

T H E S I S

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LEASING IRRIGATED FARMS
IN NORTHEASTERN
COLORADO

Submitted by
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LEASING IRRIGATED FARMS IN NORTHEASTERN COLORADO

INTRODUCTION

More than 65 percent of the farms in northeastern Colorado are operated by farmers who lease all or a part of the land they use. 1/ Landlord and tenant relationships in the operation of this large area of leased land are an important factor in the economic and social stability of a major portion of our rural population. Unless the leasing systems which are used result in fair divisions of the farm incomes between landlords and tenants discord will develop, and this will be reflected in frequent moves on the part of tenants.

The importance of fair leasing conditions has been recognized for many years. Numerous magazine articles, agricultural bulletins and a few books have been published about farm leasing and lease contracts. The major emphasis of most of this literature has been devoted to the various forms of the farm lease contract

1/ Computed from the 1935 Census of Agriculture (40: Vol. I, pp.851-57) 2/ using data for Adams, Boulder, Larimer, Logan, Morgan, Sedgwick, Washington, and Weld Counties.

2/ Figures in parenthesis refer to literature cited.

2

rather than to the analysis of the results obtained by the systems of leasing in use.

Studies of the leasing methods in use and their divisions of production costs and farm incomes between tenant and landlord have been made in a few states. Benton (3) studied the systems of leasing used in North Dakota. He made comparisons of tenant and landlord returns and presented model lease forms to correct inequalities in returns. Benton recommended a crop and livestock share lease for North Dakota conditions.

Johnson (23) found in Missouri that the frequency of tenancy varied with the type of farming. Cash crop production was associated with tenancy more than twice as often as livestock farming was. Problems connected with different systems of leasing were pointed out and suggestions for drawing up leases were made.

Bausman (2) has made a detailed study of farm tenancy in Delaware including history, recent trends, tenants' labor incomes, landlords' returns, attitude of tenants towards farm ownership, and personal history of landlords and tenants. Tenant operated and owner operated farms were compared as to costs of operation and incomes. No comparisons of the sharing of farm operation costs between landlord and tenant were made with their sharing of farm income.

Walker and DeVault (35) investigated the kind of leases used in four type of farming regions in

Maryland. The division of income between landlord and tenant was compared with the division of production costs between them under different systems of leasing. Suggestions for improving lease relations were made.

McCord (26) studied the frequency of the use of different types of leases in regional areas of Pennsylvania. He used enterprise cost of production records to make percentage distributions of the costs of farm production. Suggestions for improving landlord and tenant relationships and model lease forms were presented in his report.

Burdick (5) has reported a study of landlord and tenant incomes in Colorado. Tenant farm records from the Greeley-Fort Collins area for the years 1922-1935 were analyzed to determine the effects of changes in prices, crop yields and methods of leasing upon tenant and landlord incomes. A recommended lease form was included in his report.

OBJECTIVES OF THE STUDY

The major objectives of this study were:

1. The collection and presentation of information concerning the terms and conditions under which tenant farmers secure the use of land in irrigated northeastern Colorado, and the determination of the essential features of the more frequently used methods of leasing.

2. A comparison of the sharing of farm production costs between landlord and tenant with their sharing of farm receipts.

- a. A determination of whether or not individual crops were shared in proportion to the ratio between the contributions of landlord and tenant to crop production costs.

- b. A determination of whether or not total farm incomes were shared in proportion to the way total production costs were shared.

3. An analysis of the possible effects of fluctuations in the amount of a few major farm operation costs such as labor, taxes, and interest rate on the investment in land upon the fairness of the frequently used leasing conditions.

4. The presentation of data useful to landlords and tenants in the solution of their leasing problems.

Source of Data

To help in meeting these objectives information on leasing terms and conditions has been obtained for 270 irrigated and part irrigated farms located in northeastern Colorado. The writer interviewed a large number of landlords and tenants. A mimeographed questionnaire concerning leasing terms and conditions was sent in quantity to the instructors in vocational agriculture in the area studied. Interested high school students with the cooperation and supervision of their instructors completed the schedules for farms with which they were familiar. These data were analyzed for the methods of leasing which were in use on these farms.

Cost of production records of the Farm Management section of the Division of Economics and Sociology and of the Extension Farm Management office of Colorado State College of Agriculture and Mechanic Arts have been used to compute percentage distributions of farm production costs. From these percentage distributions the major cost items have been selected for use in determining the effect of cost fluctuations upon the fairness of the income divisions.

Methods and Procedure Used in Analyzing the Data

The data from the 270 farms were analyzed for the frequency of using different systems of leasing. The locations of the farms were listed by counties and the farm area by size groups to judge the representativeness of the sample. The county groups and the size groups were analyzed for the frequency of using different systems of leasing. The frequencies with which the different crops were reported were determined and used as a guide in selecting the crops to consider in comparing the division of production costs with the division of crop income.

The reports were divided by systems of leasing, and these groups were analyzed for the terms and conditions in use. The frequencies with which the different leasing conditions were used were determined for both general farm and individual crop items. These frequency distributions were used to determine the combinations of terms and conditions which were used with first and second preference on crop share leased farms. The essential features of these two most frequently used crop share leasing arrangements have been outlined. Some data on the use of written leases were collected and a summary of these data has been reported.

Costs of producing irrigated crops as reported by Burdick and Pingrey in Colorado Experiment Station

Bulletin 353 (7) were used to calculate percentage distributions of the costs of producing a majority of the crops reported grown in the study area. The data from this bulletin were supplemented for some crops with later data from the cost route records of the Farm Management section of the Division of Economics and Sociology, and with data from the enterprise cost records of the Extension Farm Management office. Tables which present the percentage contribution of tenant and landlord to the costs of producing the major crops, produced in the study area, under the two more frequently used leasing arrangements have been compared with the sharing of the crops as stipulated by the leasing conditions.

Use of land was charged to crops at six percent interest on its appraised values in the bulletin data. A second set of percentage distributions of production costs was computed using a land charge of four percent interest instead of six percent interest on its appraised value. This was done to bring the land charge closer to present interest rates on farm mortgage loans. Applications of this second set of percentage distributions of production costs were made, and the results are discussed.

In order to determine whether the idea that regular labor contributed by the tenant is equal to the use of land contributed by the landlord has influenced the rental terms used for irrigated land or not, a third set of percentage distributions of production costs was

prepared wherein the charges for regular man labor and interest on investment in land have been omitted. The application of these distributions has been made for the frequently grown crops.

The relative importance of the different production cost items was clearly indicated by the percentage distributions noted above. The effects of fluctuations in the amount of the more important cost items upon the fairness of the more popular leasing arrangements have been discussed.

Leasing Methods in Use

The 270 farms used in this study were leased under four systems of leasing: crop share, crop share and cash, crop and stock share, and cash rent. A considerable number of variations were reported under each system of leasing. The frequency and nature of these variations will be discussed later.

Table 1 gives the distribution of the 270 farms by counties and by the frequency of using the different leasing systems.

Table 1.--NUMBER OF FARMS BY COUNTY AND METHOD OF LEASING

County	Crop share	Crop share and cash	Crop and stock share	Cash	Total
Adams	11	3	0	12	36
Boulder	17	1	0	3	21
Larimer	51	5	1	4	61
Weld	49	10	1	2	62
Morgan	57	8	5	0	70
Logan	11	3	0	3	17
Sedgwick	8		2	0	13
Total	204	33	9	24	270

Crop share leasing was used far more frequently than any other system. Crop share and cash was second in frequency, followed by cash rent and by crop and live-stock share. Cash rent was used with greater frequency as a system of leasing near large cities, as near Denver in Adams County, than it was used in areas more remote from cities. Cash rent was reported, however, from most sections of the area studied, and from large as well as small farms (table 2).

Table 2 gives the frequency of different sizes of farms and the systems of leasing used. The percentages of all farms in this study with which each system of leasing was associated are presented.

Table 2.--SIZE OF FARM AND METHOD OF LEASING

Size of farm	: Crop share	: Crop share and cash	: Crop and stock share	: Cash	: Total
<u>Total acres</u>		<u>Number of farms</u>			
Tracts 1-19 A.	9			2	11
20-49 acres	6	6		10	22
50-99 "	54	2	2	8	66
100-139 "	33	10		1	44
140-179 "	63	5	3		71
180-259 "	21	4			25
260-499 "	15		3	3	21
over 500 "	3	6	1		10
Total	204	33	9	24	270
Percent of all farms studied :	75.56	12.22	3.33	8.89	100.00

A crop share lease was reported for three farms out of four. This method of renting was used for farms of all size groups. Crop share and cash leases were used for one farm in eight. Less than one farm in eleven was associated with cash rent and only one farm operator in 30 reported a crop and livestock share lease. Cash rent was reported for tracts (19 acres or less) with less frequency than it was for small farms of 20 to 49 acres. Three farms in the 260 to 499 acre size group were rented for cash.

Table 3 gives the crops reported as grown on 270 irrigated farms in 1937. The frequency of each crop under each of the four systems of leasing and the total number of farms for which each crop was reported are listed.

Table 3.--CROPS PRODUCED IN 1937. FREQUENCY OF DIFFERENT CROPS ON 270 IRRIGATED FARMS IN 1937 BY THE METHOD OF LEASING THE FARM.

Crops	Methods of leasing the farm				Total number of farms reporting crop
	Crop share	Crop share and cash	Stock and crop share	Cash	
Alfalfa	187	21	9	14	231
Potatoes	47	6			53
Sugar beets	167	20	7	19	213
Barley	157	21	6	8	192
Oats	53	6	7	2	68
Wheat	92	12	3	6	113
Corn	162	23	9	11	205
Beans (seed)	1			1	2
Pinto beans	64	7	2		73
Cane hay	25	7	3	2	37
Cabbage	19	6		12	37
Canning peas	11			14	25
Field peas	6				6
Rye	8				8
Truck crops	231 ^{1/}	15	2	13	53
Soy beans	6				6
Raspberries	1			1	2
Pop corn	3				3
Onions	3				3
Sudan grass	3	3			6
Cantaloupes				4	4
Pickles	7			4	11
Tomatoes	4			5	9
Sweet clover	3				3
Green beans		2		12	14

^{1/} These figures do not include the farms which reported the individual truck crops listed later in this table.

Alfalfa was produced on more than 85 percent of the farms, sugar beets on 78.8 percent of them, corn on 75.9 percent of them, and barley on 71.1 percent of them. These four crops were the only crops which were used with more than a 50 percent frequency. They were used with nearly the same relative frequency under all systems of leasing.

Details of the Different Leasing Systems

A number of minor variations were reported for all four of the leasing systems used in this area. Crops and crop production cost items were shared in different proportions. Cash rent varied per acre and the number of production costs paid by the landlord varied from farm to farm. A few combinations of leasing conditions were used with much greater frequency than other combinations. Each system of leasing will be discussed in detail.

Crop Share Leasing

Crop share leasing was used with outstanding frequency as a method of renting for the farms reported in this investigation. Several different ways of sharing production costs and the crops produced were reported. A few cost items and returns were handled uniformly on all of the 204 farms reported under this system of leasing.

The landlords furnished the land and buildings, and the tenant had free use of such permanent pasture as the places afforded. Real estate taxes and regular irrigation water assessments were paid by the landlord as a rule, but the costs of these items were shared on a few farms. The tenant paid one-half of the real estate taxes on six farms, one-half of the regular irrigation water costs on 22 farms and all of the irrigation water costs on two farms. The tenant usually received larger shares of certain crops or had free use of more pasture to compensate him for his payment of a greater share of the crop production costs. The most frequently used procedure was for the landlord to provide the land and buildings, and to pay the real estate taxes and the regular irrigation water assessments.

When extra irrigation water was used, however, the tenant frequently paid a portion or all of its costs. One hundred one farmers reported the use of extra irrigation water. The landlord paid all of the irrigation water costs on 37 of them. These costs were shared one-half and one-half on 47 farms, three-fourths by the tenant and one-fourth by the landlord on two farms, and all such costs were paid by the tenant on 11 farms. Four farm operators reported the division of extra water costs on the same basis as the tenant and landlord shared the crop or crops for which the water was used.

Seventy-two farmers reported the use of pump irrigation. The landlord paid all of the pumping costs on 27 farms; these costs were shared one-half and one-half on 34 farms, and the tenant paid all of the pumping costs on 11 farms. The costs of digging wells and installing pumping equipment were reported as landlord costs in all cases in which these items appeared.

Fences were maintained on 153 farms by the landlord furnishing the material and the tenant doing the work. The landlord paid for both material and labor on 39 farms, and the tenant paid for both on 12 farms. Building repair costs, both material and labor, were paid by the landlord on 147 of the 204 farms. The materials were provided by the landlord and the labor by the tenant on 32 farms. The tenant paid all building repair costs on 17 farms and there were no buildings on five farms. No data were obtained on this item for the rest of the crop share leased farms.

In contrast to building repairs, machinery and equipment were reported as provided and kept in repair by the tenant on a great majority of the farms under this system of leasing. Machinery was reported as owned by the tenant on 190 farms, as owned one-half and one-half on six farms, and as owned all by the landlord on eight farms. Machinery repair costs were shared one-half and one-half on four farms and these costs were paid by the landlord on six farms. On two of the farms where the landlord

15 owned the machinery the tenant paid the costs of machinery repair. The six farms where the landlord furnished the machinery and kept it in repair were operated under labor contracts for sugar beets and truck crops. The arrangements will be discussed later.

Landlords provided equipment other than machinery with greater frequency than they furnished machinery. Such equipment was provided by the landlord on 34 farms and he paid the repair costs on 28 farms. Ownership of equipment other than machinery and the costs of keeping it in repair were shared one-half and one-half on 11 farms. For the remaining 150 farms leased by crop share, the tenant owned the equipment and kept it in repair.

The tenant paid the taxes on his own personal property in all cases.

The labor of farm operation was reported as furnished by the tenant on practically all farms in this study. Costs of special labor such as hay stacking, beet contract labor, and corn harvesting were reported as shared one-half and one-half or all paid by the landlord in a few instances.

The foregoing farm production costs relate to the entire farm business. Additional specific production costs are connected with each crop produced. Variations in crop share leasing result from different combinations of ways of handling general farm and specific enterprise costs and income.

The different ways of handling specific crop production costs and ways of sharing crop returns are presented crop by crop.

Alfalfa.--Alfalfa was shared seven different ways, but one-half and one-half shares were used on 152 of the crop share leased farms on which alfalfa was produced. Table 4 gives the frequency of using different ways of sharing the crop, and table 5 gives the frequency of using different ways of sharing specific crop costs.

Table 4.--FREQUENCY OF USING DIFFERENT WAYS OF SHARING ALFALFA ON 187 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share:	Landlord share:	
1/2	1/2	152
2/5	3/5	2
0	All	7
3/4	1/4	7
All	0	8
2/3	1/3	9
5/8	3/8	2

Alfalfa was shared on a fifty-fifty basis on 81 percent of these farms.

Table 5.--DIVISION OF INDIVIDUAL CROP COSTS FOR
ALFALFA ON 187 FARMS

Cost items	No. of farms using each division of crop costs		
	Tenant 0	Tenant 1/2	Tenant all
	Landlord all	Landlord 1/2	Landlord 0
Seed	147	21	19
Labor <u>1</u> /	6		178
Marketing			
expense	11	6	170
Machinery and			
equipment	8	4	175
Threshing			
(seed)	0	2	3
Fertilizer	18	12	29
Land	187		

1/ Landlord paid stacking labor on three farms.

Potatoes.--Three ways of sharing potatoes and four ways of sharing potato production costs were reported. Table 6 gives the crop divisions used, and table 7 gives the different ways of sharing the costs of potato production.

Table 6.--FREQUENCY OF USING DIFFERENT WAYS OF
SHARING POTATOES ON 47 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share:	Landlord share:	
2/3	1/3	28
3/4	1/4	17
1/2	1/2	2

Shares of two-thirds to the tenant and one-third to the landlord were used on 57.4 percent of the crop share leased farms on which potatoes were produced. Potato shares of three-fourths to the tenant and one-fourth to the landlord were used on 36 percent of these farms.

Table 7.--DIVISION OF INDIVIDUAL CROP COSTS
FOR POTATOES ON 47 FARMS

Cost items:	No. of farms using each division of crop costs			
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant 2/3
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord 1/3
Seed			47	
Labor			47	
Contract labor			47	
Fertilizer	11	12	24	
Marketing expense		4	43	
Spray material	4	5	38	
Sacks		6	28	13
Machinery			47	
Equipment		3	44	
Land	47			

Sugar beets.--Seven different ways of sharing sugar beets and four different ways of sharing beet tops were reported. Four different arrangements for handling beet production costs were used. Table 8 gives the ways of sharing sugar beets and the frequency of using each way. Table 9 gives the ways of sharing beet tops, and table 10 gives the different ways of handling sugar beet production costs.

Table 8.--FREQUENCY OF USING THE DIFFERENT WAYS OF SHARING SUGAR BEETS ON 167 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
4/5	1/5	5
3/4	1/4	134
2/3	1/3	17
35/100	65/100	4
7/10	3/10	2
5/6	1/6	3
1/2	1/2	2

Sugar beet shares of three-fourths to the tenant and one-fourth to the landlord were used on 80.2 percent of these farms.

Table 9.--FREQUENCY OF USING THE DIFFERENT WAYS
OF SHARING BEET TOPS ON 167 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
1/2	1/2	107
2/3	1/3	18
All	0	31
0	All	11

A fifty-fifty division of sugar beet tops was used on 64.1 percent of the crop share leased farms on which this crop was produced.

Table 10.--DIVISION OF INDIVIDUAL CROP COSTS FOR
SUGAR BEETS ON 167 FARMS

Cost items	:No. of farms using each division of crop costs				
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{3}{4}$	
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord $\frac{1}{4}$	
Seed	15	9	140	3	
Labor			167		
Contract labor		6	161		
Fertilizer	31	37	81	3	
Spray material	7	50	83	3	
Machinery	6	4	157		
Equipment	11	7	149		
Land	167				

Wide variations existed in the ways of sharing sugar beet production costs on farms on which the same shares for dividing the crop were used. This is illustrated in table 10-a which presents the ways of sharing sugar beet production costs used on one group of 134 farms (table 8), on which crop shares of three-fourths to the tenant and one-fourth to the landlord were used. A similar analysis for 17 farms (table 8), on which crop shares of two-thirds to the tenant and one-third to the landlord were used, shows similar variations in the ways of sharing the production costs for sugar beets. Conditions used for other crops and for general farm cost items were contributing causes back of these variations. The ratios between areas used for the different crops produced on the farm, and the crop rotation used also appeared to have some influence.

Table 10-a.--DIVISION OF INDIVIDUAL CROP COSTS FOR
SUGAR BEETS ON 134 FARMS USING CROP SHARES OF
THREE-FOURTHS TO THE TENANT AND ONE-FOURTH TO THE
LANDLORD

Cost items	No. of farms using each division of crop costs			
	Tenant 0 Landlord all	Tenant $\frac{1}{2}$ Landlord $\frac{1}{2}$	Tenant all Landlord 0	Tenant $\frac{3}{4}$ Landlord $\frac{1}{4}$
Seed	9	6	116	3
Labor			134	
Contract labor		6	128	
Fertilizer	18	16	97	3
Spray material	2	31	54	3
Machinery			134	
Equipment	7	4	127	
Land	134			
Irrigation water	116	16	2	
Extra water	26	43	9	4
Taxes	125	9		

Barley.--Five ways of sharing barley and five different arrangements for meeting barley production costs were used. Table 11 gives the ways of dividing the barley crop and table 12 gives the ways of sharing the costs of production.

Table 11.--FREQUENCY OF USING DIFFERENT WAYS OF
SHARING BARLEY ON 157 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
2/3	1/3	123
1/2	1/2	23
3/4	1/4	8
1/3	2/3	1
0	All	2

The tenant gave one-third of the barley as rent on 78.3 percent of the crop share leased farms on which this crop was produced. Shares of one-half and one-half were used on 14.6 percent of these farms.

Table 12.--DIVISION OF INDIVIDUAL CROP COSTS FOR
BARLEY ON 157 FARMS

Cost items	No. of farms using each division of crop costs				
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{3}{4}$	
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord $\frac{1}{4}$	
Seed	15	6	133	3	
Labor			157		
Fertilizer	19	20	79	3	
Twine	5	8	141	3	
Threshing ^{1/}		22	126	3	
Machinery	6	6	145		
Equipment	6	8	143		
Marketing expense	6	7	144		
Seed treatment	19	7	4		
Land	157				

^{1/} Tenant paid 3/4 and landlord 1/4 on six farms.

Oats.--Oats were produced under four ways of sharing the crop and five different arrangements for dividing the production costs. Table 13 gives the different ways of sharing oats and table 14 gives the ways of sharing oats production costs.

Table 13.--FREQUENCY OF USING DIFFERENT WAYS OF SHARING OATS ON 53 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
2/3	1/3	44
3/4	1/4	3
1/2	1/2	4
0	All	2

The landlord received one-third of the oats as rent on 83 percent of these farms.

Table 14.--DIVISION OF INDIVIDUAL CROP COSTS FOR
OATS ON 53 FARMS

Cost items:	No. of farms using each division of crop costs				
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{3}{4}$	
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord $\frac{1}{4}$	
Seed	:	6	:	47	:
Labor	:	:	:	53	:
Fertilizer:	11	10	:	29	3
Twine ^{1/}	3	3	:	43	:
Threshing	:	4	:	43	:
Machinery	1	5	:	47	:
Equipment	1	5	:	47	:
Seed treat-	:	:	:	:	:
ment	4	5	:	3	:
Land	53	:	:	:	:

^{1/} The tenant paid two-thirds of the cost of twine on four farms.

Wheat.--Four ways of sharing the income from wheat were reported, and five arrangements were used to handle wheat production costs. Tables 15 and 16 give the details of the share production of wheat.

Table 15.--FREQUENCY OF USING DIFFERENT WAYS OF
SHARING WHEAT ON 92 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
2/3	1/3	67
3/4	1/4	2
1/2	1/2	22
0	All	1

Wheat shares of two-thirds to the tenant and one-third to the landlord were used on 72.8 percent of the crop share leased farms on which wheat was produced. Shares of one-half and one-half were used on 23.9 percent of these farms.

Table 16.--DIVISION OF INDIVIDUAL CROP COSTS FOR
WHEAT ON 92 FARMS

Cost items:	No. of farms using each division of crop costs				
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{3}{4}$	
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord $\frac{1}{4}$	
Seed	10	8	74		
Labor			92		
Fertilizer	13	11	47		
Twine	3	8	81		
Threshing $\frac{1}{2}$		21	64		3
Machinery		6	86		
Equipment	3	10	79		
Marketing expense	3	10	79		
Seed treatment	4	9			
Land	92				

$\frac{1}{2}$ Threshing costs were paid two-thirds by the tenant and one-third by the landlord on four farms.

Straw.--Small grain straw has considerable value on irrigated farms as feed and as a source of organic matter. Information was gathered on methods used in sharing this value between landlord and tenant. Table 17 gives the frequency with which different ways of sharing straw were used.

Table 17.--FREQUENCY OF USING DIFFERENT WAYS OF
SHARING STRAW ON 174 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
1/2	1/2	79
All	0	74
0	All	19
1/3	2/3	2

Straw was shared on a fifty-fifty basis on 45.4 percent of these farms, and the tenant received all of it on 42.5 percent of them.

Corn.--Five ways of sharing corn income and five ways of sharing corn production costs were reported. Tenant shares of two-thirds and one-half, which were used in 105 and 38 cases respectively were the divisions commonly used. Tables 18 and 19 give the frequency of using different ways of sharing corn income and corn production costs.

Table 18.--FREQUENCY OF USING DIFFERENT WAYS OF
SHARING CORN ON 162 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
2/3	1/3	105
3/4	1/4	16
1/2	1/2	38
0	All	2
3/5	2/5	1

The tenant gave one-third of the crop as rent on 64.8 percent of the crop share leased farms on which corn was produced. The landlord received one-half of the crop as rent on 23.5 percent of these farms.

Table 19.--DIVISION OF INDIVIDUAL CROP COSTS FOR
CORN ON 162 FARMS

Cost items:	:No. of farms using each division of corp costs				
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{3}{4}$	
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord $\frac{1}{4}$	
Seed	19	9	134		
Labor		3 $\frac{1}{2}$	159		
Fertilizer	12	23	47		3
Twine		6	111		
Machinery	2	8	152		
Equipment	1	2	159		
Marketing expense $\frac{2}{3}$		13	97		
Shelling $\frac{2}{3}$		7	6		
Land	162				

1/ Harvest labor only.

2/ Marketing expense was paid two-thirds by the tenant and one-third by the landlord on three farms. Shelling was paid two-thirds by the tenant and one-third by the landlord on four farms.

Cane hay.--Cane hay or cane fodder was produced under three different share divisions and five ways of dividing production costs. Tables 20 and 21 give the details of the methods of sharing cane and cane production costs.

Table 20.--FREQUENCY OF USING DIFFERENT WAYS OF
SHARING CANE HAY ON 25 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
2/3	1/3	15
1/2	1/2	8
3/4	1/4	2

Cane shares of two-thirds to the tenant and one-third to the landlord were used on 60 percent of these farms.

Table 21.--DIVISION OF INDIVIDUAL CROP COSTS FOR
CAN E HAY ON 25 FARMS

Cost items	No. of farms using each division of crop costs				
	Tenant -	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{3}{4}$	
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0	Landlord $\frac{1}{4}$	
Seed	20		5		
Labor			25		
Fertilizer		3	2		
Machinery			25		
Equipment			25		
Twine $\frac{1}{2}$			7		2
Land	25				

$\frac{1}{2}$ Twine costs were paid two-thirds by the tenant and one-third by the landlord on one farm.

Pinto beans.--Pinto beans were produced on a crop share basis with relatively less variation in the ways of sharing income and costs than any other crop. Tables 22 and 23 give the details of the leasing arrangements used for pinto beans.

Table 22.--FREQUENCY OF USING DIFFERENT WAYS OF SHARING PINTO BEANS ON 64 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
2/3	1/3	58
3/4	1/4	6

The tenant gave one-third of the bean crop as rent on 90 percent of the crop share leased farms on which pinto beans were produced.

Table 23.--DIVISION OF INDIVIDUAL CROP COSTS FOR
PINTO BEANS ON 64 FARMS

Cost items:	:No. of farms using each division of crop costs				
	Tenant 0	Tenant $\frac{1}{2}$	Tenant all	Tenant $\frac{2}{3}$	
	:Landlord all	:Landlord $\frac{1}{2}$:Landlord 0	:Landlord $\frac{1}{3}$	
Seed	:	:	64	:	
Labor	:	:	64	:	
Fertilizer:	4	:	12	:	
Sacks	7	:	14	:	18
Threshing	:	8	56	:	
Machinery	:	3	61	:	
Marketing	:	:	:	:	
expense	:	:	64	:	
Spray	:	:	:	:	
material	:	4	31	:	
Land	64	:	:	:	

Truck crops.--Miscellaneous vegetable crops were reported as truck crops by 23 crop share leased farms. They were, as a rule, a minor part of the farming enterprise. A number of arrangements were used for sharing the production costs and incomes from these crops. Tables 24 and 25 give the details of these arrangements.

Table 24.--FREQUENCY OF USING DIFFERENT WAYS OF SHARING TRUCK CROPS ON 23 FARMS

Ways of sharing		No. of farms using each way of sharing
Tenant share	Landlord share	
3/4	1/4	8
All	0	5
35/100	65/100	2
4/5	1/5	2
Varied with the crop		6

Table 25.--DIVISION OF INDIVIDUAL CROP COSTS FOR TRUCK CROPS ON 23 FARMS

:No. of farms using each division of crop costs			
Cost items:	Tenant 0	Tenant $\frac{1}{2}$	Tenant all
	Landlord all	Landlord $\frac{1}{2}$	Landlord 0
Seed		16	7
Fertilizer	2	4	6
Labor			23
Contract labor			23
Machinery	6		17
Equipment	6		17
Spray material		19	3
Sacks		7	8
Land	23		

Miscellaneous crops.--Other crops were produced under crop share arrangements on a few farms. Cabbage was grown on 19 farms. It was divided 35 percent to the tenant and 65 percent to the landlord on three farms and 40 percent to the tenant and 60 percent to the landlord on three farms. The leases on all six of these farms were essentially labor contracts as the landlord furnished the machinery, equipment, and a part of the plants, in addition to the payment of real estate taxes and one-half of the irrigation water costs. Other truck crops were produced on much the same basis on these farms. On 13 farms, however, where the tenant met all of the cabbage production costs except use of land, real estate taxes and irrigation water cost, the crop was shared three-fourths to the tenant and one-fourth to the landlord.

Canning peas were shared one-half and one-half on five farms, two-thirds to the tenant and one-third to the landlord on three farms, and 35 percent to the tenant and 65 percent to the landlord on three farms. The landlord paid one-half of the seed, contract labor and marketing costs in addition to the real estate taxes and irrigation water assessments on the farms where the crop was shared one-half and one-half. The tenant paid for all of the contract labor and marketing expenses on the farms using the two-thirds and one-third division of the crop. He also furnished all of the seed in two cases and the

seed cost was shared one-half and one-half in one case. The leasing terms for the three farms which used the 35 percent to the tenant sharing of the crop will be discussed later under labor contracts.

Field peas were shared one-half and one-half on two farms and two-thirds to the tenant and one-third to the landlord on four farms. The landlord provided one-half of the seed and paid one-half of the machinery and equipment costs, in addition to real estate taxes and irrigation water costs on the two farms on which a share and share alike division of the crop was used.

Soy beans, pop corn and Sudan grass were shared two-thirds to the tenant and one-third to the landlord on all farms reporting these crops. The landlord furnished the land, and paid the real estate taxes and irrigation water assessments for these crops.

Pickles were shared three-fourths to the tenant and one-fourth to the landlord as a rule. The tenant met all production costs except use of land, real estate taxes and irrigation water charges. Rye and sweet clover were grown as cover crops as a rule and their divisions were not reported except for one farm where the tenant received two-thirds and the landlord one-third of the rye. The landlord provided the land and the seed, paid the real estate taxes, and cared for the charges involved in supplying irrigation water for these crops.

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Raspberries were shared one-half and one-half on the one farm for which they were reported as handled on a share basis. The tenant furnished all of the labor and paid one-half of the marketing expenses for one-half of the crop.

Although several ways of sharing each crop and of handling most production cost items were used, a study of the foregoing data reveals that as a rule one or two arrangements were used with outstanding frequency. Hence it is evident that one or two methods of crop share leasing were used quite generally. The other variations resulted from efforts to meet special conditions on a farm, or from the superior bargaining power of an individual landlord or tenant.

Two combinations of leasing terms were reported for crop share leased farms with much greater frequency than any others. They are considered as the usual methods of crop share leasing for this area. In the interest of clearness and to save time, the more frequently used of these two combinations has been designated as arrangement A. The other one has been designated as arrangement B. The essential features of these two leasing arrangements are enumerated below:

Leasing arrangement A.--The landlord provides the land, buildings, and material for fence repairs. He pays the real estate taxes, the regular irrigation water

assessments, and the cost of alfalfa seed. The tenant owns the machinery and equipment and takes care of all repair bills for it. He also pays all individual crop costs except that for alfalfa seed, and he takes care of all labor charges except that for building repairs. The tenant pays the taxes on his own personal property, and has free use of the buildings and such pasture as the place affords. The crops are shared: alfalfa one-half and one-half; sugar beets three-fourths to the tenant and one-fourth to the landlord; potatoes three-fourths or two-thirds to the tenant; small grains, corn and pinto beans two-thirds to the tenant and one-third to the landlord. Truck crops, when they are produced, are shared the same as sugar beets. When extra irrigation water is used with leasing arrangement A, its cost is shared as a rule. Beet tops and straw are shared or the tenant receives all of them.

Arrangement B.--The landlord provides the land and buildings, and he pays the real estate taxes, the cost of irrigation water both regular and extra, and the cost of fence and building repairs. He also pays the cost of one-half or more of the alfalfa seed, one-half or more of the seed for grain crops, one-half or more of the fertilizer, one-half of the threshing and all of the cost of the sacks for his share of the potatoes. The tenant provides the machinery and equipment and he pays all of

the remaining farm operation costs. He also pays the taxes on his personal property, and he has free use of the farm buildings and pasture. The crops are shared: alfalfa one-half and one-half; potatoes, usually two-thirds to the tenant and one-third to the landlord; sugar beets, three-fourths to the tenant and one-fourth to the landlord as a rule, but two-thirds and one-third occasionally; beet tops are shared or the tenant takes all of them for use on the place; and small grains and corn, one-half and one-half with all of the straw to be used on the farm.

The essential difference between these leasing arrangements is the increased share of production costs paid by the landlord for a larger share of the grain crops under arrangement B. One-half rather than one-third of the grain crops are received by the landlord under arrangement B for his additional contribution of some labor for fence repairs, all extra irrigation water costs, sacks for his share of the potatoes, and one-half or more of the cost of fertilizer, grain seed and threshing.

One hundred twenty-nine farm operators reported lease terms quite like arrangement A, and 58 operators reported lease terms quite like arrangement B.

The landlord owned the machinery on eight of the crop share leased farms and it was owned in partnership on six farms. This indicates that there has been
little

tendency on the part of the landlords of the farms in this investigation to retire from farming by leasing both land and machinery.

Arrangements for livestock feeding were entirely separate from the farm leasing contracts on all of the crop share leased farms on which livestock were fed in cooperation between landlord and tenant.

The owners of six farms retained control of the production of alfalfa hay and grain crops but rented out the land for cultivated crops. The leasing arrangement used for the cultivated land was in reality a labor contract, as labor was the major portion of the tenant's contribution to production costs. All general farm costs except irrigation water charges were paid by the landlord, and he provided the machinery, equipment and draft power. The costs of irrigation water, both regular and extra for the cultivated crops, were shared one-half and one-half. Sugar beets, cabbage, canning peas, onions, pickles and tomatoes were produced on shares, but all of these crops were not produced on all six farms. The tenant received: 35 percent of the sugar beets and canning peas; 65 percent of the onions; 40 percent of the cabbage on three farms, and 35 percent of it on three farms; 60 percent of the pickles; 42 percent of the tomatoes on two farms, and 50 percent of them on two farms, as his share of the crops. Seed costs were shared

in the same proportion as the crops in each case. The expenses of spray material were divided one-half and one-half on two farms and all of this cost was paid by the tenant on four farms. The tenant met all charges for labor, both regular and contract, for these crops.

Crop Share and Cash Leasing

Crop share and cash leasing is a modification of crop share leasing to compensate for special conditions on an individual farm, or to relieve the landlord of some risks. Thirty-three of the 270 farm operators reported the payment of some cash as a part of the rent. The tenant paid cash for the use of buildings on nine farms, cash for the use of pasture on 19 farms, cash for crop land for some field crops on three farms, cash for truck crop land on 12 farms, and cash for taxes and irrigation water on three farms.

In the share part of the leasing arrangements these farms used methods which were very similar to those reported for crop share leasing. The landlord paid the real estate taxes in 30 cases, and the taxes were shared one-half and one-half in three cases. All of the regular irrigation water costs were paid by the landlord on 30 farms and all by the tenant on three farms. Extra irrigation water costs were paid by the landlord on five farms. These costs were shared one-half and one-half on

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15 farms and the tenant paid all of these costs on three farms. The tenant met all of the pumping costs on all six of the farms on which pump irrigation was used.

Building repair costs were paid by the landlord on 25 farms, these costs were shared one-half and one-half on three farms and the tenant paid for all of the building repairs which were made on four farms. The landlord furnished the material and the tenant did the labor for fence repairs on 20 farms, the tenant met both of these charges on eight farms, and the landlord paid for both material and labor on five farms. Equipment and equipment repair costs were paid by the tenant in 25 and 29 cases respectively. They were shared one-half and one-half on the other farms under this method of leasing. The machinery was provided and kept in repair by the tenant on all 33 farms.

The cash rents reported for crop land varied from \$6.00 to \$15.00 per acre. The landlord paid the real estate taxes and the cost of regular irrigation water on all of the farms where the tenant operator paid cash for the use of crop land. On all of the 33 farms under this system of leasing the tenant furnished all crop production labor, both regular and contract.

Except for the production of truck crops on a larger percentage of the farms, the crops grown on the crop share and cash leased farms were very similar to those

43 reported for crop share leased farms. Likewise the sharing arrangements for the division of crop costs and crop returns were very much alike. Only three farm operators reported the payment of cash rent for land used for the major field crops. Truck crops were produced on a share basis on these three farms, and they were shared three-fourths to the tenant and one-fourth to the landlord.

Alfalfa was grown on 21 farms, which were leased for crop share and cash. It was shared one-half and one-half on 16 farms. The tenant paid cash for the use of alfalfa land, paid for alfalfa seed, and received all of the hay on three farms. On two farms where the tenant paid for all of the alfalfa seed and irrigation water, and one-half of the real estate taxes he received all of the alfalfa hay. The landlord paid for the alfalfa seed on the 16 farms where the crop was shared.

Sugar beets were shared three-fourths to the tenant and one-fourth to the landlord on 17 farms and cash rent was paid on three farms. The tenant received all of the beet tops on six farms. They were shared one-half and one-half on nine farms, two-thirds to the tenant on two farms, and three-fourths to the tenant on three farms.

Barley was shared two-thirds to the tenant and one-third to the landlord on 14 farms, and three-fourths to the tenant on four farms in the group leased for crop share and cash. On the three farms on which potatoes

were produced on shares, they were shared two-thirds to the tenant and one-third to the landlord. Oats were shared two-thirds to the tenant and one-third to the landlord on four farms and three-fourths to the tenant on two farms. Wheat was shared two-thirds to the tenant and one-third to the landlord on nine farms. Corn was shared two-thirds to the tenant on 17 farms and three-fourths to the tenant on three farms. Cane hay was shared two-thirds to the tenant on five farms and three-fourths to the tenant on two farms. Straw was shared equally on nine farms and the tenant received all of it on 12 farms. The tenant gave one-third of the bean crop as rent on three farms, and cash was paid for bean land, pinto and green, on four farms.

Except for the alfalfa seed noted above and for all or a part of the fertilizer for some crops the tenant paid all of the individual crop costs on the crop share and cash leased farms.

Cash Leased Farms

Twenty-four of the 270 farms studied in this investigation were leased for cash. The cash rents reported varied from \$8.00 to \$25.00 per acre. This latter figure was for small areas where the use of the buildings as a place to live were the major returns to the tenant. The landlord provided the land and he paid

the real estate taxes and the regular irrigation water assessments in all cases. The landlord paid for building and fence repairs on 11 of the 24 farms, and for the alfalfa seed on seven of the 14 farms on which alfalfa was produced. Extra irrigation water was furnished by the landlord on four of the 11 farms for which the use of extra water was reported. Pump irrigation was reported on six farms and the landlord paid the pumping costs on two of them. All other crop production costs were paid by the tenant.

Cash crops such as cabbage, canning peas, truck crops, and green beans were reported with greatest frequency from the cash leased farms. Cash renting is a system of leasing whereby the tenant assumes practically all of the risks.

Crop and Stock Share Leased Farms

Nine farm operators out of 270 reported the use of a crop and livestock stock share leasing arrangement. Three different modifications of this system were represented in equal frequency by the nine farms. The essential features of each of these three arrangements are presented below.

1. The horses, productive livestock, machinery and equipment were owned one-half and one-half. The landlord provided the land, paid the real estate taxes, and

he took care of all charges incurred for irrigation water and buildings. The costs of fence repairs were shared one-half and one-half. The expenses for regular labor were met by the tenant and the cost of beet contract labor was shared equally. The remaining farm operating costs, including livestock feed and the taxes on the jointly owned property, were shared on a fifty-fifty basis. All of the farm income was shared one-half and one-half. One farmer using this arrangement produced sugar beets and the other two reported dairy cattle kept in partnership in addition to beef cattle and hogs.

2. The productive livestock was owned one-half and one-half. The tenant owned the work stock and all machinery, and he paid the costs of all labor. The landlord provided the land, and he paid the real estate taxes, the irrigation water assessments, and the costs of alfalfa seed and material for fence and building repairs. Other crop and livestock expenses were shared one-half and one-half and the income from livestock was shared in the same proportion. Crop receipts were shared as follows: sugar beets three-fourths to the tenant and one-fourth to the landlord; barley and corn two-thirds to the tenant and one-third to the landlord; and alfalfa, beet tops and straw one-half and one-half. Beef cattle and hogs were produced in partnership on the farms under this arrangement.

3. The landlord provided the land, the buildings, and the capital for lamb feeding. He paid the real estate taxes and all costs in connection with fence and building repairs and irrigation water. The tenant owned the work stock, machinery and equipment. The beef breeding herd was owned one-half and one-half, the feed and expenses for it were shared the same way, and the costs of the feed for lamb feeding were shared on a fifty-fifty basis. The remaining farm operation expenses were met by the tenant. The livestock receipts except milk were shared equally. All of the milk produced was received by the tenant. All crop returns except beet tops and straw were shared three-fourths to the tenant and one-fourth to the landlord. Beet tops and straw were divided equally and used on the farm. Beef cattle were produced and sheep were fed under this leasing arrangement.

Beef cattle were produced in partnership on all nine of the farms operated under crop and livestock share leases. Each of the tenants of these farms has been on his present farm for more than ten years. This indicated that, either the leasing arrangements were satisfactory or that the livestock arrangements have been entered into after the landlords and tenants developed confidence in one another under other leasing systems.

The Use of Written Leases

One hundred fifty-nine reports were obtained on the use of written lease contracts. One hundred one of these 159 farms were operated under written leases and 58 were not. Approximately 50 percent of the written leases contained some provisions for the termination of the lease. Table 26 gives the use of written leases by the system of leasing the farm.

Table 26.--THE USE OF WRITTEN LEASES

	Systems of leasing			
	Crop share:	Crop share and cash:	Crop and live stock share:	Cash rent
Number of farms using written lease:	64	20	0	17
Number of farms using no written lease:	45	7	3	3
Number of farms not reporting:	95	6	6	4
Number of farm leases with provisions for terminating the lease:	34	6	0	11

Written leases were reported with a little greater relative frequency from farms where there was a cash payment involved in the leasing arrangements, than from farms using share rent only.

It was not the intention of the writer in preparing this report to develop lease forms for use in leasing irrigated farms. Since discussing the use of written leases, however, with a great many landlords and tenants it is the opinion of the writer, and it is presented here as an opinion only, that a more satisfactory use of written leases would be made if less stress was placed on the legal form of the lease, and more attention was given to the idea that the lease is a memorandum of understanding between the landlord and the tenant.

It was an objective of the writer of this report to assist in making available to landlords and tenants information which might be useful in arriving at fair and reasonable leasing terms. The leasing methods used on a representative number of irrigated farms have been presented. The essential features of the more frequently used systems of leasing have been enumerated. It is now desirable to consider the division of farm receipts in relation to the division of farm production costs under the customary arrangements used for crop share leasing.

Leasing Methods and Their Relation to the Division of Production Costs and Farm Income

In order to have a basis for comparing what each party to a leasing agreement contributes to the costs of farm production with what each party receives from the farm products, percentage distribution of costs for the major crop enterprises of the area have been made. Costs of producing irrigated crops as reported by Burdick and Pingrey in Colorado Experiment Station Bulletin 353 (7) were used for a majority of the crops. The bulletin data were supplemented for a few crops by the addition of records secured subsequent to the compilation of the data in the bulletin. Enterprise cost records of the Extension Farm Management office, Colorado Agricultural Extension Service, were used for computing average production costs for onions.

In compiling the data in Bulletin 353 (7) interest on the investment in land at six percent per annum was charged to crop enterprises as the cost for the use of land. These figures have been retained in making one percentage distribution of costs for each crop. In order, however, to bring the charges for land nearer to the present cost of agricultural credit, a second set of percentage distributions of crop production costs has been made wherein the charges for land have been computed at

four percent instead of six percent interest per annum. Data for this second set of crop costs are presented for but one crop--alfalfa--as an example for comparison with the other data.

Percentage distributions of crop costs other than use of land and regular man labor have been made for the frequently grown crops. This was done to check the possibility of the crop share leasing arrangements used for irrigated farms in the study area having developed on the basis of the tenant risking his labor against the landlord's return on his investment in land.

Crop costs as reported in bulletin 353 (7) were made up of cash and non cash items. These costs were computed from the view point of the entire farm business. The amount and source of the various charges which entered into a particular cost such as horse labor are not readily evident. It is logical to expect that charges such as feed, pasture, use of buildings, and man labor for horse care were used in computing the horse labor cost. Under the conditions of crop share leasing arrangements A and B, which have been outlined heretofore, the landlord furnishes the buildings and pasture and he thereby makes a contribution to the cost of horse labor. In a similar way other crop production costs like irrigation water, overhead, man labor, fertilizer and miscellaneous costs include contributions from both landlord and tenant. An

analysis of these costs for the respective contributions of landlord and tenant would be a task too stupendous for this study even if the data were at hand. Therefore, another basis for the division of crop costs between landlord and tenant must be used. Any basis used is dependent to a considerable degree upon the terms and conditions of the leasing arrangement.

The writer admits that any method for the allocation of indirect farm costs between landlord and tenant is more or less arbitrary and open to criticism. The following divisions of crop costs for each of the leasing arrangements discussed have been made for the reasons explained with each item. These divisions are not presented as scientifically correct and infallible and the assumptions which have been made should be kept in mind in using the results. They are presented to indicate the methods used in attempting to solve the difficult problem of distributing farm enterprise costs between landlord and tenant.

Direct charges are as a rule fairly easy to allocate, while the indirect charges are associated with inescapable difficulties in distribution. Some crop cost items carry considerably more indirect charges than other items do. Items such as real estate taxes, seed, twine, threshing, buildings, sacks and contract hauling include at the most only a minor amount of indirect charges and

they have been allocated under the conditions of the leasing arrangement. The other crop cost items may or may not carry a considerable amount of indirect charges, dependent upon the conditions of the lease. Hence the divisions of such items will be explained for each leasing arrangement.

Irrigation water costs are shared by both tenant and landlord under leasing arrangement A. The landlord pays for regular water but the extra water costs are shared in varying proportions. The relation of extra water costs to regular water cost is not available. Extra water was used on approximately 50 percent of the crop share leased farms reported in this study and its cost was shared in varying proportions. The tenant makes a material contribution to irrigation water cost. On the other hand, the landlord makes minor contributions to the charges for man labor, horse labor, contract hand labor, machinery and equipment costs in the form of buildings used by hired and contract labor, machinery shelter, and buildings and some pasture for horses. Hence, irrigation water cost is allocated 100 percent to the landlord as an offset to a 100 percent allocation of man labor, horse labor, contract hand labor, and machinery costs to the tenant under leasing arrangement A. Under leasing arrangement B, however, the landlord provides both regular and extra water and receives a full 100 percent allocation of the irrigation water cost.

Fertilizer as a crop cost includes charges for man and horse labor, for machinery, buildings and materials used in the production and application of manure, for phosphate purchased and for the labor and machinery used in its application. A large amount of indirect charges is involved. It is a controversial question as to whether the landlord or tenant owns the manure produced on a tenant operated farm. The tenant contributes a major part of the labor and equipment charges for production and application. Under the conditions of leasing arrangement A, materials for manure production appear to be shared about equally. Hence, the fertilizer charge is allocated 25 percent to the landlord and 75 percent to the tenant. Under the conditions of arrangement B, where more of the cost of any purchased phosphate is paid by the landlord, and larger shares of crops and crop residue belong to the landlord, the fertilizer charge is allocated 75 percent to the landlord and 25 percent to the tenant. A part of this increased credit to the landlord on fertilizer is made as an offset to a 100 percent allocation of horse labor, man labor, contract hand labor and machinery costs to the tenant.

There are a number of farm operation costs such as fence repairs, farm dwelling maintenance, labor and material for the maintenance of farm roads and irrigation laterals, and telephone service which are very difficult

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to allocate to individual farm enterprises such as crops. Such expenses have been handled under the item of overhead. Burdick and Pingrey distributed overhead to the farm enterprises on the basis of the hours of man labor used by the different enterprises (7:20). In making this distribution they state:

"Any method of distributing overhead is arbitrary and open to some criticism; consequently the effort was made to select a base that could be used by any farmer wishing to compare his own farm with the average shown in this study."

It is difficult, likewise, to determine the share contribution of tenant and landlord to the overhead cost under any leasing arrangements. This cost is made up of a number of charges which may vary considerably from year to year on any one farm. Labor and use of equipment furnished by the tenant make up a large part of such charges on a majority of irrigated farms. Telephone charges are paid quite generally by the tenant. Skilled labor, for which the landlord pays, is used infrequently. Material for fencing is the landlord's chief contribution to overhead charges. For leasing arrangement A, overhead cost is allocated 10 percent to the landlord and 90 percent to the tenant. With the increased contributions of the landlord under leasing arrangement B, his contribution to overhead charges are increased. Hence for the conditions of arrangement B, overhead cost is allocated 25 percent to the landlord and 75 percent to the tenant.

The item of miscellaneous cost includes such charges as spray material and grasshopper poison, and labor and equipment for their application. Such charges may not occur on all farms or every year on a particular farm. The total of such charges are a minor crop cost and they are allocated between landlord and tenant on the same basis as the crop which they accompany is shared.

Leasing arrangement B shows some variation in the sharing of alfalfa and grain crop seed costs between landlord and tenant. The landlord furnished all of the alfalfa seed on approximately 50 percent of the farms and its cost was shared on the other 50 percent of the farms operated under these lease terms. The landlord also paid for one-half or more of the grain seed under leasing arrangement B. The alfalfa seed cost from Colorado Experiment Station Bulletin 353 (7) has been allocated 100 percent to the landlord as an offset to a 50 percent allocation of the grain seed cost to the tenant. This may make a small error in each crop analysis but such errors are compensating and the results for the entire farm business will be approximately correct.

All charges for the use of land as a crop production cost have been allocated 100 percent to the landlord under all share leasing arrangements..

Percentage distributions of alfalfa production costs are presented in tables 27 and 28. Percentage contributions of tenant and landlord to the average total

cost of producing alfalfa under leasing arrangements A and B have been computed. These data are presented in tables 27-A, 27-B, and 28-A and 28-B. Similar data for several other crops, except the computations at four percent, are presented in tables 36 and 47 in the Appendix to this report. The A group of tables has been constructed by applying the percentage distributions of crop costs to the conditions of crop share leasing arrangement A. The B group of tables has been constructed by applying the percentage distributions of costs to the conditions of crop share leasing arrangement B.

(Note: Man labor as used in these tables refers to the usual man labor of farm operation as separate from contract hand labor such as beet topping or potato picking.)

Table 27.--COST OF ALFALFA PRODUCTION

Average yearly cost per acre for 5,424 acres in six crop years 1/

Cost items	Interest on land @ 6%		Interest on land @ 4% ^{2/}	
	Cost per acre	Percent of total cost	Cost per acre	Percent of total cost
Taxes	\$ 2.95	9.0	\$ 2.95	10.5
Irrigation				
water	1.30	4.0	1.30	4.6
Overhead	1.57	4.8	1.57	5.6
Horse labor	2.92	8.9	2.92	10.4
Seed	1.04	3.2	1.04	3.7
Fertilizer	2.80	8.6	2.80	9.9
Machinery and:				
equipment	1.15	3.5	1.15	4.1
Miscellaneous:	0.07	0.2	0.07	0.2
Sub-Total	\$13.80	42.2%	\$13.80	49.0%
Use of land	13.51	41.4	9.01	32.0
Man labor	5.35	16.4	5.35	19.0
Total	\$32.66	100.0%	\$28.16	100.0%

^{1/} As reported in Colorado Experiment Station Bulletin 353, page 42.

^{2/} Computed from the bulletin data using four percent instead of six percent interest on the investment in land.

Table 27-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF ALFALFA PRODUCTION UNDER
LEASING ARRANGEMENT A

Cost items	Interest on land @ 6%		Interest on land @ 4%	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes	:	9.0	:	10.5
Irrigation	:	:	:	:
water	:	4.0	:	4.6
Overhead	4.3	0.5	5.0	0.6
Horse labor	8.9	:	10.4	:
Seed	:	3.2	:	3.7
Fertilizer	6.5	2.1	7.4	2.5
Machinery and:	:	:	:	:
equipment	3.5	:	4.1	:
Miscellaneous:	0.1	0.1	0.1	0.1
Use of land	:	41.4	:	32.0
Man labor	16.4	:	19.0	:
Total	39.7%	60.3%	46.0%	54.0%

Table 27-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND LANDLORD TO THE COST OF ALFALFA PRODUCTION UNDER LEASING ARRANGEMENT B.

Cost items	Interest on land @ 6%		Interest on land @ 4%	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		9.0		10.5
Irrigation water		4.0		4.6
Overhead	3.6	1.2	4.2	1.4
Horse labor	8.9		10.4	
Seed		3.2		3.7
Fertilizer	2.1	6.5	2.5	7.4
Machinery and equipment	3.5		4.1	
Miscellaneous	0.1	0.1	0.1	0.1
Use of land		41.4		32.0
Man labor	16.4		19.0	
Total	34.6%	65.4%	40.3%	59.7%

Table 28.--COST OF ALFALFA PRODUCTION OTHER THAN
USE OF LAND AND MAN LABOR 1/

Cost item	: Cost per acre	: Percent of total
Taxes	\$ 2.95	21.4
Irrigation water	1.30	9.4
Overhead	1.57	11.4
Horse labor	2.92	21.2
Seed	1.04	7.5
Fertilizer	2.80	10.3
Machinery and equipment:	1.15	8.3
Miscellaneous	0.07	0.5
Total	\$13.80	100.0%

1/ Compiled from data in Colorado Experiment Station
Bulletin 353, page 42.

Table 28-A & B.--PERCENTAGE CONTRIBUTIONS OF TENANT
AND LANDLORD TO ALFALFA PRODUCTION COSTS OTHER
THAN USE OF LAND AND MAN LABOR

Cost items	Leasing arrangement A		Leasing arrangement B	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		21.4		21.4
Irrigation water		9.4		9.4
Overhead	10.3	1.1	8.6	2.8
Horse labor	21.2		21.2	
Seed		7.5		7.5
Fertilizer	15.2	5.1	5.1	15.2
Machinery and equipment	8.3		8.3	
Miscellaneous	0.3	0.2	0.2	0.3
Total	55.3%	44.7%	43.4%	56.6%

The use of a land charge of four percent instead of six percent interest upon investment in land reduces the charge for use of land by one-third. Other charges remain the same. Hence, the percentage of total cost credited to use of land is decreased and the percentages credited to the other cost items are increased when the reduced charge for land is used. This is illustrated in table 27 for alfalfa. The percentage of total cost credited to land is decreased from 41.4 to 32.0 percent, a difference of 9.4 percent. This decrease is made up by small increases to the remaining cost items. The reduced land charge reduces the share of crop costs contributed by the landlord and increases the share contributed by the tenant. This is illustrated for alfalfa in tables 27-A and 27-B. The reduced charge for use of land changes the percentage contributions of tenant and landlord to alfalfa production by approximately six percent.

The total average costs per acre of producing the more frequently grown irrigated crops, as reported in bulletin 353 (7) or as computed in this study, are summarized in table 29.

Table 29.--AVERAGE COSTS PER ACRE FOR PRODUCING
IRRIGATED CROPS

(Crops frequently grown in northeastern Colorado)

Crop	Interest on land @ 6%	Interest on land @ 4%	Cost other than use of land & man labor
Alfalfa	\$ 32.66	\$ 28.16	\$ 13.80
Potatoes	90.26	85.31	57.53
Sugar beets	88.23	83.62	61.40
Barley	37.50	33.00	19.38
Oats	38.52	33.52	19.01
Wheat	38.42	33.66	19.29
Corn	50.28	45.62	27.19
Pinto beans	52.28	47.12	24.40

Comparison of columns one and two with column three of table 29 emphasizes the importance of the use of land and regular man labor as crop production cost items. These two items make up nearly three-fifths of the cost for producing alfalfa, one-half for grain crops, and one-third for sugar beets and potatoes. The percentages of total costs attributed to these two items with charges for use of land at six percent and four percent on the investment in land are presented in table 30.

Table 30.--PERCENTAGES OF TOTAL COSTS ATTRIBUTED TO
REGULAR MAN LABOR AND USE OF LAND WHEN LAND CHARGES
OF SIX AND FOUR PERCENT INTEREST ON THE INVESTMENT
IN LAND WERE USED

Crop	Interest on land @ 6%		Interest on land @ 4%	
	Man labor	Use of land	Man labor	Use of land
Alfalfa	16.4	41.4	19.0	32.0
Potatoes	19.8	16.4	21.0	11.6
Sugar beets	14.8	15.7	15.6	11.0
Barley	12.4	35.9	14.0	27.2
Oats	11.7	38.9	13.5	29.8
Wheat	12.5	37.2	14.4	28.3
Corn	18.2	27.7	20.0	20.4
Pinto beans	23.7	29.6	26.3	21.9

The share contributions of tenant and landlord to the costs of producing irrigated crops in northeastern Colorado, as developed in tables 27 and 28 and 36-A to 42-B inclusive, are summarized in tables 31-A and 31-B. Their average contribution under the conditions of leasing arrangement A are presented in table 31-A. Similar data for leasing arrangement B are presented in table 31-B.

Table 31.A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND LANDLORD TO THE
AVERAGE COSTS OF PRODUCING IRRIGATED CROPS UNDER CROP SHARE LEASING
ARRANGEMENT A

Crop	Interest on land:		Interest on land:		Costs other than use	
	@ 6%		@ 4%		of land and man labor	
	Tenant:	Landlord:	Tenant:	Landlord:	Tenant:	Landlord:
	Percent:	Percent:	Percent:	Percent:	Percent:	Percent:
Alfalfa	39.7	60.3	46.0	54.0	55.3	44.7
Potatoes	73.5	26.5	77.9	22.1	84.3	15.7
Sugar beets	74.3	25.7	78.4	21.6	85.6	14.4
Barley	48.9	51.1	55.6	44.4	70.8	29.2
Oats	46.8	53.2	53.6	46.4	70.7	29.3
Wheat	49.5	50.5	56.5	43.5	73.5	26.5
Corn	56.8	43.2	62.4	37.6	71.2	28.8
Pinto beans	58.2	41.8	64.7	35.3	74.1	25.9

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Crop	Interest on land: Interest on land: Costs other than use		of land and man labor			
	@ 6%		@ 4%			
	Tenant : Landlord :	Tenant : Landlord :	Tenant : Landlord :	Tenant : Landlord :		
	Percent : Percent :	Percent : Percent :	Percent : Percent :	Percent : Percent :		
Alfalfa	34.6	65.4	40.3	59.7	43.4	56.6
Potatoes	64.6	35.4	72.9	27.1	77.1	22.9
Sugar beets	69.1	30.9	73.0	27.0	78.3	21.7
Barley	38.9	61.1	42.5	57.5	51.5	48.5
Oats	37.1	62.9	40.7	59.3	51.7	48.3
Wheat	37.6	62.4	42.9	57.1	49.8	50.2
Corn	49.2	50.8	54.2	45.8	57.4	42.6
Pinto beans	52.2	47.8	57.9	42.1	61.0	39.0

The data presented in these tables reveal considerable difference between the division of crop production costs and the division of crop receipts between landlord and tenant. These relationships are now considered for the frequently grown crops of the area.

Alfalfa

Alfalfa was reported shared one-half and one-half with outstanding frequency. The landlord contributes in excess of one-half of the alfalfa production costs under both leasing arrangement A and arrangement B when a charge is made for the use of land. Likewise, the sharing of costs other than use of land and man labor is not in close proportion to the sharing of the crop.

Potatoes

Potatoes were shared two-thirds to the tenant on 28 farms and three-fourths to the tenant on 17 farms. Under the conditions of leasing arrangement A, production costs are shared fairly close to the three-fourths and one-fourth sharing of the crop. Under arrangement B, with a six percent interest charge for the use of land, average production costs are shared approximately two-thirds by the tenant and one-third by the landlord. The tenant furnishes over three-quarters of the costs other

than use of land and regular man labor under both leasing arrangements.

Sugar Beets

Sugar beets other than tops were divided one-fourth to the landlord and three-fourths to the tenant on 134 of the 167 crop share leased farms for which sugar beet production was reported. This division of the crop was very nearly in proportion to the sharing of production costs under leasing arrangement A when the use of land was charged at six percent on the investment. It also was in fairly close proportion to the sharing of production costs under leasing arrangement B when land use was charged at four percent. The above division of sugar beets favors the landlord with either land charge under arrangement A if the beet tops are shared one-half and one-half. If the tenant receives all of the tops or if the landlord furnishes one-half of the commercial fertilizer the inequalities of sharing are reduced. More than 75 percent of sugar beet costs, other than use of land and man labor, are contributed by the tenant under both leasing arrangement A and arrangement B.

Barley

Barley was shared two-thirds to the tenant and one-third to the landlord on 123 farms and one-half and one-half on 23 farms. The sharing of barley favors the tenant under both leasing arrangements. Costs other than use of land and man labor are shared more nearly in proportion to the sharing of the crop than are the total costs.

Oats

Oats were shared two-thirds to the tenant and one-third to the landlord on 44 farms. They were shared one-half and one-half on four farms. The sharing of oats favors the tenant under both leasing arrangements. Oats production costs other than use of land and man labor are shared in fairly close proportion to the sharing of the crop under each of the customary leasing arrangements.

Wheat

Wheat was shared two-thirds to the tenant and one-third to the landlord on 67 farms and one-half and one-half on 22 farms. The sharing of wheat favors the tenant under both leasing arrangement A and arrangement B when land is charged at either six percent or four percent

interest on the investment. Under leasing arrangement B, wheat production costs other than use of land and man labor are shared very nearly in proportion to the sharing of the crop. This does not hold for leasing arrangement A.

Corn

Corn was shared two-thirds to the tenant and one-third to the landlord on 105 farms and one-half and one-half on 38 farms. The sharing of this crop favors the tenant under leasing arrangement A, but under arrangement B the crop and average cost of production are shared in reasonably close proportion. Production costs other than use of land and man labor are not shared any nearer in proportion to the sharing of the crop than are the total costs.

Pinto Beans

Pinto beans were shared two-thirds to the tenant and one-third to the landlord on 58 farms and three-fourths to the tenant and one-fourth to the landlord on six farms. No farm operated under leasing arrangement B was reported as using pinto beans as a crop. These divisions of beans favor the tenant when a land charge of four percent or higher interest on the investment in land is included in the landlord's contribution to production costs.

Irrigation farming as practiced in the study area is not a one crop proposition. Any year's business on an individual farm is made up of at least a number of crop enterprises. Hence it is possible, by a combination of crops, to have an entire farm business arrangement that is quite fair to both landlord and tenant, although the individual crops are not shared in proportion to the sharing of their cost of production. It is evident from this analysis that the division of the cash crops--potatoes and sugar beets--are in general in favor of the landlord while the division of other crops in the rotation are in favor of the tenant. The tenant also has the advantage of free use of the farm residence as a place to live, of some farm produce consumed by his family, and of such permanent pasture as the place affords for work stock and milk cow care.

As an example of total farm costs and returns a farm business organization for a 160-acre farm has been used. One hundred fifty acres of crop land were assumed to have been operated in a five year rotation of alfalfa two years, potatoes, sugar beets, and barley seeded back to alfalfa. Average values of crops per acre as reported in bulletin 353 (7) were used to compute the returns received by landlord and tenant. Average costs of producing irrigated crops as presented in table 29 were used to compute the cost contributions of tenant and landlord.

Computations were made which included land charges of six and four percent interest on investment. Costs were allocated to tenant and landlord on the basis of the percentages listed in table 31-A, and returns were divided on the basis of crop share leasing arrangement A. These data are presented in tables 32, 33, and 34.

Table 32.--TENANT AND LANDLORD CROP PRODUCTION COSTS AND CROP RETURNS UNDER LEASING ARRANGEMENT A WHEN THE USE OF LAND IS CHARGED AT SIX PERCENT INTEREST ON THE INVESTMENT IN LAND

Crops and acreage	Costs		Returns	
	Tenant	Landlord	Tenant	Landlord
	\$	\$	\$	\$
Alfalfa - 60 A.	777.96	1181.64	852.90	852.90
Potatoes - 30 A.	1990.23	717.57	2077.80	1038.90
Sugar beets-30 A.	1966.65	680.25	2558.92	852.98
Barley - 30 A.	550.12	574.88	595.00	297.50
Total	\$5284.96	\$3154.34	\$6084.62	\$3042.28
Percentage share: of each	62.6%	37.4%	66.7%	33.3%

Table 33.--TENANT AND LANDLORD CROP PRODUCTION
COSTS AND CROP RETURNS UNDER LEASING ARRANGEMENT
A WHEN THE USE OF LAND IS CHARGED AT FOUR PERCENT
INTEREST ON THE INVESTMENT IN LAND

Crops and acreage	Costs		Returns	
	Tenant	Landlord	Tenant	Landlord
Alfalfa - 60 A.	\$ 777.22	\$ 912.38	\$ 852.90	\$ 852.90
Potatoes - 30 A.	1993.69	565.61	2077.80	1038.90
Sugar beets - 30 A.	1966.74	541.86	2558.92	852.98
Barley - 30 A.	550.44	439.56	595.00	297.50
Total	\$5288.09	\$2459.41	\$6084.62	\$3042.28
Percentage share of each	68.2%	31.8%	66.7%	33.3%

Table 34.--TENANT AND LANDLORD CROP PRODUCTION COSTS
AND CROP RETURNS UNDER LEASING ARRANGEMENT A WHEN
A CHARGE FOR USE OF LAND AND WAGES FOR REGULAR MAN
LABOR ARE OMITTED FROM CROP COSTS

Crops and acreage	Costs		Returns	
	Tenant	Landlord	Tenant	Landlord
Alfalfa - 60 A.	\$ 457.88	\$ 370.12	\$ 852.90	\$ 852.90
Potatoes - 30 A.	1454.93	270.97	2077.80	1038.90
Sugar beets - 30 A.	1576.75	265.25	2558.92	852.98
Barley - 30 A.	411.63	169.77	595.00	297.50
Total	\$3901.19	\$1076.11	\$6084.62	\$3042.28
Percentage share of each	78.3%	21.7%	66.7%	33.3%

The assumed rotation and crop acreages show total costs contributed 62.6 percent by the tenant and 37.4 percent by the landlord, when use of land was charged at six percent on the investment (table 32). The crop returns were shared 66.7 percent to the tenant and 33.3 percent to the landlord. This was in favor of the tenant. Furthermore, the value of the landlord's share of the crop was short of his share of the computed expense so that he did not realize the full six percent on his investment in land.

With a land charge of four percent on the investment (table 33) total production costs were met 68.2 percent by the tenant and 31.8 percent by the landlord. Since the shares of the returns remained the same the farm income divided slightly in favor of the landlord. The value of the landlord's share of the crop was in excess of his share of the production costs so that he would have realized more than the calculated four percent on his investment in land.

In both of these cases the tenant would have had free use of the farm residence as a place to live and the use of pasture and buildings for some livestock enterprises. His share of the farm receipts exceeded his expenses by approximately \$800.00 in each case. The tenant would have had wages at 32.8 cents per hour for his own labor and six percent return on his investment in horses,

machinery and equipment, both of which were included in computing the costs of crop production, and \$800.00 as pay for his managerial efforts. The landlord would have received a net return of between four and six percent on his investment in the farm. This indicates that both parties would show a fair return from the standard method of leasing with the average prices received for farm products during the years 1922 to 1927 inclusive.

This raises the question as to what happens when above average or below average prices are received. With prices 25 percent above average and production costs unchanged the assumed farm business would have given the tenant over \$2300.00 instead of \$800.00. The landlord would have received six percent on his investment in land and approximately \$650.00 additional. With prices 25 percent below average the tenant's income would have been more than \$700.00 short of his computed expenses, but about \$600.00 more than his expenses other than regular man labor (table 34, column 1). He would not have had any pay for his managerial efforts and the wages for his own labor would have been greatly reduced. The landlord would have had approximately \$1200.00 as a return on his investment. With average costs and prices (table 34) the tenant would have had approximately \$2184.00 as compensation for regular man labor and managerial effort, and the landlord would have had approximately \$1966.00 as a return on his investment.

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Some of the conclusions reached by Burdick from his analysis of financial records for tenant operated farms in the Greeley-Fort Collins area and presented in Colorado Experiment Station Bulletin 451 (5), apply to this study. On page 24 of this bulletin he states:

"It is apparent that tenants are in financial difficulties whenever yields or prices are low."

And on page 33:

"With these crops and prices, a reduction of \$1.00 in the farm income of the landlord was associated with a reduction of \$1.82 for the tenant. Increased yields would increase the tenant's income \$1.82 for every \$1.00 increase of the landlord. Apparently, in spite of the popular belief that tenants 'weathered the depression' better than landlords, the tenant suffered most from low yields.

"Landlords whose farms are heavily mortgaged would also have trouble. Under this one condition of heavy farm mortgage, tenants would escape the burden of interest payment and might weather a depression better than landlords. Where farms are free of mortgage debt, the tenant with customary share rent is the first to fall 'below zero' financially.

"If the yields on farm 5 are kept at the 14-year average and prices are reduced, every price combination obviously will have its special effect.With these assumed prices the tenant's income fell \$2.04 for every \$1.00 the landlord's fell.

"Again, it would seem that the tenant suffered most from the low prices."

It is apparent that under the customary crop share leasing terms the tenant receives more of the benefits from high yields and prices and suffers more from low yields and prices than the landlord does, provided the landlord is not carrying a heavy debt load

on the farm and has to meet large interest payments. A leasing arrangement which would make fair adjustments of the inequalities arising from fluctuating farm prices and yields would be desirable.

Results from leasing arrangement B might be studied in a similar way by using data from table 31-B and crop shares as outlined for arrangement B. Each change in a farm business organization such as the kind of crops grown, or the acres used for different crops, causes some change in the total production cost and its division, and in the amount and division of the returns from crop production. Hence, it is evident that the tenant and landlord of a farm should study the organization of their farm business carefully before making radical changes in their leasing arrangement. This idea was emphasized by Burdick in his discussion of the effect of rental terms upon income (5:37 and 5:32).

"This discussion emphasizes the need for frequent inspection of leasing arrangement and a cooperative desire on the part of both landlord and tenant to work out a lease that is fair to both.

"An arbitrary change in lease terms, designed to make average conditions more equitable, might easily result in some error as great as the one to be eliminated."

While considering the customary crop share leasing arrangements from the viewpoint of the farm as a whole it may be worth while to note the possibility that the maintenance of soil fertility has influenced

leasing terms. The maintenance of soil fertility is of more importance to the landlord than it is to the tenant. Crops such as alfalfa and the small grains are less depleting of fertility than are sugar beets and potatoes. They are also the basis for livestock feeding and manure production. This suggests that it would be unwise to confine the analysis to a single crop when in search of a fair lease.

The popularity of leasing arrangement A in the study area indicates that it is fairly satisfactory to both landlord and tenant. Leasing arrangement B, while not so frequently used as arrangement A, is preferred by a considerable number of landlords and tenants. These customary leasing arrangements appear to be reasonably fair and just for the average conditions of irrigated farms.

This analysis indicates that under the customary crop share leasing arrangements the tenant pays, except for one or two crops, a considerably larger share of the production costs, other than use of land and regular man labor, than his share of the crop returns. Hence, it would be quite difficult to organize a farm business which would give under the terms of the customary leases a division of the farm income in proportion to the division of production costs other than use of land and regular man labor. As these crop share leases are used

with high frequency, it suggests that the idea that "man labor should equal the use of land for fair lease terms" has not materially influenced lease terms for irrigated farms in the study area.

The conditions for the division of crops and crop costs under the share part of the crop share and cash system of leasing were very similar to those used for crop share leasing. Hence, the preceding discussion is quite applicable to crop share and cash leased farms. Some interesting variations are presented, however, with the farms leased by crop and livestock shares.

In one crop and livestock share leasing arrangement, regular man labor on the part of the tenant was balanced against use of land, real estate taxes, irrigation water costs and building charges, on the part of the landlord. All other production costs including contract labor on sugar beets were shared on a fifty-fifty basis. All of the farm receipts were shared one-half and one-half. This arrangement was based upon the fact that livestock farming required relatively more labor than crop farming. As all work stock, productive livestock, and machinery were owned one-half and one-half, this was a share and share alike leasing arrangement. An application of these leasing terms was made (see table 51 in the Appendix) to the 14 years average farm operation costs and farm income reported by Burdick in Colorado

Experiment Station Bulletin 451 (5:34, table 12). Under this leasing arrangement the production costs would have been met 50.38 percent by the tenant and 49.62 percent by the landlord. The farm income would have been divided 50.03 percent to the tenant and 49.97 percent to the landlord. This appears slightly in favor of the landlord, but the tenant would have had free use of the farm residence as a place to live and of some farm produce consumed by his family. Furthermore, the landlord logically would have given some increased time to the supervision of the farm. In reality the division of the farm income would have favored the tenant to some extent. If more productive livestock than the amount shown had been included in the farm business the tenant would have had an increased labor cost while he would have shared the cash and feed costs and income due to the increased livestock production equally with the landlord. Increased livestock production would have given results more favorable to the landlord. A point in favor of this fifty-fifty leasing arrangement is that fluctuating yields and prices for farm products do not change the ratio in which the farm income is divided to any appreciable extent.

Under another crop and stock share leasing arrangement the productive livestock was owned one-half and one-half. The tenant owned all work stock and machinery. He also furnished all labor and paid the taxes on the property he owned. The landlord provided

the land, paid the real estate taxes and irrigation water assessments, and took care of all charges in connection with fence and building repair, and alfalfa seed to balance the tenant's contribution. All other crop and livestock production expenses were shared one-half and one-half. The livestock receipts were shared one-half and one-half but all crop returns were not. The tenant received three-fourths of the sugar beets and two-thirds of the barley and corn. All other crop returns were shared on a fifty-fifty basis. An application of these particular lease terms to the percentage distributions of sugar beet, barley, and corn production costs, which are presented in tables 37, 38, and 41 in the Appendix, indicate that the divisions of these crops were slightly in favor of the tenant. This served to balance the tenant's increased labor due to livestock production.

For the third crop and livestock share leasing arrangement which was reported, the landlord furnished the land, all the capital for lamb feeding, and one-half the investment in breeding cattle. He also paid the real estate taxes, the irrigation water assessments, the cost of fence and building repairs, and one-half the cost of the feed for productive livestock. The tenant provided all work stock and their feed, machinery and equipment, paid the costs of labor and crop production, and one-half the cost of the feed for fattening lambs.

Livestock receipts were shared one-half and one-half. All crop returns except alfalfa, beet tops and straw were shared three-fourths to the tenant and one-fourth to the landlord. Alfalfa, beet tops and straw were shared one-half and one-half. Table 35 presents a percentage distribution of the lamb feeding costs reported by Burdick and Pingrey on page 18 of Colorado Experiment Station Bulletin 394 (6).

Table 35.--COST OF FEEDING LAMBS ^{1/}
(8-year average cost per head sold, 1922-1929 inclusive)

Cost items	Average cost	Percent of total cost
Feed	3.10	62.5
Death loss	0.22	4.4
Man labor	0.30	6.0
Interest	0.23	4.6
Miscellaneous cash	0.10	2.0
Water charge	0.08	1.6
Corral and equipment	0.15	3.0
Horse labor	0.12	2.4
Overhead	0.08	1.6
Marketing costs	0.59	11.9
Total feeding cost:	\$4.97	100.0%
Purchase cost in feed lot	8.08 ^{2/}	
Total cost per lamb sold:	\$13.05	

^{1/} As reported in Colorado Experiment Station Bulletin 349, page 18.

^{2/} This is a capital outlay but it is not a part of the cost of feeding. Its use is covered by interest.

An analysis of this percentage distribution of lamb feeding costs as applied to this crop and livestock share lease indicated that the landlord paid a little less than 50 percent of the lamb feeding costs. The division of field crops under this lease, however, were somewhat in favor of the tenant. In this way the entire farm business appears to have been in a fair balance.

Possible Effect of Fluctuating Costs on the Fairness of Leasing Terms

The relative importance of individual cost items vary considerably depending upon the crop, the allowance made for wages on regular man labor, and the rate of interest on the investment in land. Table 27 in the text and tables 36 to 49 in the Appendix, wherein wages for regular man labor and interest on investment in land have been included in cost items, indicate that these two items and draft power are the most important cost items for all crops except sugar beets, onions and cabbage. Contract hand labor is the outstanding production cost item for these three crops. It made up more than 25 percent of the costs in all percentage distributions of these crop costs. The tenant furnished this item on a great majority of the farms for which these crops were reported. This suggests a possible basis for a share contract for the hand labor on these crops.

A material fluctuation in the cost of contract labor for onions, cabbage, and sugar beets without compensating fluctuations in other cost items would materially affect the fairness of the customary share divisions of these crops. This can be illustrated with sugar beets. Under the usual lease terms for beets with average production cost the tenant receives 75 percent of the crop and

pays approximately 75 percent of the production cost. The cost of contract labor accounts for one-third or more of the tenant's expense for beets. Hence, any material change in this item has considerable influence upon the ratio between the tenant's and landlord's share of the expense, and adjustment for such a change should be provided for in the lease terms.

The fixed minimum price per acre for the contract labor on a 12 ton or smaller yield of sugar beets and the additional charges for higher yields make contract labor the outstanding production cost item at the present time. When beet yields are low and beet prices are low a major part of the tenant's income from beets is taken to pay for the contract labor. Thus it is possible for the payment of this fixed minimum price for beet contract labor to be a definite handicap to the tenant beet farmer.

There are those who contend that the beet farmer can escape paying the cost of beet contract labor by doing the hand work himself. The fact that very few farmers do the hand work on their beets is very good evidence that many practical difficulties are encountered by the farmer who attempts to do this work and meet the other labor requirements of the farm in good season. Unless a farm operator has a large amount of family labor which is without employment, it appears that it will be impractical for him to attempt to do the hand work on his beets until

improved machinery and methods make it less time consuming.

The charge for use of land is dependent upon two factors--valuation of the land and the average cost of agricultural credit. No leasing arrangement should be expected to provide for a fixed return upon inflated valuations. On the other hand, a return to sound valuations in keeping with the prevailing cost of farm mortgage capital needs to be considered in leasing terms. Real estate taxes, also, are closely associated with the charges for use of land and represent a more or less fixed landlord cost. As individuals, landlords have but little influence upon the amount of their taxes. High taxes have materially reduced the returns from irrigated farms during the past 20 years. Material fluctuation in land taxes should be accompanied by compensating changes in lease arrangements. Reduced real estate taxes with the loss in revenue made up by an income tax, which will be paid by landlords and tenants, should be accompanied by either an increased share of the crops to go to tenants or for landlords to furnish a larger share of other costs than they do under the now frequently used methods of crop share leasing.

Regular man labor may or may not be a cash cost to the tenant just as interest on the investment in land may or may not be a cash cost to the landlord. Burdick and Pingrey (7) in their analysis of the costs of producing irrigated crops found a wide variation in regular

labor costs. This indicates that the farm operator can reduce labor costs by efficient management and increase them by inefficient management. This holds true also for horse labor, tractor labor, and machinery costs. Average costs of these items have been used very largely in this analysis.

In farming practice, fluctuations in the tenant's usual production costs are reflected in the return the farm operator has for his own labor and for his management effort. A 30 to 50 percent fluctuation in any one of the more important of these cost items has an appreciable effect upon the tenant's labor income. Sustained changes in production costs which are not accompanied by compensating changes in other costs should have adjustments made for them in the leasing terms.

The tenant has the opportunity to influence the amount of some production costs, which he usually pays, by efficient management. Thus, efficient management and the resulting reduced cost of crop production offer the major chances for profitable operation on the part of tenant farmers.

SUMMARY

In 1935 more than 65 percent of the farms in northeastern Colorado were operated by farmers who leased all or a part of the land they used.

Information on leasing terms and conditions was obtained for 270 irrigated tenant farms located in northeastern Colorado. These data were analyzed for the methods and conditions used for leasing irrigated farms in this area. Crop share leases were used on three farms out of four. Approximately one farm in eight was operated under crop share and cash leases. Less than one farm in eleven was rented for cash, and but one farm operator in 30 reported the use of crop and livestock share leases.

Arrangements for the cooperation of landlords and tenants in the feeding of livestock were very generally separate from the farm leasing arrangements.

A wide variety of leasing terms and conditions were reported, but two combinations of terms and conditions were used with outstanding frequency for crop share leased farms. The more frequently used of these two combinations has been designated leasing arrangement A and the other combination leasing arrangement B. They are the usual methods of crop share leasing in this irrigated area. The essential features of leasing arrangement A are:

The landlord provides the land, buildings and material for fence repairs. He pays the real estate taxes, the regular irrigation water assessments and takes care of all charges for alfalfa seed and building repairs. The tenant furnishes all labor (except that for building repairs), machinery and equipment and pays all individual crop production costs except alfalfa seed. He pays the taxes on his own personal property and he has free use of the buildings and such permanent pasture as may be available on the farm. The cost of extra irrigation water is shared as a rule. The crops are divided: alfalfa one-half and one-half; sugar beets, three-fourths to the tenant and one-fourth to the landlord; potatoes, three-fourths or two-thirds to the tenant; small grains, corn and pinto beans two-thirds to the tenant and one-third to the landlord. Beet tops and straw are shared or the tenant receives all of them for use on the place.

Leasing arrangement B differs from arrangement A in that the landlord contributes more of the labor for farm upkeep and more of the crop production costs in return for an increased share of the grain crops. One-half rather than one-third of the grain crops is taken by the landlord for his additional contribution of some labor for fence repairs, all extra irrigation water cost, sacks for his share of the potatoes, and one-half or more of the costs of commercial fertilizer, grain seed and threshing.

The machinery was owned by the landlord on eight of the 204 crop share leased farms and it was owned in partnership on six farms. This indicates that there has been very little tendency for owner operators of this area to retire from farming by leasing both land and machinery.

Crop share and cash leasing is a modification of straight crop share leasing to compensate for special conditions on a farm or to relieve the landlord from some risks. The terms of the share part of crop share and cash leasing are for all practical purposes identical with the terms of crop share leasing. Cash for the use of pasture was the most frequently reported cash item on the crop share and cash leased farms.

Cash leasing was reported with greatest frequency from the vicinity of Denver. Farms leased for cash were as a rule from the smaller size groups, but three farms in the 260-499 acre size group were under cash rent. The cash rents which were reported varied from \$8.00 to \$25.00 per acre.

Crop and livestock share leasing is not a common practice for irrigated farms in this area.

Written leases were used for 101 out of 159 farms. They were used with greater frequency where a cash payment was a part of the rental terms than they were for crop share contracts.

Percentage distributions of the costs of producing irrigated crops, as reported by Burdick and Pingrey in Colorado Experiment Station Bulletin 353 (7) were prepared and used as a method of comparing landlord and tenant contributions to crop production costs with their shares of the crops under the customary crop share leases. A number of the cost items used in the bulletin were computed costs and contain a number of indirect charges which are very difficult to allocate to tenant and landlord. A basis for the allocation of crop cost items between tenant and landlord has been presented. This basis was not used as scientifically correct and infallible, but it was presented to indicate the methods which were used in attempting to solve a difficult problem. The assumptions which were made should be kept in mind in any use of the data which has been presented.

Under the conditions of customary crop share leasing arrangements and under the assumptions noted above, a number of the crops are not shared in proportion to the way the landlord and tenant share the average crop production costs. Cash crops such as sugar beets and potatoes are in general shared slightly in favor of the landlord, while feed and grain crops are divided in favor of the tenant.

An irrigation farming business is made up of a number of crop enterprises. It is possible for the

combination of crops used and the acreages thereof to give a farm business arrangement which is quite fair to both landlord and tenant, although none of the individual crops are shared in proportion to the way the landlord and tenant share the costs of producing the respective crops. Using average costs per acre for crop production, and average values per acre for the crops produced, leasing arrangement A gave, for an assumed farm business organization, contributions to the farm production costs of 68.2 percent by the tenant and 31.8 percent by the landlord as compared with a farm income division of 66.7 percent to the tenant and 33.3 percent to the landlord when use of land was charged to crop production at four percent interest on the investment in land and wages for regular man labor were paid at 32.8 cents per hour. The same assumed farm business organization gave for leasing arrangement A, when the use of land was charged at six instead of four percent on the investment, a division of production costs of 62.6 percent by the tenant and 37.4 percent by the landlord, while the division of the farm income remained the same as stated above.

Due to the many factors which affect farm leases it appears unwise to confine the analysis to individual crops when in search of a fair lease.

The usual methods of crop share leasing appear to be reasonably fair and just for the average conditions on irrigated farms. They are not as adaptable as is

desirable, however, for conditions which are above or below the average.

One crop and livestock share leasing arrangement which was reported gives promise as a fifty-fifty lease which is quite fair for irrigated farms in the study area. A point in favor of the use of this lease is the fact that fluctuating prices for farm products have no appreciable effect upon the ratio between tenant and landlord shares of the farm income.

This analysis suggests that lease terms for irrigated farms have not been influenced to any appreciable extent by the idea that "regular labor should equal the use of land for fair lease terms."

Changing conditions which materially influence such crop production costs as contract hand labor, real estate taxes, irrigation water, regular man labor and draft power should be accompanied by readjustments in leasing terms.

It is possible for the fixed minimum charges for contract labor on sugar beets to work a distinct hardship on tenant beet farmers if the present lease terms are retained.

A reduction in real estate taxes with the loss in revenue made up by an income tax, which would be paid by both landlords and tenants, should be accompanied by an increase in the tenant's share of the crops or by an increase in the share of other costs paid by the landlord.

A tenant farmer has the opportunity to influence by good management the amount of a number of his major crop production cost items. Efficient management and the resulting reduced cost of crop production offers the major chances for profitable operation on the part of tenant farmers.

A Recommended Leasing Arrangement

Although the usual methods of crop share leasing are reasonably fair for the average conditions of irrigation farming they are not as flexible as is desirable for meeting fluctuations in yields and prices. Burdick has pointed out (5:34) that the fifty-fifty crop share lease which is used quite generally in the corn belt is not adapted to northern Colorado irrigated conditions. On pages 84 and 85 a leasing arrangement is discussed which has sufficient flexibility to protect the tenant when yields and prices are low and to give the landlord a fair share of the benefits from high yields and prices. Its terms are as follows:

The landlord provides the land, pays the real estate taxes, and all cash items in connection with irrigation water and buildings. The tenant furnishes all of the regular labor for operating the farm, but the cost of contract labor is shared on a fifty-fifty basis. All work stock, productive livestock and machinery are owned one-half and one-half. The costs of taxes, repairs, feed and depreciation for the jointly owned

property are met on a fifty-fifty basis. All other crop production costs are shared on an equal basis. The farm receipts are divided equally.

These leasing terms have been applied to an actual farm record in table 51 in the appendix.

BIBLIOGRAPHY

1. Allred, C. E. What should be in the farm rental contract. Tennessee agricultural extension Circular 20. 2pp. 1928.
2. Bausman, R. O. Farm tenancy in Delaware. Delaware agricultural experiment station. Bulletin 178. 123pp. 1932.
3. Benton, A. H. Cash and share renting of farms. North Dakota agricultural experiment station. Bulletin 171. 51pp. illustrated. 1924.
4. Buechel, F. A. Relation between rents and agricultural land values. Texas agricultural experiment station. Bulletin 318. 71pp. 1924.
5. Burdick, R. T. Landlord and tenant incomes in Colorado. Colorado experiment station. Bulletin 451. 54pp. 1938.
6. Burdick, R. T. and Pingrey, H. B. Profits from winter feeding in northern Colorado. Colorado experiment station. Bulletin 394. 75pp. 1932.
7. Burdick, R. T. and Pingrey, H. B. Costs of producing crops on irrigated farms. Colorado experiment station. Bulletin 353. 72pp. 1929.
8. Case, H. C. M. Analysis of farm leases for the corn belt and the wheat belt states. American life convention. 63pp. 1221 Locust Street, St. Louis Missouri. 1932.
9. Cauley, T. J. Agricultural land tenures in Texas. Southwestern political and social science quarterly 11:135-47. September, 1930.
10. Cauley, T. J. Landlord-tenant livestock leases. Texas agricultural extension. Circular C-88. 4pp. 1931.
11. Cavert, W. L. Suggestions in farm leases. Minnesota agricultural extension service. Special bulletin 153. 16pp. 1932.

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12. Cavert, W. L. Adjusting farm rentals to fluctuating values. Minnesota agricultural extension. Circular 42. 1933.
13. Chalmers, C. R. Factors affecting the rent of farms. U.S. Department of agriculture. Bulletin 1224. 131pp. 1924.
14. Falconer, J. I. Adjusting cash rents to changes in prices of farm products. Ohio agricultural experiment station. Bi-monthly bulletin 159:219-20. November, 1932.
15. Filley, H. C. and Taylor, E. L. Stock-share farm lease. Nebraska agricultural extension. Circular 804. 6pp. 1931.
16. Filley, H. C. and Taylor, E. L. Share-cash farm lease. Nebraska agricultural extension. Circular 803. 6pp. 1931.
17. Gray, L. C. The farm lease contract. U.S. Department of agriculture. Farmers Bulletin 1164. 34pp. 1920.
18. Gray, L. C. and others. The conditions that cause land to be owned by landlords. U.S. Department of agriculture. Yearbook 1923. pp. 523-29.
19. Gray, L. C. and others. Landlords' contracts with tenants. U.S. Department of agriculture. Yearbook 1923. pp. 583-89.
20. Hibbard, B. H. and Howe, H. Farm leases in Wisconsin. Wisconsin agricultural experiment station. Bulletin 391. 26pp. 1927.
21. Homes, C. L. Drawing up the farm lease. Iowa agricultural experiment station. Circular 87. 32pp. 1923.
22. Houston, D. F. Farm tenancy-leasing methods need of improvement. U.S. Department of agriculture. Yearbook. 1919. pp. 30-32.
23. Johnson, O. M. Farm tenant and his renting problems. Missouri agricultural experiment station. Bulletin 315. 24pp. 1932.

24. Johnson, O. M. Changes in farm tenancy during fifty years. Journal of farm economics. 14:685-87. October, 1932.
25. McCord, J. E. Farm tenancy and lease forms in Pennsylvania. Pennsylvania agricultural experiment station. Bulletin 232. 46pp. 1929.
26. McCord, J. E. Farm tenancy and lease forms in Pennsylvania. Pennsylvania agricultural extension. Circular 151. 1934.
27. Nickolls, W. D. Share lease contracts. Kentucky agricultural experiment station. Bulletin 307. 27pp. 1930.
28. Peck, M. Plan for adjusting cash rent to changes in prices of farm products. Iowa agricultural experiment station. Bulletin 295. 29pp. 1932.
29. Reed, H. H. Fair rent for a farm. Country gentleman. 102:10-11. September, 1932.
30. Riddell, F. F. Farm leasing systems in Michigan. Michigan agricultural experiment station. Circular bulletin 102. 18pp. 1932.
31. Robertson, Lynn. Giving the tenant a chance. Purdue agricultural extension. Bulletin 134. 12pp. 1935.
32. Thomson, A. J. From share to cash rent. Wallace's farmer. 57:(2)10. January 23, 1932.
33. Tichenor, W. C. Farm contracts between landlord and tenant. The author. Lebanon, Ohio. 245pp. 1916.
34. Turner, H. A. Share renting of farms in the United States. International review of agricultural economics. N.S.1:500-42. October-December 1923.
35. Walker, G. P. and DeVault, S. H. Farm tenancy and leasing systems in Maryland. Maryland agricultural experiment station. Bulletin 352. 78pp. 1933.
36. Wallace, H. A. Figuring fair cash rent. Wallace's farmer. 57:(4)6. February 20, 1932.

37. Waterman, D. C. What makes a good farm lease.
Orange Judd illustrated farmer 72:584.
December, 1924.
38. Wilcox, E. V. Lease contracts used in renting farms
on the shares. U.S. Department of agriculture.
Bulletin 650. 36pp. 1918.
39. Wolfe, A. B. Renting under increasing returns.
American economic review. 19:580-604.
December, 1929.
40. U. S. Bureau of the census. Census of agriculture,
1935. 3 v.

APPENDIX

Percentage distributions of average crop production costs for a majority of the crops grown in the study area and of the cost of feeding steers have been prepared. They are presented in tables 36 to 50 inclusive. Application of the percentage distributions for the frequently grown crops have been made for the conditions of leasing arrangements A and B. These data are presented in tables 36-A to 42-B inclusive. Table 51 presents a modification of actual expenses and receipts for a tenant operated farm to fit the conditions of a fifty-fifty crop and livestock share lease.

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Table 36.--COST OF POTATO PRODUCTION

Average yearly cost per acre for 2,572 acres in six crop years 1/

Cost Items	Interest on land@ 6%:		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$	Percent	Percent	
Taxes	2.95	3.3	5.1	
Irrigation water	3.22	3.6	5.6	
Buildings	1.35	1.5	2.4	
Overhead	5.04	5.6	8.8	
Horse labor	11.31	12.5	19.7	
Contract labor	8.05	8.9	14.0	
Seed	11.56	12.8	20.1	
Fertilizer	3.18	3.5	5.5	
Machinery & equipment	4.11	4.6	7.1	
Tractor	0.46	0.5	0.8	
Truck	-	-	-	
Sacks	5.56	6.2	9.7	
Twine	0.20	0.2	0.3	
Miscellaneous	0.54	0.6	0.9	
Sub-total	\$57.53	63.8%	100.0%	
Use of land	14.84	16.4		
Man labor	17.89	19.8		
Total	\$90.26	100.0%	100.0%	

1/ As reported in Colorado Experiment Station Bulletin 353, page 26.

Table 36-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF POTATO PRODUCTION UNDER
LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		3.3		5.1
Irrigation water		3.6		5.6
Buildings		1.5		2.4
Overhead	5.0	0.6	7.9	0.9
Horse labor	12.5		19.7	
Contract labor	8.9		14.0	
Seed	12.8		20.1	
Fertilizer	2.6	0.9	4.1	1.4
Machinery and equipment	4.6		7.1	
Tractor	0.5		0.8	
Sacks	6.2		9.7	
Twine	0.2		0.3	
Miscellaneous	0.4	0.2	0.6	0.3
Use of land		16.4		
Man labor	19.8			
Total	73.5%	26.5%	84.3%	15.7%

Table 36-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND LANDLORD TO THE COST OF POTATO PRODUCTION UNDER LEASING ARRANGEMENT B

Cost items	Interest on land: @ 6%		Cost other than land and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		3.3		5.1
Irrigation water		3.6		5.6
Buildings		1.5		2.4
Overhead	4.2	1.4	6.6	2.2
Horse labor	12.5		19.7	
Contract labor	8.9		14.0	
Seed	8.5	4.3	20.1	
Fertilizer	0.9	2.6	1.4	4.1
Machinery and equipment	4.6		7.1	
Tractor	0.5		0.8	
Sacks	4.1	2.1	6.5	3.2
Twine	0.2		0.3	
Miscellaneous	0.4	0.2	0.6	0.3
Use of land		16.4		
Man labor	19.8			
Total	64.6%	35.4%	77.1%	22.9%

Table 37.--COST OF SUGAR BEET PRODUCTION

Average yearly cost per acre for 2,645 acres in six
crop years 1/

Cost items	Interest on land @ 6%:Percent of cost		
	Cost	Percent of	other than land
	per acre	total cost	and man labor
	\$	Percent	Percent
Taxes	: 3.06	: 3.5	: 5.0
Irrigation water	: 2.59	: 2.9	: 4.2
Buildings	: 0.71	: 0.8	: 1.2
Overhead	: 3.56	: 4.0	: 5.8
Horse labor	: 11.20	: 12.7	: 18.2
	:	:	:
Contract labor	: 22.07	: 25.0	: 36.0
Contract hauling	: 0.52	: 0.6	: 0.8
Seed	: 3.45	: 3.9	: 5.6
Fertilizer	: 7.94	: 9.0	: 12.9
Machinery & equipment	: 5.84	: 6.6	: 9.5
	:	:	:
Miscellaneous	: 0.46	: 0.5	: 0.8
	:	:	:
Sub-total	: \$61.40	: 69.5%	: 100.0%
Use of land	: 13.82	: 15.7	:
Man labor	: 13.01	: 14.8	:
	:	:	:
Total	: \$88.23	: 100.0%	: 100.0%

1/ As reported in Colorado Experiment Station
Bulletin 353, page 32.

Table 37-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF SUGAR BEET PRODUCTION
UNDER LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		3.5		5.0
Irrigation water		2.9		4.2
Buildings		0.8		1.2
Overhead	3.6	0.4	5.2	0.6
Horse labor	12.7		18.2	
Contract labor	25.0		36.0	
Contract hauling	0.6		0.8	
Seed	3.9		5.6	
Fertilizer	6.8	2.2	9.7	3.2
Machinery and equipment	6.6		9.5	
Miscellaneous	0.3	0.2	0.6	0.2
Use of land		15.7		
Man labor	14.8			
Total	74.3%	25.7%	85.6%	14.4%

Table 37-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND LANDLORD TO THE COST OF SUGAR BEET PRODUCTION UNDER LEASING ARRANGEMENT B

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		3.5		5.0
Irrigation water		2.9		4.2
Buildings		0.8		1.2
Overhead	3.0	1.0	4.4	1.4
Horse labor	12.7		18.2	
Contract labor	25.0		36.0	
Contract hauling	0.6		0.8	
Seed	3.9		5.6	
Fertilizer	2.2	6.8	3.2	9.7
Machinery and equipment	6.6		9.5	
Miscellaneous	0.3	0.2	0.6	0.2
Use of land		15.7		
Man labor	14.8			
Total	69.1%	30.9%	78.3%	21.7%

Table 38.--COST OF BARLEY PRODUCTION

Average yearly cost per acre for 1,642 acres in four crop years 1/

Cost items	Interest on land @ 6%		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$	Percent	Percent	
Taxes	3.07	8.2	15.8	
Irrigation water	0.97	2.6	5.0	
Buildings	0.55	1.5	2.8	
Overhead	1.39	3.7	7.2	
Horse labor	2.89	7.7	14.9	
Seed	1.15	3.1	5.9	
Fertilizer	3.38	9.0	17.5	
Machinery & Equipment	1.10	2.9	5.7	
Tractor	0.49	1.3	2.5	
Threshing	3.57	9.5	18.5	
Twine	0.47	1.2	2.4	
Sacks	0.06	0.2	0.3	
Miscellaneous	0.29	0.8	1.5	
Sub-total	\$19.38	51.7%	100.0%	
Use of land	13.49	35.9		
Man labor	4.63	12.4		
Total	\$37.50	100.0%	100.0%	

1/ As reported in Colorado Experiment Station Bulletin 353, page 40.

Table 38-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF BARLEY PRODUCTION UNDER
LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		8.2		15.8
Irrigation water		2.6		5.0
Buildings		1.5		2.8
Overhead	3.3	0.4	6.5	0.7
Horse labor	7.7		14.9	
Seed	3.1		5.9	
Fertilizer	6.8	2.2	13.1	4.4
Machinery and equipment	2.9		5.7	
Tractor	1.3		2.5	
Threshing	9.5		18.5	
Twine	1.2		2.4	
Sacks	0.2		0.3	
Miscellaneous	0.5	0.3	1.0	0.5
Use of land		35.9		
Man labor	12.4			
Total	48.9%	51.1%	70.8%	29.2%

Table 38-B.---PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF BARLEY PRODUCTION UNDER
LEASING ARRANGEMENT B

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By Landlord
	Percent	Percent	Percent	Percent
Taxes		8.2		15.2
Irrigation water		2.6		5.0
Buildings		1.5		2.8
Overhead	2.8	0.9	5.4	1.8
Horse labor	7.7		14.9	
Seed	3.1		5.9	
Fertilizer	2.2	6.8	4.4	13.1
Machinery and equipment	2.9		5.7	
Tractor	1.3		2.5	
Threshing	4.7	4.8	9.2	9.3
Twine	1.2		2.4	
Sacks	0.2		0.3	
Miscellaneous	0.4	0.4	0.8	0.7
Use of land		35.9		
Man labor	12.4			
Total	38.9%	61.1%	51.5%	48.5%

Table 39.--COST OF OATS PRODUCTION

Average cost per acre for 748 acres in six crop years 1/

Cost items	Interest on land @ 6%		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$			
Taxes	3.08	8.0	16.2	
Irrigation water	1.13	2.9	5.9	
Buildings	0.38	1.0	2.0	
Overhead	1.31	3.4	6.9	
Horse labor	3.06	7.9	16.1	
Seed	1.31	3.4	6.9	
Fertilizer	2.86	7.4	15.0	
Machinery and equipment	1.01	2.6	5.3	
Tractor	0.04	0.1	0.2	
Twine	0.49	1.3	2.6	
Threshing	3.97	10.4	21.0	
Miscellaneous	0.37	1.0	1.9	
Sub-total	\$19.01	49.4%	100.0%	
Use of land	14.99	38.9		
Man labor	4.52	11.7		
Total	\$38.52	100.0%	100.0%	

1/ As reported in Colorado Experiment Station
Bulletin 353, page 50.

Table 39-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF OATS PRODUCTION UNDER
LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		8.0		16.2
Irrigation water		2.9		5.9
Buildings		1.0		2.0
Overhead	3.1	0.3	6.2	0.7
Horse labor	7.9		16.1	
Seed	3.4		6.9	
Fertilizer	5.6	1.8	11.1	3.9
Machinery and equipment	2.6		5.3	
Tractor	0.1		0.2	
Twine	1.3		2.6	
Threshing	10.4		21.0	
Miscellaneous	0.7	0.3	1.3	0.6
Use of land		38.9		
Man labor	11.7			
Total	46.8%	53.2%	70.7%	29.3%

Table 39-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF OATS PRODUCTION UNDER
LEASING ARRANGEMENT B

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		8.0		16.2
Irrigation water		2.9		5.9
Buildings		1.0		2.0
Overhead	2.6	0.8	5.8	1.7
Horse labor	7.9		16.1	
Seed	3.4		6.9	
Fertilizer	1.8	5.6	3.9	11.1
Machinery and equipment	2.6		5.3	
Tractor	0.1		0.2	
Twine	1.3		2.6	
Threshing	5.2	5.2	10.5	10.5
Miscellaneous	0.5	0.5	1.0	0.9
Use of land		38.9		
Man labor	11.7			
Total	37.1%	62.9%	51.7%	48.3%

Table 40.--COST OF WHEAT PRODUCTION

Average yearly cost per acre for 1,098 acres in six
crop years 1/

Cost items	Interest on land @ 6%:Percent of cost		
	Cost	Percent of	other than land
	per acre	total cost:	and man labor
	\$		
Taxes	3.07	8.0	15.9
Irrigation water	0.91	2.4	4.7
Buildings	0.13	0.3	0.7
Overhead	1.33	3.5	6.9
Horse labor	2.90	7.6	15.0
Contract labor (haul)	0.18	0.5	0.9
Seed	1.81	4.7	9.4
Fertilizer	2.94	7.6	15.2
Machinery & equipment	1.07	2.8	5.5
Tractor	0.10	0.3	0.5
Twine	0.57	1.5	3.0
Threshing	3.88	10.1	20.2
Miscellaneous	0.40	1.0	2.1
Sub-total	\$19.29	50.3%	100.0%
Use of land	14.29	37.2	
Man labor	4.84	12.5	
Total	\$38.42	100.0%	100.0%

1/ As reported in Colorado Experiment Station
Bulletin 353, page 52.

Table 40-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF WHEAT PRODUCTION UNDER
LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		8.0		15.9
Irrigation water		2.4		4.7
Buildings		0.3		0.7
Overhead	3.1	0.4	6.2	0.7
Horse labor	7.6		15.0	
Contract hauling	0.5		0.9	
Seed	4.7		9.4	
Fertilizer	5.7	1.9	11.4	3.8
Machinery and equipment	2.8		5.5	
Tractor	0.3		0.5	
Twine	1.5		3.0	
Threshing	10.1		20.2	
Miscellaneous	0.7	0.3	1.4	0.7
Use of land		37.2		
Man labor	12.5			
Total	49.5%	50.5%	73.5%	26.5%

Table 40-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF WHEAT PRODUCTION UNDER
LEASING ARRANGEMENT B

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		8.0		15.9
Irrigation water		2.4		4.7
Buildings		0.3		0.7
Overhead	2.6	0.9	5.2	1.7
Horse labor	7.6		15.0	
Contract hauling	0.5		0.9	
Seed	2.3	2.4	4.7	4.7
Fertilizer	1.9	5.7	3.8	11.4
Machinery and equipment	2.8		5.5	
Tractor	0.3		0.5	
Twine	1.5		3.0	
Threshing	5.1	5.0	10.1	10.1
Miscellaneous	0.5	0.5	1.1	1.0
Use of land		37.2		
Man labor	12.5			
Total	37.6%	62.4%	49.8%	50.2%

Table 41.--COST OF CORN PRODUCTION

Average yearly cost per acre for 834 acres in nine
crop years 1/

Cost items	:Interest on land @ 6%:		Percent of cost	
	: Cost	: Percent of:	: other than land	
	: per acre	: total cost:	: and man labor	
	: \$:	:	
Taxes	: 2.85	: 5.7	: 10.5	
Irrigation water	: 1.49	: 3.0	: 5.5	
Buildings	: 1.48	: 2.9	: 5.4	
Overhead	: 2.57	: 5.1	: 9.5	
Horse labor	: 7.18	: 14.3	: 26.4	
	:	:	:	
Contract labor	: 0.64	: 1.3	: 2.4	
Machinery & equipment	: 2.81	: 5.6	: 10.3	
Tractor	: 0.63	: 1.3	: 2.3	
Truck	: 0.04	: 0.1	: 0.1	
Seed	: 0.56	: 1.1	: 2.1	
	:	:	:	
Fertilizer	: 5.92	: 11.7	: 21.7	
Twine	: 0.21	: 0.4	: 0.8	
Miscellaneous	: 0.81	: 1.6	: 3.0	
	:	:	:	
Sub-total	: \$27.19	: 54.2%	: 100.0%	
	:	:	:	
Use of land	: 13.96	: 27.7	:	
Man labor	: 9.13	: 18.2	:	
	:	:	:	
Total	: \$50.28	: 100.0%	: 100.0%	

1/ Compiled from cost route records of the Farm Management Section of the Department of Economics and Sociology, Colorado Experiment Station for period 1923-1933 inclusive.

Table 41-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND LANDLORD TO THE COST OF CORN PRODUCTION UNDER LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		5.7		10.5
Irrigation water		3.0		5.5
Buildings		2.9		5.4
Overhead	4.6	0.5	8.5	1.0
Horse labor	14.3		26.4	
Contract labor	1.3		2.4	
Machinery and equipment	5.6		10.3	
Tractor	1.3		2.3	
Truck	0.1		0.1	
Seed	1.1		2.1	
Fertilizer	8.8	2.9	16.3	5.4
Twine	0.4		0.8	
Miscellaneous	1.1	0.5	2.0	1.0
Use of land		27.7		
Man labor	18.2			
Total	56.8%	43.2%	71.2%	28.8%

Table 41.-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND LANDLORD TO THE COST OF CORN PRODUCTION UNDER LEASING ARRANGEMENT B

Cost items	Interest on land @ 6%		Cost other than land and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		5.7		10.5
Irrigation water		3.0		5.5
Buildings		2.9		5.4
Overhead	3.8	1.3	7.1	2.4
Horse labor	14.3		26.4	
Contract labor	1.3		2.4	
Machinery and equipment	5.6		10.3	
Tractor	1.3		2.3	
Truck	0.1		0.1	
Seed	0.5	0.6	1.1	1.0
Fertilizer	2.9	8.8	5.4	16.3
Twine	0.4		0.8	
Miscellaneous	0.8	0.8	1.5	1.5
Use of land		27.7		
Man labor	18.2			
Total	49.2%	50.8%	47.4%	42.6%

Table 42.--COST OF PINTO BEAN PRODUCTION

Average yearly cost per acre for 172 acres in four
crop years 1/

Cost items	Interest on land @ 6%		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$			
Taxes	3.54	6.8	14.5	
Irrigation water	2.14	4.1	8.8	
Buildings	-	-	-	
Overhead	3.95	7.5	16.2	
Horse labor	6.26	12.0	25.7	
Seed	2.08	4.0	8.5	
Fertilizer	0.64	1.2	2.6	
Machinery & equipment	2.65	5.1	10.9	
Tractor	0.50	1.0	2.0	
Threshing	2.36	4.5	9.7	
Miscellaneous	0.28	0.5	1.1	
Sub-total	\$24.40	46.7%	100.0%	
Use of land	15.48	29.6		
Man labor	12.40	23.7		
Total	\$52.28	100.0%	100.0%	

1/ As reported in Colorado Experiment Station
Bulletin 353, page 48.

Table 42-A.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF PINTO BEAN PRODUCTION
UNDER LEASING ARRANGEMENT A

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		6.8		14.5
Irrigation water		4.1		8.8
Buildings	-	-	-	-
Overhead	6.7	0.8	14.6	1.6
Horse labor	12.0		25.7	
Seed	4.0		8.5	
Fertilizer	0.9	0.3	2.0	0.6
Machinery and equipment	5.1		10.9	
Tractor	1.0		2.0	
Threshing	4.5		9.7	
Miscellaneous	0.3	0.2	0.7	0.4
Use of land		29.6		
Man labor	23.7			
Total	58.2%	41.8%	74.1%	25.9%

Table 42-B.--PERCENTAGE CONTRIBUTIONS OF TENANT AND
LANDLORD TO THE COST OF PINTO BEAN PRODUCTION
UNDER LEASING ARRANGEMENT B

Cost items	Interest on land		Cost other than land	
	@ 6%		and man labor	
	By tenant	By landlord	By tenant	By landlord
	Percent	Percent	Percent	Percent
Taxes		6.8		14.5
Irrigation water		4.1		8.8
Buildings	-	-	-	-
Overhead	5.6	1.9	12.1	4.1
Horse labor	12.0		25.7	
Seed	2.0	2.0	4.3	4.2
Fertilizer	0.3	0.9	0.6	2.0
Machinery and equipment	5.1		10.9	
Tractor	1.0		2.0	
Threshing	2.2	2.3	4.8	4.9
Miscellaneous	0.3	0.2	0.6	0.5
Use of land		29.6		
Man labor	23.7			
Total	52.2%	47.8%	61.0%	39.0%

Table 43.--COST OF CANE HAY PRODUCTION

Average yearly cost per acre for 46 acres in four
crop years 1/

Cost items	Interest on land @ 6%:		Percent of cost
	Cost	Percent of:	other than land
	per acre	total cost:	and man labor
	\$		
Taxes	2.19	5.4	10.5
Irrigation water	1.13	2.8	5.4
Building charge	-	-	-
Overhead	1.86	4.5	8.9
Horse labor	5.03	12.3	24.1
Seed	3.13	7.7	15.0
Fertilizer	4.25	10.4	20.3
Machinery & equipment	2.50	6.1	11.9
Tractor	0.82	2.0	3.9
Sub-total	\$20.91	51.2%	100.0%
Use of land	11.34	27.7	
Man labor	8.61	21.1	
Total	\$40.86	100.0%	100.0%

1/ Compiled from cost route records of the Farm Management Section of Colorado Experiment Station for four years in the period 1928 to 1933 inclusive.

Table 44.--COST OF CABBAGE PRODUCTION

Average cost per acre for 128 acres in five crop
years 1/

Cost items	Interest on land @ 6%:Percent of cost		
	Cost	Percent of	other than land
	per acre	total cost	and man labor
	\$		
Taxes	2.87	2.6	3.6
Irrigation water	1.81	1.7	2.3
Buildings	-	-	-
Overhead	4.69	4.3	6.0
Horse labor	7.72	7.1	9.8
Contract labor (man)	47.75	44.0	60.6
Contract hauling	0.06	0.1	0.1
Seed	3.12	2.9	4.0
Fertilizer	5.32	4.9	6.8
Machinery and equipment	3.10	2.8	3.9
Tractor	0.52	0.5	0.6
Truck	1.24	1.1	1.6
Miscellaneous	0.57	0.5	0.7
Sub-total	\$78.77	72.5%	100.0%
Use of land	14.75	13.6	
Man labor	15.07	13.9	
Total	\$108.59	100.0%	100.0%

1/ As reported in Colorado Experiment Station
Bulletin 353, page 56.

Table 45.--COST OF CANNING PEA PRODUCTION

Average yearly cost per acre for 97 acres in four
crop years 1/

Cost items	Interest on land @ 6%		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$			
Taxes	2.87	6.0	11.2	
Irrigation water	1.26	2.6	4.9	
Buildings	-	-	-	
Overhead	2.08	4.4	8.1	
Horse labor	5.62	11.8	22.0	
Contract labor	6.07	12.7	23.9	
Seed	5.52	11.6	21.6	
Fertilizer	0.32	0.7	1.3	
Machinery & equipment	1.46	3.1	5.7	
Miscellaneous	0.34	0.7	1.3	
Sub-total	\$25.54	53.6%	100.0%	
Use of land	15.98	33.6		
Man labor	7.08	12.8		
Total	\$47.60	100.0%	100.0%	

1/ As reported in Colorado Experiment Station
Bulletin 353, page 56.

Table 46.--COST OF POP CORN PRODUCTION

Average yearly cost per acre for 219 acres in five
crop years 1/

Cost items	Interest on land @ 6%		Percent of cost
	Cost	Percent of	other than land
	per acre	total cost	and man labor
	\$		
Taxes	1.94	3.8	6.7
Irrigation water	3.39	6.7	11.8
Buildings	0.41	0.8	1.4
Overhead	2.96	5.9	10.3
Horse labor	5.35	10.6	18.6
Contract labor	5.64	11.2	19.6
Seed	contract	-	-
Fertilizer	3.68	7.3	12.8
Machinery & equipment	4.26	8.5	14.8
Tractor	0.98	2.0	3.4
Truck	0.18	0.4	0.6
Miscellaneous	-	-	-
Sub-total	\$28.79	57.2%	100.0%
Use of land	12.28	24.4	
Man labor	9.26	18.4	
Total	\$50.33	100.0%	100.0%

1/ Compiled from the cost route records of the Farm Management Section of Colorado Experiment Station for the period 1925 to 1933.

Table 47.--COST OF SEED BEAN PRODUCTION

Average yearly cost per acre for 316 acres in three
crop years 1/

Cost items	Interest on land @ 6%		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$			
Taxes	3.01	5.6		11.4
Irrigation water	2.76	5.1		10.5
Buildings	-	-		-
Overhead	3.41	6.3		12.9
Horse labor	6.95	12.8		26.4
Seed	2.98	5.5		11.3
Fertilizer	0.60	1.1		2.3
Machinery & Equipment	2.53	4.7		9.6
Tractor	-	-		-
Threshing	3.83	7.1		14.5
Miscellaneous	0.29	0.5		1.1
Sub-total	\$26.36	48.7%		100.0%
Use of land	15.08	27.9		
Man labor	12.63	23.4		
Total	\$54.07	100.0%		100.0%

1/ As reported in Colorado Experiment Station
Bulletin 353, page 40.

Table 48.--COST OF PICKLE PRODUCTION

Average cost per acre for six acres in three crop
years 1/

Cost items	Interest on land @ 6%:Percent of cost		
	Cost	Percent of	other than land
	per acre	total cost:	and man labor
Taxes	\$ 1.93	3.0	4.5
Irrigation water	2.14	3.4	5.0
Overhead	3.10	4.9	7.2
Buildings	-	-	-
Horse labor	2.70	4.2	6.3
Contract labor	29.03	45.6	67.8
Seed	furnished by the pickle company		
Fertilizer	1.65	2.6	3.8
Machinery & equipment	1.21	1.9	2.8
Tractor	0.88	1.4	2.1
Miscellaneous	0.21	0.3	0.5
Sub-total	\$42.85	67.3%	100.0%
Use of land	9.02	14.2	
Man labor	11.76	18.5	
Total	\$63.63	100.0%	100.0%

1/ Compiled from the cost route records of the
Farm Management Section of Colorado Experiment Station
for the period 1928-1933 inclusive.

Table 49.--COST OF ONION PRODUCTION

Average yearly cost per acre for 103 acres in three
crop years 1/

Cost items	Interest on land @ 6%		Percent of cost	
	Cost	Percent of	other than land	
	per acre	total cost	and man labor	
	\$			
Taxes	3.64	3.2	4.5	
Irrigation water	1.62	1.4	2.0	
Overhead	6.89	6.0	8.5	
Horse labor	7.06	6.1	8.7	
Contract labor (man)	38.79	33.7	47.9	
Seed	7.68	6.7	9.5	
Fertilizer	0.92	0.8	1.1	
Machinery & equipment	4.99	4.2	6.2	
Storage	9.28	8.0	11.5	
Miscellaneous	0.03	0.1	0.1	
Sub-total	\$80.90	70.2%	100.0%	
Use of land	23.04	20.0		
Man labor	11.26	9.8		
Total	\$115.20	100.0%	100.0%	

1/ Compiled from enterprise cost records of the
Extension Farm Management office, Colorado State College
for the years 1928, 1929, and 1930.

Table 50.--COST OF FEEDING STEERS ^{1/}

Eight year average cost per head sold

Cost items	: Average cost	: Percent of total cost
	: \$:
Feed	: 24.59	: 65.9
Death loss	: 0.46	: 1.2
Man labor	: 2.97	: 7.9
Interest	: 2.01	: 5.4
Miscellaneous cash	: 0.77	: 2.1
	:	:
Water charge	: 0.52	: 1.4
Corral & equipment	: 1.64	: 4.4
Horse labor	: 1.16	: 3.1
Overhead	: 0.76	: 2.0
Marketing cost	: 2.48	: 6.6
	:	:
Total feeding cost	: \$37.36	: 100.0%
	:	:
Purchase cost in	:	:
feed lot	: 62.97 ^{2/}	:
	:	:
Total	: \$100.33	: 100.0%

^{1/} As reported in Colorado Experiment Station Bulletin 394, page 24.

^{2/} This is a capital outlay but it is not a feeding cost. Its use is covered in the interest charge.

Table 51.--ACTUAL EXPENSES AND RECEIPTS MODIFIED TO
SUBSTITUTE A FIFTY-FIFTY CROP AND LIVESTOCK SHARE
LEASING ARRANGEMENT.

14 years average, 1922-35 for a tenant operated farm 1/

Item	Bulletin: line No.:	Tenant	Landlord
Regular labor	1	\$ 572.19:	\$
Contract labor	2	390.58:	390.58
Machine repair	3	77.17:	77.17
Truck repair	4	25.65:	25.64
Tractor repair	5	.36:	.36
Building repair	6	:	75.90
Purchased feed	7	87.20:	87.20
Silo filling	8	15.69:	15.68
Livestock expense	9	6.30:	6.29
Seed	10	78.95:	78.95
Twine	11	12.06:	12.06
Threshing	12	62.36:	62.36
Spray	13	8.37:	8.37
Sacks	14	82.85:	82.85
Miscellaneous irrigation	15	7.02:	
Water tax	16	:	330.61
Fuel and oil	17	43.19:	43.19
Automobile	18	93.92:	
Telephone	19	17.85:	
Personal tax	20	25.00:	13.57
Real estate tax	21	:	449.99
Miscellaneous	22	62.27:	14.21
Total cash expense	23	1668.98:	1774.97
Unpaid family labor	24	139.69:	
Livestock loss	25	23.76:	23.76
Depreciation	26	421.71:	421.70
Total expense	27	2254.14:	2220.43
Percent of total expense		50.38%	49.62%
Receipts-crop sales	28	3828.36:	3828.36
Livestock increase	29	37.61:	37.62
Other sources	30	4.61:	
Total receipts	31	3870.48:	3865.98
Difference or farm income	32	1615.34:	1644.55
Percent of total farm income		50.03%	49.97%

1/ Data from Colorado Experiment Station Bulletin 451,
page 34 - Table 12, "Lease terms from this investigation."

COLORADO STATE COLLEGE OF AGRICULTURE & MECHANIC ARTS

A Study of Farm Leasing Methods
(Irrigated Farms)

County _____ Local Market _____ Miles from _____

Total acres this farm _____ Irrigated acres _____ Non-irrigated acres _____

Acres of irrigated crop land _____ Acres of non-irrigated crop land _____

Acres of irrigated pasture _____ Acres of non-irrigated pasture _____

Acres in farmstead and feed lots _____ Acres of waste if any _____

This farm is rented for (check one) Cash, Crop Share, Crop Share and Cash, Stock
Share, Crop and Stock Share.

Were livestock grown in partnership in 1937? Yes _____ No _____

If answer is yes, under score class; Beef Cattle, Sheep, Hogs, Horses, Dairy Cattle.

Were livestock fed in partnership in 1937? Yes _____ No _____

If answer is yes underscore class: Cattle, Sheep, Hogs.

CROPS GROWN IN 1937

CROP	ACRES	CROP	ACRES
Alfalfa	_____	Sugar Beets	_____
Potatoes	_____	Field Peas	_____
Barley	_____	Canning Peas	_____
Oats	_____	Cabbage	_____
Wheat	_____	Truck Crops	_____
Corn	_____		_____
Cane	_____		_____

DIVISION OF CROPS

CROP	Part received by the		CROP	Part received by the	
	Farmer	Landlord		Farmer	Landlord
Alfalfa			Cane		
Potatoes			Cabbage		
Sugar Beets			Field Peas		
Beet Tops			Canning Peas		
Barley			Truck Crops		
Oats					
Wheat					
Corn					
Straw					

Indicate the part furnished by the Farmer and by the Landlord for each of the production items listed below.

Items	Part furnished by		Items	Part furnished by	
	Farmer	Landlord		Farmer	Landlo rd
Land			Machinery repairs		
Taxes			Fence repairs		
Irrigation water			Building repairs		
Extra Water			Equipment		
Pump Irrigation			Equipment repairs		
Machinery					

Was there any change from the above for particular crops? If so, indicate _____

Write in the name of any crop not listed. If a listed crop was not grown cross it out and write in the name of a crop which was grown.

CROP	Alfalfa		Barley		Sugar beets	
Items	Part furnished by		Part furnished by		Part furnished by	
	Farmer	Landlord	Farmer	Landlord	Farmer	Landlord
Seed						
Contract labor						
Fertilizer						
Marketing expense						
Spray Material						
Threshing						
Twine						
Sacks						

CROP	Wheat		Corn		Potatoes	
Items	Part furnished by		Part furnished by		Part furnished by	
	Farmer	Landlord	Farmer	Landlord	Farmer	Landlord
Seed						
Contract labor						
Fertilizer						
Marketing expense						
Spray material						
Threshing						
Twine						
Sacks						

CROP	Wheat		Corn		Potatoes	
Items	Part furnished by		Part furnished by		Part furnished by	
	Farmer	Landlord	Farmer	Landlord	Farmer	Landlord
Seed						
Contract labor						
Fertilizer						
Marketing expense						
Spray Material						
Threshing						
Twine						
Sacks						

If livestock were grown in partnership indicate the portion of each of the costs and receipts furnished by or received by the Farmer and by the Landlord.

Production Items	Part furnished by		Livestock Receipts	Part received by	
	Farmer	Landlord		Farmer	Landlord
Breeding stock			Market livestock		
Labor			Breeding stock		
Feed			Milk		
Buildings			Wool		
Building repair			Hides		
Equipment			Manure		
Equipment repair					
Marketing expense					
Veterinary fees					
Insurance (if any)					
Land					
Taxes					

If livestock were fed in partnership indicate the portion of each of the costs and receipts furnished by or received by the Farmer and the Landlord.

Feeding cost Items	Part furnished by		Feeding Receipts	Part furnished by	
	Farmer	Landlord		Farmer	Landlord
Feeder stock			Market livestock		
Feed			Hides		
Labor			Manure		
Equipment					
Equipment repair					
Insurance					
Freight					
Marketing expense					
Interest					
Veterinary					
Taxes					
Stock water equip.					
Pumping costs					

TO BE ANSWERED FOR ALL FARMS

Did this farmer pay any cash rent for the use of building? Yes _____ No _____
 Did this farmer pay any cash rent for the use of pasture? Yes _____ No _____
 How many years has this farmer been on this farm? _____
 How many years has this farmer farmed? _____
 How many farms does this landlord lease out? _____
 Is there a written lease? Yes _____ No _____
 What provisions if any are made for terminating the lease? _____

ABSTRACT OF THESIS

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LEASING IRRIGATED FARMS
IN NORTHEASTERN
COLORADO

Submitted by
Graydon E. Klipple

May, 1939

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LEASING IRRIGATED FARMS IN NORTHEASTERN COLORADO

ABSTRACT OF THESIS

Analysis of the Problem

More than 65 percent of the farms in irrigated northeastern Colorado were operated in 1935 by farmers who leased all or a part of the land they used. Hence, landlord and tenant relationships are a major factor in the economic and social stability of a large part of our rural population. Lease terms and conditions influence such relationships to a marked degree. Unless the leasing methods which are used result in a fair and just division of the farm income satisfactory landlord-tenant relationships are hard to maintain.

Irrigation farming presents leasing problems which are not encountered in the older eastern portions of the country. Studies of leasing methods and lease terms which have been made in other areas are not applicable to Colorado irrigated conditions. A study of the leasing methods which are used for irrigated farms and the resulting divisions of farm income was needed.

The major objectives of the writer in making this study were:

1. The collection and presentation of information concerning the terms and conditions under which tenant farmers secure the use of land in irrigated northeastern Colorado, and the determination of the essential features of the more frequently used methods of leasing.

2. A comparison of the sharing of farm production costs between landlord and tenant with their sharing of farm receipts.

- a. A determination of whether or not individual crops were shared in proportion to the ratio between the contributions of landlord and tenant to crop production costs.

- b. A determination of whether or not total farm incomes were shared in proportion to the way total production costs were shared.

3. An analysis of the possible effects of fluctuations in the amount of a few major farm operation costs such as labor, taxes, and interest rate on the investment in land upon the fairness of the frequently used leasing arrangements.

4. The presentation of data which might be useful to landlords and tenants in the solution of their leasing problems.

Source of Data

Primary data have been used for the terms and conditions of leasing methods used for irrigated farms. The writer interviewed a large number of tenants and landlords. A questionnaire concerning lease terms and conditions was sent in quantity to the instructors in vocational agriculture in irrigated northeastern Colorado. High school students, who were interested, filled out the schedules for farms with which they were familiar. The leasing methods used in 1937 for 270 irrigated farms were obtained. Secondary data from the records and publications of the Farm Management Division of the Department of Economics and Sociology, Colorado State College, have been used for an analysis of tenant and landlord contributions to and receipts from the operation of irrigated farms.

Leasing Methods Which Were in Use

Four methods of leasing--crop share, crop share and cash, crop and livestock share, and cash rent--were used for the 270 farms for which data were secured. Three farms out of four were leased for shares of the crops produced. The operator of about one farm in eight

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paid some cash in addition to crop shares for the use of the farm. Less than one farm in eleven was rented for cash, and but one farm operator in 30 reported the use of a crop and livestock share lease.

Crop Share Leasing

Crop share leasing was used without standing frequency for the irrigated farms reported in this investigation. A wide variety of terms and conditions were used for handling the different general farm and individual crop cost items. Likewise, quite a number of different divisions of crops were used. Two combinations of leasing arrangements, however, were used with far more frequency than any others. These arrangements were considered as being the usual or customary methods of crop share leasing. The arrangement which was used with greatest frequency has been designated as arrangement A, and the other one as arrangement B. The essential features of these customary methods of crop share leasing are:

Arrangement A.--The landlord provides the land, buildings and material for fence repairs. He pays the real estate taxes, the regular irrigation water assessments, and the cost of alfalfa seed. The tenant owns the machinery and equipment and takes care of all repair bills for it. He also pays all individual crop costs

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except that for alfalfa seed, and he takes care of all labor charges except that for building repairs. The tenant pays the taxes on his own personal property, and has free use of the buildings and such pasture as the place affords. The crops are shared: alfalfa one-half and one-half; sugar beets three-fourths to the tenant and one-fourth to the landlord; potatoes three-fourths or two-thirds to the tenant; small grains, corn and pinto beans two-thirds to the tenant and one-third to the landlord. Truck crops, when they are produced, are shared the same as sugar beets. When extra irrigation water is used with leasing arrangement A, its cost is shared as a rule. Beet tops and straw are shared or the tenant receives all of them.

Arrangement B.--The landlord provides the land and buildings, and he pays the real estate taxes, the cost of irrigation water both regular and extra, and the cost of fence and building repairs. He also pays the cost of one-half or more of the alfalfa seed, one-half or more of the seed for grain crops, one-half or more of the fertilizer, one-half of the threshing and all of the cost of the sacks for his share of the potatoes. The tenant provides the machinery and equipment and he pays all of the remaining farm operation costs. He also pays the taxes on his personal property, and he has free use of the farm buildings and pasture. The crops are shared:

alfalfa one-half and one-half; potatoes, usually two-thirds to the tenant and one-third to the landlord; sugar beets, three-fourths to the tenant and one-fourth to the landlord as a rule, but two-thirds and one-third occasionally; beet tops are shared or the tenant takes all of them for use on the place; and small grains and corn, one-half and one-half with all of the straw to be used on the farm.

The essential difference between these leasing arrangements is the increased share of production costs paid by the landlord for a larger share of the grain crops under arrangement B. One-half rather than one-third of the grain crops are received by the landlord under arrangement B, for his additional contribution of some labor for fence repairs, all extra irrigation water costs, sacks for his share of the potatoes, and one-half or more of the cost of fertilizer, grain seed and threshing.

One hundred and twenty-nine farm operators reported lease terms quite like arrangement A, and 58 farm operators reported lease terms quite like arrangement B.

Arrangements for livestock feeding were entirely separate from the farm leasing contracts on all of the crop share leased farms on which livestock were fed in cooperation between landlord and tenant.

Crop Share and Cash Leasing

Crop share and cash leasing is a modification of crop share leasing to compensate for special conditions on an individual farm, or to relieve the landlord of some risks. The share part of these arrangements is, for all practical purposes, identical with crop share leasing. Cash for the use of pasture was the most frequently reported cash item.

Cash Renting

Cash rent was used for less than 10 percent of the farms. They were in the smaller size groups as a rule. Cash rent was reported with greatest frequency from near Denver. The cash rents reported varied from \$8.00 to \$25.00 per acre.

Crop and Livestock Share Leasing

Crop and livestock share leasing is not common practice for irrigated farms in the study area.

Leasing Methods and Their Relation to the Division of Production Costs and Farm Income

In order to have a basis for comparing what each party to a leasing agreement contributes to the costs of farm production with what each party receives from the farm products, percentage distributions of the production costs for the major crop enterprises of the area have been made. Costs of producing irrigated crops as reported by Burdick and Pingrey in Colorado Experiment Station Bulletin 353 (7) were used as a basis for these computations.

The wages allowed for regular man labor and the charges for land, used in computing crop production costs, have considerable influence upon the percentage contributions of tenant and landlord to crop production costs. Computations have been made at six and four percent on the investment in land as the charges for land and an allowance of 32.8 cents per hour for regular man labor. Costs other than use of land and regular man labor have been distributed on a percentage basis for the frequently grown crops. These computations have been presented in tables.

A method for the allocation of indirect crop production costs between landlord and tenant has been presented.

Under the assumptions which have been made and the terms of the customary crop share leases, a majority

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of the crops are not divided in proportion to the way in which landlord and tenant share the average crop production expenses. An irrigation farm business is made up of a number of crop enterprises. It is possible by a combination of crops to have an entire farm business which is fair to both tenant and landlord although none of the crops are divided in proportion to the division of crop production costs.

The usual crop share leases appear to be reasonably fair for the average conditions of irrigation farming, but they are not as flexible as is desirable for providing adjustments for above and below average conditions. Analysis of tenant operated farm financial records reported by Burdick in Colorado Experiment Station Bulletin 451 (5) indicates clearly that under the customary crop share leases the tenant receives more of the benefits of favorable prices and yields and suffers more from low prices and yields than the landlord does.

It is unwise to confine the analysis to individual crops when in search of a fair lease.

One of the crop and livestock share leasing arrangements which were reported gives promise as a usable fifty-fifty lease for northeastern Colorado irrigated conditions. A point in favor of its use is the fact that changing yields or prices have very little effect upon the ratio in which the farm income is shared.

Effects of Fluctuating Production Costs Upon the Fairness of the Customary Leases

Charges for use of land, real estate taxes, regular man labor, contract hand labor and draft power are the most important crop production costs. Sustained material changes in the amount of any one of these costs which is not accompanied by a compensating change in other costs should have adjustments made for it in the leasing arrangement.

X Contract labor is furnished by the tenant as a rule, and it amounts to more than 25 percent of the costs of producing sugar beets, cabbage and onions. It is possible for the fixed minimum price for sugar beet contract labor to be a definite handicap to the tenant beet farmer when yields or prices are low.

The tenant farm operator has the opportunity to influence by efficient management the amount of a number of the production cost items usually paid by the tenant. Reduced costs of crop production secured through efficient management provide the opportunity for profitable operation on the part of tenant farmers.

A Recommended Leasing Arrangement

Although the usual methods of crop share leasing are reasonably fair for the average conditions of irrigation farming they are not as flexible as is desirable for meeting fluctuations in yields and prices. Burdick has pointed out (5:34) that the fifty-fifty crop share lease which is used quite generally in the corn belt is not adapted to northern Colorado irrigated conditions. On pages 84 and 85 a leasing arrangement is discussed which has sufficient flexibility to protect the tenant when yields and prices are low and to give the landlord a fair share of the benefits from high yields and prices. Its terms are as follows:

The landlord provides the land, pays the real estate taxes, and all cash items in connection with irrigation water and buildings. The tenant furnishes all of the regular labor for operating the farm, but the cost of contract labor is shared on a fifty-fifty basis. All work stock, productive livestock and machinery are owned one-half and one-half. The costs of taxes, repairs, feed and depreciation for the jointly owned property are met on a fifty-fifty basis. All other crop production costs are shared on an equal basis. The farm receipts are divided equally.

These leasing terms have been applied to an actual farm record in table 51 in the appendix.