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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics

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DRY FARMING IN EASTERN COLORADO
A Study of 151 Farms in Lincoln and Washington Counties
Farm Year 1922

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A Preliminary Report

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Washington, D. C.

August 1924.

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Explanation

In 1920, several bureaus of the United States Department of Agriculture and the United States Department of the Interior adopted a program of work which proposed to bring together and publish all of the available information pertaining to the agriculture of the Great Plains region.

Carrying out one part of this plan during the summer of 1923, the Divisions of Farm Management and of Land Economics, of the Bureau of Agricultural Economics, working in cooperation with the respective State Agricultural Colleges, collected data from representative farmers in five of the great plains states.

Following is a summary of the information given by 151 farmers in Lincoln and Washington Counties in eastern Colorado. General information as to the farm business for the year ending March 1, 1923, is presented, as well as certain of the more important steps in the history of the agricultural development of the region. Farmers will be able to judge of their own success by comparing results obtained on their own farms with the averages for the region.

Acknowledgments

It is a pleasure to acknowledge the indebtedness of the writer to the various members of the field party which collected the data. Particular credit is due to Prof. L. A. Moorhouse, head of the Department of Economics and Sociology, and Mr. Thomas H. Summers, Farm Management Demonstrator, both of the Colorado Agricultural College, who not only made all advance arrangements for the field work and did a great part of it themselves, but have carefully read and constructively amended this report.

Official acknowledgment of the service rendered by the farmers who took time from their work to give the data that made this report possible is hereby gratefully made.

DRY FARMING IN EASTERN COLORADO.

Preliminary Report on a Study of 151 Farms in
Lincoln and Washington Counties

Farm Year 1922.

By E. O. Wooton, Associate Agricultural Economist.

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GENERAL INFORMATION

Location and Area:- The approximate geographic distribution of the farms visited by the enumerators who collected the data on which this report is based is shown on the diagrammatic map which follows. The total area included in these farms is 100,981 acres, of which 51,156 acres are in Washington County and the remainder in Lincoln County.

It is likely that these represent, in all essential particulars, the 3,344 farms of the two counties, as reported by the State authorities. The total area of these counties is 3,258,240 acres, which is larger than the State of Connecticut.

Soils, Vegetation, and Relief:- Soil surveys, even of a reconnaissance type, have not yet been made for the region hence the information given on the map is very generalized and is only approximate. A large part of the area consists of level to gently rolling plains with a silt loam soil that is fairly compact and was originally covered with a short grass sod, mostly of buffalo and grama grasses.

Considerable of the land is sandy, and originally supported a scattered growth of bunch grasses, weeds, and yuccas. These lands vary from almost level to almost hilly and are not extensively cultivated. Land too rough for cultivation occurs, which is not fenced as yet and is used as open range for stock. (See map). Almost all of the land belongs to private owners or to the State, only about 3,000 acres of public land yet remaining.

Altitude, Climate, Water Supply:- Lincoln and Washington are two of the highest of the plains counties of the State. The low divide which separates the tributaries of the Arkansas and the Platte rivers passes diagonally across the northern part of Lincoln County and the southeastern quarter of Washington County. The elevation above sea level at Limon is 5,361 feet, at Hugo 5,052, and at Akron 4,669. The generally high level of the region probably produces certain climatic effects that are of importance to farmers. It tends to increase the total amount of rainfall, increase the amount of sunlight and heat, shorten the growing season, and make for sudden and extreme changes of temperature with wide daily range of temperature.

The average annual rainfall as reported for a period of 10 years at Akron is 18.44 inches; that at Limon for a period of 15 years is 14.02 inches. The range between low and high is wide and the distribution, though mostly through the growing season, is often unfavorable for crops. The rainfall was just about the average at Limon in 1922 and 2.18 inches less than average at Akron.

There is an average growing season at Akron of about 5 months. In 1922 this region was frost free from April 29 to October 6. Temperatures ranged from 100° to -16° F. at Akron and 97° to -16° at Limon, in 1922.

Underground water for family and stock use may be obtained rather easily from wells. Most of such wells are of moderate depth, averaging from 50 to 100 feet. The deepest reported was 293 feet. There is a small amount of spring and creek water in the pastures but this is not common in the region. Most of the wells are supplied with windmills and tanks.

Farm Organization:- Three rather well-marked types of farming occur in this area, with subdivisions, as follows:

- I. Wheat farming - all other crops incidental and with small acreage.
 1. On a large scale with power machinery, generally on rented land - as a money-making scheme.
 2. On smaller farms by owner operators, using horses - primarily as a cash crop.
- II. General or diversified farming (crops and stock). - principal crops feed crops, cash crops usually secondary.
 1. With milk cows prominent, some hogs.
 2. With hogs as principal stock, supplemented by milk cows.
 3. With beef cattle first, some hogs, some milk cows.
- III. Stock farms or ranches - beef cattle, mostly on pasture, crop land producing winter feed only.

This is really a stage of a type which formerly dominated but is now disappearing. The change to II, 3, above, is slight and is the ordinary method of changing to the general type.

Some form of general or diversified farming is the type now most frequently practiced in the area, although evidence is still to be found, on many of the farms that one-crop farming with wheat was formerly the common type. General or diversified farming is the safest kind of farming to practice in this region under existing circumstances, since it can be depended upon to furnish a living for the farm family if the size of the farm is properly adjusted to the managerial ability, equipment, and labor supply of the farmer, and if the business is not over-capitalized.

The Farmers Interviewed:- Care was taken to get data from farmers who own at least part of the land they operated in 1922 and who are permanently established in the area. Men who rented all their land were not interviewed, hence the conclusions here presented do not represent that kind of farmer, although a certain number of them are found in the area. It must be kept in mind that the conclusions reached refer to men who want to live on their own farms and make a living for themselves and families from these farms.

No attempt was made by the enumerators to select only the best farms: they obtained records from any permanently established man. Hence the generalizations reached are reasonably correct for the permanent farming of the region.

These conclusions are based upon average values obtained from 151 general farms in which crop and livestock enterprises are adjusted to the farms and to each other for the production of salable products, while the farm furnishes directly a considerable proportion of the family living.

One factor of major importance to farming in this area is the large amount of land held by non-resident and non-operating owners. Some of this land is used for one-crop (wheat) farming by renters who pay nothing for the use of the land for two years, not even the taxes, except the cost of breaking the sod. While this is a fairly common type of farming in the area, this report tells nothing concerning it for as the land gradually passes into the hands of owner operators this type of farming, with its undesirable features, will disappear.

HISTORY OF OCCUPATION

This part of the Great Plains was occupied first by range cattle in the early seventies, the animals being first driven in, and later hauled in, from the south. The land with its grass crop was used for "ageing" and "grass finishing" beef cattle. Later some range sheep were introduced, a few of which still remain on the rough lands.

The range stock business began to die out when the irrigable lands along the Arkansas river were fenced, in the early to middle eighties, although the process was slow at first.

The first rush of homesteaders into Washington County occurred about 1888 to 1890. In Lincoln County it came about 10 to 12 years later, beginning north of the Burlington railroad near Arriba and gradually spreading. This first influx was mainly to gain title to the land. At least 90 per cent of these homesteaders had left the region within a few years after getting their patents and the land was used for stock range again for several years but never to the extent it was so used in the earlier open range days.

Scattered attempts at farming were made by the earlier homesteaders, a considerable part of which failed. But crop farms slowly became more numerous as individuals learned practicable methods. In Washington County, the earlier attempts at wheat growing were made with spring wheat. About the beginning of the new century farmers discovered that winter wheat is better adapted to the climatic limitations of the region and since that time it has been the principal crop.

During the war period there was another inrush of settlers. Most of these were farmers from States further east who sold out there at high prices and bought land here at prices which seemed low to them, considering the character of the soil and the then existing prices of farm products. During this period practically all the land was in use and the land owned by non-residents was rented at prices that paid taxes or more. Since the fall in prices of farm crops (particularly wheat prices), farming and other operations in the region have been curtailed and the crop area has been slightly reduced. But much of the land belonging to non-residents is not now paying any returns to its owners, not even taxes.

METHOD BY WHICH FARMS WERE OBTAINED,

Table I, which follows, shows (1) how and when the farmers interviewed obtained their farms, (2) the average size of holdings so obtained, and (3) the average first cost per acre, during each four-year period since settlement began, in each of the counties.

Table I. When and How Original Holdings were Obtained

Washington County - 81 Farms.

Lincoln County - 70 Farms.

1904 or earlier:	1	:	160	:	\$.31	:	:	:	:	1	:	160	:	\$.49				
1905 - 1908	:	13	:	185	:	.26	:	:	:	:	2	:	160	:	3.75			
1909 - 1912	:	8	:	320	:	.19	:	2	:	480	:	19.27	:	240	:	3.56		
1913 - 1916	:	:	:	:	:	:	:	3	:	267	:	14.00	:	:	:			
1917 - 1920	:	:	:	:	:	:	:	35	:	468	:	24.67	:	:	:			
Since 1920	:	:	:	:	:	:	:	2	:	260	:	40.38	:	:	:			
	:	:	:	:	:	:	:	:	:	:	:	:	:	:				
All	:	22	:	233	:	.23	:	42	:	427	:	24.37	:	5	:	192	:	3.11

Besides their original holdings, in whatever way they may have been obtained, many of these men have acquired additional land. A few were able to increase their holdings by homesteading under some later law which allowed them a larger total area, either as a homestead or a relinquishment. Most of the increases have been made as purchases, some of the men having made several such additions to their farms.

In Table II which shows these data, the figures in the "Number of Farms" column refer to the farms originally obtained during each four-year period. They do not refer to the time at which the additions were made. Thus, of the seven men who homesteaded and bought farms in Washington County in 1900, or earlier, five of them bought an average of 512 acres additional some time later (date not shown) at an average price of \$6.58 per acre. (Compare tables I and II).

Table III gives average prices paid for land either as original or additional purchases, during each of these four-year periods.

Table II. How Additions were Made and Their Cost.

Washington County.

Period in which original farm was obtained	By Homesteading	By Purchase	By Relinquishment
1900 or earlier	- : - : - : - : 5 : 512 A. : \$6.58	- : - : - : - : - : - : -	- : - : - : - : - : -
1901 - 1904	1 : 160 A. : \$.20	1 : 800 : 9.75	- : - : - : - : -
1905 - 1908	7 : 154 : .25	10 : 352 : 14.56	2 : 160 A. : \$1.04
1909 - 1912	- : - : - : - : 11 : 385 : 18.69	1 : 480 : 1.12	- : - : - : - : -
1913 - 1916	- : - : - : - : 6 : 327 : 18.25	- : - : - : - : -	- : - : - : - : -
1917 - 1920	- : - : - : - : 1 : 160 : 60.00	- : - : - : - : -	- : - : - : - : -
Since 1920	- : - : - : - : - : - : -	- : - : - : - : -	- : - : - : - : -
All	8 : 155 : .24	34 : 348 : 15.09	3 : 267 : 1.08

Lincoln County

1904 or earlier	- : - : - : 1 : 320 A. : \$8.75	1 : 160 : \$.48
1905 - 1908	1 : 160 : \$.27	7 : 366 : 11.97
1909 - 1912	- : - : - : - : 7 : 246 : 8.29	4 : 130 : 2.94
1913 - 1916	- : - : - : - : 2 : 360 : 13.50	1 : 320 : 8.00
1917 - 1920	- : - : - : - : 4 : 340 : 15.11	- : - : -
Since 1920	- : - : - : - : - : - : -	- : - : -
All.	1 : 160 : .27	21 : 318 : 11.67
		6 : 167 : 4.18

Besides the above, six farmers received additional land, as an inheritance or a gift, in Washington County, and one in Lincoln County.

Table III. - Average Prices Paid for Land in Each Period.

Counties	Before 1905	1905 to 1908	1909 to 1912	1913 to 1916	1917 to 1920	Since 1920
Washington	\$2.11	\$4.01	\$5.36	\$15.64	\$26.12	\$51.25
Lincoln	-	4.67	14.59	9.05	22.71	37.24

Examination of these tables shows plainly that nearly all of the farmers are agreed that 160 acres (the area the first homesteaders obtained) and even 320 acres which could be obtained in this way after 1908, is insufficient for general farming purposes in this area. The tables also show the relative first costs per acre of land obtained in different ways and the advances that occurred in average land values between 1900 and 1923, and the periods during which land acquisition went on most rapidly in each of the counties.

SIZE OF FARM AND UTILIZATION OF THE LAND

Sizes of the separate farms in this area were largely determined by the land laws which distributed the land in "quarter section" units, most of the farms showing an acreage which is some multiple of 160. The few farms that have some other total acreage serve only to modify the average sizes.

In condensed form, the facts relative to the average sizes of farms and the way the land was utilized in 1922, are shown in Table IV.

Table IV. Average Size of Farms and Utilization of Land

Washington County

Size groups (acres)	: No. of farms	: Average size of farms (acres)	Average acreage per farm (1) in				
			: Summer fallow		: Pasture		Wild
			: Crops		: hay		Waste
			: (acres)	:	:	:	:
320 or less	22	292	172	9	101		11
321 - 640	34	536	295	19	209	3	14
641 - 960	17	793	411	30	325	0	18
Over 960	8	1616	344	26	1073	146	27
All Farms	81	632	291	19	289	16	15

Lincoln County

320 or less	12	253	126		130		7
321 - 640	26	539	195	12	316	3	12
641 - 960	20	814	274	41	483	2	14
Over 960	12	1550	318	22	1180	7	23
All Farms	70	743	227	20	480	3	14

(1) "Per farm" values wherever used are obtained by dividing the total value of any item (say "crop area" or "fallow land") by the total number of farms in the whole group, whether they all have the item or not. Consequently when some of the farms do not have any of the item (e.g. "fallow land") those farms that do have some have a larger average amount than the indicated "per farm" average. These "per farm" values are believed to show what might called a safe average adjustment for the region.

In this table the total acreage operated is shown. Forty-five of these farms in Washington County and 45 in Lincoln County contain some rented land. The average amount of land rented by the farmers who rented any, was 349 acres in Washington County and 439 acres in Lincoln County. The average value of the rented land per renter is shown in Table VIII.

The farms in Washington County averaged about 15 per cent smaller in total size and have a larger per cent of their total area tilled (crops and summer fallow) than those of Lincoln County. Nearly half of the farm area is tilled on the Washington County farms, while only one-third of the area is tilled on the Lincoln County farms. Scarcely any free pasture land exists in the part of Washington County visited except along the roadsides, but Lincoln County has a larger amount of such grazing land still available. Only 20 farmers of the 151 in both counties received any benefit from such pasture and they received very little. Very little native grass hay is cut, and the yield per acre is low.

CROP GROWN AND AVERAGE YIELDS.

Wheat is the principal crop raised, occupying over half the crop land in Washington County and nearly half in Lincoln County. Oats are a relatively unimportant crop being considerably surpassed by the other small grains (rye, barley, and emmer). Corn is the second crop in importance, with hay of all kinds as third. Average yields are calculated on the basis of area harvested; none of them are more than fair, although these averages are made up from some high and some low returns.

The acreage of crops harvested was about 5 per cent less than that planted. This loss was doubtless light in 1922; it is occasionally much greater for most of the crops, especially for wheat. The principal hay crop of the region is sorghum, locally called "cane", which is drilled thick in rows, or is broadcast, and cut before it gets too large. Millet and a little sudan grass are grown and a small amount of wild grass hay is cut.

Table V. Area in Crops and Average Yields.

Averages per farm

Crops	Washington County (81 farms)			Lincoln County (70 farms)			: Average (1) per acre.
	Average acres planted	Average acres harvested	Average yield per acre	Average acres planted	Average acres harvested	Average yield per acre	
Wheat	165	156	10.2	105	100	13	
Oats	2	2	17.1	4	4	9	
Other small grains	20	18	13.5	29	26	9	
Corn	60	53	13.7	51	50	21	
Grain sorghums	1	1	20.3	2	2	14	
Hay and forage	37	32	1.2	27	24	1	
All other crops	2	1	-	6	6	-	
Total	287	273	-	224	212	-	

(1) Calculated on basis of acres harvested.

Note: Attention should be called to the fact that a noticeable decrease in wheat acreage, with a corresponding increase in corn acreage, occurred in both of these counties in 1923. The Colorado State Board of Immigration in its Year Books for 1922 and 1923 gives the following figures:

The total wheat acreage in Washington County in 1922 was 231,599; for 1923 it was 203,571, a decrease of 28,028 acres or about 12 per cent of the 1922 acreage. In Lincoln County the acreage planted to wheat in 1922 was 56,765 and in 1923 46,075, the decrease being 10,690 acres or nearly 19 per cent of the 1922 area.

The corn acreage in Washington County increased 41,901 acres in 1923 which was over 51 per cent of the area planted in 1922. The increase in area in corn in Lincoln County in 1923 was 3,775 acres or something over 6 per cent of the 1922 corn acreage.

Fifty-eight of the Lincoln County farms and 74 of the Washington County farms had gardens, in most of which some potatoes were grown, along with other vegetables for the home table. A few of the farmers grew potatoes as a field crop on a small acreage. The average potato yield was about 67 bushels per acre. A few acres of Mexican beans were grown, mostly in Lincoln County, with yields averaging 410 pounds per acre. A few farms have small orchards and some small sales of cherries were reported.

Farmers were asked to give from memory the yields obtained for wheat and corn as far back as they could remember. For the last five years these figures are sufficiently numerous to give fairly reliable averages. Earlier data are not very trustworthy as there were too few reports. They are given here for what they are worth. For comparison, the averages (nearest whole number) reported by the State Board of Immigration in its annual Yearbook for the two counties, and the corresponding United States Census figures are given. (See Table VI.)

From these figures it is seen that the farmers who gave reports were getting as good, or better, yields than the most reliable averages known for their counties.

Table VI. Average Yields of Wheat and Corn by Years

Reports of farmers compared with State and United States records (1)

Washington County				Lincoln County				
Year:	Farmers':	State	Farmers':	State	Farmers':	State	Farmers':	State
	reports	records	reports	records	reports	records	reports	records
	(bu.)	(bu.)	(bu.)	(bu.)	(bu.)	(bu.)	(bu.)	(bu.)
:	:	:	:	:	:	:	:	:
1912	7	:	10 (2)	:	14	:	30 (2)	:
1913	11	:	10 (2)	:	:	:	25 (2)	:
1914	14	:	15 (2)	:	20	:	14	:
1915	15	:	18 (2)	:	20	:	12 (2)	:
1916	25(2)	:	10 (2)	:	15(2)	:	15 (2)	:
1917	11	:	15	:	16	:	10(2)	14
1918	12	:	20	:	9	:	23	:
1919	16	:	9	:	14	:	12	18
1920	18	:	17	:	21	:	14	13
1921	10	:	6	:	8	:	12	13
1922	10	:	12	:	14	:	13	12
:	:	:	:	:	:	:	:	:
Average:	8	:	11	:	16	:	15	13
:	:	Census	:	:	Census	:	Census	:
1909	:	12	:	13	:	14	:	17
1919	:	13	:	8	:	8	:	15
:	:	:	:	:	:	:	:	:

(1) State Board of Immigration Yearbook and United States Census.

(2) Report from only one farmer.

LIVESTOCK ON THE FARMS

All the farms in both counties had work stock and chickens, all but one had milk cows, and by far the greater number had hogs and beef stock. The work animals were nearly all horses, only a few mules being reported. Hardly any sheep occur on the farms. A few of the farm women were making a little extra money with turkeys. The table gives the details.

Table VII. Average Number and Value of Animals on Farms Reporting.

Items	Washington County - 81 farms	Lincoln County - 70 farms						
	: Number of farms reporting	: Average number (1) per farm	: Average value	: Number of farms reporting	: Average number (1) per farm	: Average value	: Number of farms reporting	: Average value
	: reporting	: per farm	: reporting	: per farm	: per head	: per head	: reporting	: per head
Work animals	:	:	:	:	:	:	:	:
Other horses	:	81	8	53	70	7	68	
or mules	:	60	5	29	43	4	43	
Milk cows	:	80	6	49	70	8	43	
All other cattle	:	77	20	32	67	25	23	
Sheep (all kinds)	:	6	24	10	2	35	8	
Brood sows	:	75	7	22	66	6	21	
Other hogs and pigs	:	57	15	10	59	15	9	
Chickens	:	81	125	70	70	95	.72	
Turkeys	:	14	6	2.60	2	2	3.50	
	:	:	:	:	:	:	:	

(1) The nearest whole number. Note that these values are not per farm averages. They are the average numbers and values per farm that have any such animals.

An examination of this table and Table VIII, which gives the total value of livestock per farm, shows plainly that the farmers who were interviewed do not need to be urged to raise livestock for they all appreciate the advantages of this enterprise.

The opinion was generally accepted by farmers, business men, and bankers in this area that the farmer must use milk cows, poultry, and hogs or beef cattle or both, and must grow feed crops to feed them if he expects to stay in the farming business. Such a farmer becomes a good risk from the banker's standpoint, if he is not already overloaded with debts, and he has a little money all the time to pay his bills at the stores.

CAPITAL INVESTED IN THE BUSINESS

Of major importance in any business is the capital invested. Table VIII shows the average value of the land, buildings and other improvements, livestock, machinery, etc., for the farms visited. These average values per farm are probably fair representative figures for the region. The capital values of the individual farms range from about \$7,000 to over \$75,000 among the Washington County farms, and from a little over \$4,000 to nearly \$60,000 in Lincoln County.

The percentage distribution of the capitalization is interesting, showing as it does the tendency to increase the value of permanent and other improvements with increasing age and permanence of settlement.

Table VIII. Farm Capital 1/

Items	Washington County			Lincoln County		
	81 farms			70 farms		
	Value	Per cent of: Operator's Capital	Value	Per cent of: Operator's Capital		
Land owned	\$14,178	66	\$16,016	71		
Land rented from others (1)	10,811	--	11,185	--		
Dwellings	1,635	8	1,193	6		
Other buildings	1,264	6	772	3		
Water systems	269	2	133	1		
Fences	373	2	304	1		
Livestock	1,789	8	1,830	9		
Machinery	883	4	664	3		
Tractors	153	1	218	1		
Automobiles and trucks	313	1	222	1		
Feed and supplies on hand	348	1	334	2		
Crops held for sale	37	0.2	123	0.6		
Other assets	268	1	310	1		
Total Operator's Capital	21,510	100	22,119	100		
Total Farm Capital	32,321	---	33,304	---		

(1) The figures given in all other tables, and in all items except "land rented" in this table, refer only to the operator's business. The average area of land rented by those who rented at all is shown on page 13 following Table IV.

From Table VIII it may be seen that by far the greater part of the farmer's capital investment is in his land. Since very little land was selling at the time the data were obtained, the values given are the best estimates obtainable. Nevertheless they are probably fairly high when the present earning power of the land is considered. The other investments are more conservatively priced. In Washington County the average investment in improvements, livestock, machinery, etc., was about \$7,300, and the Lincoln County farmers had an average investment of nearly \$6,500.

The average value put upon owned land (without improvements) in Washington County was about \$31 per acre and the rented land was valued at about the same amount. In Lincoln County the owned land was valued by the owners at an average price of \$40 per acre and the rented land at \$27.

Table VIII is calculated on a per farm basis (except for rented land) which assumes that all the farms have all the items shown in the table. This assumption is correct for most of the items and for all the more important ones. All had land, dwellings, other buildings, and fences that represent investments in real estate. All but two had spent more or less money to get a reliable and convenient water supply; these two had springs that have cost only a nominal sum. Several of the water systems represent rather expensive improvements, since the wells are deep. Most of the wells are supplied with windmills, storage tanks, and more or less piping to distribute the water.

Of necessity everyone has machinery and livestock, and has feed and supplies necessary to carry through to the next harvest. Only 46 of these 151 men in the two counties (24 in Washington County and 22 in Lincoln County) had tractors, hence the average amount these men had invested in such machinery was considerably more than the \$153 and \$218 shown in the table (\$517 in Washington County and \$553 in Lincoln County). The other 105 farmers of the two counties had no investment in tractors.

In a similar way, the average amount invested in automobiles and trucks for the 72 owners in Washington County was \$353 instead of \$313, and for the 50 owners in Lincoln County it was \$311 instead of \$222 as shown in the table. Only seven farmers had any crops held over for sale in Washington County and ten in Lincoln County, but the value of these products per man who had them was high, being \$428 in the first named and \$890 in the last named county.

However, these "average value per farm" figures are worth while as giving the relative importance of the various items in the capitalization of the region, hence the percentage distribution of the total capitalization into its various parts should be examined rather carefully. (See footnote p. 9).

FARM RECEIPTS

Farm receipts may originate in several ways. Sales of crops, livestock, or livestock products are the sources that are generally thought of first. But a considerable number of farmers do farm work for their neighbors, or rent teams, machinery, pasture, or buildings, and not a few temporarily carry on some other kind of work for which they receive pay. Increases in the inventory value of feed and supplies or of livestock on hand at the end of the year are really credits to the farm for the year's business, as is the value of crops on hand that will be sold, though such returns for the year's business are frequently overlooked in the estimate that farmers sometimes make in lieu of bookkeeping. (See Note after Table IX).

A general summary of the average values per farm for this area is shown in Table IX.

Table IX.- Operator's Farm Receipts

Average amount per farm

Sources of Receipts	Washington County:		Lincoln County:		Both Counties	
	81 farms		70 farms		151 farms	
	Per	Amount	Per	Amount	Per	Amount
	Amount	cent (2)	Amount	cent (2)	Amount	cent (2)
From crops	\$1,179	45.	\$1,042	42.	\$1,115	44.
" livestock (1)	782	30.	683	27.	736	29.
" livestock products	291	11.	309	12.	299	12.
" increase of feed, etc.	129	5.	110	5.	120	4.
" outside earnings	174	7.	215	9.	194	8.
" crops held for sale (1)	37	1.	127	5.	80	3.
Av. total farm receipts	\$2,593	100.	\$2,486	100.	\$2,544	100.
Av. total cash receipts	\$2,572	-	\$2,363	-	\$2,368	-

(1) In the kind of farm accounting originating with studies like this, certain usages need explanation. The result sought is the net return made by the farm during one year of operation. Certain items like "livestock" and "feed and supplies" must be inventoried at the beginning and end of the year because they change during the year. Additions are made to the livestock by purchase and by increase of number and value of stock on hand. Reductions are made by sale, butchering, age, or death. In the tables, the net increase due to sales and increase in inventory is reported as "receipts" from livestock. An increase of inventory of feed and supplies is reported as a "receipt" because it also is a net gain to the business. In the same way crops of the year, though not sold, are reported as if they had been sold at the price current at that time and so become "receipts."

Similarly net decreases in the total value of livestock, and feed and supplies on hand at the end of the farm year, are reported as "farm expenses" because the inventory values have decreased just that much. Depreciation on buildings, machinery, etc., are likewise decreases in inventory value, and for convenience are handled as "expenses" (outgo) although there has been no real expenditure of cash.

(2) Percentage that each item is of Total Farm Receipts.

A more itemized account of the operator's actual cash receipts from the first three sources of income is given in Table X. This table analyzes the condition a little more carefully in respect to the individual farmer, and gives each a standard by which to judge the returns from enterprises which he may be conducting.

Table X. Sales of Farm Products.

Products	Washington County				Lincoln County			
	No. of farms	Total amount	Average price	Total value	No. of farms	Total amount	Average price	Total value
sell-ing	or number sold	re-ceived	value	sell-ing	or number sold	received	value	
CROPS								
Wheat	76	104,136 bu.	\$.85	\$88,716	50	62,997 bu.	\$.83	\$52,473
Oats		-		-		-		-
Other small grain	10	2,357 bu.	.59	1,391	28	7,638 "	.60	4,594
Corn	12	3,977 "	.69	2,756	23	10,812 "	.59	6,375
Grain sorghums	3	905 "	1.05	952	9	721 "	1.32	949
Hay (all kinds)	4	36.5 tons	5.27	192	7	27 tons	7.08	191
Potatoes	5	384 bu.	.83	319	13	4,333 bu.	.67	2,894
Beans	4	13,319 lbs.	.07	938	15	68,540 lbs.	.07	5,039
Fruit	1	40 bu.	3.50	140	.2	-	-	205
LIVESTOCK								
Horses and mules	11	36	\$.42.	\$. 1,527	11	28	\$.81.	\$2,259
Milk cows	23	55	.42.	2,294	25	93	.37.	3,419
Other cattle	67	712	.34.	24,523	54	906	.32.	29,264
Swine (all ages)	70	1,702	.16.	26,563	62	1,310	.14.	18,568
Poultry	67	4,458	.81	3,597	45	3,512	.65	2,269
LIVESTOCK PRODUCTS								
Butter	19	5,173 lbs.	\$.40	\$. 2,083	9	3,658 lbs.	\$.39	\$1,421
Butter fat	56	30,878 "	.31	9,448	58	39,851 "	.31	12,254
Milk	2	4,500 gal.	.38	1,700	-	-	-	-
Eggs	75	43,316 doz.	.21	9,027	63	31,774 doz.	.22	6,935
Beef	7	1,422 lbs.	.10	144	3	6,010 lbs.	.12	719
Pork	7	2,345 "	.10	233	3	895 lbs.	.11	97
Miscellaneous	18	-	-	322	15	-	-	224

Included in the miscellaneous items are receipts from the sale of wool and hides, breeding fees, and the like. Two farmers had some sheep and sold a few head of lambs.

More detailed figures for poultry and dairy products will be found in Table XI.

Table XI, Production and Value of Poultry and Dairy Products

Average values per farm

Items	:	Washington County 81 farms	:	Lincoln County 70 farms
Number of hens on the farm (1)	:	119	:	95
Number of chickens sold (2)	:	48	:	50
Number of chickens used	:	91	:	53
Total value of chickens sold and used (1)	:	\$73.	:	\$61.
Number dozen eggs sold	:	520	:	412
Number dozen eggs used	:	238	:	180
Total value of eggs sold and used	:	\$163.	:	\$132.
Number of cows milked	:	6	:	8
Weight of butter sold (lbs.)	:	74	:	46
Weight of butter used (lbs.)	:	118	:	125
Value of butter sold and used	:	\$71.	:	\$60.
Weight of butterfat sold (lbs.)	:	338	:	584
Weight of butterfat used (lbs.)	:	72	:	44
Value of butterfat sold and used	:	\$126.	:	\$194.
Amount market milk sold (gal.)	:	54	:	1
Amount market milk used (gal.)	:	243	:	300
Value of market milk sold and used	:	\$65.	:	\$55.
Value total dairy products per cow	:	\$45.	:	\$40.

(1) Includes ducks

(a) A few turkeys were raised and sold at good prices.

Work done off the farm has been mentioned as a source of income. (See Table IX, "outside earnings"). Such work is usually some form of farm work in which the operator supplies his teams and equipment as well as his own labor to help a neighbor. Or he may make his tractor or separator pay for itself by using it for hire, especially using his tractor for hauling grain. A number of men make a practice of doing road work when their teams or tractors are not busy, while some of them make contracts to perform such work as needed. Such work is referred to in the table below as farm and road work.

There are other men who work at trades of some kind, such as carpenters, blacksmiths, etc., for longer or shorter periods. An occasional farmer receives pay for services as a township assessor or as a county commissioner, or in other official capacity. Occasionally some buildings or pastures are rented or insurance is received for damage from hail, insect pests, or disease. Following is a table which summarizes the data.

Table XII. Receipts for Work off the Farm

Counties	: Farm and Road		: Other services, Rent	
	: Work		: Insurance, etc.	
	: No. of men reporting	: Av. amount received per man reporting	: No. of men reporting	: Av. amount received per man reporting
Washington	: 39	: \$169	: 19	: \$297
Lincoln	: 30	: 257	: 20	: 366
Both counties	: 69	: 207	: 39	: 330

The "per farm" value of both these items is found in Table IX.

Another important source of income is the food and rent furnished to the family by the farm. The amount of this income varies considerably with the number of persons in the family, the amount of farm products they use and the value of their dwelling houses.

In most of the farm bookkeeping it is assumed that these items of family living have been furnished in addition to the income made by the farm and the value is not included in the "receipts." That practice is followed here, but this important source of income is not omitted in the summary tables.

An analysis which shows the number of farms furnishing such products and the average amount of each furnished is given in Table XIII.

Table XIII. Value of its own Products used by the Farm Family.

Number of farms producing each amount.

Value of products furnished	Dairy and poultry products	Meat beef and pork	Garden produce and potatoes	Orchard and other fruits	Other products flour, beans rent	House rent
Washington County						
Nothing	None	1	11	63	78	2
\$1 to \$50	None	19	50	16	3	5
51 to 100	7	42	16	2	-	9
101 to 200	45	16	3	-	-	17
201 to 300	22	3	1	-	-	37
301 to 400	5	None	-	-	-	8
Over 400	1	None	-	-	-	15
No. of farms reporting	81	80	70	18	3	79
Av. value per farm reporting	\$197	\$82	\$43	\$26	\$6	\$264
Lincoln County						
Nothing	None	3	2	65	42	4
\$1 to \$50	1	33	38	4	17	4
51 to 100	7	24	22	1	-	11
101 to 200	38	9	7	-	-	28
201 to 300	23	1	1	-	-	10
301 to 400	1	-	-	-	-	8
Over 400	-	-	-	-	-	4
No. of farms reporting	70	67	68	5	17	66
Av. value per farm reporting	\$174	\$64	\$48	\$37	\$10	\$197

FARM EXPENSES

Farmers do not need to be told that expenses are of as much and sometimes greater importance than receipts. Table XIV, which follows, gives an analysis of the expenses of that "average" farm of this area which probably does not exist in reality but is a very important standard by which to measure the actual farms. (See note page 16).

Table XIV. Operator's Farm Expenses

Average per farm.

Items	Washington County		Lincoln County	
	81 farms		70 farms	
	Average amount: per farm	Per cent of total	Average amount: per farm	Per cent of total
Current expenses	\$1,435	76	\$1,144	74
Livestock decrease	-	-	7	1
Depreciation on improvements	159	8	97	6
Depreciation on machinery, etc.	91	5	74	5
Depreciation on tractors	53	3	70	5
Depreciation on autos	93	4	85	5
Decrease in feed and supplies	68	4	69	4
Total Farm Expenses	\$1,899	100	\$1,546	100

All of the farms had current expenses, and depreciation on buildings, fences, and machinery, hence the average figures given above apply.

There were only three farms which showed a decrease in the total value of livestock and on two of these the decrease was so small as to be negligible. The other decrease was due to heavy sales of stock carried over from the previous year.

Only 24 men in Washington County and 22 in Lincoln County had tractors, upon which depreciation charges averaged \$179 and \$222 respectively. Seventy-four of the Washington County farmers had automobiles, or trucks or both, upon which the average depreciation charge was \$102, while 54 of the Lincoln County men also had automobiles or trucks upon which the depreciation averaged \$110. All of the men who had tractors also had automobiles and several had automobile trucks.

About one-third of the farms (31 in Washington County and 29 in Lincoln County) had less feed and supplies on hand at the end of the year than at the beginning; the average value of this difference was \$178 in the former and \$165 in the latter county. (See Note p. 9).

But while depreciation charges and differences in inventory are very real expenses they are usually ignored by the average farmer. He thinks of expenses in terms of actual cash expended and does not differentiate between money spent for repairs and the construction of new improvements.

He writes off the accumulated depreciation on his car or tractor by turning in the old one and buying a new one while thanking his lucky stars for any credit he may receive from the dealer.

To bring out a little more clearly the nature of the actual cash expenditures of the farmer in contradistinction to the "farm expenses" previously shown and to show which items are the more important, Table XV has been prepared. It shows not only the average amount of money expended by those who paid a given kind of expense, but the number of men who had such an expense, and its relative importance among farmers of this area.

Table XV. Average Cash Expenditures of the Operator in Carrying on the Farm Business

: Washington County - 81 farms:			Lincoln County - 70 farms			
Items of expense incurred	No. of farms	Total amount	Av. amount per farm	No. of farms	Total amount	Av. amount per farm
	incurring	incurring	incurring	incurring	incurring	incurring
Feed and seed bought	80	:\$13,790	\$172	70	:\$9,139	\$131
Cash rent (1)	23	: 3,047	132	20	: 2,359	118
Tractor, automobiles or truck (2)	74	: 13,871	187	55	: 12,159	221
Repairs (3)	81	: 7,531	93	70	: 4,378	63
Labor (4)	68	: 16,904	234	53	: 8,810	166
Threshing (5)	69	: 10,164	147	59	: 8,123	138
Insurance (6)	67	: 7,600	113	62	: 6,673	108
Taxes (7)	81	: 19,352	239	70	: 11,640	166
Interest (8)	68	: 20,543	302	61	: 18,234	299
All others (9)	81	: 7,371	91	70	: 4,501	64
Total (all farms)	81	: 120,173	\$1,484	70	: \$86,016	\$1,229

(1) Cash paid for rent of land or for pasturage of stock.

(2) Expenses of running and repairs (no interest charge).

(3) Repairs of buildings, fences, water systems, and machinery (not including tractors, automobiles or trucks).

(4) Hired labor and its board (not including unpaid family labor, nor board of threshing crews).

(5) Cost of threshing and board of threshing crews.

(6) All kinds - fire, stock, and crops.

(7) Of operator only, on real estate and personal property.

(8) Interest paid on borrowed capital. This item does not include interest paid on short-time loans of borrowed working capital which is a regular farm expense. The interest charge shown here is that part of the returns of the business which must be paid for the use of that part of the capital investment which does not belong to the operator. It is a cash outlay of the operator but not an expense of the business. In effect it is that part of the net income of the business which the operator pays to his business partner.

(9) All other cash expenses; that is, grain hauling, commissions, other machine work, etc.

A study of Table XV shows that the largest single cash expenditure was the amount paid as interest on borrowed money /1 and that about 85 per cent (84 per cent in Washington County and 87 per cent in Lincoln County) of the farmers paid more or less. The next most important expense was taxes, which all paid. Very close to taxes were the wages of hired labor for those who paid it (84 per cent of the farmers in Washington County and 76 per cent in Lincoln County). This labor expense includes the cost of harvest labor, which is the most important part of it, but does not include the cost of threshing. The latter is listed separately in the table and is a rather important item.

Another item which accounts for the outlay of cash and is often included as an expense, but is really an increase in capitalization, is the money paid out in the purchase of livestock. This item is cared for in the end of the year inventory. In Washington County, 69 of the farmers bought livestock of some kind, the amount expended ranging from \$6 to nearly \$8,000 with an average of \$265. In Lincoln County, 56 farmers bought livestock, the expenditure ranging from \$13 to \$930 with an average of \$239 per farmer who bought any.

There were a few but not many expenditures for new machinery, new buildings, or improvements.

FARM INCOME

The difference between the operator's "total farm receipts" and his "total farm expenses", as previously defined, is usually called the operator's "farm income" in discussions of this kind. It must be remembered that the figure for "total farm receipts" contains all increases in inventories of livestock, and feed and supplies, as well as the value of any unsold crops of the year; but it does not include the value of that part of the family living which has been supplied by the farm. Likewise the figure for "total farm expenses" contains decreases in inventories, legitimate depreciation and repair charges (whether paid or not), and a charge for the labor of other members of the family which has not been paid for. It does not include the value of the operator's labor, nor is there any interest charge on his capitalization or a rental charge in lieu of such interest.

The operator's farm income thus becomes what the farm pays him for his labor and interest on his capital, after having furnished him and his family shelter and a considerable part of their food (See Table XIII).

/1 The item referred to as "borrowed money" consists of loans on real estate or chattels and is usually secured by a mortgage of some kind. It really is a part of the capital which belongs to some one else than the operator. The interest charges on such loans must be paid out of the year's income. This item does not include the interest on "borrowed working capital" which is paid as a part of the "current expenses".

If the farmer really owns his farm, all this farm income comes to himself, to be divided as he sees fit between wages and interest. If he allows the current rate of interest on his investment the remainder may be claimed as wages for himself (usually called the "labor income" of the operator). /2.

If he allows himself such wages as he thinks he is worth, the remainder becomes the interest on his capital and the rate may be calculated.

If he has a mortgage on the farm, the interest on that much of the capital must be paid to some one else. If that interest charge amounts to more than the farm income, the operator gets no wages and no interest on his equity in the capital. Such farms are probably overcapitalized.

If the expenses are greater than the receipts, the farm ran at a loss for the year; the farm income in such a case is written as a minus quantity. (See Table XVII).

Following is a table (XVI) showing the average values per farm of several of these items.

Table XVI. Farm Income, Family Income, etc.

Average values per farm.

Items	:	Washington County: 81 farms	Lincoln County: 70 farms
Operator's farm income	:	\$694	\$940
Estimated value of operator's labor	:	674	589
Interest earned on capital	:	20	351
Total operator's capital (See Table VIII)	:	21,510	22,119
Rate of interest thus earned	:	0.09%	1.61%
Farm income	:	\$694	\$940
Interest paid on borrowed capital	:	238	257
--	:	456	683
Unpaid family labor	:	190	197
Amount available for the family	:	646	880
Family living supplied by farm	:	578	474
Total amount received by family from above sources	:	\$1,224	\$1,354

Special attention should be given to the part of the table below the double line. Some of the farmers had borrowed money and had to pay interest

/2 "Labor income" is omitted from these tables: (a) because it is so liable to be misinterpreted and given more weight than it deserves and (b) because, in the opinion of the writer, the capital values obtained in this study (particularly the land values) are too high, and the current interest rate (8%) is higher than most farmers are paying and higher than most money earns in this area. Therefore the calculated interest charge on capitalization is entirely too high and labor income would be correspondingly low hence, to that degree, incorrect. It is not proper for the writer to substitute his individual judgment in such a case and a method of applying a correction is wanting, hence the labor income figures are omitted from the tables. The data for calculating them, such as they are, will be found in the tables given.

on it. These charges must be paid from the farm income. But the farmer did not pay for the labor of the members of his family, hence the actual amount of cash received by the farmer is as much greater than the farm income as the amount charged against the year's business for this family labor.

If we deduct the interest paid from the farm income and add the family labor charge we will have what the farmer actually has with which to pay the family's expenses. If now we add the value of food and rent furnished by the farm (calculated to a per farm basis from Table XIII) we have the net income of the farmer and his family from all sources.

Since only about 80 per cent of the farmers paid interest on borrowed money and only about one-third of them had any unpaid family labor, a more detailed analysis of these items and the farm incomes is desirable. Table XVII presents the information.

Table XVII. - Farm Incomes, Family Labor, Etc.

Number of farms producing incomes of indicated amounts.

Amount received or paid	Farm Income	Interest paid on borrowed capital	Value of unpaid family labor
	No. : Average amount	No. : Average amount	No. : Average amount
Washington County			
\$-1601 or less	1 : \$-2170	1 : 944	1 : 52
-1600 to -301	1 : -944	1 : 539	1 : 124
- 800 to -401	7 : -539	4 : 268	6 : 310
- 400 to -201	4 : -268	1 : 167	1 : 577
- 200 to -101	1 : -167	1 : 43	1 : 1013
- 100 to 0	3 : -43	1 : 485	1 : 1800
Average of all	17 : -485		
\$ 0 to \$100	4 : 35	10 : 66	7 : 52
101 to 200	3 : 156	21 : 147	5 : 124
201 to 400	6 : 343	19 : 319	14 : 310
401 to 800	26 : 595	9 : 531	
801 to 1600	12 : 1228	4 : 1179	
Over \$ 1600	13 : 2453		
Average of all	64 : 1012	63 : 306	39 : 394
Lincoln County			
\$-1601 or less			
-1600 to -801	2 : \$-1144		
- 800 to -401	3 : -655		
- 400 to -201	1 : -221		
- 200 to -101	3 : -135		
- 100 to 0	3 : -14		
Average of all	12 : -419		
\$ 0 to \$100	2 : \$ 70	12 : 63	8 : 78
101 to 200	2 : 130	13 : 140	3 : 129
201 to 400	5 : 324	15 : 293	9 : 302
401 to 800	11 : 591	15 : 546	10 : 557
801 to 1600	24 : 1095	3 : 944	4 : 1125
Over \$1600	14 : 2565		
Average of all	58 : 1219	58 : 310	34 : 406

This table shows that 17 of the farms in Washington County (or 21 per cent of all) were operated at a loss in 1922, and 12 of the Lincoln County farms (or 17 per cent) were in the same class. All that their operators got was what the farm furnished the family, and most of them had to borrow some money in order to stay on the farm and work it.

It also shows that 51 of the farmers in Washington County (63 per cent) and 49 of those in Lincoln County (70 per cent) received more than \$400 (the average amount received is considerably more) which may be considered as wages for themselves or applied as interest on their capitalization. These men also received what their farms furnished their families in food and house rent.

An analysis of the figures for the individual farms (not given because of lack of space) shows that 14 of the Washington County farmers received (a) the family living from the farm, (b) eight per cent on their total capital, and (c) some additional cash. For seven of these men the amount of this additional cash was more than current farm wages. Hence these 7 farmers (over 8.6 per cent of all the farmers interviewed) received returns in excess of wages, family living from the farm, and 8 per cent on their total investment.

A similar analysis for the Lincoln County farmers shows that 22 of them (31 per cent) received the family living from the farm, 8 per cent on their investment, and some cash. Six of these 22, or 8.5 per cent of all the Lincoln County farmers interviewed, received the family living from the farm, 8 per cent on their investment, and more than regular farm wages.

INDEBTEDNESS

Nothing is more important to a farmer than his indebtedness. Many farmers do not recognize the fact that when they borrow money, they have added to the number of people that the farm must support and that this unseed addition to the family must be fed first.

Of course the size of the indebtedness is its most important characteristic. This is usually measured in the total number of dollars due and the interest rate. But the real measure of the importance of such debts is the relation of the size of the debt to the farm's ability to pay without bankrupting the operator. A debt of \$500 on one farm may be much more important than one of \$5,000 on another. Sometimes indebtedness is evidence of good business judgment of the operator, while in other cases it may be merely one of the steps toward financial ruin.

In last analysis the principal security for indebtedness is the farmer's property. In judging the relative size of the debts, those that amounted to \$10.00 per acre of owned land or less, were called "small", on the assumption that this represented an amount which approximated a 25 per cent lien on the average real estate values of the region. Any indebtedness of more than this amount was classed as "large".

To give some general idea of the amount of indebtedness, or what might be termed the status of solvency among general farmers of these two counties, the following table is suggestive.

Table XVIII. Indebtedness.

Amount of indebtedness and changes made during the year.

	Washington County - 81 farms			Lincoln County - 70 farms		
	Number	Per cent	Average	Number	Per cent	Average
	of farmers	of whole	amount per acre	of farmers	of whole	amount per acre
No. debts	18	22	-	10	14	-
Small debts	36	45	\$3,498	34	49	\$3,288
Large debts	27	33	7,198	26	37	7,582
	Debtors Who Decreased Debts in 1922					
Small debts	24	67	\$ 122	18	53	\$ 301
Large debts	15	56	300	10	38	601
	Debtors Who Increased Debts in 1922					
Small debts	1	4	\$ 150	-	-	-
Large debts	2	7	450	2	8	\$ 400

Of the Washington County farms listed in Table XVIII the 18 in the first group had no mortgage indebtedness; five of these paid interest averaging \$45 on personal loans for borrowed working capital averaging \$524, the loans running from 2 months to a year, at an average rate of indebtedness of \$1.46 per acre of owned land. Thirteen, or 16 per cent, of all farms had no indebtedness of any kind. One farmer mortgaged his previously unmortgaged place during 1923 to raise money to buy land in another state, and one of the five referred to in the previous paragraph had to change his personal loan of \$1,500 into a mortgage loan because of reduced income in 1922.

In Lincoln County, 10 men had no mortgage indebtedness but two of them had borrowed working capital amounting to \$115 each upon which they each paid approximately \$10 interest. The other eight men, or 11 per cent of all the farmers visited, had no indebtedness of any kind.

Another convenient way of measuring the relative importance of a man's indebtedness is to compare it with his capital. In Washington County the men classed in the small indebtedness group had an average indebtedness of 15.7 per cent of their average capital. The average indebtedness of those in the other class was 40.3 per cent of their average capital. These percentages for Lincoln County farmers were 16.3 per cent and 37.5 per cent respectively.

A more detailed analysis of the nature and amount of the indebtedness and the number of farmers having different kinds are shown in Table XIX.

Table XIX. Number of Farmers Having Different Kinds of Indebtedness

Average amounts of such debts.

Washington County - 81 farms.

Indebtedness	:First mortgage ness	:Second mortgage No. : Amt.	:Chattel mortgage No. : Amt.	:Other debts No. : Amt.	:Borrowed work- ing capital No. : Amt.	:Interest paid No. : Amt.
None	:	:	:	:	:	:
Small	:	35: \$2627:	3: \$2100	7: \$1029:	7: \$1050:	19: 691
Large	:	27: 5190:	6: 3883	10: 1696:	7: 1463:	13: 360

Lincoln County - 70 farms

None	: -: -:	-: -:	-: -:	-: -:	2: 2:	\$115: \$1
Small	:	31: \$2470:	3: \$2000	11: \$ 877:	6: \$1836:	7: 204
Large	:	25: 4579:	9: 3308	16: 1942:	6: 777:	8: 800

The analysis of the status of solvency presented in Tables XVIII and XIX shows that the farmers visited in these two counties are as a group not in serious financial straits. Table XVII shows that a fair number of them lost money in 1922, but their solvency as business men was not seriously threatened. Several received ample returns for their labor and investment and many made more than enough to live on.

There were some whose credit was nearly exhausted and among them a few who may fail, but by far the greater part of them are financially sound and nearly two-thirds of them are either without debts or are in an easy financial condition. Only a few are in serious danger of financial ruin.

This does not say that a continuation of the losses sustained in 1922 will not affect them, but such losses are not to be expected on properly organized farms, for any length of time, and in the main the farms of the region approximate the type which is best fitted to the region.

Another argument in support of this generalization is given in the number of farmers who made reductions in their indebtedness during 1922 (see Table XVIII) and the very few who increased their borrowings. Parenthetically it might be said that the Federal Farm Loan system is to a considerable degree responsible for this, since most of these decreases in debts are amortization payments on such loans. But practically all of the men paid their interest, no one reported store accounts of any size, and hardly any reported taxes as delinquent although everyone said they were high.

NET GAINS OR LOSSES MADE BY FARMERS

It is difficult to measure the degree of success that farmers obtain in any region. Results obtained from a survey of the last complete year's business tell nothing but the status of the business at the end of that year and whether or not the operator has made a living for his family, wages for himself, and interest on his investment during that year.

In a new country that is occupied by original homesteaders who started with very little extra capital, the mere fact that they have been able to stay and make farms out of "wild" land is generally an indication of a considerable degree of success.

Less than half the farmers interviewed obtained any part of their land as homesteads or relinquishments; the others bought at continually rising prices, as time went on. (See Tables I, II, III.) The capital thus invested by the later comers was obtained from some other source, and these farmers' business condition is a measure neither of the long-time producing power of their farms nor of their success as operators.

But if we know what the farmer started with, and what he has now, the difference between these values shows what he has made or lost on the farm during the time he has operated it, provided this farm business has neither been assisted by earnings from other business enterprises nor furnished money for outside expenditures.

By obtaining from the operator the major items of outside income and expenditure that affect his farm business, it was possible to apply this correction to the original net worth and in this way get the total gain or loss on his farm for the period of operation.

But part of this gain or loss is due to a change in the value of the land, and this is difficult to measure. The value of the land at the end of the last business year (which is the most important item of his net worth) is an estimate and a difficult one to make, especially when land prices are falling and very few sales are being made. To reduce the effect of this uncertainty to a minimum the apparent increase in value of the land 1/3 is subtracted from the gain or loss made by the farm. This result shows what the farm and farmer have produced. Whatever the increment in value of the land may be, it is an additional gain to the owner.

Table XX shows the average values for each of these quantities for each of the 4-year periods of settlement since 1904.

1/3 The buying price of the land is known, but the 1923 value of the same land is only the best estimate which the farmer could make. Hence the difference between the two, which would be the increase in value of the land, is to the same degree uncertain as the estimate of the present value of the land.

Table XX. Changes in Average Net Worth
By periods showing time of settlement.*

Washington County - 81 farms.

Items -	Time when farms were originally settled					
	Before 1905	1909	1913	1917	Since 1920	
Average values of	7 farms	12 farms	19 farms	17 farms	23 farms	3 farms
Present net worth (1)	23,120	16,055	18,272	23,903	13,679	11,602
Original net worth corrected (2)	165	879	3,592	7,515	8,771	10,989
Difference (3)	22,955	15,176	14,680	16,393	4,909	613
Increase in land value(4)	14,295	12,995	13,144	14,044	3,439	630
Difference minus land value (5)	8,660	2,181	1,537	2,348	1,470	-17

Lincoln County - 70 farms.

	2 farms	15 farms	12 farms	3 farms	34 farms	4 farms
Present net worth (1)	21,403	16,335	20,981	16,824	18,724	11,878
Original net worth corrected (2)	34	1,973	3,247	5,650	11,555	3,050
Difference (3)	21,374	14,362	17,734	11,174	7,169	8,826
Increase in land value(4)	16,496	13,639	16,128	10,858	6,794	3,764
Difference minus increase (5)	4,878	723	1,606	316	375	5,312

(1) Average net worth March 1, 1923, of farmers who settled on the farms, which they operated in 1922, during the 4-year period indicated at the top of each column.

(2) Average net worth of these same farmers at time of settlement corrected for outside receipts and expenditures that affect this farm business.

(3) Average difference between these two quantities or average gain made.

(4) Average increase in the value of the land during period of operation.

(5) Average gain less the increase in land value.

*These figures do not quite agree with those in Tables I, II, and III because a number of the farmers obtained their land some time before they began to live on it.

From Table XX it appears that there has been a general gain to farmers both in land values and in increase in net worth, due to their activities, and that the amount of these average gains is to some degree associated with the length of the period of operation.

Since some of the individual farmers lost, others gained enough more than the average to make up for these losses. Table XXI shows the number of men who made gains and losses within certain indicated limits, the entries being classified as to the period of settlement.

Table XXI. Number of Farmers Making Gains or Losses in Net Worth Since Settling.

The increase in land value having been deducted.

Washington County

Amount of gain or loss per farm	Time when farms were originally settled					Since 1920
	Before 1905	1905 to 1908	1909 to 1912	1913 to 1916	1917 to 1920	
<u>Losses</u>	:	:	:	:	:	:
more than \$4,000	-	1	2	3	2	-
\$4,000 to \$2,001	-	-	-	1	3	1
\$2,000 to \$0	-	1	4	2	1	1
Av. amount of loss	-	\$4,187	\$4,583	\$3,194	\$5,096	\$880
<u>Gains</u>	:	:	:	:	:	:
\$0 to \$2,000	-	2	3	2	7	1
\$2,001 to \$4,000	1	4	4	3	4	-
\$4,001 to \$6,000	5	4	4	2	2	-
\$6,001 to \$8,000	1	-	-	2	2	-
Over \$8,000	2	-	2	2	2	-
Av. amount of gain	\$8,660	\$3,454	\$4,361	\$5,371	\$3,787	\$1,708

Lincoln County

Amount of gain or loss per farm	Time when farms were originally settled					Since 1920
	Before 1905	1905 to 1908	1909 to 1912	1913 to 1916	1917 to 1920	
<u>Losses</u>	:	:	:	:	:	:
more than \$4,000	-	3	1	-	5	-
\$4,000 to \$2,001	-	2	1	-	1	-
\$2,000 to \$0	-	-	2	1	6	1
Av. amount of loss	-	\$4,207	\$2,788	\$1,153	\$5,706	\$460
<u>Gains</u>	:	:	:	:	:	:
\$0 to \$2,000	-	5	4	2	10	1
\$2,001 to \$4,000	1	3	1	-	4	1
\$4,001 to \$6,000	1	1	1	-	1	-
\$6,001 to \$8,000	-	-	1	-	5	-
Over \$8,000	-	1	1	-	2	1
Av. amount of gain	\$4,878	\$3,188	\$3,630	\$1,051	\$3,692	\$5,902

In using this table it must be remembered that the effects of changes in land values have been eliminated from the figures given. If a man obtained his land at a low cost and has owned it for several years the very real increase in that land's value, whatever it may be, is an asset to be added to the gains shown in the table. This condition occurs on most of the older farms. The opposite condition occurs on those farms whose land values have declined since they were acquired. Generally speaking, these are the farms bought at relatively high prices during the war time boom, when wheat prices were high. Such decreases in land values are additional losses to some farmers and reduce the net worth of some who otherwise have gained.

CONCLUSIONS

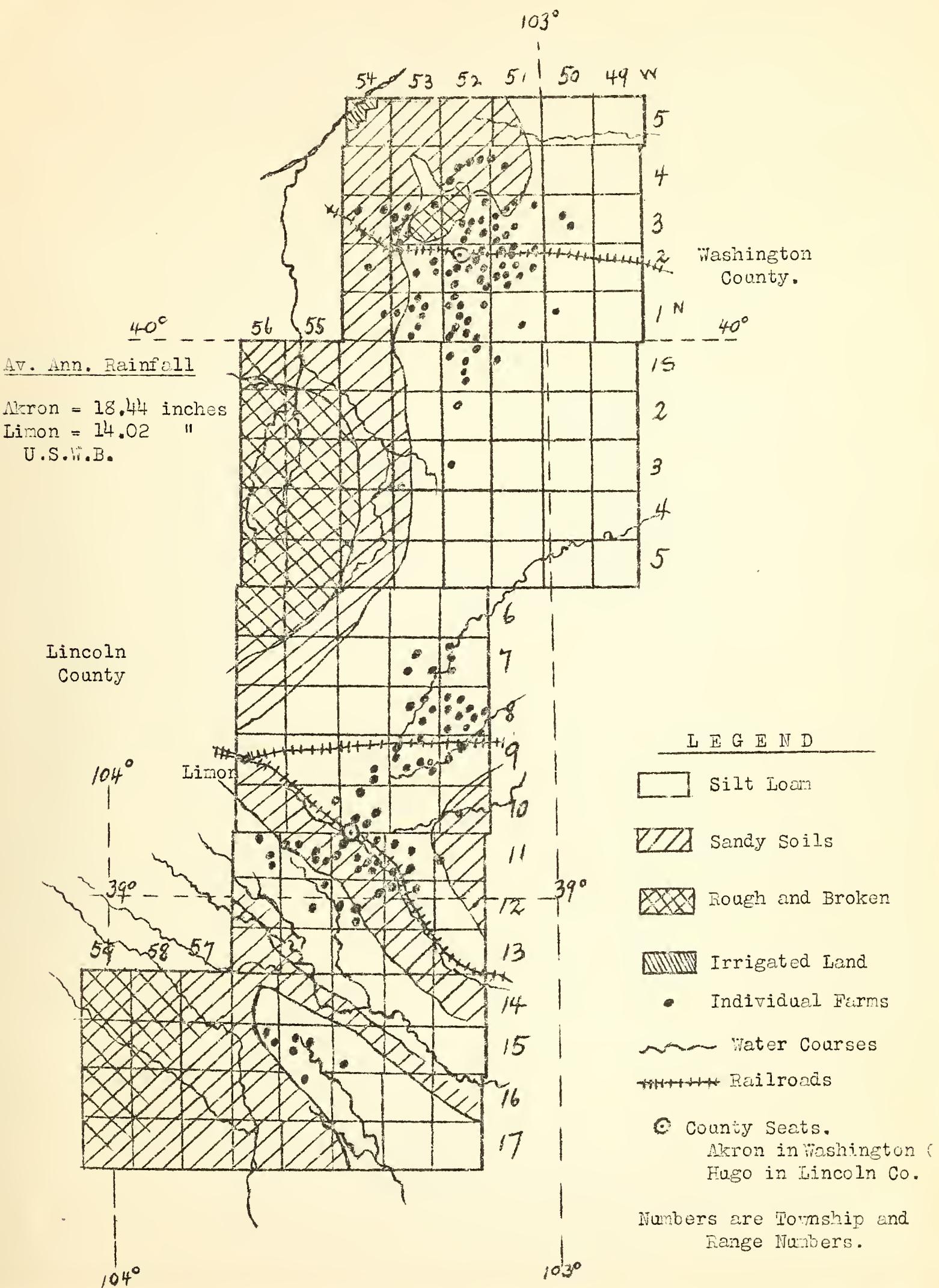
Following are some suggestions concerning the general or diversified farms of this region, which seem warranted by the study.

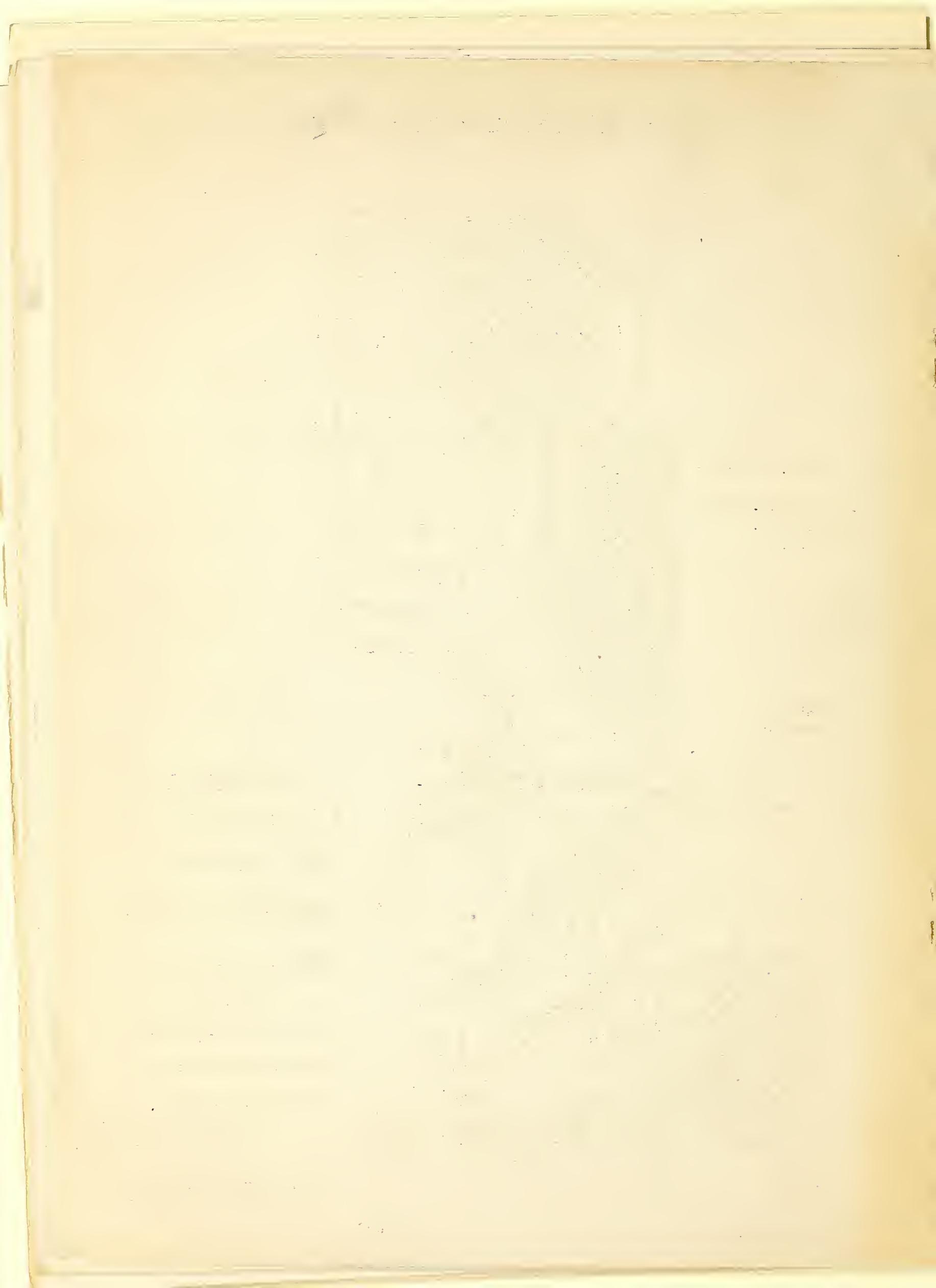
1. Farms are fairly well adjusted as to size, the desirable area for a one-man farm being something like one section of land with a little over half of it in pasture. Of course, there is nothing hard and fast about this size, but it is a reasonably safe adjustment under existing conditions of possible production, demand, and prices.
2. The principal crops are wheat, corn and hay, the first for a cash crop and the other two for stock feed.
3. Production of meat animals, cattle and hogs, and production of livestock products, particularly cream and poultry products, are essential enterprises that are reasonably well adapted to the region and to the best farm organization.
4. The small returns per cow given in Table XI show plainly where one improvement can and should be made. However, highly specialized dairy breeds of cattle are not to be recommended, since they are not adapted to existing pasture conditions. Dual purpose breeds that are good "rustlers" are indicated.
5. Farming with tractors has proven too expensive a method for general farming in this region. For several reasons horses are to be recommended.
6. The farm year of 1922 was not a very profitable one for most of the farmers. Several lost money by their operations, but most of them made a living and some wages. Several made wages and 8 per cent on their capital, and the family living from the farm and a few made more. (See note page 24).
7. Generally considered, the farming business in the area was safely solvent. From 10 to 15 per cent of the farms had no mortgage indebtedness. Nearly half of them had only a small indebtedness. Only about one-third had heavy indebtedness, and of these only a small part were in danger of financial ruin. Many of the men reduced the amount of their indebtedness during 1922.

8. About two-thirds of the 70 farmers in Lincoln County and three-fourths of the 81 in Washington County have made gains in net worth since settling in this region, without taking into consideration the natural increment in value of their lands. This increment is considerable for those who settled here several years ago when land was cheap. There is no question that some of the men who bought their farms during the wartime boom period paid or agreed to pay too much money for their land.

9. The percentage of failure is not indicated by this report, because these statements take no account of farmers who for any reason have been forced to leave the region. It was possible to obtain information only from those who have succeeded in maintaining a foothold.

WASHINGTON AND LINCOLN COUNTIES, COLORADO





7. 6. 1986