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A Farm Business Report Relating to 23 Farms in Phillips, Washington, and Yuma Counties for the Year 1937

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Farm Business Report relative to 23 farms located in Phillips, Yuma, and Washington counties, Northeastern Colorado, 1937

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This business report is presented primarily for farmers who have cooperated with the Colorado State Agricultural College Experiment Station by keeping farm records on their farms during the year 1937. Some suggestions will be offered to show how a change in the organization of a few of the farm businesses would have resulted in increased income. Obviously, the quantity and quality of recommendations which can be made in a study of this kind depend entirely upon the number of farm records secured, the accuracy of the records, and the number of details which the farmer is willing to write into his account book. Twenty-three farms constitute a fair sample of dry-land farming on the better lands in the counties where the records were kept. A larger sample would have been better. It is quite possible that more details, such as the cost of growing each crop on the farm, the amount of feed fed to each kind of livestock on every farm, and the amount of annual rainfall on each farm, would have furnished the basis for making more satisfactory recommendations. Suggestions will be made on the basis of a comparison of a few farms--primarily the most profitable and the least profitable farms.

All the figures given in this report pertain to the farm business as a whole. Each tenant may find his share of the earnings by inspecting the data 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. In general, the investment consists of the total value of land, improvements, livestock, machinery, feeds, grains, and growing crops on the farm. The rate earned on the investment is calculated after deducting from the net farm gain a reasonable wage for the farm operator and for members of the family who actually did field work on the farm. The net farm gain is the receipts and inventory increases less the expenses and inventory decreases. Another measure of the success of the farm operator is the labor and management wage. This wage represents an amount which the farm operator receives after deducting from the net farm gain a reasonable rate of interest which the farm operator could obtain from his capital if invested in safe farm loans and after deducting a reasonable wage for members of the family (not the operator) who did farm work.

In Table 1 is given a summary of the cash income, cash expenses, and inventory changes. The average net farm gain for the 23 farms was $2,070. This figure was computed by subtracting the net inventory decrease of $91.00 from the net cash income of $2,161. This gain represents the amount which the average

*Acknowledgement is made of the cooperation of the farmers who submitted their farm business records for this report, and to A. F. Hoffman, E. R. Graves, and B. H. Trieweiler, county agricultural agents who directed the work in each of their respective counties: Phillips, Washington, and Yuma.

farmer had for interest on his investment of $20,289, for his wages as a laborer and manager of the farm business, and for unpaid family labor.

Table 1.- Cash income and expenses, inventory increases and decreases, and net gain (excluding interest paid) for the 23 farm businesses located in Phillips, Washington, and Yuma counties, northeastern Colorado, 1937.

Item	Cash		Inventory	
	Income	Expense	Increases	Decreases
Livestock	$1214	$ 1521/	$ ...	$ 22
Feed and grain	3128	181		437
Machinery and equipment	261	1421	380	...
Farm improvements	1	125	...	12
Labor off farm	58	...	...	...
Miscellaneous	40	17	...	...
Livestock expense	...	8	...	...
Crop expense	...	215	...	...
Hired labor	...	231	...	...
Taxes	...	191	...	...
Totals	$4702	$2541	$ 380	$ 471

Summary

Net cash income	$2161
Net inventory decrease	91
Net farm gain (in Account Book, receipts less expenses)	$2070

1/ Livestock bought

Other important points indicated in Table 1 are: (1) The production and sale of crops constituted the major source of income; (2) there were fewer dollars' worth of feed, grain, machinery, and farm improvements on hand at the end of the year than at the beginning; (3) sufficient new machinery was purchased during the year to offset depreciation and to leave an increased inventory value of machinery at the end of the year; (4) repairs and paint on old buildings plus any new improvements were insufficient to offset depreciation of farm improvements (residence excluded).

Each individual farm operator who contributed to this study may compare (by inspection of Table 2) certain characteristics of his farm business with those of other farm businesses. The following comparisons relative to the average figures of the 23 farms, of the 7 most profitable and the 7 least profitable farms, appear significant:

(1) The average total investment was $20,650 for the 7 most profitable farms and $13,035 for the least profitable. The

Table 2.- Investments, receipts, expenses and earnings on 23 farms located in Phillips, Washington and Yuma counties, Colorado, 1937.

Item		Your farm	Average of 23 farms	7 most profitable farms	7 least profitable farms
Capital Investments					
Land	$		$12,631	$13,956	$ 7,298
Farm improvements	$		2,555	1,926	2,434
Horses	$		382	172	426
Cattle	$		724	849	484
Hogs	$		170	142	172
Sheep	$		56	---	---
Poultry	$		104	137	108
Live Stock--total	$		1,436	1,300	1,190
Machinery and equipment	$		1,904	1,858	1,204
Feed, grain, and supplies	$		1,763	1,610	909
Total	$		20,289	20,650	13,035
Receipts--Net Increases					
Horses	$		$ 10	$ 7	$ 10
Cattle	$		269	323	144
Hogs	$		252	69	302
Sheep	$		46	---	---
Poultry	$		82	144	47
Egg sales	$		209	314	259
Dairy sales	$		217	289	166
Live Stock--total	$		1,085	1,146	928
Feed, grain, and supplies	$		2,526	3,964	883
Labor off farm	$		58	21	51
Miscellaneous receipts	$		40	4	112
Total	$		3,709	5,135	1,974
Expenses--Net Decreases					
Farm improvements	$		$ 137	$ 130	$ 131
Horses	$		42	24	29
Misc. live stock decreases	$		3	---	2
Machinery and equipment	$		780	910	566
Feed, grain and supplies	$		15	---	49
Live stock expense	$		8	4	7
Crop expense	$		215	223	259
Hired labor	$		231	189	93
Taxes	$		191	184	144
Miscellaneous expenses	$		17	22	14
Total	$		1,639	1,686	1,294
Receipts less expenses	$		2,070	3,449	680
Total unpaid labor	$		804	806	860
Net income from investment and management	$		1,266	2,643	-180
RATE EARNED ON INVESTMENT	%		6.24%	12.8%	-1.38%
Return to capital and operator's labor & management	$		1,823	3,243	413
5% Interest on investment	$		1,014	1,032	652
Labor and management wage	$		809	2,211	-239

most profitable group had more invested in land, cattle, poultry, machinery, feed, grain, and growing crops and less invested in farm improvements, horses, and hogs than did the least profitable group.

(2) Total receipts and net inventory increases were $5,135 for the most profitable farms and $1,974 for the least profitable. The production and sale of a greater amount of grain crops was the major reason for the differences.

(3) Total expenses amounted to $1,686 on the most profitable farms and $1,294 on the least profitable.

(4) The receipts less expenses (net farm gain) were $2,070 for the average of the 23 farms, $3,449 for the 7 most profitable farms, and $680 for the 7 least profitable. The average rates earned on the investments were 6.24, 12.8, and -1.38 percent on the average, most profitable, and least profitable farms, respectively. In the low income group there was insufficient income to pay the operator and his family $50.00 per month, and nothing was left over to pay any interest on the investment.

The average labor and management wage for the 23 farm operators was $809, after deducting the 5-percent rate earned on the investment. The wage for the 7 operators who managed the most profitable farm businesses was $2,211. Operators of the least profitable farms had approximately $150 for their labor and management wage, assuming that they earned 2 percent on their investment. Undoubtedly, a big portion of the operators of the least profitable farms had factors to overcome which were beyond their control--one of which was lack of rainfall.

The most important factors which affected the earnings of the farm businesses were: (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.

The information relative to the foregoing factors may be found by inspection of Table 3. Other data of interest to the individual farm operators are also given in the table.

Size.- The 7 most profitable farms had an average of 766 acres in the farm as compared with 564 acres for the least profitable farms. A greater percentage of the 766 acres was under cultivation (tilled): 69 percent as compared with 63 percent for the least profitable. Undoubtedly, a farm unit consisting of one and one-half sections of farm land, or 800 acres, furnishes a better sized farming unit than does a farm unit consisting of 560 acres in this area. The farm operator is able to utilize his labor and the power and machinery more efficiently, and to have a sufficiently large farm to warrant buying and using the up-to-date machinery which most farmers are anxious to own. However, not in every case would it be desirable for every farmer having less than 800 acres of farm land to lease more land and spend more money for the purpose of reorganizing his

Table 3.- Factors for comparing farm businesses in Phillips, Yuma and Washington counties, Colorado, 1937.

Items		Your farm	Average of 23 farms	7 most profitable farms 1/	7 least profitable farms 1/
Size of farm, acres			704	766	564
Investment per acre in farm of:					
Land	$		$17.95	$18.21	$12.94
Improvements			3.63	2.51	4.32
Total land and improvements			21.58	20.72	17.26
Productive livestock			1.50	1.47	1.35
Horses			.54	.23	.76
Machinery and equipment			2.71	2.42	2.13
Feed, supplies, crops			2.51	2.10	1.61
Total investment	$		$28.84	$26.94	$23.11
Gross productive livestock receipts and/or net inventory increases per farm acre	$		$ 1.53	$ 1.49	$ 1.63
Gross receipts and/or net increases from crops and other sources per farm acre	$		$ 3.74	$ 5.21	$ 1.87
Total farm receipts and/or net increases per farm acre	$		$ 5.27	$ 6.70	$ 3.50
Farm cash expenses and/or net decreases per farm acre 2/	$		$ 2.33	$ 2.20	$ 2.30
Receipts less expenses per farm acre	$		$ 2.94	$ 4.50	$ 1.20
Operator's and unpaid family labor per farm acre 3/	$		$ 1.14	$ 1.05	$ 1.52
Net income from invest. per farm acre	$		$ 1.80	$ 3.45	$ -.32
Acres of farm land tilled 4/			562	649	436
Acres of tilled land in:					
Wheat			169	256	136
Corn			169	123	101
Barley			42	50	41
Oats			5	8	9
Cane			28	27	33
Millet & hershey (one or both)			22	18	25
Other miscellaneous crops			38	46	10
Total crops			473	528	355
Tilled pasture			13	19	15
Summer fallow			76	102	67

1/Basis: rate earned on investment.
2/Does not include operator's and other unpaid labor.
3/Operator's and unpaid family labor at $50 per month and cash cost of board at $8 per month.
4/All land under cultivation(includes hay and feed crops which require seedbed preparation).

Table 3.- Factors for comparing farm businesses in Phillips, Yuma and Washington counties, Colorado, 1937. (Cont.)

Items	Your farm	Average of 23 farms	7 most profitable farms	7 least profitable farms
Percent of farm land tilled		67.2	68.9	62.9
Percent of tilled land in:				
Wheat		30.0	39.4	31.2
Corn		30.0	19.0	23.2
Barley		7.5	7.7	9.4
Oats		.9	1.0	2.0
Cane		5.1	4.0	7.6
Millet and hershey		4.0	2.8	5.7
Other miscellaneous crops		6.7	7.1	2.3
Total crops		84.2	81.0	81.4
Tilled pasture		2.3	3.0	3.4
Summer fallow		13.5	16.0	15.2
Total percent		100.0	100.0	100.0
Crop yields per acre (bu.) of:				
Wheat		11.5	15.6	6.2
Corn		8.0	7.1	3.9
Barley		11.2	13.1	7.7
Sale prices for: 5/				
Wheat, per bu.	$	$ .95	$ .95	$ .96
Corn, per bu.		.94	.68	.89
Market hogs, per cwt.		9.85	8.86	9.72
Returns per $100 feed fed to productive livestock	$	$147.00	$144.00	$133.00
Value of feed fed to productive livestock	$	$731.00	$793.00	$690.00
Dairy sales per cow	$	$ 34.93	$ 49.35	$ 24.71
Average number cows milked		6.2	5.9	6.7
Pigs weaned per litter		6.1	6.5	5
Average number litters farrowed		1.7	1.4	1.6
Man labor cost per tilled acre 6/	$	$ 1.81	$ 1.52	$ 2.15
Horse and tractor power and machinery cost per tilled acre	$	$ 1.86	$ 1.75	$ 1.90
Total man labor and horse and tractor cost per tilled acre	$	$ 3.67	$ 3.27	$ 4.05
Percent of farms with tractors		80%	100%	60%
Number of workable horses		3.7	1.4	4.7
Cost of horse feed per workable horse	$	$ 39.00	$ 45.00	$ 42.00
Rate earned on investment		6.24%	12.8%	-1.38%

5/Average prices from sale of previous crops held over and present year's crop.

6/Includes hired labor, operator's, and family labor.

machinery set-up. In a few cases it is probable that additional land could be leased and cultivated with the addition of one or two machines.

Although the highest percentage of the farm land under cultivation is on the most profitable farms, it is not advocated that more sod land be broken out and planted to crops except and until an accurate soil survey, coupled with an economic study, indicates that it would be profitable to cultivate such land. The farmer could make this study if he had adequate information. It is very possible that some land now being farmed should revegetate to grass, and it is possible in rare instances that some sod land now used for pasture could be broken out and used as crop land to substitute for the revegetating crop land. This study does not attempt to appraise the above problem for individual farms.

Crops and Yields.- The percentages of the tilled land in wheat on the most and least profitable farms were 39 and 31 percent, respectively. Corn ranked second in importance. It occupied 19 and 23 percent of the tilled land on the most and least profitable farms. The fact that the greater percentage of tilled land was in wheat was undoubtedly due in part to the fact that a greater percentage of the fall wheat crop on the most profitable farms survived during the winter season. Consequently it was not necessary for those farm operators to plant so large an acreage of substitute crops, as corn for fall wheat, as did the operators of the least profitable farms. It is quite evident that an average yield of 15.6 bushels of wheat per acre was a much more profitable crop to produce than a corn crop which yielded an average of 7.1 bushels per acre on the most profitable farms in 1937. However, on many other farms there was practically no difference in the incomes from wheat and corn.

There was very little difference in the importance of other crops besides wheat and corn on the most and least profitable farms. A higher percentage of miscellaneous crops was planted on the high profit farms, but a separate tabulation revealed that no unusual profits were made by the production of those crops. The miscellaneous crops of all cooperators consisted of rye, beans, sudan, milo, blue corn, and potatoes.

Man labor costs. - The man labor costs averaged $1.81 per acre on the 23 farms, $1.52 on the most profitable, and $2.15 on the least profitable farms. A difference of 63 cents per acre on 500 acres of tilled land amounts to about $315.00, or 6 months' labor at $50.00. One reason for a higher cost of labor on the least profitable farms was the fact that more horses were used for power, which in turn required more man labor. Also the fewer the acres of tilled land per man the greater cost per tilled acre for man labor. It is probably advisable in most cases to have sufficient tilled land that it will be necessary to hire some labor during the harvesting season.

Power and machinery costs.- The horse and tractor power and machinery costs per acre of cultivated land were $1.86, $1.75, and $1.90 for the average of all farms, the 7 most profitable, and the 7 least profitable groups respectively. In other words, it cost those farmers who had the greatest profits 15 cents less per acre for power and the use of their machinery than it cost the farmers operating the least profitable farms. Obviously, it costs more per acre to harvest high-yielding crops than it does to harvest low-yielding crops. However, to offset those additional costs of the high profit farmers, the farmers operating the low profit farms had to replant more crops on crop-failure land, which required additional use of machinery.

Returns from livestock. - The average returns per $100 worth of feed fed to productive livestock (all livestock except horses) for the 23 farms was $147.00; the average for the most profitable farms was $144.00; and for the least profitable farms $153.00. These figures represent the amount received before any costs are figured for labor of taking care of the livestock, costs for shelter, fences, stock water, veterinary bills, stock medicines, grinding costs, and interest on investment. They represent the amount received from the sale of livestock and livestock products after deducting livestock purchases and breeding fees and after making adjustments due to changes in inventory valuations per $100 worth of feed fed.

Very little difference existed between the returns per $100 worth of feed fed for any of the groups of farms. However, even after deducting other costs for producing livestock, it is quite evident that livestock as a whole was profitable. And since more feed was fed to larger livestock enterprises on the most profitable farms, surely the additional returns from livestock was an important factor in increasing the earnings of the most profitable farms.

A special tabulation was computed for the purpose of determining which classes of livestock (cattle, hogs, or poultry) yielded the greatest returns. The figures were taken from 11 of the 23 farms. The returns per $100 worth of feed fed to all three classes of livestock on the 11 farms were $148.00 in comparison with returns of $147.00 on the 23 farms. There was no essential difference between average investments in each class of livestock. Thus the 11 farms were considered quite typical of all the farms in the study.

The returns per $100 worth of feed fed to cattle, hogs, and poultry were $136, $137, and $170, respectively (see table 4).

Table 4.- Comparison of returns from different classes of livestock produced on 11 farms in Phillips, Yuma, and Washington counties, Colorado, 1937.

Item	Cattle	Hogs	Poultry
Returns per $100 feed fed.....	$ 136	$ 137	$ 170
Total value feed fed.....	3372	1379	2392
Average value feed fed per farm.....	306	230 1/	217
Percentage of feed purchased 2/.....	15	13	46
Returns per $100 invested.....	$ 60	$ 148	$ 305
Total investment.....	7604	1274	1333
Average investment per farm	691	212 1/	121

1/Average of 6 farms.
2/One-fourth of all feed fed to the three classes of livestock was purchased.

The returns from cattle include returns from beef, dual purpose, and dairy cattle. No extensive feeding operations were carried on. Farmers who kept cattle primarily for milk purposes had greater returns than did those farmers who kept cattle for beef purposes. The greatest returns from feed were secured from poultry. It is quite probable that the poultry required more labor than did cattle or hogs. More feed was purchased for poultry than for cattle or hogs, yet poultry was a profitable enterprise.

The returns per $100 invested in cattle, hogs, and poultry were $60, $148, and $305 respectively. These differences are to be expected because of the nature of the different classes of livestock. Obviously there is a much higher rate of turnover in the poultry and hog enterprises as compared with the cattle enterprises. For that reason many farmers produce poultry or hogs instead of cattle, because they require a smaller amount of capital.

However, if the returns per $100 invested in the poultry enterprises on different farms are compared, we are able, in some degree, to determine (after comparing returns from feed) whether it was advisable to own high quality poultry and feed the best rations or to own average quality poultry and let the poultry scratch in the farmyard for a living. The same comparison may be made of other classes of livestock. The special tabulation revealed that greater returns were secured from the highest quality of stock and that it paid to feed a balanced ration during the year 1937, even though the feed cost per animal was greater. The returns more than offset the additional feed.

Prices.- A question may arise why the average sale price of corn and hogs was the lowest on the most profitable farms (see table 3). Much less corn was sold from the least profitable farms, and a considerable amount of that which was sold was the

1936 corn crop. The price received for the 1936 crop during the spring of the year was much higher than the price received from the 1937 corn crop. More seed corn was sold by the farmers on the least profitable farms, which probably indicates that these farmers desired to make the best use of their time, especially in view of prospective short crops. Operators of the most profitable farms undoubtedly fed more low-priced, new-crop corn to the hogs and sold their hogs during the latter part of the year, after prices had declined.

The most significant factors which affected farm earnings on farms in this area are given in Table 5. Each individual cooperator has presented for him an additional method of making comparisons between his farm business and those businesses of his neighbors as explained 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 7 most profitable farms (black line), and for different farms which were high and low (for each factor). Phillips, Yuma, Washington counties, Colorado, 1937.

Rate earned on investment	Bushels yield per acre 1/			Size of farm	Percentage land tilled 2/	Percentage of tilled land in 2/			Return per $100 feed fed to P.L. 3/	Value of feed fed P.L. 3/	Cost per tilled acre	
	Wheat	Corn	Barley	acres		Wheat	Corn	Fallow			Man labor	Power and Mach'y
High												
26.4	25.3	15.5	28	1455	95	63	70	40	232	1769	3.99	3.95
13	18	15	18	1280	88	58	65	27	217	1431	3.21	3.26
12	17	14	17	1200	85	54	60	25	207	1331	3.01	3.06
11	16	13	16	1120	82	50	55	23	197	1231	2.81	2.86
10	15	12	15	1040	79	46	50	21	187	1131	2.61	2.66
9	14	11	14	960	76	42	45	19	177	1031	2.41	2.46
8	13	10	13	880	73	38	40	17	167	931	2.21	2.26
7	12	9	12	800	70	34	35	15	157	831	2.01	2.06
Average												
6.24	11.5	8	10.9	704	67	30	30	13.5	147	731	1.81	1.86
5	10	7	10	640	64	26	25	11	137	631	1.61	1.66
4	9	6	9	560	61	22	20	9	127	531	1.41	1.46
3	8	5	8	480	58	18	15	7	117	431	1.21	1.26
2	7	4	7	400	55	14	10	5	107	331	--	1.06
1	6	3	6	320	52	10	5	3	97	231	--	.86
0	5	2	5	---	49	6	-	1	---	---	--	----
-1	4	1	4	---	--	2	-	-	---	---	--	----
Low												
-7.02	1.7	0	3.3	320	48	0	0	0	89	134	1.24	.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.

Summary

1. The average investment for the 23 farms, the 7 most profitable, and the 7 least profitable farms was $20,289, $20,650, and $13,035, respectively, or $29, $27, and $23 per acre in the farm. A greater amount of money was invested in land, livestock, machinery, feed, and grain on the most profitable farms but a smaller amount in improvements.

2. The average rate earned on the investment was 6.24 percent on all farms, 12.8 percent on the 7 most profitable, and -1.38 percent on the 7 least profitable farms.

3. The labor and management wage averaged $809 for all operators, $2,211 for operators managing the 7 most profitable farms, and -$239 for the 7 operators managing the least profitable farms.

4. The average acreages of farm land occupied by all the farms, the most and the least profitable, were 704, 766, and 564 acres, respectively. In other words, those farms upon which the rate earned upon the investment was highest were also the largest farms.

5. An average yield of 15.6 bushels of wheat per acre on about 40 percent of the tilled land of the 7 most profitable farms was undoubtedly the most significant reason why those 7 farms were placed upon the most profitable list. In many cases lack of good yields of wheat on the least profitable farms was due to forces beyond the farmers' control.

6. Livestock returns were favorable. The average returns per $100 worth of feed fed productive livestock was $147. On 11 of the farms the returns per $100 feed fed to cattle, hogs, and poultry were $136, $137, and $170 respectively.

7. Labor, power, and machinery costs were 78 cents lower per tilled acre of land on the most profitable group of farms as compared with costs on the least profitable farms. The saving was chiefly in labor costs.

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