

A Farm Business Report  
Relating to 26 Farms in Phillips, Sedgwick,  
Washington, and Yuma Counties  
for the year  
1938

By Ramey C. Whitney

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## Contents

### Farm Business Section

- Introduction
- Cash Income and Expenses, Inventory Changes,  
and Net Farm Gain
- Distribution of Investments and Earnings on the  
Farms
- Factors Affecting Profits
  - Size
  - Crops and yields
  - Man-labor costs
  - Power and machinery costs
  - Returns from livestock
  - Prices
  - Summary of factors
- Landlords' Earnings on Leased Private Lands

### Miscellaneous Data Section

- Factors Affecting Crop Yields
- Corn Production Recommendations by Successful  
Farmers
- Recommendations by Successful Wheat Farmers
- Ages of Farmers Operating Most and Least-Profitable  
Farms
- Education of Farmers Operating Most and Least-  
Profitable Farms
- Children on the Most and Least-Profitable Farms

### Farm Family Living Section

- Income from the Farm Business per Person
- Farm Home Facilities
- The Farm Family Automobile

### Summary

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## FARM BUSINESS REPORT

Relating to Twenty-six Farms Located in Phillips,  
Sedgwick, Yuma, and Washington Counties  
Northeastern Colorado  
1938

By Ramey C. Whitney\*

### Farm Business Section

This is the second year this particular type of a farm business report, relating to farms on first-grade dry farming land in northeastern Colorado, has been published. This summary report is presented primarily for those farmers who have cooperated with the Colorado State Agricultural College Experiment Station by keeping records of their farm businesses during the calendar year 1938.

The 26 farms included in this study constitute a small sample of farms located in the type-of-farming area 12.<sup>1</sup>/ However, the sample is considered quite representative of farming in this particular farming area which occupies approximately 1 $\frac{1}{2}$  million acres. Only those farms which were reasonably typical of the type-of-farming area were included in the study.

The value of this report will depend primarily upon how much each individual farmer studies the comparisons of important phases of his farm business with those of his neighbors. A portion of the tables are designed so that these comparisons can be made. The discussion of the data presented in this section of the report will be general and will pertain only to the 26 farms as a whole and to the one-third most-profitable and least-profitable farms. This procedure is followed in order to keep income data pertaining to individual farm records confidential. Farmers in this type-of-farming area who have not kept records of their farm businesses may make rough comparisons from year to year with the information given in this report. The farm operator who keeps a permanent record will obviously find this report most valuable.

All figures relating strictly to the farm business section of this report pertain to the farm business as a whole. This means that the records of the farm operator and the landlord (if there is a landlord) are considered as one record. Each farm operator may find his share of the earnings by inspecting the information given on pages 38 and 39 of his farm account book.

The basis for determining the most-profitable farms was the rate earned on the total farm investment. The investment consisted of the total value of farm land, improvements (excluding farm residence), livestock, machinery, feeds, grains, and growing crops on the farm. The rate earned on the investment was calculated after deducting from the net farm gain (receipts less expenses in the account book) an arbitrary wage of \$50 per month for the

<sup>1</sup>/ See "Type of Farming Areas in Colorado," Colo. Sta. Bul. 418.

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labor of the operator and of members of the family who actually did farm work. The net farm gain represented the difference found after subtracting the farm expenses and inventory decreases from the farm receipts and inventory increases. Farm products used in the farm home and the imputed rental value of leased farm residences were not considered as being farm business receipts. Expenses on the farm residences were not included as farm business expenses.

Another measure of the success of the farm operator is the "labor and management wage." This wage represents an amount which the farm operator received after deducting from the net farm gain a reasonable rate of interest which the operator and landlord could obtain from their capital if invested in safe farm loans and after deducting a reasonable wage for members of the family (not the operator) who performed work on the farm.

#### Cash Income and Expenses, Inventory Changes, and Net Farm Gain:

As indicated in table 1 the net farm gain during the year 1938 was \$1,277. This figure was computed by subtracting the net inventory decrease of \$131 from the net cash income of \$1,408. This gain represents the amount which the average farmer had for interest on his investment of \$20,803, for his wages as a laborer and manager of the farm business, and for unpaid family labor. As stated previously, these figures pertain to the farm business as a whole.

Table 1.-- Cash income and expenses, inventory increases and decreases, and net farm gain (excluding interest paid) for 26 farms located in Phillips, Sedgwick, Washington, and Yuma counties, northeastern Colorado, 1938, as compared with similar data for 23 farms in Phillips, Washington, and Yuma counties in 1937.

Item	Cash				Inventory			
	Income		Expenses		Increases		Decreases	
	1938	'37	'38	'37	'38	'37	'38	'37
Livestock	\$1217	\$1214	\$ 221 <sup>1</sup>	\$ 152 <sup>1</sup>	\$ 42	--	--	\$ 22
Feed, grain, crops	2071	3128	177	181			174	437
Machinery & Equip.	105	261	914	1421	17	380	--	--
Farm improvement	---	1	99	125	--	--	16	12
Labor off farm	39	58	--	--	--	--	--	--
Miscellaneous	6	40	13	17	--	--	--	--
Livestock expense <sup>2</sup>	---	---	22	8	--	--	--	--
Crop expense <sup>3</sup>	---	---	202	215	--	--	--	--
Hired labor	---	---	213	231	--	--	--	--
Taxes <sup>4</sup>	---	---	169	191	--	--	--	--
<b>TOTAL</b>	<b>3438</b>	<b>4702</b>	<b>2030</b>	<b>2541</b>	<b>59</b>	<b>380</b>	<b>190</b>	<b>471</b>

#### Summary

	1938	1937
Net cash income.....	\$1408	\$2161
Net inventory decrease.....	131	91
Net farm gain (in account book, receipts less expenses)	\$1277	\$2070

<sup>1</sup> Livestock bought

<sup>2</sup> Veterinary bills, medicine, etc.

<sup>3</sup> Custom work, seed, twine, and crop insurance

<sup>4</sup> Real estate and personal taxes. Sales taxes included with regular purchases.

Other observations of table 1 are: (1) The net farm gain in 1938 was about \$800 less than it was in 1937. This reduction was due primarily to a reduction of income from the production of crops. (2) Cash income from livestock was almost identical in 1938 with cash income from livestock in 1937. (3) There was an increase in the inventory value of livestock during the year 1938 as compared with a slight decrease during the previous year. (4) Farmers purchased sufficient new machinery during the year to offset depreciation. Considerably less was purchased during 1938 than in 1937. (5) Repairs and paint on old buildings, plus any new improvements, were insufficient to offset depreciation of farm improvements (excluding residences) during the years 1937 and 1938.

Distribution of Investments, Receipts, Expenses, and Earnings for Your Farm, the Average, and the 8 Most and 8 Least-Profitable Farms:

Each individual cooperator may compare characteristics of his farm business with those of other farm businesses by inspecting table 2. The following comparisons relative to the average figures for 26 farms, the 8 most-profitable, and the 8 least-profitable appear significant:

(1) The average farmer is operating a \$21,000 business. The average total investment of the 8 most-profitable and the 8 least-profitable farms was almost identical, being approximately \$16,500. The investment in productive livestock, i.e., all livestock except horses, was \$702 and \$742 on the most-profitable and least-profitable group of farms respectively. The most-profitable group had more dollars invested in poultry and slightly less invested in cattle and hogs.

(2) Total receipts and net inventory increases amounted to \$3,402 on the most-profitable farms and \$1,490 on the least-profitable group of farms. The major differences were due primarily to sale of crops and secondarily to the sale of poultry and eggs.

(3) Total expenses amounted to \$1,203 and \$1,195 on the most and least-profitable farms, respectively.

(4) The receipts less expenses (net farm gain) amounted to \$1,277 for the average of 26 farms, \$2,199 for the average of the 8 most-profitable, and \$295 for the 8 least-profitable farms. After deducting from these amounts an arbitrary wage of \$50 per month for the operator's and family labor and \$8 per month for the cash cost of board for hired labor, we find that the average rates earned on the whole farm investments were 3.04, 9.48, and -2.37 percent for the average, most-profitable and least-profitable farms respectively.

The average labor-and-management wage for the 26 farm operators (on the whole farm basis) was \$175 after deducting 5 percent earnings on investment. The wage of the most-profitable group was \$1,321. The labor-and-management wage, assuming that no interest was earned on investment, would amount to approximately \$25 per month for the least-profitable group. The wage for the most-profitable group after deducting 5 percent of the investment as earnings of capital amounted to about \$100 per month.

Table 2.-- Farm investment, receipts, expenses, and earnings on 26 farms located in Phillips, Sedgwick, Washington, and Yuma counties, Colorado, 1938.

Item	Your farm	Average of 26 farms	8 Most-profitable farms	8 Least-profitable farms
<b>Investments:</b>				
Land	\$	\$13,808	\$11,128	\$10,989
Farm improvements		2,236	1,716	1,723
Horses		185	210	99
Cattle		525	420	580
Hogs		141	65	100
Sheep		53	—	—
Poultry		124	217	62
Productive livestock <sup>1/</sup>		843	702	742
Livestock--Total		1,028	912	841
Farm machinery & equip.		1,920	1,405	1,814
Farm share of auto <sup>2/</sup>		198	129	216
Feed, grain & crops		1,613	1,199	932
Total investment		20,803	16,489	16,515
<b>Receipts--Net Increase</b>				
Cattle		253	139	215
Hogs		270	160	183
Sheep		34	—	—
Poultry		85	181	32
Egg sales		262	470	140
Dairy sales		177	210	182
Productive livestock total		1,081	1,160	752
Feed, grain and crops <sup>3/</sup>		1,720	2,203	696
Labor off farm		39	39	40
Miscellaneous		6	—	2
Total receipts		2,846	3,402	1,490
<b>Expenses--Net Decreases</b>				
Farm improvements		115	84	73
Horses		34	47	1
Misc. livestock decreases		9	6	10
Machinery & equip.		792	604	710
Livestock expense		22	28	10
Crop expense		202	191	173
Hired labor		213	89	62
Taxes		169	145	149
Miscellaneous		13	9	7
Total expenses		1,569	1,203	1,195

Table 2 continued

Item	Your farm	Average of 26 farms	8 Most-profitable farms	8 Least-profitable farms
Total receipts		\$2,846	\$3,402	\$1,490
Total expenses		1,569	1,203	1,195
Receipts less expenses		1,277	2,199	295
Total unpaid labor		644	636	686
Net income from investment and management		633	1,563	-391
Rate earned on investment		3.04%	9.48%	-2.37%
Return to capital and operator's labor and management		\$1,215	\$2,146	\$ 203
5% int. on investment		1,040	825	826
Labor and management wage		175	1,321	-623

1/ All livestock except horses.

2/ The share indicated represents 57, 52 and 70 percent of the total auto investment on the average, most-profitable, and least-profitable farms respectively.

3/ Government soil conservation payments included in these receipts amounted to \$266 per farm for the average of 26 farms, \$324 for the 8 most-profitable, and \$148 for the 8 least profitable.

### Factors Affecting Profits:

The following factors and their effects upon the profits of the farm businesses in this study will be discussed: (1) Size of farm, (2) kinds of crops grown and the yields of these crops, (3) man-labor cost, (4) power and machinery costs, (5) the amount and kind of livestock, (6) the net returns from productive livestock as a whole and from the various classes of productive livestock.

The data concerning these factors are presented in tables 3 and 4. Other information may also be obtained by a study of information given in these tables.

Size.-- A few considerations which affected the size of farm were undoubtedly (1) acres of tilled land, (2) acres of native pasture, (3) kinds of crops grown (requiring extensive or intensive cultivation), (4) numbers of various classes of livestock produced, (5) the practices performed in the production of livestock, and (6) the productivity of land and livestock. One farmer may have 300 acres under cultivation and still have a larger farm business than a farmer cultivating, let us say, 450 acres in the same type-of-farming area. This may be due to a difference in livestock production accompanied with other considerations as previously indicated.

There was no significant difference in the average number of acres in the most and least-profitable farms. The acreage was 577 and 559 respectively, a difference of 18 acres. However, a higher percentage of the farm land was under cultivation on the most-profitable farms. As a result, there were 56 more acres under cultivation on the most-profitable farms.

Although the average investment in productive livestock was slightly less on the most-profitable farms in comparison with the least-profitable farms, there was about 16 percent more grain and roughage fed to productive livestock and about 50 percent greater returns from productive livestock on the most-profitable farms.

After weighing the various factors affecting size of farm (excluding consideration for productivity of land and livestock) it appears that there was no exceedingly large difference in the potential capacity for the operators of the most and least-profitable farms to make money at the beginning of the year as far as the farmers' material resources were concerned. The larger area of tilled land on the most-profitable group of farms was advantageous to some degree because it was possible to have greater efficiency in the use of labor, power, and machinery. These factors will be discussed later.

Crops and Yields.-- Wheat occupied 39 and 28 percent of the tilled land on the most and least-profitable farms, respectively. It was the major crop. If we consider the summer-fallow land as being prepared for wheat, then the percentage of the cultivated land, which is either being used or intended to be used for wheat, amounts to 61 and 52 percent, respectively, on the most and least-profitable farms. Corn ranked second in importance. It occupied 22 and 23 percent of the cultivated acreage on the two groups of farms. Barley ranked third in importance, occupying only 6 and 9 percent of the tilled land. This leaves only 11 and 16 percent of the tilled land



Table 3.-Factors for comparing farm businesses in type-of-farming area 12 in Phillips, Sedgwick, Yuma, and Washington counties, Colorado, 1938.

Items	Your farm	Average of 26 farms	8 Most-profitable farms <sup>1/</sup>	8 Least-profitable farms <sup>1/</sup>
Size of farm, acres		678	577	559
Investment per acre in farm of:				
Land		\$20.36	\$19.29	\$19.67
Improvements		3.30	2.97	3.08
Total land & Impr.		23.66	22.26	22.75
Productive livestock		1.25	1.22	1.33
Horses		.27	.36	.18
Machinery & equipment		3.12	2.66	3.63
Feed, supplies, crops		2.38	2.08	1.67
Total investment		30.68	28.58	29.56
Gross productive livestock receipts and/or net inventory increases per farm acre		1.60	2.01	1.35
Gross receipts and/or net increases from crops and other sources per farm acre		2.62	3.91	1.37
Total farm receipts and/or net increases per farm acre		4.22	5.92	2.72
Farm cash expenses and/or net decreases per farm acre		2.34	2.11	2.19
Receipts less expenses per farm acre		1.88	3.81	.53
Operator's and unpaid family labor per farm acre		.95	1.10	1.23
Net income from farm investment per farm acre		.93	2.71	-.70
Acres of farm land tilled		571	522	466
Acres of tilled land in:				
Wheat		179	202	129
Corn		142	113	108
Barley		43	30	40
Oats		7	5	8
Millet & Hershey (one or both)		6	—	—
Acres of tilled land in:				
Other grain crops		21	4	23
Cane		19	12	14
Other roughage crops		19	23	14
Miscellaneous crops		2	8	—
Total crops		438	397	336
Tilled pasture		10	9	15
Summerfallow		123	116	115

Table 3 continued

Items	Your farm	Average of 26 farms	8 Most-profitable farms <sup>1/</sup>	8 Least-profitable farms <sup>1/</sup>
Percentage of farm land tilled		84.2	90.5	83.3
Percentage of tilled land in:				
Wheat		31.3	38.8	27.6
Corn		24.8	21.7	23.1
Barley		7.5	5.7	8.7
Oats		1.2	1.0	1.6
Millet & Horshey (one or both)		1.1	—	—
Other grain crops		3.7	.8	5.1
Cane		3.3	2.2	3.0
Other roughage crops		3.3	4.4	3.1
Miscellaneous crops		.4	1.4	—
Total crops		76.6	76.0	72.2
Tilled pasture		1.8	2.0	3.1
Summerfallow		21.6	22.0	24.7
Total percentage		100.0	100.0	100.0
Crop yields per acre (bu.) of				
Wheat		11.2	15.3	5.6
Corn		13.1	13.4	5.1
Barley		11.3	13.4	11.4
Sale prices for				
Wheat, bu.		.54	.53	.48
Corn, bu.		.53	.50	.51
Market hogs, per cwt.		7.91	7.54	7.73
Returns per \$100 feed fed to productive livestock		210	235	185
Value of feed fed productive livestock		593	567	489
Dairy sales per cow		35.48	41.05	34.60
Average number cows milked		5	5	5
Man labor cost per tilled acre		1.47	1.35	1.56
Horse, and tractor power and machinery cost per tilled acre		1.72	1.53	1.80
Total man labor and horse and tractor cost per tilled acre		3.19	2.88	3.36
Percentage of farms with tractors		92	75	100
Number of workable horses		2.5	3.5	1.5
Cost of horse feed per workable horse		23.00	19.00	25.00
Rate earned on investment		3.04	9.48	-2.37

<sup>1/</sup> Basis - rate earned on investment.

on the most and least-profitable farms for other crops and tilled pasture. The percentages of these minor crops are given in Table 3.

The yields of wheat and corn were 173 and 163 percent higher on the most-profitable farms in comparison with yields of the least-profitable group. Wheat yields were 15.3 bushels per acre on the most-profitable farms and 5.6 bushels on the least-profitable. Corn yields were 13.4 and 5.1 bushels per acre. Barley yields averaged 13.4 and 11.4 bushels per acre. The most-profitable group had only a 2-bushel advantage per acre in the yield of barley.

Since 75 to 83 percent of the tilled land was used for the production of wheat and corn and since 83 to 90 percent of all the farm land was tilled it is evident that the yields of wheat and corn played a significant part in the determination of the amount of income on the farms in this type-of-farming area. Further discussion relating to probable reasons for various yields on different farms will be found later in this report.

Observation of the acreages, yields, prices, and probable comparative costs of producing other crops besides wheat, corn, and barley on the farms in this study indicated that no other crops yielded sufficiently high returns to warrant a complete reorganization of the farm businesses. This does not mean that it is inadvisable to experiment with a few acres of miscellaneous crops.

Man labor costs.-- The cost of man labor ranged from \$1.35 per tilled acre on the most profitable farms to \$1.56 per tilled acre on the least profitable farms. Man labor cost includes an arbitrary wage of \$50 per month for the operator and members of the family, besides actual wages for hired labor. A difference of 21 cents per acre is significant. The fact that the average operator of the most-profitable farms was 10 years younger than the operators of the least-profitable farms may have had something to do with the efficiency of labor.

Power and machinery costs.-- The horse and tractor power and machinery costs per acre of cultivated land were \$1.53 on the most-profitable farms and \$1.80 on the least-profitable farms. A difference of 27 cents per tilled acre indicates that the operators of the most-profitable farms produced higher yielding crops with a lower power and machinery cost per tilled acre.

Returns from livestock.-- The average return per \$100 worth of feed fed to productive livestock (all livestock except horses) for the 26 farms was \$210; the average for the most-profitable farms was \$235; and the average return for the least-profitable farms was \$185, provided the value of livestock products used in the farm home is included as a part of the livestock returns. These figures represent the amount received before any costs are figured for labor or taking care of livestock, expenses for shelter, fences, stock water, veterinary bills, stock medicines, and interest on investment. They indicate the amount received from the sale and home use of livestock and livestock products per \$100 worth of feed fed, after deducting livestock purchases and breeding fees and after making adjustments due to changes in inventory valuations.

A difference of \$50 returns per \$100 worth of grain and roughage fed in favor of the most-profitable farms plus the fact that a greater amount of

feed was fed livestock on those farms indicates that feed returns played a considerable part in determining which farms were the most profitable.

Many farmers have been interested in determining not only the returns per \$100 worth of feed fed to productive livestock as a whole but also in finding out the returns from each class of livestock produced on the farm. A special tabulation has therefore been prepared for making these comparisons. The calculations were based upon data from 16 of the 26 farms. Returns from feed fed to the 3 classes of livestock as a whole on the 16 farms were \$203 in comparison with \$210 for the average of the 26 farms. There was no outstanding difference between average investments in each class of livestock when investments of each class of livestock on the 16 farms were compared with those on the 26 farms. Consequently, the sample was considered fairly representative of returns from livestock for all farms in the study.

The returns per \$100 worth of feed fed to cattle, hogs, and poultry were \$200, \$153, and \$270, respectively, when the estimated value of livestock products used in the house is considered as a part of the livestock returns (table 4). Although a portion of the margin above feed costs must be allowed for offsetting expenses besides feed, it is quite evident that returns from each class of livestock were favorable during 1938. Since it requires less labor to take care of hogs than it does to take care of cattle (primarily milk cows) and poultry, it can be expected that returns on feed fed to hogs could be less than the returns from either of the other two classes of livestock and that it would still be profitable to feed hogs. It is estimated that many farmers who have their buildings and fences already constructed and who desire about 25 cents per hour for their wages need a margin of about \$35 on hogs and about \$50 on cattle (consisting primarily of milk cows) and poultry per \$100 worth of feed fed. Obviously, many farmers need more and many need less. The margin required will vary from year to year. Generally, a reduction in the percentage of the total expenses attributed to feed in relation to other costs the greater the margin should be and vice versa. Each farmer undoubtedly knows approximately how much income above feed costs he must have in order to continue producing the various classes of livestock.

The returns per \$100 invested in cattle, hogs, and poultry were \$108, \$193, and \$297 respectively. In other words, volume of production per dollar invested was greater for hogs than for cattle and considerably greater for poultry than for cattle or hogs. Observation of several records indicated that it paid to own high-quality livestock and feed ample quantities of properly balanced rations of feed during the year 1938.

Prices.-- The average price of wheat and corn sold during the year was 54 and 53 cents per bushel respectively. This includes all wheat and corn sold during the year. A considerable portion of the corn sold was the previous year's crop. Very little difference existed between prices received on the most-profitable and least-profitable farms.

Table 4.-- Comparison of returns from different classes of livestock produced on 16 farms in Phillips, Sedgwick, Washington, and Yuma counties, Colorado, 1938.

Items	Cattle	Hogs	Poultry
Returns per \$100 feed fed (includes home-used livestock products as returns)	\$200	\$158	\$270
Returns per \$100 feed fed (excludes home-used livestock products from returns)	160	150	243
Total value of feed fed	3,994	3,441	2,497
Average value feed fed per farm	250	287 <sup>1/</sup>	156
Percentage of feed purchased <sup>2/</sup>	13%	19%	53%
Returns per \$100 invested (includes home-used livestock products)	108	193	297
Returns per \$100 invested (excludes home-used livestock products)	86	183	266
Total investment	7,398	2,815	2,278
Average investment per farm	462	235 <sup>1/</sup>	142

<sup>1/</sup> Average of 10 farms.

<sup>2/</sup> One fourth of all feed fed to the 3 classes of livestock was purchased.

Summary of comparisons of factors affecting profits.-- Important factors which influenced farm earnings on these farms in this study are presented in table 5. Each farmer is thus able by inspection of the table to compare certain phases of his farm business with certain phases of other farm businesses located in the same dry farming area, type-of-farming area 12. Explanation of the contents is given in the heading of the table.

Table 5.-- A comparison may be made of figures given in each column relative to the factors at the head of each column, for your farm (indicated by red line), for the average of all farms in this study (given between the lines across the middle of the page), for the 8 most-profitable farms (black line), and for different farms which were high and low (for each factor), Phillips, Sedgwick, Yuma, and Washington counties, Colorado, 1938.

	Rate earned on investment	Bushels yield per acre 1/			Size of farm acres	Per-cent- age land tilled	Percentage of tilled land in 2/			Returns per \$100 feed fed to P.L.3/	Value of feed fed P.L.3/	Cost per tilled acre	
		Wheat	Corn	Bar-ley			Wheat	Corn	Fal-low			Man power	Power and machin-ery
High	19.0	21	23	26.3	1455	99	55	65	39	\$542	\$1663	\$2.99	\$2.97
	10	18	20	18	1400	98	52	60	35	350	1538	2.87	2.77
	9	17	19	17	1300	96	49	55	33	330	1438	2.67	2.62
	8	16	18	16	1200	94	46	50	31	310	1338	2.47	2.47
	7	15	17	15	1100	92	43	45	29	290	1238	2.27	2.32
	6	14	16	14	1000	90	40	40	27	270	1138	2.07	2.17
	5	13	15	13	900	88	37	35	25	250	1038	1.87	2.02
	4	12	14	12	800	86	34	30	23	230	938	1.67	1.87
Av.	3.0	11.2	13.1	11.3	678	84	31	25	21.6	210	838	1.47	1.72
	2	10	12	10	600	82	28	20	19	190	738	1.27	1.57
	1	9	11	9	500	80	25	15	17	170	638	1.07	1.42
	0	8	10	8	400	78	22	10	15	150	538	--	1.27
	-1	7	9	7	300	76	19	5	13	130	438	--	1.12
	-2	6	8	6	--	74	16	--	11	--	338	--	.97
	-3	5	7	--	--	72	13	--	9	--	238	--	--
	-4	4	6	--	--	70	10	--	7	--	138	--	--
Low	-5.3	2.7	1	5	275	58	0	0	0	115	112	.93	.82

1/ Based on acres planted and left for harvest (i.e. not planted to another crop or fallowed in case of failure).

2/ Includes all crops requiring seedbed preparation, tilled pasture, and summer-fallow; excludes wild hay.

3/ Productive livestock, all livestock except horses.

#### Landlords' earnings on leased lands

The average rate earned by owners of leased private lands was 3.6 per-cent on a total investment of \$22.82 per farm acre (see table 6). Land con-stituted \$20.54 of the total investment per acre and improvements \$2.28 per acre. Investment has been considered to be the operator's estimate of the value of the land and improvements. The rate varied from a loss of eighty-seven hundredths of one percent to a gain of 10.71 percent. The one-third least profitable of the leased lands yielded 0.46 of one percent; the medium one-third yielded 2.9 percent; and the most-profitable one-third 6.3 percent interest on the investment.

Apparently the lands yielding the highest rates of interest were evaluated by farmers as being worth about \$5 per acre more than those lands yielding the lowest rates of interest. The average amount of land leased by the 19 tenants was 493 acres. The average total investment of landlords on these farms was \$11,248.

Table 6.- Rate of interest earned by landlords of leased private lands on 19 different farms located on first-grade dry farming land in Sedgwick, Phillips, Washington, and Yuma counties, northeastern Colorado, 1938.<sup>1/</sup>

Classification (basis rate earned)	No. farms	Range in rates earned on total investment	Average rate earned on total investment	Average total investment (land & improvements) per acre	Average investment farm land only per acre	Total average acreage per farm	Total average investment per farm
		Pct.	Pct.			acres	
Low	6	.87 to 1.22	.46	\$19.31	\$17.79	440	\$8,497
Medium	7	2.09 to 4.24	2.90	24.57	20.96	502	12,334
High	6	4.52 to 10.71	6.34	23.80	22.34	535	12,733
Average			3.55	22.82	20.54	493	11,248

<sup>1/</sup> Twenty-three of the 26 farmers leased all or a part of the land which they operated. Those included here consist of a number leasing private lands. The figures have been calculated on a weighted average basis.

# Miscellaneous Data Section

## A Few Factors Which Affected Crop Yields:

In table 7 is given the actual yields of wheat per acre on 10 different farms where rainfall records were being kept. Presented in the table are the following items which affected yield: (1) Destruction by hail as measured by the estimated yield if there were no hail in comparison with other yields, (2) the amount of precipitation from the beginning of the year to approximately harvest time, (3) the distribution of rainfall, (4) the total acres of wheat on each farm, (5) the percentage of wheat land which was in summer fallow, winter wheat, non-fallow winter wheat, and spring wheat, and (6) the farmers' classification of type of soil upon which the crop was produced.

It is quite obvious that the amount of rainfall is only one of a variety of factors affecting yield. Two farmers produced over 16 bushels of wheat per acre with only 9.5 inches of rainfall from January 1 to July 15. A high percentage of this wheat was produced on summer fallow land or practically its equivalent. Rainfall during the preceding year (1937) was thus a factor. The latter information is not available because the year 1938 was the first year rainfall records were kept. The highest wheat yields were quite generally produced upon the "hard land," i.e., silt loam soils. Apparently this was due quite largely to the fact that a greater percentage of the silt loam soils were summer fallowed in comparison with the sandy loam soils. However, a few relatively high yields were secured from cornstalk wheat on sandy soils in 1938.

Table 7.--Actual yields of wheat and corresponding amounts of precipitation from January 1 to July 15 and other items as indicated which affected yields on 10 farms in northeastern Colorado, 1938. (Rainfall records were kept by individual farmers).

Actual yields per acre	Yield if had no hail	Precipitation Jan. 1 to July 15	Distribution of precipitation				Acres of wheat	Percentage of wheat land in			Type of soil
			Jan. 1 to Apr. 30	May	June	July 1 to 15		Summer fallow wheat	Non-fallow wheat	Spring wheat	
bu.	bu.	in.	in.	in.	in.	in.					
21.0	24.1	9.4	4.2	2.9	.6	1.7	190	100			Hard
19.6	19.6	11.8	4.7	2.9	2.0	2.2	230	45	32 <sup>1</sup> / <sub>2</sub>	23	Hard
16.3	18.0	9.5	3.7	3.1	1.1	1.6	300	48	44	8	Hard
11.5	14.8	12.6	4.2	3.3	2.2	2.9	268	88		12	Hard
10.2	26.5	8.8	3.8	3.1	.5	1.4	275	53	47		Hard
9.1	9.1	11.8	5.6	3.9	.9	1.4	350		100		Sandy Loam
8.8	13.8	12.8	5.0	4.7	1.6	1.5	210		100		Hard
7.7	27.7	12.5	2.2	6.3	2.5	1.5	760	100			Sandy Loam
7.6	17.5	11.7	5.5	2.9	2.0	1.3	328		100		Sandy Loam
3.5	4.2	8.7	3.7	2.6	1.3	1.1	78	13	87		Hard

<sup>1</sup>/ This non-fallow land, due to conditions, was practically the same as summer fallow wheat land.



In table 8 is given comparisons of the yields of summer-fallow and non-fallow winter wheat and spring wheat upon various farms where rainfall records were kept. The average yields per farm on the silt loam soils for the summer-fallow and non-fallow winter wheat and spring wheat were 15.4, 7.0, and 6.4 bushels per acre. Rainfall on the farms where each practice was followed amounted to 10.1, 10.0, and 11.3 inches respectively. If there had been no hail the farmers estimated that the yields would have been 20.2, 11.8, and 7.4 bushels per acre on the silt loam soils. It is quite evident that summer-fallow wheat which was produced on the hard land silt loam soils in 1938 provided as much income to the landowners as did non-fallow wheat on the average basis per farm. Since the capital and labor expenses of producing two non-fallow wheat crops exceed the expenses of producing one summer-fallow wheat crop, the tenants were better off by summer fallowing land for wheat. Summer fallowing also provides greater distribution of labor throughout the year, making it possible for operators to operate a larger farm. The spring wheat yielded less than the non-fallow fall wheat on the hard land farms.

Table 8.-- Yields of summer-fallow and non-fallow winter wheat and spring wheat and corresponding amounts of precipitation and type of soil on various farms in Northeastern Colorado, 1938. (Only on those farms where rainfall records were kept.)

Crop	Actual yields per acre	Yield if had no hail loss per acre	Precipitation Jan. 1 to July 15	Distribution of precipitation				Number acres wheat	Type of soil
				Jan. 1 to Apr. 30	May	June	July 1 to 15		
	bu.	bu.	in.	in.	in.	in.	in.		
Summer-fallow wheat.....	24.8	24.8	9.5	3.7	3.1	1.1	1.6	143	Hard <sup>1/</sup>
	21.0	24.0	9.4	4.2	2.9	.6	1.7	190	Hard
	20.5	20.5	11.8	4.7	2.9	2.0	2.2	105	Hard
	13.9	35.9	8.8	3.8	3.1	.5	1.4	145	Hard
	12.5	16.3	12.6	4.2	3.3	2.2	2.9	236	Hard
	7.7	27.7	12.5	2.2	6.3	2.5	1.5	760	Sandy Loam
	10.0	10.0	8.7	3.7	2.6	1.3	1.1	10	Hard
Av. per farm on hard land..	15.4	20.2	10.1	4.0	3.0	1.3	1.8	138	Hard
Non-fallow wheat	9.2	13.2	9.5	3.7	3.1	1.1	1.6	133	Hard
	9.1	9.1	11.8	5.6	3.9	.9	1.4	350	Sandy Loam
	8.8	13.8	12.8	5.0	4.7	1.6	1.5	210	Hard
	7.6	17.6	11.7	5.5	2.9	2.0	1.3	328	Sandy Loam
	6.1	16.1	8.8	3.8	3.1	.5	1.4	130	Hard
	4.0	4.2	8.7	3.7	2.6	1.3	1.1	68	Hard
Av. per farm on hard land.....	7.0	11.8	10.0	4.0	3.4	1.1	1.4	135	Hard
Av. on sandy land	8.4	13.4	11.8	5.6	3.4	1.4	1.4	339	Sandy
Spring wheat....	10.0	10.0	11.8	4.7	2.9	2.0	2.2	52	Hard
	4.9	7.9	9.5	3.7	3.1	1.1	1.6	24	Hard
	4.2	4.2	12.6	4.2	3.3	2.2	2.9	32	Hard
Av. per farm....	6.4	7.4	11.3	4.2	3.1	1.8	2.2	36	Hard

<sup>1/</sup> Popular phrase "hard land"; silt loam soils.

The corn-yield data on farms where rainfall records were being kept indicate that the highest yields were obtained on the "sandy loam" soils where the largest acreages of corn were being produced (see table 9). Out of the 8 farms for which data are presented, 3 were located on sandy loam soils, 4 on hard land soils, and one farm occupied both sandy and hard land soils. The average corn yield on the sandy loam soils was 18.1 bushels per acre while on the hard land soils the average was 3.1 bushels per acre.

The precipitation averaged 15.2 and 14.0 inches from January 1 to September 30 on the sandy and hard land. The increase came from January to May. From June to September about the same quantity of rain fell on both types of soil. It is doubtful if the additional precipitation of 1.2 inches from January to May accounted for the difference of 15.0 bushels per acre in favor of the sandy soils.

It is of interest to note that of the total acreage of sandy land which these farmers operated, 65 percent was being used for corn production and only 35 percent for wheat production. Of the total acreage of hard land actually planted to wheat and corn on these farms 22 percent was in corn and 78 percent in wheat. When the summer-fallow land is included as land being ultimately used for wheat on the hard lands, then the percentage devoted to corn production amounts to about 15 percent and that devoted to wheat production 85 percent.

The average yields of corn and wheat on the sandy land were 18.1 and 8.3 bushels per acre. On the hard land the average yields of corn and wheat were 3.1 and 12.1 bushels per acre. Apparently these farmers planted their lands to the proper crops.

Table 9.-- Yields of corn on various farms with corresponding amounts of rainfall in comparison with other indicated items in Northeastern Colorado, 1938.

	Actual yields per acre	Estimated yields if had no hail	Precipitation Jan. 1 to Sept. 30	Distribution of precipitation						Acres in corn	Type of soil
				Jan. 1 to Apr. 30	May	June	July	Aug.	Sept.		
	bu.	bu.	in.	in.	in.	in.	in.	in.	in.		
	23.0	48.0	14.0	5.5	2.9	2.0	1.8	1.0	0.8	318	Sandy loam
	22.5	22.5	14.6	5.6	3.9	0.9	2.6	0.4	0.2	342	Sandy loam
	14.5 <sup>1</sup>	14.5 <sup>1</sup>	16.6	5.0	4.7	1.6	3.3	1.2	0.8	500	(100 Hard (400 Sandy loam
	10.7	10.7	15.4	4.0	4.0	1.8	2.7	1.6	1.3	205	Sandy loam
	2.4	2.4	11.4	3.7	2.6	1.3	2.1	0.6	1.1	87	Hard
	2.0	2.0	16.4	4.2	3.3	2.2	4.1	1.0	1.6	50	Hard
	2.0	8.0	13.6	4.2	2.9	0.6	4.0	1.2	0.7	36	Hard
	0.0	8.0	12.2	3.7	3.1	1.1	2.4	1.3	0.6	30	Hard
Av. per farm....	9.6	14.5	14.3	4.5	3.4	1.4	2.9	1.0	1.0		
Hard land	3.1	5.9	14.0	4.2	3.3	1.4	3.2	1.1	1.0		
Sandy land.....	18.0	24.3	15.2	5.0	3.9	1.6	2.8	1.0	1.0		

<sup>1</sup>/The estimated yield on sandy loam soil was 15.9 bu. per acre and on silt loam soil, 9 bu. per acre on this farm.

Information secured from the 11 farmers who were keeping rainfall records indicated that barley was produced exclusively on the silt loam soils. The barley yields (see table 10) were affected considerably by the amount of rainfall. The highest yield of 26.3 bushels per acre was secured from land upon which fell 12.8 inches of rainfall during the period January 1 to July 15. Land which produced the lowest barley yields received less rainfall and considerably more hail than land which produced the highest yields.

Table 10.-- Yields of barley on various farms with corresponding amounts of rainfall in comparison with other indicated items in Northeastern Colorado, 1938.

	Actual yields per acre	Estimated yields if had no hail	Precipitation Jan. 1 to July 15	Distribution of precipitation				Acres in barley	Type of soil
				Jan. 1 to Apr. 30	May	June	July		
	bu.	bu.	in.	in.	in.	in.	in.		
	26.3	26.3	12.8	5.0	4.7	1.6	1.5	150	Hard
	18.6	20.6	12.6	4.2	3.3	2.2	2.9	48	Hard
	6.1	24.1	8.8	3.8	3.1	0.5	1.4	60	Hard
	5.4	10.8	9.5	3.7	3.1	1.1	1.6	50	Hard
	5.0	9.7	9.4	4.2	2.9	0.6	1.7	74	Hard
	3.5	17.5	8.7	3.7	2.6	1.3	1.1	126	Hard
Av. per farm...	10.8	18.2	10.3	4.1	3.3	1.2	1.7	85	

A few comparisons have been made of the crop yields on the basis of (1) the size of farm as measured by the number of acres cultivated, (2) the size of the crop enterprise, and (3) the size of the farm on the basis of the number of tilled acres and/or the amount of production of livestock. These comparisons are presented in tables 10, 11, and 12.

It is quite obvious that those farmers with the largest number of acres under cultivation secured the highest yields (table 11).

Table 11.-- Average yields of wheat, corn, and barley on farms with the low, medium, and high number of tilled acres, 26 farms, Northeastern Colorado, 1938.

Rating in tilled acres	Average number tilled acres	Average yields (in bushels) of		
		Wheat	Corn	Barley
Low	326	7.6	8.4	8.6
Medium	542	11.6	9.2	11.4
High	851	11.9	16.1	12.8

In table 12 data are presented to indicate that the average yields of wheat and corn were highest on those farms where the largest acreage of each crop was produced. This is not so significant in the case of barley.

Table 12.-- Average yields of wheat, corn, and barley per acre on basis of size of each crop enterprise, 26 farms, Northeastern Colorado, 1938.

Rating in acres in each crop	Average acreage and corresponding yields of					
	Wheat		Corn		Barley	
	acres	: bushels	acres	: bushels	acres	: bushels
Low	93	6.2	44	1.8	34	8.6
Medium	182	9.8	141	8.3	47	13.6
High	305	13.5	322	17.0	85	11.4

In table 13 is indicated that the farmers who had large acreages to cultivate and/or the largest livestock enterprises also secured the highest yields.

Table 13.-- Average yields of wheat, corn, and barley per acre on basis of the number of tilled acres and/or the production of productive livestock, 26 farms, Northeastern Colorado, 1938.

Rating on basis number of tilled acres and/or quantity of live- stock production	Average yields (in bushels) of		
	Wheat	Corn	Barley
Low	9.1	7.8	8.7
Medium	10.0	12.3	12.8
High	13.3	15.4	11.9

The fact that the yields were the highest on large farms and on farms with the largest acreages in each crop indicates the following possibilities: (1) That facilities for performing satisfactory tillage practices might have been more adequate on farms with largest acreages; (2) that the individual farm operators on the larger farms evidently had the ability to take care of the larger acreages and their additional numbers of livestock without jeopardizing the opportunity of getting reasonable yields; (3) that cooperation among farmers for the purpose of bringing about similar conditions which existed on the larger farms would be beneficial.

Corn Production Recommendations by farmers having the highest corn yields:

Four farmers have given recommendations concerning practices they consider desirable in the production of corn. These successful corn growers produced over 20 bushels of corn per acre on the average during the year 1938. Rainfall on two of these farms upon which 23-bushel corn crops were produced averaged 14.3 inches from January 1 to October 1. All four of these farms were located on fine sandy loam soils.

The tillage practices of the four farmers have been summarized into two general classifications. The summaries are given in the accompanying table. (See table 14)

Table 14.-- Cultural practices performed by four farmers having high corn yields, Northeastern Colorado, 1938.

Method <sup>1</sup>	Tillage operation performed	Time of year tillage operation performed
No. 1	Disk (single) Plant with lister Godig <sup>2</sup> (throw out) Godig <sup>2</sup> (throw in lightly) Godig (throw in) <sup>3</sup>	April 10-25 May 8-25 June 1-15 June 15-30 July 1-15
No. 2	One-way Plant with lister Godig (out) Harrow Godig (in)	Mar. 25 to Apr. 15 May 10-22 June 8-16 June 20-25 July 4-15

<sup>1</sup>Two of the farmers using each method in producing corn on the same type of soil and with similar amounts of rainfall received approximately the same yields.

<sup>2</sup>Throwing out the second time is practiced.

<sup>3</sup>After the ground has settled after the third cultivation the ground should be level.

The recommendations given by successful corn farmers were:

- (1) Leave stubble and stalks stand on ground during winter in order to catch snow and prevent wind erosions.
- (2) Start conserving spring rains early.
- (3) Prepare a clean, firm seedbed. Do not stir corn ground too deep.
- (4) Select very carefully a well-adapted variety of seed.
- (5) Treat the seed corn.

- (6) Never plant each kernel of seed corn closer than 18 inches. It is best to plant corn from 20 to 26 inches apart. Thus, healthier plants will produce larger ears and deeper kernels and, as a result, a higher yield. (Note: This undoubtedly requires adjusting the corn planter before going to the field by actually putting a jack under the drive wheel of the lister and counting the kernels which have fallen through each spout in relation to the distance the lister would have traveled if it were being pulled through the field. To get the proper spacing of corn it is desirable to test the planter whenever a different variety of corn or a different quantity of larger or smaller kernalled corn is being planted.)
- (7) The best time to plant corn is from May 15 to 20.
- (8) Although not mentioned by the farmers specifically, it is quite evident that the sub-soilers should be set at the proper depth. This undoubtedly would insure a stand of corn in case no rain fell shortly after the corn was planted.
- (9) Listing the corn is the only safe method as this helps to conserve moisture.
- (10) Shallow cultivations are advised.
- (11) Put off the last tillage operation as long as possible, considering, of course, the height of the corn, tasseling of corn, and the way the rains come.
- (12) Perform the proper cultivation at the right time.

Recommendations by farmers receiving high wheat yields:

The three farmers from whom recommendations were secured produced an average of 22 bushels of wheat per acre on summer-fallow land. All these farmers produced this wheat on what is popularly known in the area as "hard land." These soils are silt loam soils.

The rainfall ranged between 9.4 and 11.8 inches during the period from January 1 to July 15. The yields ranged from 20 to 25 bushels per acre. Obviously, the precipitation during the year 1938 until approximately harvest time is not the whole story because moisture is stored during the preceding year. Rainfall records were kept only during the year 1938 by individual farmers.

The method of summer fallowing which proved most satisfactory and which was most highly recommended is given in the accompanying table. This does not mean that other methods are not satisfactory. It is quite possible that other farmers have found other methods equally satisfactory. It appears that the performing of a tillage operation at the proper time is more important than the type of tillage operation used. (See table 15).

Table 15.-- A recommended system for summer fallowing land for the production of wheat as summarized from three farmers' recommendations, northeastern Colorado, 1938.

Tillage operation suggested	Time of year to perform operation
Disk (single or tandem)	April 10-15
Plow <u>1</u> /	May 10-20
Harrow (spiketooth or springtooth)	May
Rodweed (possibly twice)	June and July
Harrow (springtooth, possibly twice)	July and August
Seed	Sept. 15

1/ The moldboard plow is usually more satisfactory than the wheatland one-way disk, but costs more to operate.

Additional recommendations relative to the production of summer-fallow wheat given by farmers follow:

- (1) Early conservation of moisture is advisable.
- (2) Although a moldboard plow is considered more satisfactory than the one-way, it has been inferred from the recommendations given that a farmer usually uses a one-way when all other implements fail to perform properly. Therefore, much criticism of the one-way is probably not justified. The criticism should be directed toward the practice of tilling the soil at the wrong time.
- (3) Till the soil when it is fairly wet but not too wet to bake the soil.
- (4) Kill the weeds just before they show up above the soil.
- (5) Where there is no stubble it is a questionable practice to use the disk or one-way after May 1.

The rate of seeding summer-fallow land to wheat varied between 24 and 40 pounds per acre. It is considered desirable to plant the wheat on the contour whenever it is reasonably convenient.

Obviously, no stereotyped tillage procedure can be worked out which will give best results at all times. Weather conditions change and a farmer needs to use his best judgment in coping with various conditions.

#### Ages of farmers operating most and least-profitable farms:

The farm operators who managed the one-third most-profitable farms ranged from 29 to 44 years of age. Twelve percent of the farm operators were under 29 years of age and 38 percent were over 44 years of age. However, none of these younger or older men were in the most-profitable group. These data are given in table 16.

Table 16.-- Ages of farmers operating the most-profitable and the least-profitable farm businesses, northeastern Colorado, 1938.

Ranges in ages	No. of farmers	Farmers operating			
		Most-profitable farms		Least-profitable farms	
		Number	Percentage	Number	Percentage
21-28	3	0	0	1	12
29-36	7	4	50	0	0
37-44	6	4	50	2	25
45-52	5	0	0	3	38
53-over*	5	0	0	2	25
Total	26	8	100	8	100

\*Sixty-two years of age was the highest for any farmer in the study.

Among the most-profitable group of farmers there were four owners and four tenants. The owners were 38 years of age and the tenants 35 years of age. Among the least-profitable group, four were owners and four tenants. Owners were 53 years old and the tenants 40. The average ages of all homeowners and non-homeowners in the study were 41 and 36 years, respectively.

#### Education of Farmers Operating Most and Least-Profitable Farms:

The farmers operating the most-profitable farms had attended school slightly more than those operating the least-profitable farms. The four owners in the most-profitable group had attended school an average of 9 years and the four tenants in the most profitable group 11 years. Homeowners and tenants operating the least-profitable farms spent an average of 10 years each in school. Of the whole number of farmers in the account study, the homeowners had attended school 9 years and the tenants 12 years. Additional information is given in table 17.

Table 17. - Years of education of farmers operating the most and least-profitable farms, northeastern Colorado, 1938.

Range in years of education	No. of farmers	Farmers operating			
		Most-profitable farms		Least-profitable farms	
		Number	Percentage	Number	Percentage
7-8	9	3	38	3	38
9-10	6	1	12	2	24
11-12	7	3	38	3	38
13-over*	4	1	12	0	0
Total	26	8	100	8	100

\*Fifteen years of education was the highest for any farmer included in the summary.



Children on Farms:

There was an average of 3.4 children in the families of the operators managing the one-third most-profitable group of farms. All the children were on the farm. Operators of the least-profitable group of farms had an average of four children in the family; however, only three lived at home. Obviously, since the latter group of farmers was 10 years older than the former group, a greater movement away from the least-profitable farms was to be expected. The accompanying table indicates the number of families with various numbers of children. (See table 18).

Table 18.-- Families with indicated number of children living on most and least-profitable farms, northeastern Colorado, 1938. 1/

Range in number of children on farm	No. of families	Families with indicated number of children			
		On most-profitable farms:		On least-profitable farms	
		Number <sub>3/</sub>	: Percentage	Number <sub>4/</sub>	: Percentage
0	3	0	0	1	13
1	4	1	13	0	0
2	8	3	38	2	25
3	5	1	12	2	25
4	3	1	12	2	25
5-over 2/	3	2	25	1	12
Total	26	8	100	8	100

1/ In making comparisons reservation must be made for the difference in ages of operators of the most and least-profitable farms (table 15).

2/ Seven was the highest number of children in any one family.

3/ All children in these families were living on the farm.

4/ The two families having three children, and one family having two children, as indicated, also had one, three, and one additional children, respectively, living off the farm.

We may conclude after studying this information that either (1) some children must eventually move from these farms or (2) it will be necessary to reduce the number of acres of farm land per farm.

During 1937 and 1938 the farmers operating the most-profitable farms had considerably more acres of crop land than did farmers operating the least-profitable farms. It is evident that with continued introduction of labor-saving machinery, which increases the efficiency of production, the number of farmers needed to produce agricultural products in the future in this area will be fewer than at present. Therefore, if we expect the young men and women who are now living on farms with their parents to have as high a scale of living as their parents have had, we will obviously need to continue with a policy of providing education for the surplus farm youth so that the surplus may have an opportunity of moving off the farm. This would leave large enough farms for the remaining persons to make a reasonable scale of living and the surplus farm youth would then be free to produce other commodities and services which farmers do not now have.

An attempt to stop the introduction of greater efficiency in agricultural production in order to keep surplus youth on the farm would be an

attempt to hinder the production of those commodities and services which provide society as a whole with a higher scale of living.

Obviously, an attractive farm home and favorable working conditions on the farm are desirable if we expect a few leaders among the young people to remain on the farm. Alert young people will accept work where the greatest opportunities may be found.

### Farm Family Living Section

#### Income from the Farm Business per Person:

Considerable emphasis has been placed recently upon how much income each person should have in order to live an abundant life. Voters have been asked to fix the amount of income which certain groups of individuals shall receive. How much income did farm families receive from their farm businesses which were located on first-grade dry farming land in northeastern Colorado during 1938?

Data relating to farm-family income are presented in table 19. The annual per capita income was \$135. This figure includes the labor wages of the farm operator and members of his family, the value of farm products used in the farm home, and the imputed rental value of leased farm residences. It excludes an amount of 5 percent of the farm operator's investment in the farm business which it is considered could be secured as interest if the money were invested elsewhere. The per capita income was \$75 and \$232 for homeowners' and non-homeowners' families, respectively. This amounts to \$11, \$6, and \$19 per person per month for the average family, the homeowner's family, and the non-homeowner's family.

However, if the earnings of capital are included with all other direct and indirect returns from the farm business, the per capita income per month is increased to \$21 for the average family. Homeowners who have invested \$15,500 received \$21 per month for their families, and non-homeowners with \$3,500 invested received about \$22 per month. Thus, homeowners with an additional \$12,000 invested received approximately as much as non-homeowners.

These figures are significant when it is realized that the yields of the major crops, wheat and corn, on these farms were approximately equal to the 13-year average during the period 1924-36 in the central county of the type-of-farming area. The major crops used about three-fourths of the land under cultivation on these farms and 84 percent of the farm land was being cultivated. Income from these farms was undoubtedly average or above for farms located in the type-of-farming areas as a whole.

The per capita income for the previous year (1937) is estimated to have been about \$30 per month when the earnings from the investment were included. During 1937 wheat yields were equal to the 13-year average. Corn yields were 65 percent of average. The average prices received for wheat and corn sold during the year were 95 and 94 cents per bushel respectively.

Table 19.-- Per capita income received by actual farm operators and their families as a result of the operation of their farm businesses, and related items as indicated, Phillips, Sedgwick, Washington and Yuma counties, Colorado, 1938.\*

Item	Average on 26 farms	Average on 16 farms where operators <u>own</u> their home	Average on 10 farms where operators <u>lease</u> their home
Labor-and-management wage of farm operator.....	\$ 288	\$ 87	\$ 610
Value of farm products used in home.....	201	200	204
Value of family labor (other than operator).....	34	51	6
Imputed value of leased residences.....	86	1/	222 2/
Total family income (excluding 5 percent interest on farm investment).....	609	338	1,042
Average number in family on the farm.....	4.5	4.5	4.5
Annual per capita income (excluding 5 percent interest).....	\$ 135	\$ 75	\$ 232
Monthly per capita income (excluding interest)...	11	6	19
Total family income including interest earned on farm investment.....	1,154	1,114	1,217
Operator's total investment in farm business.....	10,900	15,520	3,500
Annual per capita income (including earnings from farm investment).....	256	248	270
Monthly per capita income (including earnings from farm investment).....	21	21	22

\*The income includes government benefit payments and income from labor off farm which is related to the farm business. It does not include outside income not related to the farm business.

1/Rental value excluded because expenses of farm residences are separated from farm business expenses.

2/Imputed rental value included on assumption that the residence is furnished by landlord. (Basis 12 percent of inventory value.)

### Farm Home Facilities:

Most farmers have only their farm business as their important source of income. Unless the income from the farm business exceeds the necessary living expenses, very few luxuries can be purchased. In table 20 data are given indicating the external condition of the farm residences and the percentages of homes having various desirable home facilities. Comparisons are also given concerning the circumstances which existed on the farms where the farm operators owned their farm residences and where they did not own their farm residences.

The average farmer lived in a 5-room house. Fifty-eight percent of the homes had a good surface coating of paint in December, 1938. The paint on 31 percent of the homes was in fair condition. There was no paint on 11 percent of the homes. Tenants lived in better-painted homes than did homeowners.

Additional observation of data given in the table indicates that there is a large market for manufactured goods in our farm homes, provided the farmers had the necessary purchasing power coupled with the desire to buy those goods. Only about one-half of the farmers had running water in their homes. Only one-half had electric lights where the electrical energy was furnished by a combustion engine. A few farmers used small airplane-type propellers in order to convert wind into electrical energy. Most of these units were quite small, however, and did not, therefore, furnish adequate lighting and electrical power for the farm. Three-fourths of the farmers had telephones and 85 percent had radios. There is need for more adequate refrigeration. Only one-fourth had mechanical refrigerators.

The farm operators who own their own homes had about the same home conveniences as did the tenants. According to figures given in the table, fewer of the homeowners had running water but they had more pitcher pumps. Homeowners had more engine electrical units but fewer wind-propelled electrical units. Homeowners had slightly more telephones and radios. Homeowners had more refrigerators but considerably fewer ice boxes than tenants. A higher percentage of tenants had either ice boxes or refrigerators than did homeowners. Homeowners had slightly better heating facilities than tenants.

### The Farm Family Automobile:

The average investment in the automobile was \$360. Farmers use the automobile for farm business purposes as well as for personal use. About 43 percent of the auto expense was estimated to be for personal use and the remainder for farm business purposes. This 43 percent personal auto expenditure amounted to an average of \$75 per year.

The homeowners possessed later model automobiles than did the tenants. Automobiles less than 5 years old were owned by 50 percent of the tenants and 70 percent of the homeowners. One-half of the cars less than 5 years old were 1937 models. Over one-fourth of the total number of automobiles were 1928 and 1929 models.

Table 20.--Condition of paint on farm residences and farm home facilities on farms in northeastern Colorado, December 1938.\*

Item	Total	Home- owners	Tenants
Number of farmers in farm account study.....	26	16	10
Condition of paint on farm residence:			
Percentage having good paint.....	58	50	70
"          "      fair      "      .....	31	38	20
"          "      no      "      .....	11	12	10
Number of rooms in farm home.....	6	6	6
Percentage of farm homes having indicated facilities:			
Bathroom.....	35	38	30
Water facilities:			
Running water.....	54	50	60
Pitcher pump.....	31	38	20
No water piped to house.....	15	12	20
Lighting facilities:			
Electric lights.....	65	62	70
Combustion engine for electric lights	50	56	40
Wind propeller for electric lights...	15	6	30
Gas burner.....	27	25	30
Kerosene burner.....	8	13	0
Telephone.....	73	75	70
Radio.....	85	88	80
Refrigeration:			
Oil burner refrigerator.....	23	31	10
Ice box.....	23	13	40
Nothing except cave, basement, etc.....	54	56	50
Kind of heat for winter:			
Furnace.....	38	38	40
Circulating heater.....	46	50	40
Ordinary stove.....	15	12	20

\*A farm housing survey made by the Bureau of Home Economics, U.S.D.A., in January and February of 1934 and which was published in March, 1939, indicated the following comparable figures for Adams, Kit Carson, Morgan, Washington, Weld, and Yuma counties: Percentage having (1) cold water piped to the house 20, (2) pitcher pump 9, (3) home plant electric lights 5, power line 12, ice refrigeration 20, mechanical refrigeration 1, central heating system 8. These figures compared quite favorably with facilities in farm homes in the United States as a whole in 1934. Farm account cooperators in this area had much better home facilities in 1938 than the average farmer in the United States had in 1934.

Summary

1. Twenty-six farm account cooperators who farm first-grade dry farming land in northeastern Colorado operated on the average a \$21,000 farm business in 1938.
2. The farm operators and landowners together received \$1,408 cash income per farm. Interest paid out has not been deducted in obtaining the cash income figure. After considering inventory decreases of \$131 during the year the farm income (excluding interest paid out) was \$1,277. This was about \$800 less than it was during the preceding year, 1937.
3. The average rate earned on the whole farm investment was 3.04 percent, provided \$50 per month is deducted for the operator's and family labor. The rate earned on the one-third most-profitable and least-profitable farms was 9.48 and -2.37 percent.
4. On the basis that the farmers could have received 5 percent interest on their farm capital if invested elsewhere, the earnings left over for the use of the operator's labor during the year amounted to \$175 for the average, \$1,321 for the most-profitable, and -\$623 for the least-profitable group of farmers.
5. The average acreages of farm land occupied by all the farms, the most and least-profitable, were 678, 577, and 559 acres. The percentages of farm land under cultivation were 84, 90, and 83 for the average, most, and least-profitable group of farms. The most-profitable group had a few more acres under cultivation than the least-profitable group.
6. Wheat and corn constituted the major sources of income. Wheat occupied 31 percent of the cultivated land and an additional 22 percent was being summer fallowed primarily for the next year's fall-wheat crop. Corn occupied 25 percent of the cultivated land. Thus, about three-fourths of the cultivated land was being used for the production of wheat and corn.
7. Wheat yielded on the weighted-average basis 11.2 bushels per acre on the 26 farms, 15.3 on the most-profitable, and 5.6 on the least-profitable. Corn yielded 13.1, 13.4, and 5.1 bushels per acre. The average yields, taken as a whole, were approximately equal to the 13-year average yield for wheat and corn in the county located in the central part of the farming area during the period 1924-1936. Rainfall records kept by individual farmers indicated that rainfall was only one of several factors which affected yields.
8. Investment in productive livestock was slightly less on the most-profitable farms than on the least-profitable farms. However, more feed was fed to productive livestock on the most-profitable farms.
9. Livestock returns were favorable. The returns per \$100 worth of feed fed to cattle, hogs, and poultry on 16 of the 26 farms was \$200, \$158, and \$270. An average of \$210 was received per \$100 worth of feed fed to all productive livestock on all the farms. The average value of feed fed was \$593. These returns included an estimate of the value of livestock products used in the farm home.
10. Labor, power, and machinery costs amounted to \$3.19, \$2.88 and \$3.36 on the average, most-profitable, and least-profitable farms. These expenses

were 48 cents lower per tilled acre of land on the most-profitable group of farms as compared with similar expenses on the least-profitable farms.

11. Profits were derived quite largely from the production of wheat on the silt loam soils and from the production of wheat and corn on the fine sandy loam soils. Each class of livestock also yielded a satisfactory income. Either higher farm prices, lower production costs, or, in some cases, a smaller rental share to the landowner, or a larger volume of business is obviously necessary for higher farm profits.
12. Farm operators received for themselves and each member of their families an average of \$11 per month income from the farm business, provided the farm operator could secure 5 percent on his farm investment elsewhere. This figure of \$11 per month includes farm business income, farm products used in the farm home, and imputed rentals on leased farm residences, plus earnings of members of the farm family from the farm. It also includes government soil conservation payments. The average size of family was 4.5 persons. When the earnings from \$11,000 worth of farm capital owned by the farm operators is included, the per capita income amounted to \$21 per month.
13. The monthly per capita income of farm families where the farm operator owned his home and had an additional \$15,520 invested in the farm business amounted to \$21. This figure includes only the earnings from the farm business, including capital earnings. The monthly per capita income where the farm operator leased the farm residence and had \$3,500 invested in the farm business was about \$22. There was an average of 4.5 persons in the families of the homeowners and non-homeowners. In other words, tenants living in leased farm homes received as much from the farm business for their families as did homeowners even though the tenant had \$12,000 less capital invested in the farm business.
14. There was very little difference between the farm home facilities where farm operators owned their homes or leased their homes.

