

**SURVIVAL AND FACTORS IN SURVIVAL IN FARM OCCUPANCY  
IN SHERMAN COUNTY, OREGON**

**by**

**Arnold Nielsen Bodtke**

**A THESIS**

**submitted to the**

**OREGON STATE AGRICULTURAL COLLEGE**

**in partial fulfillment of  
the requirements for the  
degree of**

**MASTER OF SCIENCE**

**June 1937**

APPROVED:

---

Professor of Farm Management

In Charge of Major

6

---

Head, Department of Farm Management

Chairman, School Graduate Committee

Chairman, College Graduate Council

### ACKNOWLEDGMENTS

The author wishes to express appreciation to the following: in particular to H. D. Scudder, Professor of Farm Management, for valuable assistance throughout the study, and under whose supervision this study was made; to A. W. Wheeler and Charles M. Ross, graduate students in Farm Management for assistance in obtaining field records; to County Agent LeRoy C. Wright and his staff for information given; to others in Sherman county who helped supply needed information; and to Leo Kilger, Ned and Ann Donham, and Donald Street for aid in preparing graphic material.

## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTORY	
Objectives of study. . . . .	4
Other studies in this field. . . . .	4
Source and character of data . . . . .	5
Summary of records taken . . . . .	6
THE ORGANIZATION OF THE SURVIVOR FARMS AS AFFECTING CONTINUED OCCUPANCY	
Size of farm and land utilization. . . . .	8
Tenure . . . . .	11
Capital investment . . . . .	13
The livestock factor . . . . .	16
Income . . . . .	19
Cost of production . . . . .	22
Mortgage indebtedness. . . . .	22
Borrowed working capital . . . . .	24
DIFFERENCES IN THE ORGANIZATION OF SURVIVOR AND NON-SURVIVOR FARMS AS AFFECTING CONTINUED OCCUPANCY	
The non-survivors. . . . .	26
Location and yield . . . . .	27
Land utilization . . . . .	28
Tenure . . . . .	30
Capital investment and distribution. . . . .	30
Mortgage indebtedness. . . . .	30
Cost of production . . . . .	32
Sherman county problems. . . . .	32
CONCLUSIONS. . . . .	36
SUMMARY. . . . .	39

SURVIVAL AND FACTORS IN SURVIVAL IN FARM OCCUPANCY  
IN SHERMAN COUNTY, OREGON

INTRODUCTORY

Agriculture in America seems to have gone through the first stage of evolution usually associated with the development of a new country. The migratory nomadic exploitive phases of agriculture in a new land seem to have run their course, and in recent years with the exhaustion of the supply of new land and free lands in the west, the restless, feverish pushing westward of the pioneer has come to an end.

In other words, agriculture is settling down. Inventory of gains and losses is being taken, and the tiller of the soil is taking a more permanent tenure and setting himself for the long pull in an established developed system of agriculture.

This is good. It is socially desirable that we have a permanent, developed, firmly established, prospering agriculture that has graduated from the exploitive destructive types of farming characteristic of new land countries.

What now shall make agriculture endure in its established places? The lessons learned from the accumulated experiences of the past and the analyses and findings of the new science of agriculture of today must find a way to a permanent and enduring husbandry.

Little or no analyses have been made as yet of the permanence of occupancy of the land in regions where agriculture has passed the

trial and error stage and become established in a system of farming that seems to fit the existing conditions.

In a region where agriculture has settled down on what appears a permanent basis, these questions naturally arise: How long do the same farmers remain in occupancy of the land in that region? What percentage remain in continued possession of the same land? What becomes of those who do not survive a reasonable tenure, and why do they fail to survive?

A long depression in agriculture, such as the period 1920-1935, applies a searching test of the permanence of an adopted system or type of agriculture, and provides an opportunity to learn its weaknesses and their effects upon the continued occupancy of the land. If recorded and comparable data covering the economic conditions, the investment, cost, income, and farm organization of a substantial group of farmers at the beginning and again at the end of such a test period as the years 1920-1936 were available, an analysis of survival in occupancy of the land would be possible.

Fortunately, the past research of the Department of Farm Management of the Oregon Experiment Station has provided a complete record of the economic situation, farm organization, costs and incomes of a number of large groups of farmers engaged in different types of farming in different regions of the state as far back in some cases as the years 1913, 1914, and 1915.

One of the most interesting groups covered by these records, so far as the study of farm occupancy is concerned, is a large group of some 184 farms in the dry farming wheat producing area of Sherman county, Oregon.

In the years 1920, 1921, and 1922 a yearly study of the wheat farm organization and the cost of producing wheat in Sherman county was made by the Department of Farm Management of the Agricultural Experiment Station and the Extension Service of the Oregon State Agricultural College, in cooperation with the United States Department of Agriculture. This study was based on 450 complete farm records obtained over the three-year period from 184 different wheat farms in that region. These records were obtained by personal interview directly from the farm operators for the purpose of determining the cost of producing wheat and the important factors in the wheat farm organization.\*

These records furnish basic material for a study of changes in farm occupancy in that region and reasons therefor. The wheat farms of the country have suffered severely during the long depression beginning in 1920, and a sufficient period has elapsed to warrant expectations that a re-survey of the same farms in 1936 would supply evidence as to the effects upon permanence of occupancy during the period, and the weaknesses in this type of farming.

\* U. S. Department of Agriculture Bulletin 1446, "Cost of Producing Winter Wheat and Income from Wheat Farming in Sherman County, Oregon," by R. S. Washburn, Bureau of Agricultural Economics, and H. D. Scudder, Oregon Agricultural Experiment Station.

U. S. Department of Agriculture Bulletin 1447, "Cost of Using Horses, Tractors, and Combines on Wheat Farms in Sherman County, Oregon," by R. S. Washburn, Bureau of Agricultural Economics, and H. D. Scudder, Oregon Agricultural Experiment Station.

At the suggestion of and under the guidance of H. D. Scudder, Professor of Farm Management, with the assistance of A. W. Wheeler and Charles Ross, graduate students in Farm Management, in taking the field records, and financed by the Department of Farm Management of the Oregon Agricultural Experiment Station, the re-survey project on these Sherman county farms was undertaken as a subject for this thesis. (Refer to sample of field record in appendix)

### Objectives of Study

It was thought feasible in the limited time available for thesis study (6 credit hours) to secure information of value as to the following questions:

1. What has happened to the original farmers covered in the 1920-1921-1922 records?
2. How many are still farming and what is their present status?
3. What have been the changes in farm organization on these same farms between the years 1920 and 1936?
4. How many of these farmers have left their farms and for what reasons?
5. What is the present status of farmers whose occupancy has expired?
6. What have been the factors in farm organization and management that have led to the survival of some of these farmers and the failure of the others?

### Other Studies in This Field

After fairly extensive library research, no study similar to this could be found. It appears that as yet this field remains unexplored.



Though the required research for this study in itself is relatively simple in method, yet answers to the questions raised should be of considerable interest and value.

#### Source and Character of Data

The data on which this study is based has been obtained from the individual records taken during the survey of 1920-1922 as previously mentioned, plus records taken from the same farmers in the fall of 1936. For the 1920-1922 survey complete information pertaining to the cost of producing wheat as well as to the farm organization was obtained. For 1936 only information relative to farm organization was solicited.

Of the years 1920, 1921 and 1922, the year 1921 was selected as the most typical both as to physical and economic factors. In 1920 the cost of production of wheat was still considerably affected by war prices for land, labor, and material, causing valuations to be higher that year than normal. On the other hand, in 1922 the yield per acre was more and the agricultural depression had set in, for these reasons making this year unrepresentative.

Although the yield in 1921 was perhaps slightly higher than the average, price and other factors were more nearly normal, which brought about the selection of that year as the most representative to use in this study. The 153 records taken during the year 1921, therefore, have been used as the basis for making comparisons with the records obtained from the same farms for the year 1936.

## SUMMARY OF RECORDS TAKEN

### Original Records

In 1920, 1921, and 1922, 450 farm records were taken from 184 different farms. Of these 145 records were for the calendar year of 1920, 153 for 1921, and 152 for 1922.

### Records of Surviving Farmers

Of the 1920-1922 cooperating farmers 84 were contacted in 1936; 59 of those contacted gave complete records for 1936. Of the 59 who gave complete records for 1936, there were only 43 for whom there were available data for 1921. Thus for 43 surviving farmers, records were available at both the beginning and the end of the period 1921-1936.

It is the records of these 43 survivors that furnish the basis for the analysis and conclusions reported in this study as to the factors involved in survival in occupancy.

### Data on Non-survivors

Ninety-five of the 184 farms cooperating in the 1920, 1921, and 1922 survey were no longer farming in Sherman county in 1936. Seventy-six of the 95 non-survivors had either sold out or were forced to leave their farms. Five out of the 95 had retired. Fourteen of the 95 farmers died. Out of this group of 95 farmers, there are 1921 survey data available for only 79.

It is the records of these 79 non-survivors that supply the data to determine factors involved in non-survival in occupancy.

TABLE I. SUMMARY OF AVAILABLE DATA

Original Records

450 farm records taken in 1920-1921-1922 survey

184 farms cooperating in 1920-1921-1922 survey

Records of Survivors in the Year 1936

89 of the original farms were still farming in Sherman county in 1936

59 of these gave complete records for 1936

43 of the 59 were covered by the records of the 1921 survey

Status of Non-survivors

95 of the 184 original farmers were no longer farming in Sherman county in 1936

76 of the 95 sold out or were foreclosed

5 of the 95 have retired

14 of the 95 have died

79 of the 95 were covered by the records of the 1921 survey

THE ORGANIZATION OF THE SURVIVOR FARMS  
AS AFFECTING CONTINUED OCCUPANCY

Our discussion deals first with the farms of the 43 farmers who survived the period 1920-1936.

A comparison of the 1921 and the 1936 farm records of these farms discloses interesting changes in certain factors in the farm organization which bear upon the permanence of occupancy.

Size of Farm and Land Utilization

As shown in Table 2 there has been a rather marked increase in the size of the farm during the 15-year period under discussion. The total acres operated increased from 1125 in 1921 to 1424 acres in 1936. Characteristic of the Columbia Basin dry farming wheat area, the number of farms in Sherman county has tended to decrease and the size of farm to increase. The farmers included in this study are no exception to this rule. This tendency has been prevalent for the last 35 years at least. (See Table 3.)

No important changes in the utilization of the land in the farms included in the study are noticeable, although with the increase in the size of the farm there has been an associated decrease in the percentage of the total area in crops, and a larger percentage in pasture. Most of the cropped land is still used for wheat production.

TABLE 2. LAND UTILIZATION ON FARMS OF SURVIVORS

A Comparison of 1921 with 1936

## 43 Survivor Farms

Average acres per farm	: : 1921	:Percent :of total :	: 1936	: Percent : of total
Acres in crop	452	40%	559	39.2%
Acres in fallow	459	41	532	37.4
Total acres cropped	911	81	1091	76.6
Acres in wheat	384	34	532	37.4
Acres in tillable pasture	6	.5	25	1.8
Acres in non-tillable land	208	18.5	308	21.6
Total acres operated	1125	100%	1424	100%

TABLE 3. SIZE AND NUMBER OF FARMS IN SHERMAN COUNTY, OREGON

1900 - 1935

U. S. Census of Agriculture

Year	:	Number	:	Total
	:	of farms	:	acres
1900		545		555
1910		466		799
1920		460		887
1925		417		1,006
1930		369		1,179
1935		367		1,194

### Tenure

Two important changes have occurred in the tenure of these farmers during the period 1921-1936 (Table 4): First, ownership has increased and tenancy declined. One-quarter of the 1921 tenants have become land owners during the period. This is rather remarkable in view of the fact that the wheat farmer suffered severely in the great price decline beginning in 1920 and again becoming acute in 1930. Such severe depressions as these usually greatly increase farm tenancy.

Since these former renters are part of the group who have survived after 15 years of depression farming, it is probable their more efficient management has enabled them to stabilize their situation by putting their earnings in a farm of their own.

Second, the number of part-owners has increased, while the number of full-owners has decreased. Apparently some of the 1921 full-owners have rented additional land and have become part-owners. This may be explained by the fact already discussed, that the tendency in dry land wheat farming has been for farms to increase in size. The necessity for producing wheat at a lower cost during the depression period has forced the farmer to develop a larger volume of business, one of the most important means of reducing costs. The use of improved machinery for large scale operations has aided greatly in increasing the size and the efficiency of the operation.

TABLE 4. CHANGES IN TENURE ON FARMS OF SURVIVORS

A Comparison of 1921 with 1936

43 Survivor Farms

Tenure	1921		1936	
	Number		Number	
	farmers	Percent	farmers	Percent
Owners	14	32%	7	16%
Part-owners	12	28	23	54
Total	26	60	30	70
Renters	17	40	13	30
Total	43	100	43	100



Probably the former full-owner in some cases has leased the farm of a neighbor who has lost out.

Comparison of these survivor farms with all farms in Sherman county (Table 5) shows general harmony in findings except that the percentage of renters in the county as a whole has remained stationary.

### Capital Investment

Notwithstanding a considerable increase in the size of farm, the study shows that there has been a marked decrease in the total capital investment per farm during the period (Table 6). This is due chiefly to the lower value per acre of the land in which the major portion of the total capital is invested. This lower value per acre is not due to a larger percentage of pasture land alone as is indicated by the lower value per acre of the cropped land itself. The cropped land has declined \$10.56 per acre, a decline of 28 percent in value. The value of the land and buildings declined from \$54.09 to \$35.56 per acre or a decline of 34 percent. This, of course, is characteristic of all agricultural land during the period of depression, and particularly of wheat land. The census shows a decline during the period 1920-1935 in value of farm real estate in Sherman county from \$50.46 to \$21.26 per acre, or a 58 percent decline in value.

TABLE 5. CHANGES IN TENURE ON FARMS IN SHERMAN COUNTY

1920 - 1935

U. S. Census of Agriculture

Tenure	1920		1935	
	Number farmers	Percent	Number farmers	Percent
Owners	144	31%	88	24%
Part-owners	111	24	113	31
Total	255	55	201	55
Managers	4	1	2	-
Renters	201	44	164	45
Total	460	100	367	100

TABLE 6. CAPITAL INVESTMENT ON FARMS OF SURVIVORS

A Comparison of 1921 with 1936

43 Survivor Farms

Investment per farm	1921	1936
Size of farm (acres)	1126	1424
Real estate investment	\$26,951	\$24,579
Value per acre (real estate)	\$54.09	\$35.56
Machinery investment	\$5,278	\$3,916
Livestock investment	3,129	2,615
Investment in horses	2,558	1,062
Investment in cattle	425	960
Investment in sheep	12	333
Investment in hogs	66	145
Investment in poultry	68	115
Total investment	\$35,358	\$31,311
Investment per crop ACRE	\$37.46	\$26.90

The marked decline in value of machinery on these farms during the period is probably due to the inability of the farmers to purchase new machinery freely because of depression conditions, and the consequent depreciated value of the machinery on hand. This has led also to a higher duty or greater efficiency in the use of machinery.

The reduction of the investment in work horses is due to the replacement of horses by tractor power.

The increase in productive livestock, cattle, beef, hogs, and poultry is of considerable importance as indicating a desirable increase in diversification in the search for additional sources of income, forced by the low prices for wheat.

#### The Livestock Factor

The distribution of different kinds of livestock and their equivalent in animal units is shown in Table 7. There has been a decided increase in the number of animal units on these farms since 1921. The 43 surviving farmers reported 29 animal units per farm in 1921, and 45 animal units per farm in 1936, an increase of 16 animal units. This is especially significant when it is known that there was a decided decrease in the horse population due to replacement with tractors.

In 1921 every farm had horses, averaging about 18 head per farm. In 1936 only 79 percent of these farms had horses, averaging 11 head per farm for those reporting.

TABLE 7. DISTRIBUTION OF LIVESTOCK

A Comparison of 1921 with 1936

43 Survivor Farms

Kinds of stock	Number of farms reporting each class				Average number of animals per farm reporting		Average number of animal units per farm reporting	
	Percent		Percent					
	: of total :		: of total :					
	: 1921	: 1936	: 1921	: 1936	: 1921	: 1936	: 1921	: 1936
Horses	43	34	100%	79%	18.3	11.0	18.3	11.0
Colts	35	13	81	30	5.3	4.7	2.6	2.4
Cattle	43	40	100	93	7.3	27.7	7.3	27.7
Hogs	27	33	63	77	6.0	14.7	1.2	2.9
Sheep	6	10	14	23	9.2	186.8	1.3	26.7
Poultry	42	34	98	79	75.4	112.0	.8	1.1
Total A.U. per farm*							29	45

\* Average of all 43 farms.

Horses either for replacement of work stock or for sale apparently looked promising to some of these farmers. In 1921 79 percent of the farmers raised colts, while in 1936 only 30 percent were engaged in that business. However, the farms still producing colts were maintaining almost the same rate of production as in 1921.

As to tractors, of these 43 farmers 25 farmed with tractors in 1936, using some additional horses; 14 farmed with horses alone, and one of these had changed from tractor to horses; and three farmers hired all their field work done with tractors.

The most important change in the livestock factor was in the number of productive livestock of different kinds, particularly cattle and sheep. Of the farmers reporting in 1921, 100 percent had cattle, averaging 7.3 head per farm, while of those reporting in 1936, 93 percent had cattle, averaging 27.7 head per farm. There was also a marked increase in the sheep enterprise. Fourteen percent of the farmers had 9.2 head of sheep per farm in 1921, and 23 percent had 186.3 head of sheep per farm in 1936. An appreciable increase in hogs was reported. Sixty-three percent of the farmers had hogs, with 6 hogs per farm in 1921, while in 1936, 77 percent had hogs averaging 14.7 hogs per farm.

The part that this increase in productive animal units plays in the farm income and its relationship to survival will be brought out in later discussions.

Income

Gross income from farms was \$1,061 less per farm in 1936 than in 1921 (Table 8). This can be attributed largely to the lower yields and prices received in 1936 (Table 9). The average yield in 1921 was 30 bushels an acre and the average price received was 99 cents per bushel, whereas in 1936 the average yield was 20 bushels an acre and the average price received was 90 cents per bushel. With yield and price the same the farmers would have received a larger gross income in 1936 than they did in 1921.

There has been a very noticeable shift in the distribution of this income from 1921 to 1936 (Table 8). Government payments made up 8.9 percent of the 1936 gross income. Of the 43 survivors, 34 received 1936 AAA payments and 8 received 1936 Soil Conservation payments. The average total government payments for the group was \$809 per farm.

Wheat represented 89 percent of the gross income in 1921 and in 1936 only 75.3 percent. The income from livestock and products doubled during the period. Livestock and livestock products were 4.9 percent of the total income in 1921 and 10.5 percent in 1936, an increase of 6 percent. The income from government payments and livestock combined represents 19.8 percent of the total income. This government aid plus a change in farm organization toward more livestock is no doubt a major factor in the survival of these farmers through the depression. It should be noted that there is minimum amount of cash cost to be deducted from the livestock income, which would mean that the income from livestock, plus government payments, constitute

TABLE 8. INCOME PER FARM, 1921-1936

43 Survivor Farmers

	1921		1936	
	Average	Percent	Average	Percent
	of all farms	of total	of all farms	of total
Total income (exclusive of government pay)	\$10,165	-	\$8,298	-
Government payments AAA *	-	-	660	7.3%
Government payments SCS **	-	-	149	1.6
Total income (inclusive of government pay)	\$10,165	-	\$9,104	-
Wheat income	9,006	89%	6,859	75.3%
Other grain income	30	.2	31	.3
Hay income	8	0	11	0
Other crop income	5	0	-	-
Livestock income	408	4.0	733	8.0
Livestock products income	91	.9	270	2.9
Total livestock income	499	4.9	1003	10.9
Machine work income	508	5.0	282	3.0
Pasture rent	9	0	1	0
Other income	-	-	108	1.1

\* Agricultural Adjustment Administration

\*\* Soil Conservation Service



TABLE 9. COMPARISON OF COST, YIELDS AND PRICES

1921 and 1936

	Survivor farms		Original: survivor farms	
	1921	1936	1921	1921
Number of farms	43	43	153	79
Average acres in wheat	384	532	352	377
Average yield per acre	30	20	29	27
Average cost per bushel	\$1.05	\$.62*	\$1.07	\$1.22
Average cash cost per bushel	.50	.20	-	-
Average price received	.99	.90	.99	.99

\* "An Economic Study of Dry Land Wheat Farming in the Columbia Basin, Oregon," by A. S. Burrier, Economist, and Wm. W. Gorton, Research Assistant, Department of Farm Management.

quite a large portion of the labor income.

### Cost of production

The average cost of producing wheat in Sherman county for 1921 was \$1.07 a bushel\*; in 1936 the average cost was 62 cents\*\*. That farmers in the dry land wheat regions have been able to lower their cost of production undoubtedly has been the chief factor in their survival. Failure to lower these costs has, by inference, been the chief cause of non-survival.

### Mortgage Indebtedness

There was very little change in the mortgage indebtedness from 1921 to 1936 (Table 10). In 1921, of the 43 survivors, 21 or 43.8 percent had an average mortgage indebtedness of \$12,580, whereas in 1936 the average mortgage was \$12,476 for 20 (or 46.5 percent) of the survivor farmers. There was a slight lowering of the interest rate from 6.9 percent in 1921 to 6.2 percent in 1936, due to increased Federal Land Bank lending.

\* U. S. Department of Agriculture Bulletin 1446, "Cost of Producing Winter Wheat and Income from Wheat Farming in Sherman County, Oregon," by R.S. Washburn, Bureau of Agricultural Economics, and H. D. Scudder, Oregon Agricultural Experiment Station.

U. S. Department of Agriculture Bulletin 1447, "Cost of Using Horses, Tractors, and Combines on Wheat Farms in Sherman County, Oregon," by R. S. Washburn, Bureau of Agricultural Economics, and H. D. Scudder, Oregon Agricultural Experiment Station.

\*\* "An Economic Study of Dry Land Wheat Farming in the Columbia Basin, Oregon," by A. S. Burrier, Economist, and Wm. W. Gorton, Research Assistant, Department of Farm Management.

TABLE 10. BORROWED WORKING CAPITAL AND MORTGAGE INDEBTEDNESS

## 43 Survivor Farms

Per farm	1921	Percent of total	1936	Percent of total
Average borrowed working capital (43 farms)	\$2,846		\$900	
Number of farms reporting	39	90.7%	23	53.4%
Average borrowed working capital for farms reporting	\$3,138		\$1,682	
Average interest rate	8%		7.6%	
Average mortgage indebtedness (43 farms)	\$6,144		\$5,803	
Number of farms reporting	21	48.8	20	46.5
Average mortgage indebtedness of those reporting	\$12,580		\$12,476	
Average interest rate	6.9%		6.2%	

Borrowed Working Capital

In 1921, 39 or 90.7 percent of these farmers borrowed an average of \$3,138 annually for working capital. In 1936 only 23, or 53.4 percent borrowed money for working capital, and the sum borrowed was \$1,682, only about half of that borrowed in 1921 (Table 10). The depression made it very difficult to borrow, but also farmers were more reluctant to go into debt. There was a slight lowering of interest rates on these seasonal borrowings, 8 percent in 1921 and 7.6 percent in 1936. Farmers in this area continued to use local bank credit rather than federal production credit, which would have afforded them lower rates.

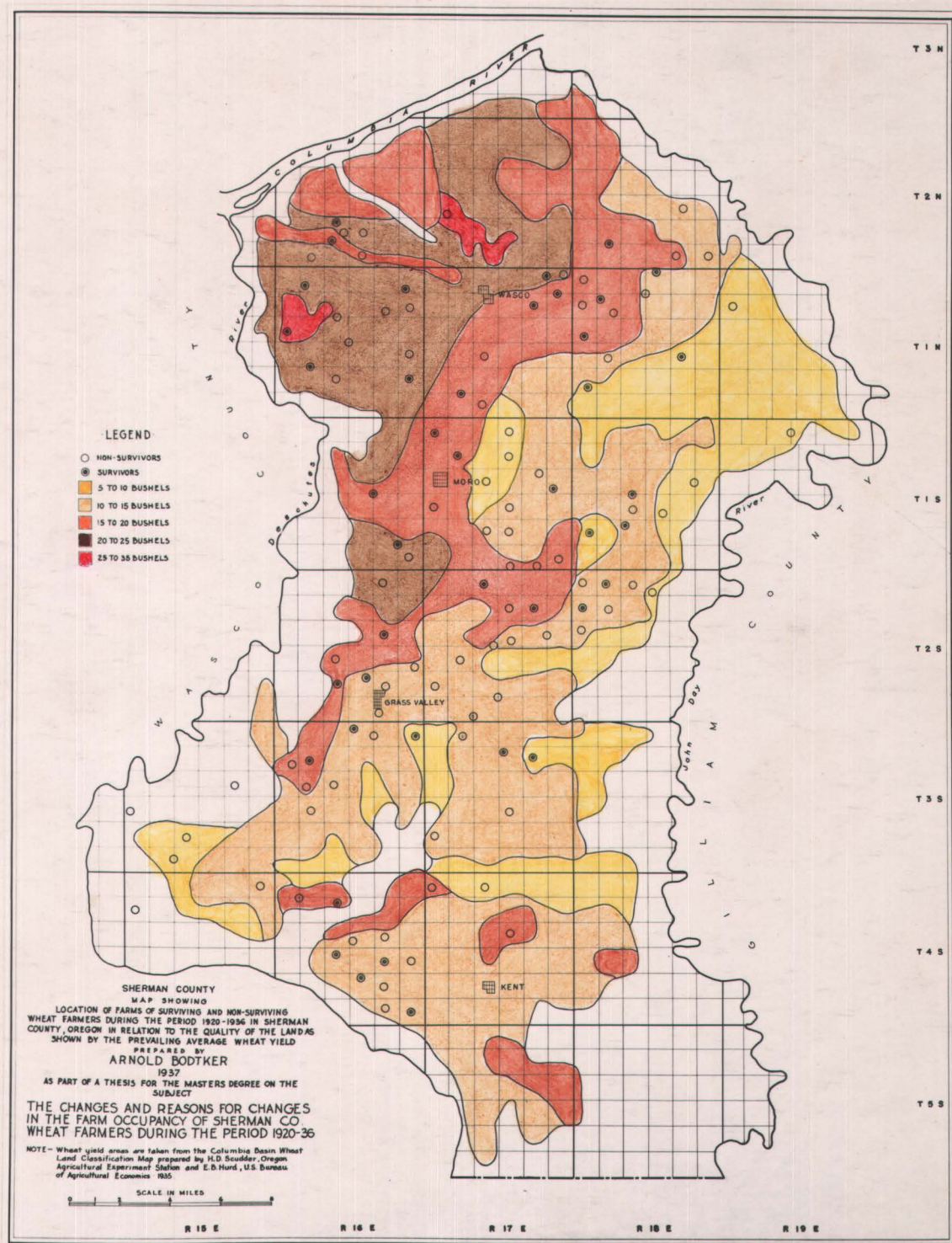


FIGURE 1

DIFFERENCES IN THE ORGANIZATION OF SURVIVOR AND NON-SURVIVOR  
FARMS AS AFFECTING CONTINUED OCCUPANCY

The farmers who have left their farms since 1921 are designated as the non-survivors. In a study of this nature only an incomplete explanation can be given for the success or failure of certain farmers. The limitations of this study made it impossible to pursue the history of the non-surviving farmers and bring their records up to 1936. Only limited information could be secured regarding this group after the year 1921.

The very fact, however, that some farmers have survived this difficult period would indicate that their farming operations were more or less successful. On the other hand, it is not true in every instance that because a farmer leaves his farm he has been a failure. However, taking the farming occupation as a whole, the successful farmer is not very likely to quit farming. So in a general way it can be said that survival means success while non-survival means failure of one sort or another.

The Non-survivors

This much was learned regarding 95 out of the original 184 Sherman county farmers who had left their farms since 1921: five had retired; fourteen had died. Whether this group of 19 were successful as farmers was not learned.

The remaining 76 out of the 95 had either sold out or been forced to leave their farms--in most cases it is believed because of unsuccessful operations.

Of these 76 farmers 36 are engaged in other occupations, 17 are farming elsewhere, 5 had died after leaving the farm and the remaining 18 could not be accounted for.

Of these 76 farms again, 30 had left the farm before 1930 and 10 after 1930. It was not learned when the remainder left their farms.

There are several groups of factors that must be considered in an attempt to explain why farmers discontinue farming.

First, there are the physical factors or local conditions, which include the part that soil, rainfall, etc. may have in production. These are especially important factors in dry-land wheat farming.

Second, there are the economic factors in the individual farm set-up which include farm organization, operation and management. These factors we know to be of tremendous importance in the success or failure of any farm business. The data on that subject which will be presented here will give certain information about some of the factors by which the efficiency of a farm organization can be measured, and the effect of those factors upon continued occupancy.

#### The Effect of Location and Yield

By use of the Major Land Use and Types of Farming Map of Sherman county prepared by H. D. Scudder and E. B. Hurd, the rela-

tionship of location to survival was determined. This map classified the wheat land of Sherman county according to the average yield per acre into the following grades: 5 to 10 bushels an acre, 10 to 15 bushels an acre, 15 to 20 bushels an acre, 20 to 25 bushels an acre, and 25 to 35 bushels an acre. The location of survivors and non-survivors in each yield area are indicated on the map (Figure 1, page 25). Table 11 computed from the map gives the percentage of survivors and non-survivors in each area. From this table it can be seen that there is a definite relationship between survival and location and yield. There is a gradual increase of survivors and decrease of non-survivors from the low yield area to the high yield area.

Table 9, page 21, also shows that though there is a difference between the average yield of the survivors (30 bushels per acre) and the average yield of the non-survivors (27 bushels per acre) it is the last few extra bushels of yield that usually constitute the margin of profit. Certainly the better yielding land favored survival. However, location and yield do not tell the whole story, since there are both survivors and non-survivors in all yield areas.

#### Land Utilization

There was some variation between the survivors and non-survivors in the number of acres operated (Table 12). The survivors operated a larger acreage and it is well known that volume of business is an important factor in successful farming.



TABLE 11. PERCENT OF SURVIVORS AND NON-SURVIVORS IN EACH YIELD AREA

Area	Survivors	Non-survivors
5 to 10 bushels	14.0%	16.4%
10 to 15 bushels	30.2	44.3
15 to 20 bushels	37.2	22.8
20 to 25 bushels	16.3	15.2
25 to 35 bushels Y	2.3	1.3

TABLE 12. LAND UTILIZATION

Comparison Between the Survivors and Non-Survivors

Records of 1921

Average per farm, 1921	Survivors	Non-survivors
Average total acres operated	1126	950
Average total acres cropped	911	750
Average total acres in wheat	384	319

### Tenure

In 1921 32 percent of the survivors were owners, 28 percent were part-owners, and 40 percent were renters; while among the non-survivors 28 percent were owners, 29 percent were part-owners, and 43 percent were renters (Table B, Appendix). These figures show that there was no particular disparity between the survivors and non-survivors as far as tenure was concerned, indicating that tenure was not an important factor in survival.

### Capital Investment and Distribution

The total average investment of the survivors was \$35,358, while that of the non-survivors was \$30,170. This investment amounted to \$37.46 per crop acre for the survivors and \$38.68 per crop acre for the non-survivors. Not enough difference was noted in the total investment to be responsible for the success or failure of the farmer (Table 13).

The distribution of capital investment, however, was to the advantage of the survivor farmers. On a wheat ranch where farming is highly specialized, the higher livestock investment has considerable effect on the ability of farmers to withstand adverse wheat prices or seasonal crop conditions. The larger investment in machinery indicates a better equipment for handling the large crop acreage more efficiently.

### Mortgage Indebtedness

Faced with a long and severe price depression there is little

TABLE 13. CAPITAL INVESTMENT AND DISTRIBUTION

Comparison Between the Survivors and Non-survivors

1921 Data

<u>Per farm</u>	<u>Survivors</u>	<u>Non- survivors</u>
Real estate investment	\$26,951	\$23,752
Percent of total investment	76%	78%
Livestock investment	\$3,129	\$2,654
Percent of total investment	8%	8%
Machinery investment	\$5,276	\$3,765
Percent of total investment	14%	12%
Total investment	\$35,358	\$30,170
Average value of land an acre	\$54.09	\$51.19
Average investment per crop acre	37.46	38.68

question that a heavy mortgage is a most serious handicap and a common cause of loss of title. The non-surviving farmers in Sherman county were caught in the 1921-1936 depression period with a heavier load than they could carry (Table 14), particularly so when associated with a less effective farm organization. This group had 39 percent of their total investment in mortgage indebtedness as compared with 22 percent in the survivor group.

#### Cost of production

The most conclusive test for determining the success or failure of a farm enterprise is the cost of production. Those farmers who have a high cost of production cannot survive. The average cost per bushel for producing wheat in 1921 on 153 farms in Sherman county was \$1.07 (Table 9, page 21). The average cost per bushel for producing wheat on 41 farms of the survivors in 1921 was \$1.05. This cost is below the average for all farms. Of these 41 farmers 70 percent reported costs below the average (Table 15). On the other hand, the average cost for producing wheat on the farms of the 79 non-survivors was \$1.22 a bushel. Only 41 percent of these 79 farmers had costs at average or below.

#### Sherman County Problems

The farmer's viewpoint is always of interest. Farmers contacted were asked what they considered in their county the chief problems of today and the future to be. The universal answer, almost, was moisture. Of the 59 farmers who gave records 41 declared moisture to

TABLE 14. MORTGAGE INDEBTEDNESS

Comparison of Survivors and Non-survivors (1921 Data)

	Survivors	Non- survivors
Number of farms	43	79
Number of farms mortgaged	21	43
Percent of total farms	49	54
Amount of mortgage per farm (mortgaged farms)	\$12,580	\$16,171
Amount of investment per farm (mortgaged farms)	\$54,256	\$39,868
Total mortgage (mortgaged farms)	\$264,175	\$676,046
Total investment (on all mortgaged farms)	\$1,190,969	\$1,731,239
Percent mortgage is of investment	22%	39%

TABLE 15. VARIATION IN COST PER BUSHEL

Comparison of Survivors and Non-survivors (1921 Data)

Cost per bushel	: Survivors		: Non-survivors	
	: Number	: Percent	: Number	: Percent
	: of farms:	of	: of farms :	of
	: in group:	total	: in group :	total
Below \$.71	1	2%	0	0%
\$.71 to \$.90	14	34	10	13
\$.91 to \$1.10	15	37	25	32
\$1.11 to \$1.30	5	12	22	28
\$1.31 to \$1.50	3	8	8	10
\$1.51 to \$1.70	2	5	5	6
\$1.71 to \$1.90	0	0	7	9
Over \$1.90	1	2	2	2
Total	41	100%	79	100%
Average cost per bushel	\$1.05		\$1.22	

be the chief obstacle to successful farming; 8, weeds; 7, erosion; 5, prices; 3, fertility; 1, lack of diversity. Five thought the situation was improving, and 2 said farming in Sherman county was as good as ever.

It was the concensus of opinion among these farmers that tillage practices had improved in the last 15 years and that this improvement explained why yields had not decreased more. In other words, using the same tillage practices as before 1920, it would have been impossible to survive. Loss in fertility has been compensated for to a great extent by improved farming methods.

## CONCLUSIONS

### The Organization of the Survivor Farms as Affecting Continued Occupancy

1. From 1921 to 1936 there was a marked increase in the size of farms, but no important changes in the utilization of land on the farms. Increase in size of farms or volume of business is an important factor in success and survival.

2. There was a decline in tenancy and a corresponding increase in ownership, indicating an increase in permanence of occupancy of the survivor farmers. An increase in part-ownership was noted, indicating that farmers were renting additional land--no doubt in an attempt to cut the overhead charges incurred by the use of improved machinery.

3. Capital investment decreased in the period studied. This was primarily due to the decline in land value due to the general decline in prices that followed the war boom. This was advantageous to survival and continued occupancy.

4. An especially significant increase in the amount of livestock was noted--45 animal units per farm as compared with 29 animal units in 1921. This increase is marked despite the decline in the horse population during the same period. An increase in diversity is believed to be a distinct factor in survival.

5. Due to the lower yields and lower prices for 1936, the gross income from farms in 1921 was larger than in 1936. At the same



yield and price the 1936 income would have been larger than in 1921.

6. Offsetting the decrease in gross income is a considerable decrease in cost of production per bushel--\$1.07 in 1921 and 62 cents in 1936--a major factor in survival.

7. The percent of farmers having mortgages and the amount of mortgage per farm was practically the same for 1921 as for 1936.

Regarding borrowed working capital the change was more pronounced. Over 90 percent of the farmers borrowed money for working capital in 1921, and only 53 percent in 1936. The amount borrowed in 1936 per farm was only one-half of that borrowed in 1921. Apparently there was more conservatism in operators' expenditures and greater operator labor efficiency.

#### Differences in Organization of Survivor and Non-Survivor Farms

##### As Affecting Continued Occupancy

1. Location of farms as to soils, rainfall, etc., as affecting yield, showed a gradual increase of survivors and a decrease of non-survivors from the low yield areas to the high yield areas. Yield is a major factor in farm organization and in survival.

2. The farms of non-survivors were somewhat smaller than those of survivors, offering less volume of business with resulting loss of efficiency.

3. There was no important difference between survivors and non-survivors at the beginning of the period as far as type of tenure was concerned. Good farm organization was effective in aiding survival whether the farmer was a tenant or an owner. At the end of the period

a definite advance toward ownership had been made by the survivors.

4. The difference in total investment per crop acre was not great enough to be responsible for success or failure. However, the distribution of capital investment was significant in that the live-stock investment on the survivor farms was considerably greater than on the non-survivor farms, indicating the effect of greater diversity in continued occupancy.

5. The survivor farms had only 22 percent of their investment in mortgage indebtedness, whereas the non-survivors had 39 percent. The hazard of the latter group was therefore greater during the depression.

6. Survivor farms had a considerably lower cost of production, \$1.05, than the non-survivors, \$1.22, in 1921. This is of paramount importance, as it is the chief objective and result of a more efficient farm organization.

### Summary

The study indicates rather clearly that certain definite factors in the internal organization of the farm stand out as contributing toward the success or failure of these wheat farmers in Sherman county and their survival or non-survival in continued occupancy of their farms against the trials of a fifteen-year period of depression.

These factors were: size or volume of business, capital investment and distribution, diversity of enterprise, mortgage indebtedness, yield, and cost of production. The farmers who survived were to a large extent those who observed these factors in the organization and management of their farms to a greater degree than they were observed by those who failed to survive.

The past research of the Department of Farm Management of the Oregon Agricultural Experiment Station repeatedly has pointed out the crucial importance of these factors in successful farming. It is a source of satisfaction to find within the limits of this study verification and demonstration of the effectiveness of these factors in actual practical operation during a critical and difficult period of time.

APPENDIX TABLE A. INVESTMENT AND LAND UTILIZATION ON FARMS OF SURVIVORS

Comparison of 1921 with 1936  
(43 survivor farms)

	: Owners		: Part owners		: Total		: Renters		: Total	
	: 1921	: 1936	: 1921	: 1936	: 1921	: 1936	: 1921	: 1936	: 1921	: 1936
Number reporting	14	7	12	23	26	30	17	13	43	43
Acres owned	1056	1509	443	833	824	991	-	-	498	691
Acres rented	-	-	893	834	412	639	1023	973	654	740
Acres rented out	-	46	93	-	43	11	-	-	26	7
Total acres operated	1056	1463	1353	1667	1193	1619	1023	973	1126	1424
Acres in crop	439	478	528	674	480	628	409	401	452	559
Acres in fallow	395	474	575	623	478	588	431	400	459	532
Total cropped acres	834	952	1103	1297	958	1218	840	801	911	1091
Acres tillable pasture	-	46	22	27	10	31	-	8	6	25
Acres non-tillable pasture	222	465	228	343	225	372	183	164	208	308
Real estate investment	\$54597	\$43424	\$32878	\$32736	\$44573	\$35230	-	-	\$26951	\$24579
Machinery investment	3037	4663	3208	4204	3116	4311	3149	3005	3129	3916
Livestock investment	5189	2747	6917	2778	5987	2779	4254	2238	5278	2615
Total working capital	8226	7410	10125	6984	9103	7090	7403	5243	8407	6478
Total investment	62823	51191	43003	39967	53676	42586	7403	5243	35358	31331
Value of pasture	1281	2948	1442	2135	1356	2325	-	-	1235	1921
Investment less pasture	61542	47616	41561	37577	52320	39919	7403	5243	34123	29136
Investment per crop acre	73.79	50.02	37.68	28.97	54.61	32.77	8.81	6.54	37.46	26.90

\* To obtain investment per crop acre the value of all pasture (\$5.77 per acre) was deducted from the total investment. Some of this pasture is rented and is not an actual investment for the part-owner. Average value of pasture, \$5.77 per acre, was average of pasture values given by cooperators.

TABLE B. INVESTMENT AND LAND UTILIZATION BY TENURE

Comparison of survivors with non-survivors - 1921

	: Owners :		: Part-owners :		: Total :		: Renters :		: Total :	
	: Non- :		: Non- :		: Non- :		: Non- :		: Non- :	
	Sur- :	sur- :	Sur- :	sur- :	Sur- :	sur- :	Sur- :	sur- :	Sur- :	sur- :
	viv- :	viv- :	viv- :	viv- :	viv- :	viv- :	viv- :	viv- :	viv- :	viv- :
	ors :	ors :	ors :	ors :	ors :	ors :	ors :	ors :	ors :	ors :
Number reporting	14	22	12	22	26	44	17	35	43	79
Percent of total	32%	28%	28%	28%	60%	56%	40%	44%	100%	100%
Acres owned	1056	1039	443	539	824	779	-	-	498	439
Acres rented	-	-	893	566	412	283	1023	826	654	523
Acres rented out	-	44	93	-	43	22	-	-	26	12
Acres operated	1056	995	1353	1104	1193	1050	1023	826	1126	950
Acres cropped	834	778	1103	845	958	812	840	673	911	750
Acres in pasture & waste	222	217	248	259	235	238	183	153	214	200
Real estate investment	\$54597	\$58404	\$32878	\$25719	\$44573	\$42646	-	-	\$26951	\$23752
Livestock investment	5189	2152	6917	3161	5987	2657	4254	2650	5278	2654
Machinery investment	3037	4226	3208	3520	3116	3873	3149	3629	3129	3767
Total working capital	8226	6378	10125	6681	9103	6530	7403	6279	8407	6421
Total investment	62823	64782	43003	33568	53676	49175	7403	6279	35358	30170
Value of pasture*	1281	1252	1442	1494	1356	1373	-	-	1235	1154
Total investment in pasture	61542	63530	41561	32074	52320	47802	7403	6279	34123	29016
Average investment per crop acre	\$73.79	81.65	37.68	37.95	54.61	58.86	8.81	9.32	37.46	38.68

\* To get at investment per crop acre the value of all pasture @ \$5.77 per acre was deducted from the total investment; however, probably some of this pasture in the case of part-owners is rented and is not an actual investment.

TABLE C. AVERAGES REPORTING

	All 1936		1921 farms		
	records		with 1936		
	Num-	ber	Num-	ber	All
	Ave-	of	Ave-	of	1921
	rage	farms	rage	farms	re-
	of	re-	of	re-	cords
	farms	port-	farms	port-	-
	re-	ing	re-	ing	Age-
	port-	the	port-	the	rage
	ing	item	ing	item	
Acres operated	1287	85	1103	85	1040
Acres in crop	454	85	436	85	**
Acres in fallow	599	85	438	85	**
Acres in tillable pasture	14	85	6	85	**
Acres cropped (total)	1067	85	880	85	828
Acres in non-tillable pasture	272	85	224	2	212
Total investment - owners (42 records)	\$42501	29	\$54053	24	\$66942
Total investment - renters (42 records)	7771	13	10482	18	6196
Total investment - owners & renters	27998	59	28988		**
Real estate investment - owners & renters	21805	59	22250		**
Machinery investment - owners & renters	3670	59	4150		3872
Livestock investment - owners & renters	2523	59	2588		2739
Total income exclusive of government pay	7751	51	10012	50	9291
Total income inclusive of government pay	8462	51	10012	50	**
Government payments - Agricultural					
Adjustment Administration	794	38	-		**
Government payments - Soil Conservation					
Service	1672	9	-		**
Wheat income	6652	49	8950	50	8487
Other grain	383	4	383	3	43
Hay	-		140	3	**
Livestock	1027	35	473	38	274
Livestock products	614	30	168	29	90
Machine work	684	18	1007	21	314
Outside work	1517	4	65	9	**
Investments income	50	1	-		**
Pasture rent	25	1	71	4	**
Other income	-		1112	6	83

\*\* Figures omitted.

Oregon Agricultural Experiment Station  
Department of Farm Management

Farm No.

Present (1936) Status of 1920 Survey Operators in Sherman County  
(Dry Farm Wheat Study)

**RECORD A**

(1936 status of 1920 survey farmer still operating in Sherman county.)

Name \_\_\_\_\_ Address \_\_\_\_\_

Location \_\_\_\_\_ miles \_\_\_\_\_ of \_\_\_\_\_ Township \_\_\_\_\_ Sec. \_\_\_\_\_

### Farm Acreage

Acres owned	_____	Acres in crop	_____
Acres rented	_____	Acres fallowed	_____
Total	_____	Acres pasture, tillable	_____
Acres rented out	_____	Acres pasture, non-tillable	_____
Acres operated	_____	Total	_____

Crop Income

[illegible]

[illegible]Other Income

	Amount	Price	Value
Machine work			
Outside labor			
Pasture rent			
AAA payments			
From other investments			

### Investment

Land	Value				Total
	Crop land		Pasture land		
	Per A.	Total	Per A.	Total	
Owned land					
Rented land					
Total					
Buildings	When built	Cost	Present value		
Total					
Machinery					
Livestock*					
Total Investment					



Notes

Operator's age \_\_\_\_\_ Total family \_\_\_\_\_ Under 16 \_\_\_\_\_ No. on this farm \_\_\_\_\_  
 Boys who are farmers \_\_\_\_\_ Girls who are farmers \_\_\_\_\_  
 Borrowed working capital \$ \_\_\_\_\_ Months \_\_\_\_\_ Int. % \_\_\_\_\_  
 Mortgage \$ \_\_\_\_\_ Interest % \_\_\_\_\_ Lender \_\_\_\_\_

Changes Since 1920

In tenure - Increase in acres owned \_\_\_\_\_ Crop acres \_\_\_\_\_ Price \_\_\_\_\_  
 Increase in acres rented \_\_\_\_\_ Crop acres \_\_\_\_\_  
In practices - Farm horses to tractor \_\_\_\_\_ Make and size of tractor \_\_\_\_\_  
 \_\_\_\_\_ No. horses used with tractor \_\_\_\_\_ No.  
 horses used prior to tractor \_\_\_\_\_ If horses only, No. \_\_\_\_\_  
 Changes in kinds of crops grown \_\_\_\_\_  
 \_\_\_\_\_  
 In proportion of crops grown \_\_\_\_\_  
 \_\_\_\_\_  
 In varieties of grain \_\_\_\_\_  
 \_\_\_\_\_  
 In use of marginal or contract land \_\_\_\_\_  
 \_\_\_\_\_  
 In crop rotation or erosion practices \_\_\_\_\_  
 \_\_\_\_\_  
 In kinds or types of machinery \_\_\_\_\_  
 \_\_\_\_\_  
 Other changes \_\_\_\_\_  
 \_\_\_\_\_  
 Chief problems today or future \_\_\_\_\_  
 \_\_\_\_\_

RECORD B

(If operator has left county or retired)

Name \_\_\_\_\_ Address \_\_\_\_\_

(Location of 1920 farms \_\_\_\_\_ miles \_\_\_\_\_ of \_\_\_\_\_ Township \_\_\_\_\_ Sec. \_\_\_\_\_)

(Present operator \_\_\_\_\_ Address \_\_\_\_\_

Present set-up - Size of farm \_\_\_\_\_ Type \_\_\_\_\_

Financial condition \_\_\_\_\_

When did he leave 1920 farm \_\_\_\_\_

If farm sold, price paid \_\_\_\_\_

Price paid for present farm \_\_\_\_\_

Why did he leave 1920 farm \_\_\_\_\_

Remarks \_\_\_\_\_