that season.

Hog prices were favorable in 1957 and most hog growers made money. On the basis of the farms studied, estimated sales, as shown in Table 4, exceeded estimated costs by about \$200 per sow. Farmers received about \$3.25 return per hour of work spent with hogs.

Blackland farmers weaned an average of seven pigs per litter. However, a few hog raisers ordinarily weaned eight or more pigs per litter. Farmers who marketed eight pigs per litter made approximately \$44 more per sow for their labor

TABLE 5. AVERAGE PRICES RECEIVED FOR PRODUCTS SOLD AND AVERAGE PRICES OF ITEMS AND SERVICES USED IN PRODUCTION, 1957

Item	Unit	Dollars
Products sold		
Creep-fed calves	Hundredweight	22.00
Cull cows	Hundredweight	15.00
Stocker steers ¹	Hundredweight	22.00
Slaughter steers ¹	Hundredweight	22.00
Milk fat lambs	Hundredweight	23.50
Wool	Pound	.56
Cull ewes	Head	10.00
Slaughter hogs	Hundredweight	20.00
Market eggs	Dozen	.37
Cull hens	Pound	.15
Production items		
Grain sorghum	Hundredweight	1.80
Wheat shorts	Bushel	.65
Alfalfa meal	Hundredweight	2.75
Protein supplement (hogs)	Hundredweight	5.00
Cottonseed meal	Hundredweight	3.50
Laying ration	Hundredweight	4.10
Mineral mixture	Hundredweight	3.00
Salt	Hundredweight	1.25
Shell and grit	Hundredweight	1.50
Alfalfa hay	Ton	25.00
Sorghum hay	Ton	20.00
Stocker and feeder calves	Hundredweight	20.00
Sheep shearing	Head	.35

¹Figured on the basis of a 2-cent margin between purchase and sale prices.

and management than did the average farmer. A 10-sow enterprise amounts to \$440 per year or an additional 70 cents an hour for the time spent on the hog enterprise in 1957.

Hog prices are subject to frequent change. Other things being equal, a 2-cent drop in hog prices in 1957 would have reduced the income from 10 sows by nearly \$600. This would have made the return to the operator's labor a little higher than the labor return from sheep and somewhat lower than the hourly return from either beef cows or steer feeding.

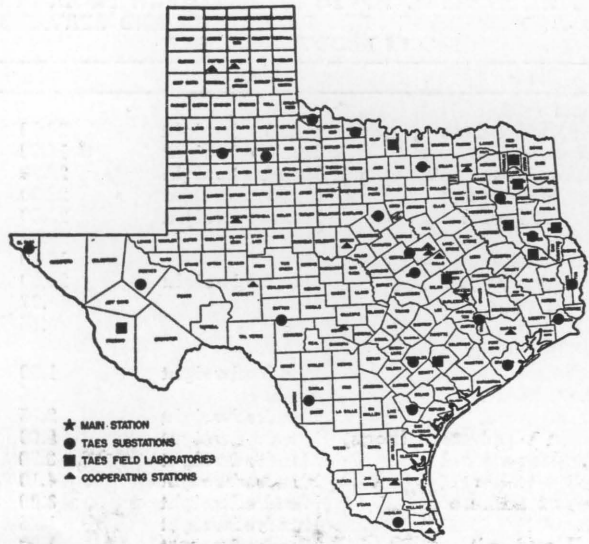
The large amount of capital needed to get into hog production has hindered expansion in the Blacklands. Farmers are not likely to make the necessary investment until they feel sure of staying in the business.

In general, commercial egg production was not highly profitable in 1957, on Blackland farms or elsewhere in the State. This was due chiefly to unfavorable egg prices in relation to costs. Estimated returns above costs averaged 82 cents per layer or 68 cents per hour of labor.

Although 1957 was not a good year for market egg producers, some of the cooperating farmers received a return of nearly \$2 per hen for their labor and management. These flocks were characterized by above-average egg production and a premium price, less feed used per dozen eggs and lower cost per dozen eggs produced.

The average price received by cooperating farmers for market eggs in 1957 was 37 cents, Table 5. Other things being equal, a price increase of 5 cents a dozen would mean 90 cents additional profit per hen.

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Location of field research units of the Texas Agricultural Experiment Station and cooperating agencies

State-wide Research



The Texas Agricultural Experiment Station is the public agricultural research agency of the State of Texas, and is one of ten parts of the Texas A&M College System

ORGANIZATION

IN THE MAIN STATION, with headquarters at College Station, are 16 subject-matter departments, 2 service departments, 3 regulatory services and the administrative staff. Located out in the major agricultural areas of Texas are 21 substations and 9 field laboratories. In addition, there are 14 cooperating stations owned by other agencies. Cooperating agencies include the Texas Forest Service, Game and Fish Commission of Texas, Texas Prison System, U. S. Department of Agriculture, University of Texas, Texas Technological College, Texas College of Arts and Industries and the King Ranch. Some experiments are conducted on farms and ranches and in rural homes.

OPERATION

THE TEXAS STATION is conducting about 400 active research projects, grouped in 25 programs, which include all phases of agriculture in Texas. Among these are:

- | | |
|--------------------------------------|---------------------------------|
| Conservation and improvement of soil | Beef cattle |
| Conservation and use of water | Dairy cattle |
| Grasses and legumes | Sheep and goats |
| Grain crops | Swine |
| Cotton and other fiber crops | Chickens and turkeys |
| Vegetable crops | Animal diseases and parasites |
| Citrus and other subtropical fruits | Fish and game |
| Fruits and nuts | Farm and ranch engineering |
| Oil seed crops | Farm and ranch business |
| Ornamental plants | Marketing agricultural products |
| Brush and weeds | Rural home economics |
| Insects | Rural agricultural economics |
| | Plant diseases |

Two additional programs are maintenance and upkeep, and central services.

Research results are carried to Texas farmers, ranchmen and homemakers by county agents and specialists of the Texas Agricultural Extension Service

AGRICULTURAL RESEARCH seeks the WHATS, the WHYS, the WHENS, the WHEREs and the HOWS of hundreds of problems which confront operators of farms and ranches, and the many industries depending on or serving agriculture. Workers of the Main Station and the field units of the Texas Agricultural Experiment Station seek diligently to find solutions to these problems.

Today's Research Is Tomorrow's Progress