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PLANNING THE FARM BUSINESS IN SOUTH CENTRAL KANSAS

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PLANNING THE FARM BUSINESS IN SOUTH CENTRAL KANSAS[1]

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INTRODUCTION

South central Kansas is one of the more profitable farming regions in Kansas. Type-of-farming area 6b includes a large share of south central Kansas. During the last decade farmers within this type-of-farming area have found it desirable to change their farming plans materially in their attempts to maintain good returns from their operations. Prior to 1930, many of the farmers of area 6b depended almost entirely upon wheat as a source of cash income. Only limited acreages of other crops were grown and few livestock were kept. Since 1930, wheat has continued to be an important source of income, but other enterprises have been added on many farms. The trend has been toward more livestock on these farms.

The farmers of area 6b who have maintained the returns from farming most consistently, have modified the combination of enterprises on their farms so that their resources are used more efficiently. If returns from farming are to be maintained at near a maximum two questions must be answered satisfactorily. These questions are: (1) In what proportions should the resources in land, labor, and capital be combined on this farm to produce commodities most efficiently? and (2) in consideration of the outlook for prices and the probable levels of costs of the resources used in farming what commodities or combination of commodities should be produced to obtain maximum profits? These questions can be answered most satisfactorily in the light of the experiences of successful farmers within the area and then making farm budgets based on these experiences.

In recent years there has been increased need for larger quantities of dairy products, poultry and eggs, meats, fruits and vegetables. Greater quantities of these products are needed to give the American people and others dependent upon American agriculture an adequate and satisfactory diet. The increased need for food products offers opportunities for farmers within type-of-farming area 6b to increase their production of livestock.

For a number of years the Kansas Agricultural Experiment Station and the Division of Extension of Kansas State College have coöperated with a number of farmers in this area in the keeping of farm accounts. The records from these farms indicate that the

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farmer who combines wheat and livestock production has a higher return than if either of these enterprises is conducted alone. For example, those farmers keeping records, who from 1937 to 1940, inclusive, specialized in the production of beef cattle had an average annual net farm income of $1,504; those who grew wheat alone had average annual net farm incomes of $2,215; while those who combined wheat and beef cattle production had average annual net farm incomes of $2,361. Since 1940 even greater stress has been placed upon the needs for meat and it seems reasonable to expect that the farmers of this area can continue to produce livestock profitably in the years immediately ahead.

The addition of livestock to the farm business gives it better diversity. In years when wheat is low in price or when yields are low the returns from the livestock keep the farm income from dropping to exceptionally low levels. Beef cattle production is not the only livestock enterprise that has been used successfully in this area. Dairying, hog production, sheep production and poultry production have been used successfully by farmers to combine with wheat production in a desirable farm business. The farmer's problem is to determine which of these enterprises offers the greater opportunity to him and in what proportion should the livestock enterprise chosen be combined with wheat.

DESCRIPTION OF AREA

Type-of-farming area 6b is located in south central Kansas. (See Fig. 1.) The area is level to gently rolling, making the use of power machinery practicable on most farms. A part of the soils of the area have been formed from outwash materials from the Rocky Mountains and a part of them are residual. In most in-

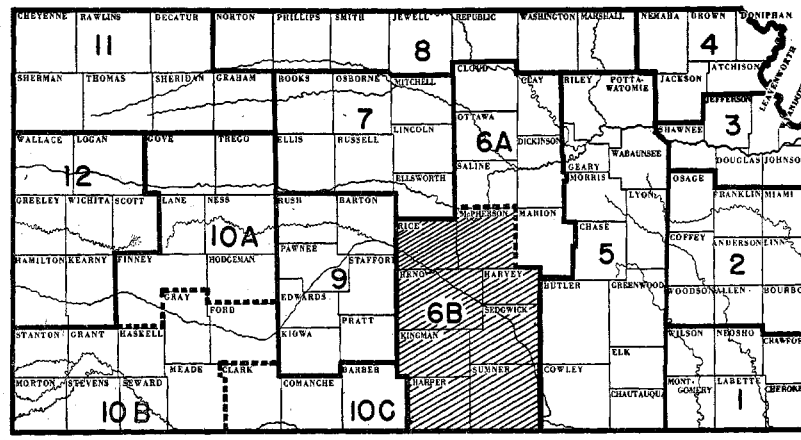

FIGURE 1. Type of farming areas in Kansas. This bulletin refers particularly to area 6b, which is shaded on the map.

stances the soils are deep, easily tilled, and well adapted to the production of general farm crops. Wheat is the major crop. Other crops of importance within the area are grain and forage sorghums, corn, oats, barley, alfalfa, and sweet clover.

Beef cattle furnish the major part of the income from livestock in this area. Dairy products, poultry, hogs, and sheep are important sources of income on many farms. Beef cattle and wheat make a desirable combination on the larger farms of the area. Dairying is important near the larger cities and towns and in those communities where cooperative creameries and cheese factories are located. Hog production frequently is supplemental to dairying, particularly where large quantities of skim milk are available to use as feed for the hogs. Poultry is produced on practically all farms within the area. Sheep often are kept on those farms producing wheat and not emphasizing beef cattle production. The sheep enterprise has been increasing in importance during recent years.

PURPOSE OF THIS STUDY

Records have been kept, in cooperation with Kansas State College, by farmers in this area since 1930 and earlier, as an aid in improving their farming businesses. Net farm incomes have varied widely during that period. In a group of 27 farms for which records were available each year for the six-year period, 1934 to 1939, the average annual net farm income of one farm was $764 while another farm had an average annual net farm income of $4,893. Difference in managerial ability was the principal reason for these differences in incomes, as some farmers combined their resources more efficiently than others.

In this study the records of the higher income farms were studied and compared with those that were not so successful and budgets then were prepared in which the practices used on the better farms were tested. The farm budget is an estimate of the production of crops and livestock, the costs in producing them and the returns from them. The purpose of the budget is to test various combinations and determine which seems to offer the greatest possibilities of profit. Practices which use resources more efficiently must be followed if incomes are to be increased.

The farm plans presented in this study emphasize legumes more than do the actual farming systems in area 6b because increased production of legumes is necessary in this area if the soil is to be conserved. The growing of such large acreages of legumes may be somewhat less profitable in the short run, but the objective of this study is to outline farm plans that will yield the larger profits in the long run, rather than to obtain the largest immediate income.

CHARACTERISTICS OF A PROFITABLE FARM ORGANIZATION IN AREA 6B

The more profitable farms of area 6b have certain characteristics which distinguish them from the less profitable farms. Analyses of the records kept on farms within this area reveal these characteristics.

Adequate Size of Business

One of the major requirements of a successful farm is adequate size of business. The records of farmers within this area clearly indicate that a reasonable return to the farmer was not possible without adequate size of business. There are many measures of size of farm business, none of which, considered independently, is universally satisfactory. Measures frequently used are crop acres, total acres, units of livestock, units of man labor, and total investment. The managerial ability of the farmer is the major limitation in using the measures of size in the determination of quantity and proportion of any of these resources which a farmer can use most efficiently.

In south central Kansas the number of crop acres is one of the more satisfactory measures of size of farm business. The larger farms averaged considerably higher in net farm income than did the smaller farms for the ten-year period (Table 1). The smaller farms, however, made the higher net farm incomes during the depression years, probably because the larger farms had both higher

TABLE 1. *Relationship between size of farm as measured by crop acres and net farm income for farms keeping records in south central Kansas, 1931-1940, inclusive.*

YEAR.	Size groups—Crop acres.				All farms.
	0-150.	151-300.	301-450	451 or more.	
	Net Farm Income.				
1931	$228	$51	$66	$—688	$—13
1932	158	—9	—72	—189	4
1933	957	1,218	1,600	1,643	1,292
1934	1,520	2,538	3,119	6,246	2,931
1935	1,281	2,060	2,527	4,418	2,392
1936	1,033	1,897	2,168	3,251	2,213
1937	915	1,616	2,396	4,192	2,262
1938	657	668	955	551	718
1939	1,359	1,779	2,233	2,883	2,075
1940	1,347	1,737	2,113	3,240	2,043
Average	$946	$1,356	$1,710	$2,555	$1,592

receipts and higher expenditures. Since many of the expenditures on a farm are fixed, a severe decline in gross income without a proportionate decline in expenses causes the large farms to suffer more severely. Even in years when production and prices are good, the farmer should not overestimate his managerial capacity. Many farmers are most successful on farms which are only moderately large. The exceptionally large farm usually becomes exceedingly complex and, consequently, less profitable excepting when operated by an exceptionally capable farmer. Each farmer should determine what size of farm he can operate most effectively and attempt to obtain that size of unit.

Keeping a Good Set of Records

A good farm record book supplies the basic information for planning the farm business. Keeping the record book is the preliminary step to answering the question, "In what proportion should the resources in land, labor and capital be combined on this farm to produce commodities most efficiently?"

Information obtained from the record book is needed to determine standards of production for budgeting. The term "standards" is used to denote information on crop yields, the kinds and quantities of feed required for livestock, the quantities of man and horse labor required for producing crops and livestock, the quantities of fuel, oil and other supplies, and all other quantitative costs in operating the farm. These standards must be accurate if the farm plan is to be satisfactory.

The farm record book also includes information on the inventory, receipts, and expenditures. An analysis of this information will indicate methods of improving the farm organization. By studying farm records, the farmer can determine the more profitable enterprises and the methods of improving the efficiency of production.

The relationship between length of time the farmer has kept records and net farm income shows that farmers in this area use record-book information profitably. During the period 1931-'39 farmers keeping records from seven to nine years made an average annual net farm income of $1,697; those keeping records from four to six years made an average annual net farm income of $1,684; and those farmers keeping records from one to three years made an average annual net farm income of only $784.

High Returns Per Unit of Livestock

Livestock, properly managed, is profitable. However, it is not desirable to overstock a farm. Table 2 lists, by size groups, the average net farm income for farms with a large percentage of receipts from livestock and for farms with a low percentage of receipts from livestock. There is no significant relationship between percentage of receipts from livestock and net farm income.

TABLE 2. *Relation of percent of gross receipts from livestock, size of farm, and net farm income on farms keeping records in south central Kansas. 1932-1940.* (a)

YEAR.	0-199 crop acres.		200-299 crop acres.		300-399 crop acres.		400 or more crop acres.	
	High percentage of receipts from livestock.	Low percentage of receipts from livestock.	High percentage of receipts from livestock.	Low percentage of receipts from livestock.	High percentage of receipts from livestock.	Low percentage of receipts from livestock.	High percentage of receipts from livestock.	Low percentage of receipts from livestock.
1932	$219	$73	$—282	$139	$—264	$29	$247	$—495
1933	796	985	1,083	1,686	1,454	1,643	1,444	1,892
1934	1,633	1,826	2,778	2,695	3,270	2,878	6,561	4,692
1935	1,399	1,397	2,521	1,927	3,095	1,614	4,705	3,348
1936	748	1,995	1,746	2,180	2,048	2,702	2,952	2,699
1937	1,262	1,299	1,321	2,084	2,519	2,509	3,163	4,185
1938	746	405	1,026	376	636	1,158	787	610
1939	1,421	1,650	1,823	1,865	1,970	2,291	2,869	3,005
1940	1,250	1,715	1,870	1,833	2,031	1,754	4,218	1,816
Average	1,053	1,261	1,541	1,643	1,862	1,842	2,994	2,417

(a) In the preparation of this table 822 farm-record books were used. The farms were divided into four groups on the basis of the number of crop acres per farm. Then each group was divided into two groups on the basis of the percent of receipts from livestock. The average net farm income for the one-half of the farms high in percent of receipts from livestock is shown in the first column under each size group; the average net farm income for one-half of the farms low in percent of receipts from livestock is shown in the second column under each size group.

The net farm incomes for groups of farms high in returns per unit for each of the different kinds of livestock are shown in Table 3. This summary indicates the importance of obtaining high receipts per unit of livestock. To obtain these high receipts, the farmer must feed balanced rations, keep good-quality livestock, emphasize sanitation and other good production practices, and follow a good marketing program.

TABLE 3. *Average net farm income for farms grouped according to those which are high in receipts per unit of each kind of livestock and those which are low in receipts per unit of each kind of livestock, for farms keeping records in south central Kansas. (a)*

KIND OF LIVESTOCK.	Farms high in receipts per unit of livestock.		Farms low in receipts per unit of livestock.	
	Average receipts per unit.	Average net farm income.	Average receipts per unit.	Average net farm income.
Dairy cows b	$74.64	$2,488	$48.68	$1,743
Beef cattle	70.26	2,685	24.93	1,721
Hogs	304.32	2,454	189.35	1,773
Poultry c	264.25	2,446	128.48	2,257

(a) Data in this table were obtained from a study made on 27 farms that kept continuous records for the years 1934 to 1939, inclusive. Thus results from the analysis of 182 annual records covering the years 1934 to 1939 are presented in this table. A unit of livestock is a mature cow or the equivalent in other livestock.
(b) Dairy products receipts per unit of dairy cows.
(c) Poultry and egg receipts per unit of poultry.

Tables 2 and 3 show that: (1) Farms emphasizing livestock in south central Kansas can make larger profits than those which do not emphasize livestock, provided good production and marketing practices are followed; and (2) large numbers of livestock are not desirable unless good production and marketing practices are followed.

Proper Diversification of Enterprises

The high income farms normally have one major crop enterprise, one major livestock enterprise and from three to five minor enterprises which fit well into the farm plan. Extreme diversification is not desirable. The most desirable type of farm organization is one in which only enough enterprises are included to give the farmer the advantages of diversification without the disadvantages of specialization. An analysis of record books kept by Kansas farmers shows that on the profitable farms enough enterprises were added to permit the farmer to use his land, labor and capital most efficiently and that gave insurance against complete loss of income through failure of one enterprise.

Relating Production to Marketing Practices

In addition to planning the production program to produce a high quality product, it is necessary to plan so that good marketing practices will be followed. Some farmers have lost as much as $1 a hundredweight of beef, pork, or lamb marketed because of lack of coördination between production and marketing programs. Farmers frequently plan their lamb production programs so that the lambs are marketed during July. The average July price (1921-'39) for lambs at Kansas City was $11.09. If the production program had been planned so that the lambs could have been marketed in May, an average price of $12.77 would have been received. It requires better quarters and more attention to have lambs ready for the May market, but the difference in selling price usually pays for the added effort.

Prices of hogs and cattle also have seasonal highs and lows. The fall pig crop usually should be marketed in March or April and the spring pig crop in August or September. Stocker and feeder cattle to be wintered should be purchased during the period of seasonally low prices which normally occurs during October and November. They should be sold in the spring (March and April), as the price reaches a seasonal high at that time. If good-quality cattle are fattened for the market, they should be sold in October and November, when prices for fat cattle are at a seasonal high.

In all cases it is essential that the farmer make use of available marketing information. Information from *The Kansas Agricultural Situation* and the annual *Agricultural Outlook* may be used as a guide to determining the probable time of the seasonal high or low prices for any particular gear. These publications are issued regularly by Kansas State College.

To coordinate marketing and production programs it is necessary that a farmer be familiar with the phases of the business and production cycles. A production and marketing program should be contracted during periods of falling prices and expanded during periods of rising prices. Circulars entitled *The Agricultural Outlook* are published each year by Kansas State College and the United States Department of Agriculture. These circulars provide information on the outlook for various agricultural commodities for the coming year.

PLANNING THE FARM BUSINESS

Farms for Which Budgets Were Prepared

The average size of farm for type-of-farming area 6b in 1939 was 243 acres.[3] The more typical size groups contained 160 acres, 320 acres, or 480 acres. Budgets were prepared for some of the combinations of enterprises which have proved most successful on farms of these sizes. Only those farm plans which have possibilities of being successful over a long period of years have been included.

3. 1940 United States census.

Farms producing wheat only were omitted. Although they may prove extremely profitable in certain years, they offer little opportunity for maximum long-time net farm income.

Production, Requirements for Production, and Disposal of Agricultural Products

In the preparation of a farm budget, information commonly spoken of as "standards" for production is needed concerning crop yields, the kinds and quantities of feed required for livestock, the quantities of man and horse labor required for producing crops and livestock, the quantities of fuel, oil and other supplies required in producing various farm products, and all other quantitative costs involved in the operation of the farm business. The value of the budget depends upon both the accuracy of these standards and upon the accuracy with which the budget is prepared. No one set of standards will apply to every farm in an area; conditions vary from farm to farm. General standards, such as those used in this study, are valuable for comparison but they must be adjusted to the conditions on the farm to which they are applied. General standards computed by Experiment Station workers, often are based on controlled experiments and must be adjusted to farm conditions. However, a good farm manager usually can obtain results comparable to those obtained by experiment stations. For this reason, the

TABLE 4. *Long-time average crop yields for type-of-farming area 6b and those expected if recommended rotations are followed. The latter were used in preparation of budgets for the area.*

KIND OF CROP.	Average acre yield for area 6b (a).	Average acre yields expected if recommended rotations are followed (b).
	(bushels)	(bushels)
Wheat	13.8	16.0
Corn	15.2	15.2
Oats	24.4	26.0
Barley	21.1	22.0
Kafir	18.0	20.0
Milo	18.3	20.0
Feterita	18.2	20.0
All grain sorghums (weighted average)	18.1	20.0
	(Tons)	(Tons)
Kafir hay	2.6	3.0
Cane hay and forage	3.1	3.5
Sweet sorghum silage	10.0c	11.0
Alfalfa	2.5	2.5
Prairie hay	1.1	1.1
Sudan hay	2.4	2.7

(a) Source: Yields on harvested acreage as given in the reports of the State Board of Agriculture. Average for wheat, corn, oats, and barley are for 1911-'32; sudan for 1916-'32; and others from 1915-'32.

(b) Estimated on the basis of results at the Wichita and Kingman experimental fields.

(c) Estimated by Committee dealing with general crop recommendations for Agricultural Adjustment Planning Project of 1935.

standards of production used in this study were not calculated from results on typical farms but from data collected from better than average farms and from the results at experiment stations.

This study is not an attempt to show what the average farmer has been doing but to indicate what the farmer can do in the future if he operates his farm as an efficient business. The budgets presented set high standards which the farmer may attain if he produces good-quality crops and livestock, uses proper production and management practices, and follows the market carefully and intelligently.

In preparation of a workable budget it is essential to have information acquired by studying the farm business for previous years. Since it is impossible for the farmer to remember all the facts necessary for budgeting, farm records are necessary.

The standards used in preparing the budgets presented in this study are given in Tables 4, 5, and 6. Long-time average crop yields for type-of-farming area 6b were used as a basis for determining crop yields. The "average expected yields if recommended rotations are followed" were estimated on the basis of results at the experimental fields at Wichita and Kingman and consultations with experiment station agronomists. The relatively high yields are a result of the better methods and practices followed in carrying out the plans recommended in the budget.

Although yields used in this study are based on average crop yields for area 6b, it is necessary for the individual farmer to base

TABLE 5. *Man, horse, and tractor hours, seed, fuel, and oil required per acre for crop production in area 6b*

CROP AND METHOD.	Seed per acre (bushels).	Hours per acre.		Gallons per acre.	
		Man.	Horse.	Fuel.	Oil.
Wheat, moderate size equipment-combining	1.25	1.8	.....	5.2	.18
Wheat with small size equipment (a)	1.25	2.0	.....	3.3	.125
Barley	1.50	1.5	.....	3.0	.10
Oats (bound)	2.00	5.4	2.2	4.2	.14
Corn	.10	6.5	5.0	5.6	.167
Silage (filling silo)	.....	18.0	8.0	3.2	.05
Rowed sorghums (bound but not shocked)	.10	4.1	.....	6.2	.18
Rowed sorghums, plow and disc with tractor (shocked)	.....	5.8	14.1	1.9	.20
Sorghums, rowed, combined	.10	3.8	.....	6.1	.12
Rowed sorghums (hire combine)	10*	3.8	9.1	1.9	.20
Sorghums, sowed	.75	5.5	10.5	.....	.....
Prairie hay, mow and stack	.....	4.9	5.8	.....	.....
Prairie hay, mow, put in barn	.....	6.9	8.8	.....	.....
Sudan pasture	20*	2.2	8.8	.....	.....
Sudan pasture	.....	.9	.....	2.2	.08
Alfalfa	15*	12.0	18.0	.....	.....
New alfalfa (annual seeding cost)	.....	3.1	.....	5.2	.12
Other tame hay	.....	7.0	9.0	.....	.....
Sweet clover—new seeding	15*	2.1	2.4	3.8	.10
Fallow	.....	2.4	.....	6.1	.21
Sweet clover—seeding with oats	.....	.6	2.4	.....	.....

* Pounds.

(a) Does not include combining since acreage is so small that a combine probably would not be profitable.

the yields on the long-time average for his farm. If he is attempting to use better production methods and practices, he should increase his yields by the quantity that he believes these better practices and methods will increase them. The success or failure of the farmer's plan as developed in the budget will depend upon the accuracy of the standards and the farmer's judgment. If the indi-

TABLE 6. *Prices for commodities produced and used on Kansas farms (a)*

COMMODITY.	Unit.	Average price.
Wheat	bu.	$0.87
Corn	bu.	.65
Oats	bu.	.36
Barley	bu.	.48
Grain sorghums	bu.	.56
Loose hay (b)	ton	8.00
Alfalfa hay (b)	ton	11.00
Prairie hay (b)	ton	6.00
Alfalfa seed	bu.	8.18
Sweet clover seed	bu.	4.50
Sudan seed (b)	bu.	3.00
Sweet sorghum seed (b)	bu.	2.00
Threshing oats (b)	bu.	.05
Combining (b)	acre	2.00
Twine (b)	lb.	.10
Tractor fuel (b)	gal.	.09
Oil (b)	gal.	.60
Fat steers, good (November price) (c)	cwt.	11.05
Fat heifers, choice (November price) (c)	cwt.	10.80
Stocker steers, choice 500-800 lbs. (April price) (c)	cwt.	9.15
Stocker steers, choice 500-800 lbs. (September and October price) (c)	cwt.	8.55
Stocker steers, choice 500 lbs. and less (September and October price) (c)	cwt.	8.70
Stocker steers, 800-1050 lbs. (April price) (c)	cwt.	8.90
Cows, good—all weights (March price) (c)	cwt.	7.15
Cutters and canners (c)	cwt.	4.20
Veal calves	cwt.	7.94
Dairy heifers, 2 years old (b)	head	65.00
Dairy heifer calves (b)	head	15.00
Hogs	cwt.	7.55
Blackface western ewes (purchase for replacement) (b)	head	9.50
Blackface western ewes (sold as culls) (b)	head	3.80
Yearling rams (purchase price for purebreds) (b)	head	35.00
Rams (sold as culls) (b)	head	6.00
Fed lambs (May price) (c)	cwt.	11.60
Chickens	lb.	.133
Eggs	doz.	.184
Butterfat	lb.	.30
Whole milk (price for Class I milk base at Wichita) (b)	cwt.	2.10
Whole milk (price for milk sold to canning factories) (b)	cwt.	1.50
Wool	lb.	.233
Cottonseed meal (b)	ton	35.00
Linseed meal (b)	ton	38.00
Tankage	cwt.	2.50
Bran (b)	ton	28.00
Grey shorts (b)	ton	30.00
Ground limestone (b)	ton	20.00
Steamed bonemeal (b)	ton	50.00
Salt (b)	ton	6.00

(a) Unless otherwise indicated, all prices are average (1924-1938) monthly prices for Kansas, taken from "Crops and Markets."
(b) Estimated.
(c) Estimated on basis of average Kansas City price for months indicated.

vidual planning the business uses inaccurate information, he will be unable to put the plan into operation and obtain the results indicated in the budget.

The quantities of the various items required to produce one acre of a crop vary considerably from year to year, as they are influenced by climatic, economic, and technologic conditions. Also, many farmers do not keep records of the labor, fuel, oil, and other requirements necessary for accurate planning. The standards in Table 5 are based upon farm-accounting studies, surveys of farm practices, and data from other sources.

Information on prices for products sold and purchased by farmers is essential in budgeting. Changes in prices of farm products sold and purchased will cause the farmer to use different quantities of the various cost elements in producing farm products. Thus, if labor doubles in price while machinery and gasoline remain the same for a period of time, the farmer will substitute machinery for labor. Price influences not only the amount of the cost but also the actual quantities of the different commodities that will be used. Farm operators know that if the relative price of hogs advances more rapidly than the relative price of beef cattle, there will be tendency for farmers to increase hog production at the expense of beef cattle production, provided costs in both cases remain approximately the same. Because of these facts, it is important to consider carefully the prices to be used in farm budgeting work.

The prices used in preparing the budgets were based upon average prices during a recent 15-year period. These average prices were adjusted when, in the judgment of those making the study, changed conditions warranted variation from the averages. Objection may be made to the use of average prices, but it must be remembered that farm plans must be made for a period of years. Equipment purchased will aid in determining the products produced on the farm until the equipment is worn out or discarded. The cost of this equipment must be spread over the years of its use. Unless it is evident that conditions have resulted in a permanent change in price levels and costs, it seems safest to plan the farm business on the basis of the average costs and returns during a recent long-time period.

The production and feed requirements for livestock were taken from studies made by the Kansas Agricultural Experiment Station, suggestions of staff members at the Experiment Station, and from information contained in farm record books. The results shown in Table 7 have been attained at the Kansas Agricultural Experiment Station and by the better farmers in Kansas.

TABLE 7. *Annual production, labor, and feed requirements per unit for livestock in type-of-farming area 6b.* (a)

KIND OF ANIMAL.	Production per unit.	Labor requirement		Roughage.				Grain.		Protein supplement.	
		Man hours.	Horse hours.	Non-legumes (tons).	Legumes (tons).	Silage (tons).	Pasture b (acres).	Corn or sorghum (bushels).	Barley and oats (bushels).	Kind.	Quantity (lbs.).
Work horse	800 hrs. work	60	10	2			2.5	27 and 31			
Milk cow	175 lbs. b. f.	120	10	1	1.50	2.0	5.0	6 or 10			
Milk cow	300 lbs. b. f.	120	10		2.00	3.0	5.0	22 or 30		St. B. M.	40
		90c								C. S. M.	275
										Bran	575
										Salt	40
Dairy heifer (replacement)		25	5		1.00	2.0	4.0	18 or 25			
Dairy calf (replacement)		15	5		0.33	0.5	1.5		4	Sk. milk	
Dairy bull		25	5		2.00			39 or 55			
Veal calf	250 lbs.	5	1					10			
Ewe	8 lbs d	8	1		0.30	0.2	1.0	1 and 2			
Ewe (without silage)	8 lbs. d	8	1		0.30		1.5e	1 and 2			
Fattening lamb (f)	85 lbs.	1			(g)		(h)	1 and .5			
Ram		5	1		0.30	0.2	1.0		4	L. M.	30
Deferred feeding of choice quality steer	525 lbs.	14	5		.66	2.0	4.0	40		C. S. M.	100
Wintering steer calf	200 lbs.	8	3		0.33	2.0		10			
Wintering yearling steer	175 lbs.	7	3		0.33	3.0					
Wintering and grazing choice quality calf	300 lbs.	10	3		0.33	2.0	4.0				
Hogs (per brood sow)	2,000 lbs.	50	5				0.5 i	150		Millfeed	500
										Tankage	100
Poultry (per 100 hens)	667 doz.	200	10					7,500 j			

(a) Based on standards calculated from data obtained from experiment station publications, consultation with Experiment Station and Extension Specialists, farm records and data collected from farm surveys.
(b) One acre of sweet clover is equal to 1.5 acres of permanent pasture when used as a pasture and green manure crop.
(c) Milking machine is used.
(d) Wool.
(e) One-half acre of wheat or rye pasture should be provided during the winter.
(f) Feed required to fatten lambs from time of weaning until ready to go to market.
(g) Lambs will consume a small amount of alfalfa hay. This has been included in the ewes' requirement.
(h) Used when winter pasture is available.
(i) Legume pasture.
(j) Pounds of mixed grain.

Methods of Comparing Budgets

In comparing organizations for different sizes and types of farms only summary tables for the various budgets are shown. The first table for each size group shows the acreage and production of crops, numbers of livestock, and the production of livestock products. The second table for each size group gives an itemized list of receipts and expenses. The expenses shown are called variable expenses, since they vary with different types of farms or with different methods of production. Fixed expenses, such as taxes and interest on real estate which do not vary appreciably with changes in methods of operation, are not shown in detail. "Receipts minus variable expenses" gives an indication of the comparative results on the farms. Since some question may arise as to some type of net income the last line shows "operator's earnings." [4]

The adjustments in the detailed tables required to obtain operator's earnings included an addition for family living from the farm and deductions for real estate taxes, interest on real estate and items of working capital not included in variable interest, depreciation on buildings and equipment, and an estimate for unpaid family labor. If an operator owns his farm free of debt the interest would not be a cash expense and would be available as income in addition to operator's earnings. Some of the other items might not be cash expenses in any one year but would have to be met in the long run.

160-Acre Farm

There are many 160-acre farms in type-of-farming area 6b. The most common 160-acre farm in this area usually has 110 crop acres, 45 acres of permanent pasture, and 5 acres of other land. It is necessary to follow an intensive type of agriculture if the farmer is to provide a high standard of living for his family on a 160-acre farm in this area.

Several organizations, offering desirable possibilities, may be suggested for this area. Dairying and sheep production are both intensive types of farming that can be conducted successfully in this area. If dairying is chosen, several alternatives are available for marketing the products produced. The farmer may sell whole milk for direct distribution to the consumer, he may sell whole milk to cheese factories or condenseries, or he may sell the product in the form of butterfat. If a sheep production program is followed, either a flock of ewes can be kept on the farm or a lamb-fattening enterprise can be established.

Summaries of the budgets prepared for a 160-acre farm are presented in Tables 8 and 9. The following is a brief description of the organization of the farm under each method:

ORGANIZATION A. A flock of 60 ewes constitutes the major livestock enterprise and wheat is the major crop enterprise.

4. Operator's earnings is the compensation, including the value of family living from the farm, for operator's labor and management.

TABLE 8. *Comparison of different farm organizations on a 160-acre farm in type-of-farming area 6b.*

ORGANIZATION.	Organization A. (Sheep-wheat).		Organization B. (Butterfat).		Organization C. (Whole milk).	
	Acres.	Production.	Acres.	Production.	Acres.	Production.
Crops:						
Wheat	40	640 bu.	40	640 bu.	25	400 bu.
Oats	20	520 bu.	15	390 bu.	10	260 bu.
Barley					10	220 bu.
Sweet sorghum silage			5	55 ton	5	55 ton
Grain sorghum	15	300 bu.	20	400 bu.	20	300 bu.
Alfalfa hay	10	25 ton	10	25 ton	15	37.5 ton
Prairie hay	5	5.5 ton	5	5.5 ton	5	5.5 ton
Temporary pasture (sweet clover)	20		10		10	
Temporary pasture (sudan)			5		5	
Permanent pasture	45		45		45	
	Number.	Production.	Number.	Production.	Number.	Production.
Livestock:						
Horses	2	1,600 hrs.	2	1,600 hrs.	2	1,600 hrs.
Dairy cows	2		9		15	
Milk						118,500 lbs.
Butterfat		350 lbs.		2,250 lbs.		
Culls				1,620 lbs.		2,700 lbs.
Veal calves	2	500 lbs.	1	250 lbs.	1	250 lbs.
Ewes	60					
Lambs		6,375 lbs.				
Wool		480 lbs.				
Brood sows			2	4,000 lbs.		
Poultry	50		50		50	
Eggs		334 doz.		334 doz.		334 doz.
Meat		200 lbs.		200 lbs.		200 lbs.

TABLE 9. *Comparisons of the returns under different types of organizations on a 160-acre farm in south central Kansas.*

	Organization A (Sheep-wheat).	Organization B (Butterfat).	Organization C (Whole milk).
Gross receipts:			
Crops:			
Wheat	$499.38	$499.38	$307.11
Oats	57.60		
Grain sorghum	28.00		
Alfalfa hay	11.00		
Silage		57.00	
Prairie hay		9.00	9.00
Livestock and livestock products:			
Cattle	19.88	148.04	223.40
Hogs		264.25	
Sheep	780.50		
Poultry	13.30	13.30	13.30
Eggs	24.66	24.66	24.66
Milk			1,987.47
Butterfat	3.00	600.00	
Wool	111.84		
Miscellaneous receipts	109.60		
Total receipts	$1,658.76	$1,615.63	$2,564.94
Variable expenses:			
Cattle purchased		$25.00	$25.00
Hogs purchased	$38.50		38.50
Sheep purchased	112.50		
Feed purchased	13.84	219.24	247.36
Crop expenses	167.67	165.42	147.12
Variable cash livestock expense	27.80	31.45	34.05
Variable fuel and oil expense	29.94	37.80	30.98
Other variable machinery expense	25.00	15.00	70.00
Hired labor		17.50	63.10
Variable taxes	14.60	20.10	27.20
Selling expense	19.15	7.76	287.06
Death loss	25.26	36.20	47.00
Variable interest	35.50	45.50	66.00
Total variable expense	$509.76	$620.97	$1,083.37
Receipts minus variable expense	$1,149.00	$994.66	$1,481.57
Operator's earnings	$460.30	$341.51	$792.02

ORGANIZATION B. The major enterprises are dairying and wheat. The dairy products are sold in the form of butterfat.

ORGANIZATION C. The major enterprise is the production and sale of whole milk to a distributing plant. Wheat furnishes a minor source of income.

In Organization A, 60 ewes would be kept to produce lambs and wool. Large blackface western range ewes would be purchased and bred to a good Southdown or smaller type Shropshire ram. Such a cross produces excellent lambs. Blackface range ewes are recommended because there are fewer poor-quality animals among them than among the smaller, Merino type western range ewes. The farmer who is not a good judge of sheep has a better chance to build a desirable breeding flock if he purchases blackface ewes. Yearling blackface ewes usually can be retained in the breeding flock about six years. This would require the replacement of 10 ewes a year after the production program is in effect. Two rams would be needed for 60 ewes. If yearling rams are purchased, they must be replaced about every two to four years.

A farmer who follows good production practices should raise a 125 percent lamb crop. The lambs should be dropped shortly after January 15 and not later than March 1, and should be ready for market in about three to five months. It is important that the lambs be marketed by June 10. The usual seasonal price trend for lambs is downward after June 10 and unless the lambs are marketed by then, lower prices probably will be received.[5]

Other livestock enterprises on the farm are of minor importance. Only enough other livestock is kept to furnish products for home use. The advantage of one major livestock enterprise is that it enables the farmer to concentrate his efforts on that enterprise.

In Organization A practically all feed required is produced on the farm. After feed and pasture requirements have been met, 40 acres of crop land remains for producing wheat—a good cash crop in this area. Approximately one-fourth of the crop land is in legumes. The legumes and livestock help maintain soil fertility.

Butterfat is the major commodity produced in Organization B.[6] A herd of nine cows is kept and a portion of the skim milk is fed to the hogs and chickens. A major disadvantage of this plan is that there is no method for efficiently utilizing the excess skim milk. The number of hogs in the farm business could be increased, but this would require a large quantity of feed grain. Corn is not well adapted, and although grain sorghums usually yield well on the average, the yield is variable from year to year.

Organization B provides a number of important sources of income, thus preventing complete loss of income from the failure of any one enterprise. However, a number of sources of income may be disadvantageous in that the farmer is prevented from concen-

5. Information on sheep production practices was supplied by members of the Department of Animal Husbandry, Kansas Agricultural Experiment Station.

6. Information on dairy production practices was furnished by members of the Department of Dairy Husbandry, Kansas Agricultural Experiment Station.

trating on any one enterprise. The cropping system is similar to that in Organization A, in which sorghum production is emphasized somewhat more and small grain and legume production somewhat less.

In Organization C dairying is the major enterprise and wheat production is the minor enterprise. A herd of 15 cows would be kept, and the whole milk produced would be marketed through a distributing plant. Much of the whole milk of this area is sold on the Wichita market, but several other cities in area 6b furnish a good market for milk.

The farmer operating according to Organization C must be a good dairyman. He not only must be interested in dairying but must be familiar with production and marketing methods. After the herd has been developed, the annual production should average approximately 300 pounds of butterfat per cow. The average butterfat test of milk sold through the Wichita Milk Producers' Association was 3.775 percent in 1939.[7] With an average of 300 pounds of butterfat per cow per year, the annual production of whole milk would average 7,940 pounds per cow. At this rate, dairying can be a profitable enterprise.

The cropping system in Organization C provides that pasture and feed for the dairy herd be produced on the farm. Consequently, the wheat enterprise is less important than in Organizations A and B. The proportions of the crop area in small grains, legumes, row crops, and temporary pasture do not vary greatly in the three farm organizations.

Total receipts, variable expenses, total receipts minus variable expenses, and operator's earnings for Organizations A, B, and C on a 160-acre farm in type-of-farming area 6b are shown in Table 9.[8] Organization C is the most profitable, Organization A is second, and Organization B is least profitable. A farmer with the desire and ability to operate a farm of one of these types should be successful unless he is located in certain parts of the area where marketing is a complex problem. A capable farmer desiring to operate a dairy farm where there is no market for whole milk, might follow a plan similar to that in Organization B. Organization A would be more profitable for farmers not interested in dairying.

320-Acre Farm

320-acre farms are common in area 6b. In 1929 the most common distribution of total acres on a 320-acre farm was 245 crop acres, 65 acres of permanent pasture, and 10 acres of other land. Such an operating unit offers excellent possibilities for the competent farmer. It is small enough so that he can manage and supervise operations carefully; yet it is large enough that he can utilize his managerial ability efficiently.

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7. Data obtained from members of the association.

8. Variable expenses are defined as those which vary between the different organizations prepared for each size of farm.

TABLE 10. *Comparison of different farm organizations on a 320-acre farm in type-of-farming area 6b.*

ORGANIZATION.	Organization A. (Whole milk-wheat).		Organization B. (Butterfat-wheat).		Organization C. (Sheep-wheat).		Organization D. (Beef-wheat).	
	Acres.	Production.	Acres.	Production.	Acres.	Production.	Acres.	Production.
Crops:								
Wheat	126	2,016 bu.	111	1,776 bu.	116	1,856 bu.	107	1,712 bu.
Oats	25	650 bu.	15	390 bu.	15	390 bu.	15	390 bu.
Barley			10	220 bu.	10	220 bu.	15	330 bu.
Sweet sorghum silage	5	55 ton	5	55 ton			10	110 ton
Grain sorghum	20	400 bu.	35	700 bu.	25	500 bu.	40	800 bu.
Alfalfa hay	15	37.5 ton	15	37.5 ton	15	37.5 ton	10	25 ton
Prairie hay	5	5.5 ton	5	5.5 ton	5	5.5 ton	5	5.5 ton
Fallow for legumes	19		19		24		23	
Temporary pasture (sweet clover)	15		15		20		20	
Temporary pasture (sudan)	15		15		15			
Permanent pasture	65		65		65		65	
	Number	Production.	Number.	Production.	Number.	Production.	Number.	Production.
Livestock:								
Horses	2	1,600 hrs.	2	1,600 hrs.	2	1,600 hrs.	2	1,600 hrs.
Dairy cows	15		15		2		2	
Milk		118,500 lbs.						
Butterfat				4,500 lbs.		350 lbs.		350 lbs.
Culls		2,700 lbs.		2,700 lbs.				
Other dairy stock	4	(a)	4	(a)				
Veal calves	1	250 lbs.	1	250 lbs.	2	500 lbs.	2	500 lbs.
Beef cattle:								
Steers (deferred fed)							20	18,500 lbs.
Steers (wintered)							30	18,000 lbs.
Ewes					120			
Lambs						12,750 lbs.		
Wool						992 lbs.		
Brood sows			3	6,000 lbs.	1	2,000 lbs.		
Poultry	50		50		50		50	
Eggs		334 doz.		334 doz.		334 doz.		334 doz.
Meat		220 lbs.		220 lbs.		220 lbs.		220 lbs.

(a) Dairy calves and heifers sold during the year on a per head basis.

Approximately the same enterprises are recommended for the 320-acre. farm as for the 160-acre farm. A greater number of enterprise combinations are possible. Beef cattle can be handled more successfully on the larger farms than on the smaller farms. With 245 acres of crop land it is probable that there will be a wheat enterprise of considerable size, permitting the addition of various wheat-beef cattle combinations to those suggested for the 160-acre farm.

Tables 10 and 11 show summaries of the budgets prepared for a 320-acre farm. The following is a brief description of the organizations.

ORGANIZATION A. The major livestock enterprise consists of the production of whole milk for sale. Wheat is the major crop enterprise.

ORGANIZATION B. Dairying is the major livestock enterprise. Butterfat is marketed and the skim milk is fed to hogs. Wheat is the major crop enterprise.

ORGANIZATION C. A flock of 120 ewes constitutes the major livestock enterprise and wheat is the major crop enterprise,

ORGANIZATION D. Fifty head of choice-quality steers would be purchased in the fall, 30 head would be wintered, and 20 head would be fed under the deferred system. Wheat is the major crop enterprise.

In Organization A 15 dairy cows are kept to produce whole milk that would be sold to distributing plants. The dairy enterprise would be conducted in a manner similar to that in Organization C on the 160-acre farm. In fact, the entire program is similar except that the larger crop acreage makes it possible to have a larger wheat acreage. As the entire business is larger, there is opportunity for greater income; yet the business is less specialized than Organization C on the 160-acre farm.

Organization B on the 320-acre farm corresponds to Organization B on the 160-acre farm. A herd of 15 dairy cows is kept for butterfat production and the skim milk is fed to hogs. A disadvantage is that the skim milk cannot all be utilized efficiently for if enough hogs were kept to utilize all the skim milk, the grain requirements would be too large for production in this area. The larger crop acreage makes possible the production of practically all of the feed needed on the farm and wheat for a cash crop.

The proportions of the crop acreage in legumes in Organizations A and B are not large, which may be partly accounted for by the fact that abundant pasture is necessary for dairy herds throughout the summer. It was thought desirable to use both sudan and sweet clover for temporary pasture rather than only sweet clover. This deficiency of legumes in the rotation is not so serious as it might appear as there is enough livestock on the farm to offset partly the need for maintaining soil fertility by growing legumes. Both Organizations A and B are satisfactory from a crop rotation viewpoint.

Organization C is similar to Organization A on the 160-acre farm.

TABLE 11. *Comparison of the returns under different types of organizations on a 320-acre farm in south central Kansas.*

	Organization A (Whole milk-wheat).	Organization B (Butterfat-wheat).	Organization C (Sheep-wheat).	Organization D (Beef-wheat).
Gross receipts:				
Crops:				
Wheat	$1,604.28	$1,346.78	$1,476.39	$1,365.90
Oats	25.20			19.80
Grain sorghums	45.92			
Barley			56.64	
Prairie hay		9.00		
Livestock and livestock products:				
Cattle	223.40	223.40	17.86	3,709.11
Hogs		423.50	113.25	
Sheep			1,561.00	
Poultry	13.30	13.30	13.30	13.30
Eggs	24.66	24.66	24.66	24.66
Milk	1,987.47			
Butterfat		1,275.00	3.00	3.00
Wool			231.14	
Miscellaneous receipts				31.40
Total receipts	$3,924.23	$3,315.64	$3,497.24	$5,167.17
Variable expenses:				
Cattle purchased	$25.00	$25.00		$1,740.00
Hogs purchased	38.50			
Sheep purchased			$225.00	
Feed purchased	215.74	243.74	42.10	54.00
Crop expenses	74.48	66.87	85.87	53.13
Variable cash livestock expense	15.30	30.30	57.60	10.50
Variable fuel and oil expense	125.97	125.32	110.97	118.24
Other variable machinery expense	86.00	48.00	45.00	40.00
Hired labor	130.12	158.32	67.38	
Variable taxes	26.40	29.40	27.00	37.00
Selling expense	288.60	11.10	58.98	145.00
Death loss	47.00	51.80	41.12	61.00
Variable interest	66.00	68.25	66.75	92.50
Total variable expense	$1,139.11	$858.10	$827.77	$2,351.37
Receipts minus variable expense	$2,785.12	$2,457.54	$2,669.47	$2,815.80
Operator's earnings	$1,338.12	$1,039.54	$1,315.77	$1,402.60

More abundant resources permit a larger sheep enterprise on the 320-acre farm. The sheep enterprise would be the important livestock enterprise, other livestock enterprises being only large enough to supply products for consumption by the farm family. Since lamb production requires considerable care, having only one major livestock enterprise is an advantage, as the farmer will have time to care for the ewes and lambs. A sheep enterprise furnishes an excellent supplementary enterprise for the wheat farmer, whose crop labor requirement is heaviest during the season of the year when sheep require least attention.

The cropping system in Organization C does not differ greatly from those in Organizations A and B. Wheat is the major crop enterprise, slightly less than one-half of the crop acreage being planted to wheat annually. The proportion of the land planted to legumes each year is small. A considerable acreage is planted to nonleguminous temporary pasture each year. Furthermore, Organization C calls for a larger proportion of the crop acreage in legumes than is the case on the average south central Kansas farm.

Organization D has a combination of wheat and beef cattle enterprises. Beef cattle would furnish the only major source of income from livestock. Fifty head of choice-quality steers would be purchased in October or November and wintered on a ration of silage, alfalfa hay, and a small quantity of grain. In the spring 20 of the better steers would be selected from the herd and fed under the deferred system. The remaining 30 head would be sold. The steers to be fed should be placed on good pasture as soon as possible, usually about May 1 in south central Kansas, and left until about August 1, when they would be placed in the feedlot and fed for 100 days. This method has several advantages for the wheat farmer familiar with cattle feeding. It enables him to utilize his labor efficiently during the winter months when the cattle require considerable care; during the late spring and early summer when the crops require most attention the cattle are on pasture. Another advantage of Organization D is the close coordination between the production and marketing program.

There is little difference in the "receipts minus variable expenses" for Organizations A, C, and D as shown in Table 11. In Organization B they are lower, probably because of the inefficient, use of skim milk on the farm. All four organizations, under proper management, would provide greater incomes than that of the average farm organization in central Kansas.

480-Acre Farm

480-acre farm units are common in central Kansas. They are above average in size, but many farmers can use their managerial ability most efficiently on these larger farms. Usually about 355 acres is in crops, 110 acres in pasture, and the remaining 15 acres in farmsteads, roads, and waste. A farm of this size is large enough that the farmer may have several enterprises of adequate size for

efficient production and the possibilities for profit are greater.

Tables 12 and 13 contain summaries of the budgets for a 480-acre farm. Following is a brief description of the organizations for such a farm.

ORGANIZATION A. 35 choice-quality steer calves, purchased in the fall, are fed under the deferred system. Wheat is the major crop enterprise.

ORGANIZATION B. Choice-quality steer calves are purchased in the fall, wintered, grazed, and wintered a second winter. They are sold in the spring in good condition as feeders. Wheat is the major crop enterprise.

ORGANIZATION C. Choice-quality calves are purchased in the fall, wintered, grazed, and sold after the grazing season. They are immediately replaced by other calves. Wheat is the major crop enterprise.

ORGANIZATION D. A flock of 180 ewes is kept and 20 steer calves are wintered. Wheat is the major crop enterprise.

Organization A requires the purchase of 35 choice-quality steer calves in the fall, usually in October or November when stocker steer prices usually are at the seasonal low. These calves would be wintered well on silage, alfalfa hay and some grain, grazed from May 1 to August 1, full-fed for 100 days, and marketed in November when prices of fat cattle usually reach a seasonal high. Such a plan not only enables the farmer to utilize his pasture, silage, alfalfa hay and feed grains but is sufficiently flexible that the steers may be sold as feeders in the fall if grain is not available for full-feeding. From both a production and marketing viewpoint, however, the cattle should be full-fed if possible.

The cropping system in Organization A is desirable. More than one-half the crop acreage is planted to small grains, approximately one-fourth is in row crops, and the remainder is used for legumes and summer-fallowing. This rotation permits efficient use of the soil.

Organization B is well adapted to central Kansas as it provides for a reduction in wheat acreage and the production of more silage and alfalfa hay to be fed to beef cattle. The principal disadvantage of this organization is that the steers are held on the farm for 1½ years which requires considerable financing over a relatively long period. Since 100 head of cattle would be wintered each year after the plan is in effect, chances for losses would be great during periods of declining prices. Only the farmer with ample finances should follow this organization.

The crop rotation in Organization B differs from that in Organization A in that a considerably larger proportion of the crop acreage is in legumes and fallow and a smaller proportion is in small grains and row crops. The acreage in wheat is slightly larger in Organization A but the crop rotation is less desirable.

Organization C is similar to Organizations A and B in that wheat and beef cattle are major enterprises. The major difference is that

TABLE 12. *Comparison of different farm organizations on a 480-acre farm in type-of-farming area 6b.*

ORGANIZATION.	Organization A. (Deferred feeding-wheat).		Organization B. (Wintering, grazing wintering and wheat).		Organization C. (Wintering, grazing and wheat).		Organization D. (Sheep, beef, wheat).	
	Acres.	Production.	Acres.	Production.	Acres.	Production.	Acres.	Production.
Crops:								
Wheat	163	2,608 bu.	171	2,736 bu.	176	2,816 bu.	164	2,624 bu.
Oats	10	260 bu.	10	260 bu.	10	260 bu.	25	650 bu.
Barley	20	440 bu.						
Sweet sorghum silage	7	77 tons	25	275 tons	10	110 tons	7	77 tons
Grain sorghum	67	1,340 bu.	15	300 bu.	15	300 bu.	35	700 bu.
Alfalfa hay	10	25 tons	15	37.5 tons	15	37.5 tons	24	60 tons
Prairie hay	5	5.5 tons	5	5.5 tons	5	5.5 tons	5	5.5 tons
Fallow for legumes	38		59		64		50	
Temporary pasture (sweet clover)	35		55		60		45	
Permanent pasture	110		110		110		110	
	Number.	Production.	Number.	Production.	Number.	Production.	Number.	Production.
Livestock:								
Horses	2	1,600 hrs.	2	1,600 hrs.	2	1,600 hrs.	2	1,600 hrs.
Dairy cows	2		2		2		2	
Butterfat		350 lbs.		350 lbs.		350 lbs.		350 lbs.
Veal calves	2	500 lbs.	2	500 lbs.	2	500 lbs.	2	500 lbs.
Beef cattle		(a)						
Steers (deferred fed)	35	16,625 lbs.						
Steers (wintered and grazed)			50	(a) 23,750 lbs.	50	(a) 15,000 lbs.	20	(a) 4,000 lbs.
Ewes							165	
Lambs								17,510 lbs.
Wool								1,360 lbs.
Brood sows	1	2,000 lbs.	1	2,000 lbs.	1	2,000 lbs.		
Poultry	50		50		50		50	
Eggs		334 doz.		334 doz.		334 doz.		334 doz.
Meat		200 lbs.		200 lbs.		200 lbs.		200 lbs.

(a) Net production on farm.

the cattle are purchased in the fall, wintered, grazed, and sold off of grass. When the steers are sold, another bunch of short yearlings is purchased for the following year. Only 50 head of steers are kept each winter. This is an advantage from the financial viewpoint, as the danger of loss from price changes is minimized because the steers for the following year are purchased at the time of selling those handled previously.

Other livestock enterprises on the farm are minor in importance and are chiefly for furnishing products for home use. Most of the farmer's time can be spent on the production and marketing of wheat and beef cattle—the major enterprises. Organization C permits efficient utilization of labor, land, and capital.

The cropping system for Organization C is desirable. Such a large acreage in fallow in this part of Kansas is justified by the fact that it is used for legumes.

Organization D consists of one major crop enterprise and two major livestock enterprises. The major source of income is the sheep enterprise. The production program for ewes is the same as that in Organization A on the 160-acre farm, but the enterprise is much larger, 165 ewes are kept instead of 60. This organization includes a beef cattle enterprise so that the silage requirement will be sufficient for keeping silage to feed to the ewes. Choice-quality yearling steers are purchased in the fall, wintered on silage, wheat pasture and alfalfa hay, and sold in the spring. This makes a desirable program for a wheat farm on which silage and alfalfa hay are available. It also is advantageous from the standpoint of distribution of labor, as the steers are purchased in the fall when stocker and feeder prices are at a seasonal low point and they require care during the winter when time is not needed for the wheat enterprise.

The crop rotation in Organization D is similar to that in Organizations B and C. The wheat acreage is slightly less, but more oats are grown. The proportions of the crop acreage in small grains, legumes, and row crops are similar in all the organizations for the 480-acre farm.

In a comparison of the organizations suggested for a 480-acre farm, certain characteristics stand out. Organization A shows the greatest "receipts minus variable expenses," but there is considerable risk because the completion of the program depends upon the production of a feed grain crop. If the feed grains are not produced, the farmer must purchase grain or sell the steers without full-feeding. Purchasing feed grains, assuming there is a general crop failure in the vicinity, is costly. But, over a period of years, farmers familiar with this organization and with adequate capital should realize good profits.

The "receipts minus variable expenses" in Organizations B, C, and D vary slightly. Organization D is the most conservative and offers possibilities for good profits. In many respects, the sheep en-

TABLE 13. *Comparison of the returns under different types of organizations on a 480-acre farm in south central Kansas.*

	Organization A. (Deferred feeding-wheat).	Organization B. (Wintering, grazing, wintering and wheat).	Organization C. (Wintering, grazing and wheat).	Organization D. (Sheep-beef-wheat).
Gross receipts:				
Crops:				
Wheat	$2,077.56	$2,180.22	$2,262.00	$2,090.61
Oats	.....	30.96	.....	.....
Grain sorghums	50.40	30.80	58.24	16.80
Alfalfa hay	.....	16.50	198.00	.....
Sweet sorghum silage	9.00	63.00	18.00	.....
Livestock and livestock expense:				
Cattle	3,586.80	4,131.53	3,445.84	1,204.09
Hogs	113.25	113.25	113.25	.....
Sheep	.....	.....	.....	2,145.16
Poultry	13.30	13.30	13.30	13.30
Eggs	24.66	24.66	24.66	24.66
Butterfat	3.00	3.00	3.00	3.00
Wool	.....	.....	.....	316.88
Total receipts	$5,877.97	$6,607.22	$6,136.29	$5,814.50
Variable expenses:				
Cattle purchased	$1,370.25	$1,957.50	$1,957.50	$783.00
Hogs purchased	.....	.....	.....	38.50
Sheep purchased	.....	.....	.....	309.75
Feed purchased	85.25	11.50	11.50	15.10
Crop expenses	65.57	102.00	97.12	106.46
Variable cash livestock expenses	13.25	23.00	10.50	74.00
Variable fuel and oil expense	194.70	201.16	194.50	209.70
Other variable machinery expense	36.00	111.00	42.00	163.00
Hired labor	24.84	165.00	34.98	291.00
Variable taxes	25.50	71.00	36.00	45.20
Selling expense	120.00	162.75	140.75	133.49
Death loss	47.60	112.60	62.55	70.10
Variable interest	98.00	232.00	130.00	191.00
Total variable expense	$2,080.96	$3,149.51	$2,717.40	$2,430.30
Receipts minus variable expense	$3,797.01	$3,457.71	$3,418.89	$3,384.20
Operator's earnings	$1,790.21	$1,392.61	$1,382.39	$1,320.00

terprise offers greater possibilities than do other enterprises. Although Organization D shows slightly lower "receipts minus variable expenses," it warrants consideration as a well-balanced farm plan, especially if the farmer has or is willing to acquire a knowledge of handling sheep. Organizations B and C probably are the least desirable but have a definite place on certain farms.

GENERAL CHARACTERISTICS OF THE ORGANIZATIONS

The farm plans suggested for south central Kansas have certain characteristics. In each plan there is one major crop enterprise and at least one major livestock enterprise. Usually only two major enterprises and several minor enterprises are recommended. Study of records kept by farmers in this section of Kansas indicates that two well-chosen major enterprises enable a farmer to be informed on production and marketing techniques and have a diversified business. The farmer properly equipped for handling the major enterprises can become a specialist in producing those commodities. By wise planning, he can use efficiently his labor, land and capital.

Another characteristic of the suggested plans is that in no case is more than one-half of the crop acreage planted to wheat. In most cases the wheat acreage is considerably less than one-half. This is proposed because a major adjustment of the wheat acreage in Kansas seems desirable. It is both desirable and profitable that more livestock be handled by the wheat farmers of central and western Kansas. Farmers should change their farm plans gradually because rapid and radical change often results disastrously. A farmer can best learn the techniques involved in a different plan by gradually decreasing the wheat enterprise and increasing the other enterprises until the plan is in balance. Success during the first few years of the transition is an indication of success with the revised plan. Failure during the transition points to the need for additional adjustments in the plan or additional training in the techniques involved.

A third characteristic is the recommendation of a considerable acreage of sweet clover for temporary pasture. Since the success of the livestock enterprises depends upon temporary pasture, it is important that the farmer be certain of a good pasture crop. Proper fallowing and careful seeding practically insure a satisfactory sweet clover crop. Fall-seeded clover winterkills occasionally, but if the sweet clover fails sudan can be seeded on the field in the spring. Planting sudan on land fallowed the previous year nearly always insures good pasture. Consequently, the temporary pasture crops are as certain as the permanent pasture.

Quality of products produced has been emphasized in all the organizations. Production of a high-quality product offers the farmer greater possibilities for success than any other factor. Kansas farmers must compete with other farmers in the United States and

throughout the world for markets. To do this, they must produce high-quality products. Enterprises of sufficient size have been recommended to enable the farmer to emphasize the quality of any commodities for commercial production. Enterprises intended to supply products for home use have been planned so that they will be small enough to permit home consumption of all of the products.

SUMMARY

Changing conditions call for certain revisions in the agricultural programs of central and western Kansas. One of these revisions is the production of more livestock and less wheat. Study of the agricultural outlook shows that these changes are both necessary and profitable. Even before the war the farmer was being forced to make these changes because of unfavorable price prospects for wheat. The war, and the resulting emphasis on dietary problems, has necessitated a more rapid transition to a balanced program.

Studies of records kept by farmers in type-of-farming area 6b during recent years indicate that the balanced farm program is most profitable. Such a program requires careful planning and a thorough knowledge of production and marketing techniques. The efficient farmer follows such a program. Others should become familiar with handling livestock, as the farmer producing only wheat will soon find that he cannot afford such a specialized program. Following the war, there again will be severe competition among farmers for world markets. A successful way to meet that competition is to prepare for it immediately by producing good-quality products efficiently. The farmer not only will be benefited now but will be in a position to survive any post-war crisis. The central Kansas farmer is fortunate in that a farm plan successful during the war period may be converted into a post-war organization with only minor changes.

Production and marketing programs on Kansas farms require long-time planning. Preparing a successful plan for the war and post-war periods is a challenge to the farmer. During the war he must produce more, must produce a product of better quality, and must do it efficiently. After the war he must continue to produce a product of high quality and do it efficiently. To do this, plans must be made and carried out.

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