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Landlord and Tenant Income in Colorado

R. T. BURDICK

Talking It Over

An outstanding example of permanency in landlord and tenant relationships. These men have been landlord and tenant in Colorado for 27 years.

2) Agricultural

Colorado Experiment Station
Colorado State College
Fort Collins

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Effects of Changing Conditions Upon
Landlord and Tenant Income in Colorado

R. T. BURDICK, *Associate Economist*

THE renting of farms is one recognized method of spreading the risks of ownership and operation of farms. The steady increase in the number of farms operated by tenants, as shown by the U. S. Census of Agriculture, and the hardships arising from agricultural phases of the depression of the 1930's have combined to focus attention upon tenancy and its problems.

Everybody seems agreed that something should be done about farm tenancy. Few have arrived at any specific conclusions as to what should be done. There is a lack of exact information upon which to base constructive suggestions, and there is therefore a direct need for a critical study of the problems of this field.

The Economics Section of the Colorado Experiment Station has been studying the financial and business side of farming since creation of the section by legislative enactment in 1921. Session Laws of Colorado, 1921, Chap. 7, p. 23, Appropriation Agricultural College:

"An act to establish and maintain a Department of Economics and Sociology at the State Agricultural College and providing an appropriation for same.

> "Section 1.—The State Board of Agriculture is hereby directed to establish and maintain a Department of Economics and Sociology at the State Agricultural College for the purpose of giving instruction in the economics of agriculture and mechanic arts as represented in farm management, labor relations, credits, and marketing of products and the accounting connected therewith, and in the human relations between rural and urban communities and the conditions influencing community betterment. Also for carrying on research and investigations in economics and sociology as related to agriculture and the industries, in publishing the results thereof, and for special short courses and for extension service.
>
> "Approved April 5, 1921, 23rd General Assembly, O. H. SHOUP, Governor."

Starting in 1922, detailed records have been secured from a group of men operating irrigated farms in the Greeley-Fort Collins area of northern Colorado. Some of these farms were under the direction of owners, while others were handled by tenants. Details as to receipts and expenses and methods of leasing on these farms offer reasonably exact information which may be used in studying the tenancy situation in this area. Less complete but fairly reliable data from studies of farms and ranches in other parts of Colorado will be used to show variations in methods of leasing throughout the State.

Purpose of Study

The actual data will serve to indicate general conditions in this area. The detailed farm data for northern Colorado will permit analysis to show the sources of variation in receipts and expenses and the probable effect of changes in yield or price upon net returns. Methods of renting advocated in other parts of the United States will be used to adjust the actual record of a tenant farm to discover the effect upon net income. Recommendations will be made in the hope that they will aid in handling new problems that arise.

The chief objectives of this study are to show the division of receipts, expenses, and income under actual farm conditions; to point out the effect of changing conditions upon income; and to suggest flexible terms in leases which will result in a reasonably fair division of income under a wide variety of conditions (1).

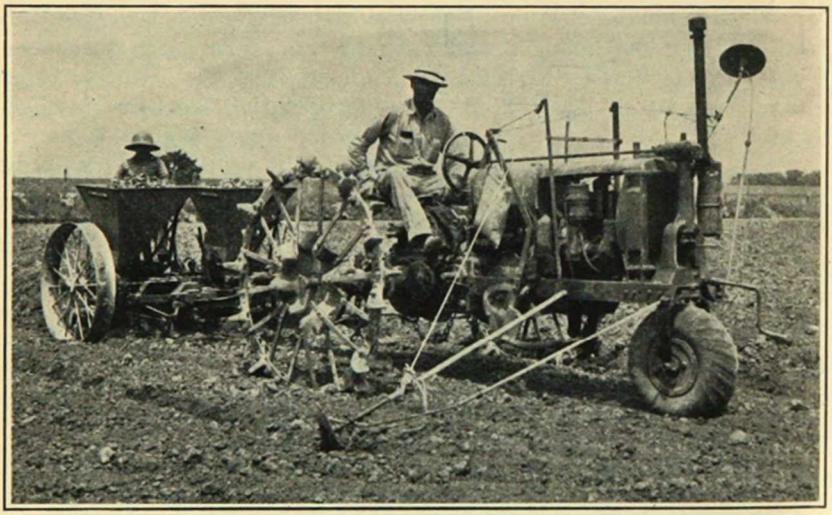

Figure 1.—A successful tenant training his son to be a farmer.

While some attention will be given to the public interest in tenancy, the chief purpose of this study will be to emphasize the business side of farming and to analyze lease contracts to show how they might affect tenant or landlord returns, in the hope of offering some assistance in making farm tenancy an important factor in the building of a sound, enduring agriculture.

This is a discussion of tenancy under conditions where it has had a chance to succeed. The northern Colorado irrigated area is fortunate in that it was settled largely under the guidance of the United States homestead laws which limited homesteads to 160 acres. While there are many 80- and 120-acre farms in this area, the 160-acre farm is the generally preferred size of farm. On a farm of this

size a tenant has a chance to make a comfortable living and may, if he is a better-than-average farmer, earn enough to permit taking the next step toward farm ownership.

Adaptation of Findings

The data used for this study were secured chiefly from Weld County. In general, tenancy conditions are quite similar throughout the entire northern Colorado irrigated area. The special discussion of potatoes deals with a crop which is confined to a small part of the valley. Data for other crops would apply over a wider area of northern Colorado and to a less extent on all irrigated farms in Colorado where these crops are grown.

Causes of Confused Public Attitudes Toward Tenancy

Many tenant farmers operate under severe financial handicaps. Where these men have been forced to seek public relief, their plight has aroused public opinion until federal action has been directed toward alleviating tenant distress. Too little attention has been given to causes. Tenancy has been condemned. Actually the trouble has been due to other reasons such as poor soil, small farms, lack of capital, low prices, and other specific conditions.

In some areas the problem has been associated with absentee ownership. In eastern Colorado, for example, these absentee landlords have been accused of all the evils "in the book." Actually, many of them are unwilling owners, trying to hold to a remnant of unwise investments, either as former operators forced to seek a living elsewhere or as investors in "safe farm mortgages." Tenants on these farms find little aid from landlords. Communities with an excess of these lands find little spirit for building community services. Troubles attributed to tenancy should be blamed upon faulty land use and unsound land promotion.

Again, the public has approached the problem from the viewpoint of conserving natural resources and has assumed that men should preserve their heritage in farm land, regardless of the effect upon their personal incomes.

General Conditions Found in Tenancy

Leasing is not entirely a business matter. Many landlords have tenants who are members of their own families. Our records show instances where a landlord has sacrificed all hope of personal gain from a specific farm in order to provide some degree of comfort or security to sons or daughters living on his farm.

Other records show a son starting as a tenant "on a shoestring," with the landlord-father furnishing the capital. Replacements are purchased by the tenant, and lease terms are changed from year to year until the tenant is fully equipped with livestock and machinery and ready to accept customary lease terms.

Some tenants remain on a farm until sufficient capital has been accumulated to permit a down payment on a farm of their own. Others have remained on the original tenant farm and have purchased farms which they lease to other tenants. Some tenants get into financial difficulties, and landlords make special lease terms to shift the risk and income from the farm.

Some landlords depend upon land as their important investment and buy new farms as funds are available, making leasing a strictly business matter. Other land owners are retired; some are widows; some are ready to "ease up" on active farming, thus seeking a tenant contract.

Each of these is a special condition in a way; yet, taken as a whole, they represent typical conditions in the northern Colorado irrigated area.

What is a Normal Percentage of Tenancy?

The 1920 U. S. Census report shows that 12.5 percent of all farms were owned by people 65 years or more of age. If one might assume for the purpose of illustration that all farms were in the hands of owners by age 35, then 87.5 percent of the farms would start in the hands of the age-35 group.

The American Experience Table of Mortality indicates that 39.7 percent of all men of age 35 die before they reach age 65; 39.7 percent of 87.5 equals 34.74 percent. In other words, 34.74 percent of all farmers now at age 35 will die before reaching age 65.

The 60.3 percent of the original 35-year-old group who remain alive at age 65 are not holding on to their farms. Apparently some have disposed of them. This discrepancy between 12.5 percent of farmers 65 years or more of age and a possible 60.3 percent who could be owners arises from the attempt to combine the American Experience Table of Mortality and the 1920 Census age classification. It is not necessary to combine them. The assumption that all farmers become owners at age 35, with the expected 39.7 percent of deaths, is obviously an overstatement of the percentage of surviving farmers at age 65. Hence, it is no exaggeration to use the actual number of farmers over 65 years of age and the theoretical deaths of the age-35 group to secure a combined percentage which might be used to indicate a maximum potential tenant group of farms. Assume that all executors of the 39.7 percent of age 35 who die, rent the farms in the estates. Then 34.74 percent of all farms would come on the market through death within this share of all farms. If at age 65 all farmers retired, another 12.5 percent of all farms would be available for rent. The addition of these gives 47.24 percent of all farms that theoretically might come on the market. "A lease represents merely an easy way of arranging for the operation of the farm while in process of transfer from one generation to the next" (2).

When one considers the possibilities indicated in this crude illustration and the potential leases which arise from the sources listed by R. L. Adams (3), it is apparent that the percentage of all farms occupied by tenants is not as excessive as some would have us believe. A supply of leasable farm properties arises from a variety of sources (3):

1. Farms held in estates, where executor or heir is not able to operate.
2. Farms held by utilities.
3. Farms acquired through foreclosure by lending agencies.
4. Farms held for city subdivision.
5. Farms owned by retired farmers.
6. Farms whose owners have shifted to other occupations.
7. Farms whose owners find leasing a solution of the labor problem.
8. Farms owned by men with too much land for their personal operation.
9. Farms owned by men who believe their incomes are increased by renting.

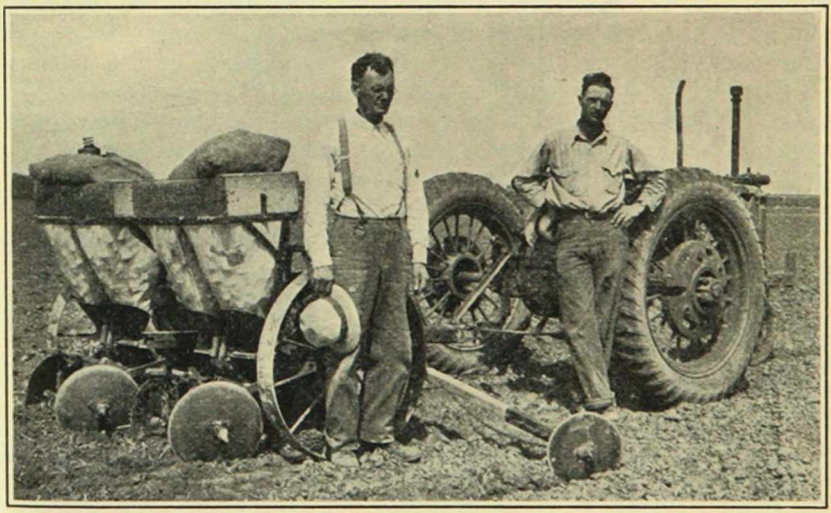

Figure 2.—Interested landlords help their tenants.

The Growth of Tenancy

Table 1 summarizes the number of farms and percentage of tenancy for Weld County, Colo., as compared to Colorado as a whole and to the entire United States, as reported by the U. S. Census. This shows a steady increase in the number of farms operated by tenants. The shifts which result merely from age of owners and growth of a

new country would cause many farms to come into the ownership of those groups of landlords listed by Adams.

Weld County irrigated farms are owned in part by these same groups of landlords, especially by retired farmers and by men who own too much land for their own personal operation. The father-and-son tenancy development also has an important place in this area.

TABLE 1.—*Growth of farm tenancy; table based on U. S. Census reports.*

Year	Number all farms	Number operated by tenants	Percentage operated by tenants
	Weld County, Colo.		
1935	5,546	3,101	55.9
1930	5,457	2,837	52.0
1925	5,610	2,823	50.3
1920	5,765	2,041	35.4
1910	3,961	1,390	34.9
1900	2,002	872	43.6
1890[1]	1,225	328	26.8
1880[1]	1,225	328	26.8
	Colorado		
1935	63,644	24,840	39.0
1930	59,956	20,692	34.5
1925	58,020	17,923	30.9
1920	59,934	13,763	23.0
1910	46,170	8,390	18.2
1900	24,700	5,581	22.6
1890	16,389	1,843	11.2
1880	4,506	584	13.0
	United States		
1935	6,812,350	2,865,155	42.1
1930	6,288,648	2,664,365	42.4
1925[2]	6,372,000	2,463,000	38.7
1920	6,448,343	2,454,804	38.1
1910	6,361,502	2,354,676	37.0
1900	5,737,372	2,024,964	35.3
1890	4,564,641	1,294,913	28.4
1880	4,008,907	1,024,601	25.6

[1]Changes in the boundaries of Weld County make these data of questionable value.
[2]Data rounded to the nearest thousand.

Changes in land values tending toward heavy investments, and the local preference for farms as investments, have resulted in a higher percentage of farms operated by tenants in this area than for Colorado as a whole. Incidentally, this has been partly responsible for a sane landlord-tenant attitude in the area. Men who make investments in farm land are inclined to "care for" these investments as contrasted to landlords who are merely holding their farms until they can dispose of them.

Tenancy Studies in Other Areas

It is not the purpose of this study to review and discuss other station contributions to an understanding of the tenancy situation. Bulletins have been issued in practically every state, lease terms have been discussed, and recommended leases have been published. It would be instructive to review this literature, but limitations of space have prevented any reference other than to certain specific leases which will be analyzed under the conditions found in Colorado. (A bibliography of cited references may be found at the end of this report.)

Most of the terms and expressions used throughout this study are those commonly accepted among farm management workers; therefore, no glossary of terms is offered. A few definitions are incorporated throughout the discussion, in order to direct attention to some significant figures.

Customary Methods of Renting

Crop land in Colorado is rented for cash and also for a share of the crop. Studies in other states have indicated a lower average cost to the tenant where land is rented for cash. Local experience in Colorado has favored the share method of renting. This has been due to the risks and uncertainties of rainfall, hail, water rights, and prices. In the irrigated areas of the state many landlords take an active interest in the management of their farms. The landlord or his agent keeps in close touch with the tenant, frequently advising what crops to grow and what methods to follow in handling the crop. With this active participation in managing the farm, it is natural that each should accept local custom which pays the landlord a definite share of each crop.

While this has resulted in higher returns for the landlord's investment (under normal conditions), it has also helped the tenant. Farms have been built up under this method of handling. In fact, the irrigated farms which rent for cash are frequently the poorer farms, where the landlord is either unable or unwilling to devote any time to supervising the farm. Most of the share-rented farms are in as good condition, and have as well-kept improvements, as are found on the typical owner-operated farm in the same community. This emphasizes the comment made by Black: "After all, good farming and good management and right relationships between landlord and tenant will add more to incomes of both than a better division of income will add to either" (4), to which might be added, "if the farm is large enough."

The shares of each crop most commonly paid as rent in this irrigated area are as follows: Alfalfa ½; grain, corn, beans, and potaties ⅓; sugar beets ¼. Less commonly grown crops are handled under more variable terms. Each of these crops may be rented

under terms differing from these. The expenses paid by the landlord show more variation than do the shares received; yet, even here, there is a tendency for the landlord to pay his share of costs of sacks and twine for potatoes, sometimes his share of special costs such as those of spraying potatoes and sugar beets or purchasing phosphate, and always to furnish alfalfa or grass seed. The landlord pays real estate expenses such as repairs for improvements, real estate tax, fire insurance on buildings, and regular water costs. Where extra water is purchased, some landlords pay all, but more pay one

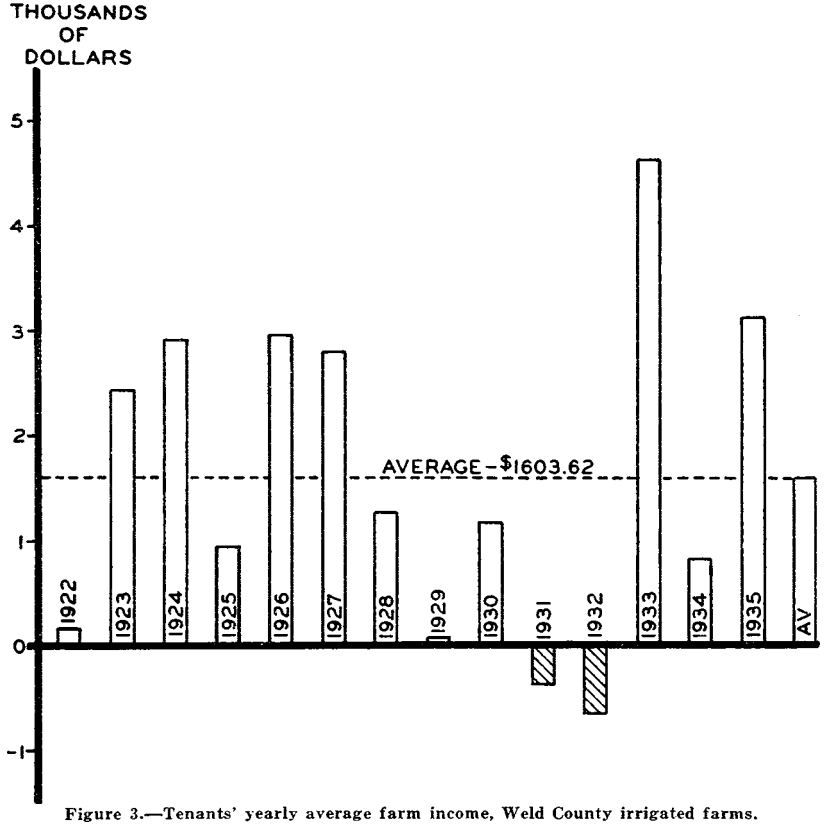

Figure 3.—Tenants' yearly average farm income, Weld County irrigated farms.

half. There is some variation in the use of by-products such as beet tops, straw, stubble pasture, etc. Generally they are fed on the farm by either tenant or landlord, or both, and no accounting made for them. If they are sold, the division of receipts may be in the same proportion used for the beets; however, many landlords insist on receiving the entire value. This serves as an inducement to the tenant to feed and so increase the manure supply. Tenants spread manure as part of their regular duties. They know it will increase crop yields and are glad to have the manure available (5). Few in-

stances could be cited where any mention in contracts is made of manure, other than this assumption that it will be properly spread. Some landlords do specify the crop and time of spreading, and offer inducements for proper manuring. (See comment on Arkansas Valley lease, p. 46.)

Customary methods of renting in other areas of Colorado will be summarized near the end of this report.

Farm Income, Farm Tenants, Weld County

The number of records of tenant farms secured in the detailed farm study in Weld County was too few to permit of any significant statistical analysis. Table 2 shows the wide variation in farm income of both tenant and landlord in the 14 years from 1922 to 1935, inclusive. The simple yearly averages for all these records were $1,603.62 for the tenant and $1,111.30 for the landlord. A few tenant records were omitted from table 5 because of abnormal conditions that confused rather than aided in understanding the tenant situation.

TABLE 2.—*Farm income, Weld County irrigated tenant farms.*

Year	Number records	Average crop area	Farm income	
			Tenant	Landlord
1922	8	122.93	$ 174.94	$ 671.80
1923	9	143.18	2,443.51	1,715.27
1924	7	154.63	2,911.45	2,157.08
1925	6	143.45	953.84	244.44
1926	8	160.04	2,963.62	2,285.02
1927	5	141.76	2,802.03	2,846.58
1928	4	145.51	1,294.59	465.03
1929	5	139.58	83.65	593.79
1930	6	130.02	1,195.45	1,100.45
1931	8	150.32	—355.96	409.59
1932	4	140.86	—634.37	—174.82
1933	2	145.70	4,645.22	1,259.82
1934	3	131.31	842.39	683.34
1935	4	125.22	3,130.36	1,300.86
Average		141.04	1,603.62	1,111.30
Farm income per crop acre			11.37	7.88

The farm income represents the amount available for pay for the tenant's own labor and investment or for the landlord's investment. All cash expense and depreciation were deducted. All sources of income, including crop sales and winter feeding, were included. No family use is included. The same farms do not continue throughout the 14 years, with one exception. Several variations in methods of leasing are included, hence these averages are not representative of anything but themselves.

Despite these limitations, the fact remains that these few tenants and landlords show wide variations in farm income from year to year. They do not indicate any particular injustice as to relative returns for tenant and landlord. They do show very small opportunity for tenants to accumulate sufficient savings to move into the owner class.

Since one farm in this group had a continuous record for the 14 years, it has been selected as a basis for more detailed study.

The first two columns in table 3 show the farm income as summarized each year. This is a highly productive quarter section, yet

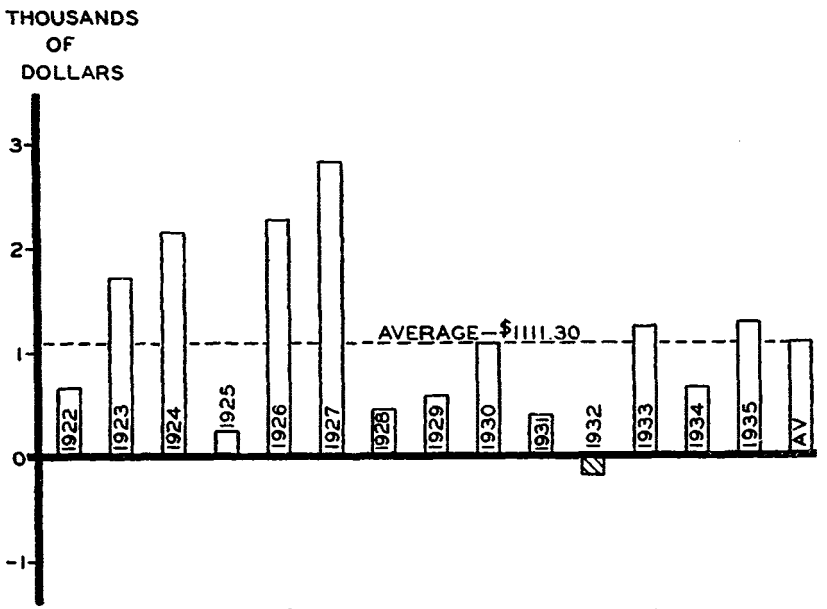

Figure 4.—Landlords' yearly average farm income, Weld County irrigated farms.

in 5 years out of the 14 the tenant failed to meet his regular farm expense and depreciation. He had nothing for his own time and the use of his investment during those 5 years. The landlord's farm income was almost nonexistent in 1932, but he never failed to receive enough to pay all cash expenses and depreciation.

The 14-year average indicates a satisfactory income for the tenant and a good return on investment for the landlord. Winter feeding added to the income on this farm, but it also confused any attempt to study factors which affected the development of a fair lease or which indicated the need for flexible provisions to care for abnormal conditions.

The last two columns in table 3 have been prepared to show the strictly crop income on farm 5. All feeder receipts and expenses were excluded, and the farm value of feeds fed to feeders was in-

cluded as a crop income. Crops sold in the year following their growth were substituted for "changes in inventory," so that the farm income as shown reflects yield and price for the crop of that year, with no inter-year confusion.

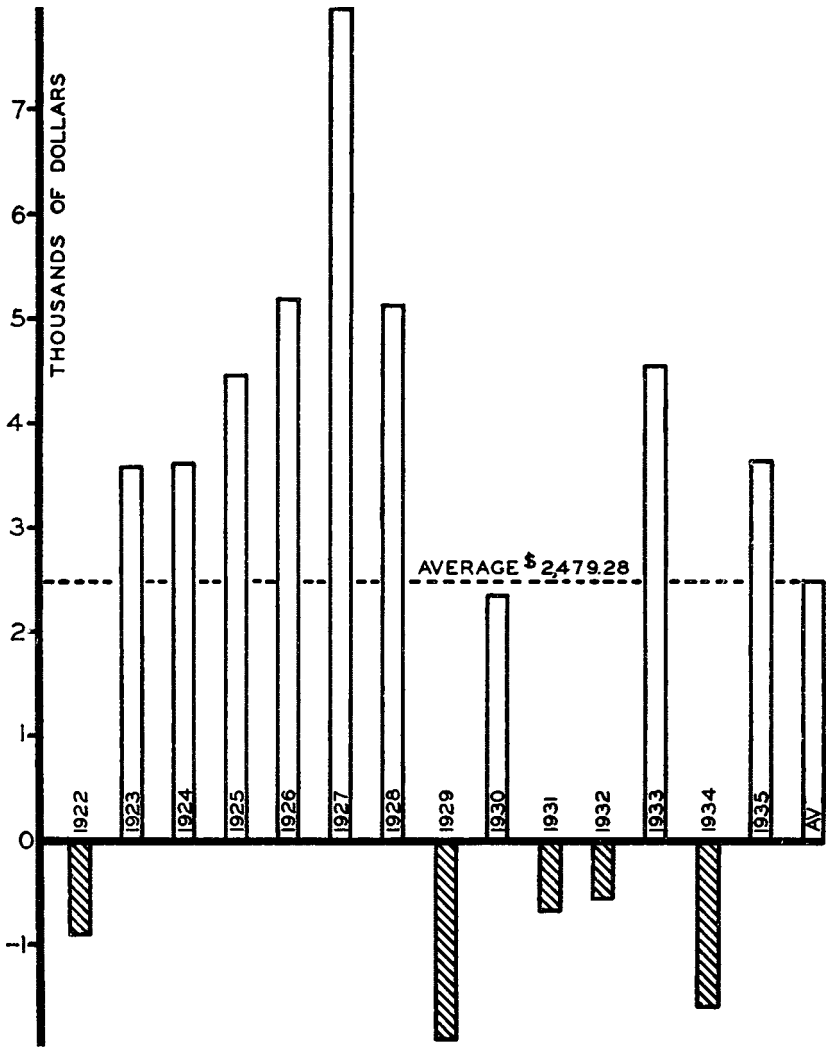

Figure 5.—Tenant's actual farm income, farm 5.

On this basis the tenant had one year when the crops failed to pay all expense and depreciation. The landlord, as before, had some net income every year. The years 1931, 1932, and 1934 indicate that under adverse conditions tenants suffer greater proportionate reduction in income than do landlords.

TABLE 3.—*Farm income for 14 years, farm 5.*

Year	Actual farm income		Farm income from crops only	
	Tenant	Landlord	Tenant	Landlord
1922	$ —898.05	$ 1,086.57	$ —985.20	$ 604.94
1923	3,574.05	3,712.78	875.67	1,341.55
1924	3,602.23	3,124.77	2,464.91	2,287.79
1925	4,453.48	3,131.88	4,969.61	3,193.25
1926	5,182.30	2,265.99	3,430.38	2,112.61
1927	7,932.80	2,024.12	3,569.93	1,789.54
1928	5,120.21	1,158.53	1,379.20	1,474.00
1929	—1,900.12	2,580.55	2,953.32	2,408.11
1930	2,338.84	1,697.62	1,762.36	1,492.71
1931	—674.95	121.58	—152.01	396.19
1932	—560.42	31.07	47.11	68.60
1933	4,525.36	1,218.30	1,944.61	1,034.24
1934	—1,595.38	215.31	111.87	479.15
1935	3,609.55	1,929.85	2,738.84	1,873.09
Av.	2,479.28	1,735.64	1,793.62	1,468.27

Effect of Livestock upon Income

The 14-year average shows that winter feeding of sheep or cattle added approximately $685.66 per year to the tenant's net cash income and $267.37 to the landlord's, or a total of $953.03 for the entire farm, which is slightly over $6.00 per acre. The landlord shared in the winter feeding, but not in all the 14 years. Normally, feeding on tenant farms is done on a labor-against-capital or fifty-fifty basis, which would have resulted in a somewhat greater return for

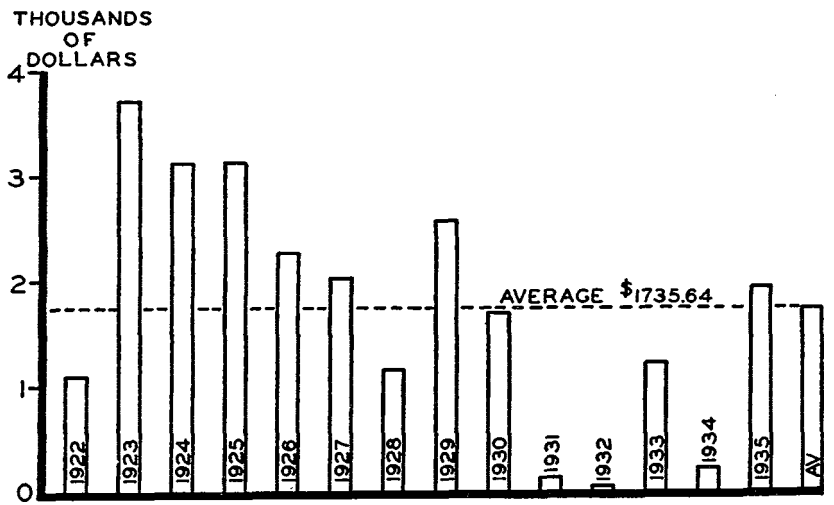

Figure 6.—Landlord's actual farm income, farm 5.

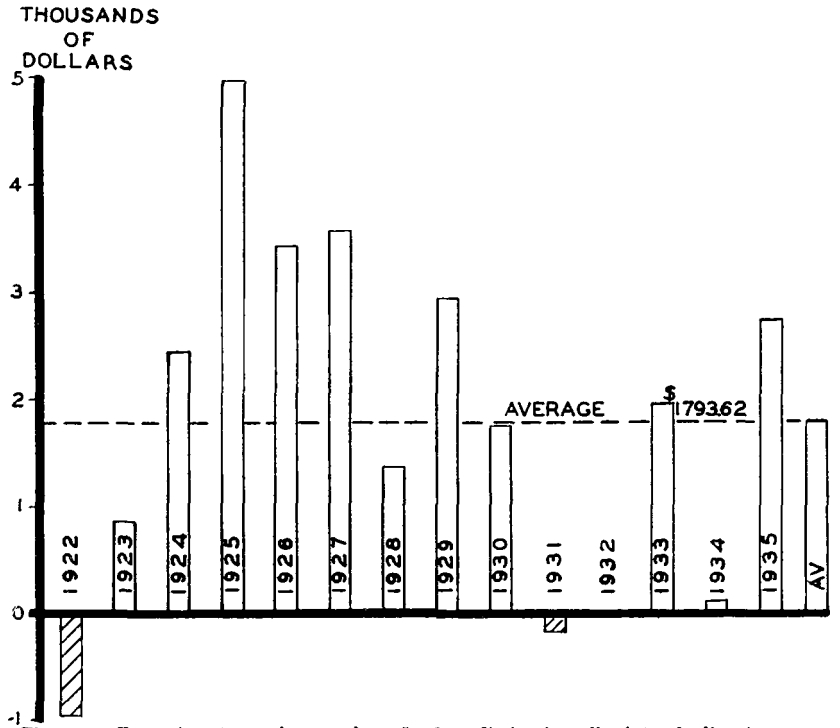

Figure 7.—Tenant's net crop income, farm 5, after eliminating all winter feeding income.

the landlord and less for the tenant than shown here, if the same feeding had been shared.

A comparison of columns 1 and 3 indicates that the tenant benefited from winter feeding in 8 years and suffered a loss from feeding in 6 years of the 14. The two columns are not exactly com-

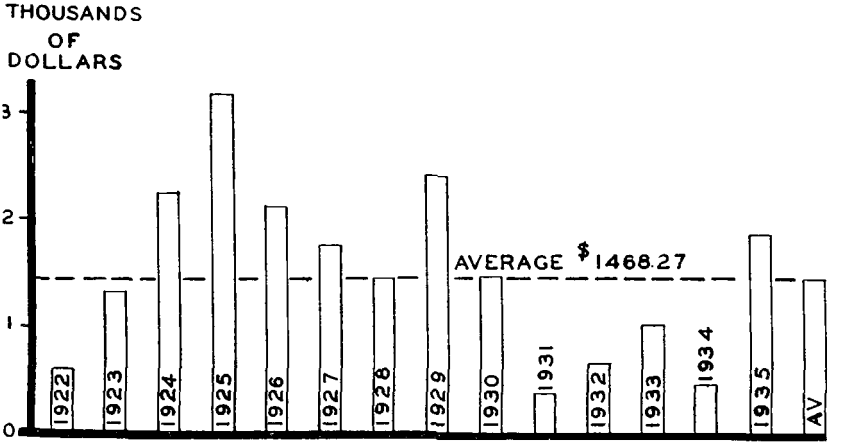

Figure 8.—Landlord's net crop income, farm 5, after eliminating all winter feeding income.

parable because of the different method of handling crop sales in column 3, but the added income for the 14 years is in general agreement with the statement in Colorado Station Bulletin 394, "The invisible gain from winter feeding was $7.17 per acre" (6).

The most important of these "invisible gains" from winter feeding are due to the increased amount of farm manure which in turn increases the yields of crops in this area. Experienced operators in this area estimate that manure increases potato or sugar-beet yields by 20 to 25 percent. The Scottsbluff studies (5) indicate an increase of more than 50 percent in crop yield from the use of manure.

Factors Which Affect Net Income on Tenant Farms

As everyone knows, yields and prices affect the net income from farming. Less is known as to just how they affect income and which suffers the greater loss—tenant or landlord.

Considerable time, expense in study, and many records from actual farm operation would be required to answer this question satisfactorily, if recourse were made to unchanged farm records. The few data available from this 14-year study would answer this question imperfectly at best. Accordingly, a different method of attack was tried. Detailed records on all farms studied were analyzed to find the labor and cost items which were directly related to yield. Enough data were available to reflect current practice. Several samples were analyzed to discover what proportion of the rates per hour for man, horse, equipment, tractor, truck, and overhead was out-of-pocket cash cost, and what proportion was composed of the farmers' own labor, unpaid family labor, calculated costs such as interest, or other non-cash items, the purpose being to discover what cash variation might be associated with changes in yield.

Then some of the more common crops were studied in detail to determine by calculation the effect upon net income, if yields were different from those shown in the actual record. The method will be discussed in detail for potatoes, with briefer reference to sugar beets, barley, and alfalfa.

Variable Expenses

In the production of each crop certain expenses will be incurred regardless of yield. Other costs will depend almost entirely on the production. For example, contract labor picking up potatoes is usually paid by the sack. Compensation for sorting potatoes in the cellar is dependent entirely on the quantity sorted. Threshing is paid for by the bushel; sugar beet topping is partly (and possibly after 1938 entirely) paid for by the ton.

Accordingly, the 11 years from 1922 to 1932, inclusive, for which detailed records were available on a fairly representative group of

farms, were selected as the source of data showing the time actually spent per acre by operations. These hours were divided into those fixed as to their need, and those which most probably would vary according to the production.

Contract rates have been selected as representative of present (1938) conditions rather than as average of the past. Seed was arbitrarily charged in amounts close to the actual averages. Average prices were applied to seed of potatoes and barley. Present (1938) prices were used for sugar beet seed.

Labor rates were used in two ways. First, the actual cash and depreciation labor rates for farm 5 for 1930 were used as the basis of the cash costs. This selection was made after some sampling of other records indicated that it was reasonably representative. Any labor rate is more or less arbitrary. An actual rate on one farm had some advantages over any "average." The other labor rates were those including all costs and were taken for the 6 years, 1922 to 1927, inclusive, from Colorado Station Bulletin 353 (7). Most of the discussion has been confined to the results from the use of the cash rates, as that permits some comparison with farm income for the farm as a whole, while the complete cost rates, which include pay for the operator's own time and interest on the investment, do not permit of such comparison.

Most of the variable expenses are tenant expense, under customary methods of renting. Landlords pay for their share of potato sacks but seldom share in any other variable crop expense. This results in the tenant bearing an expense which varies with the entire crop but which is charged against the tenant's share. For example, assume a field charge of 5 cents per hundredweight for picking up potatoes. The tenant would pay $5.00 for 100 sacks at this rate. But shrinkage of 18 percent in the cellar would increase this to 6.1 cents per hundredweight saved ($5 \div .82 = 6.1$). Sorting and hauling on a custom basis will approximate 10 cents per hundredweight sold. The sum of these amounts to 16.1 cents per hundredweight. But the tenant must carry this charge for the entire crop on his ⅔ share, which makes his cost 24.15 cents per hundredweight, to which would be added a 7½-cent sack charge, making 31.65 cents, the tenant's variable charge for those specified items.

In the following analysis the 11 years' actual time reported on all farms and the cash labor rates from farm 5 give different costs from this illustration. The important and seldom-mentioned point is this piling up of cost on the tenant as yield increases. Naturally, the landlord is less vulnerable to yield or price changes.

Potatoes

The tenant's 11-year average cash expense calculated for producing potatoes and operating the digger (assuming 900 pounds of seed to be worth $11.34) was $30.31 per acre. The variable cash

expense was $0.2924 per hundredweight, based upon 8,984 pounds per acre accounted for, which gave 5,989 pounds as the tenant's share. The landlord's fixed cash costs, consisting of taxes, water, depreciation, and miscellaneous cash expense, were independent of the crop grown. True, the water charge might have been adjusted to show a heavier rate for potatoes and less for grain. To save endless calculation, the records were studied to find some charge which would approximate the tenant's $30.31 fixed charge. The 11 years, 1922 to 1932, inclusive, on farm 5 showed $8.53 as the landlord's fixed cash cost per acre of all crops. Records on other farms were slightly less, so an even charge of $8.50 was used for the landlord. This was used for all crops except alfalfa, where the 11-year record showed 84 cents per acre of alfalfa as the landlord's yearly seed cost, making the total fixed cost for alfalfa $9.34 per acre.

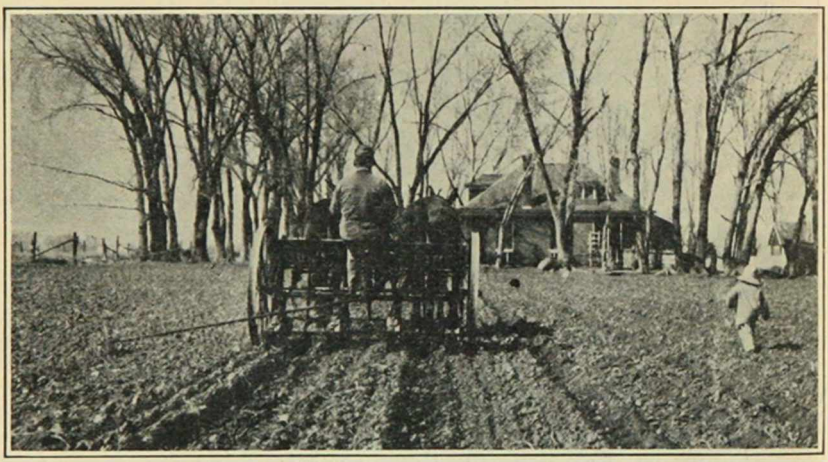

Figure 9.—Following in Dad's footsteps. Will this lad become a successful tenant?

Sugar Beets

The tenant's 11-year average calculated cash expense per acre for producing sugar beets and operating the puller, assuming 20 pounds of seed worth $3.00, was $30.72. The variable cash expense, other than topping, was $0.873 per ton of the tenant's share. Contracts for 1938 call for 90 cents per ton topping charge up to 12 tons, and 80 cents above a 12-ton yield. These rates were used rather than past contract rates. The tenant with ¾ of the crop would pay $2.073 per ton variable cash for all production up to 12 tons, and $1.94 per ton above 12 tons. (These rates apply only to the tenant's ¾ of the crop.) The landlord would have the fixed cash cost of $8.50 per acre.

Barley

The tenant's equivalent cash expense was $6.86 per acre of barley, and the variable expense was $0.372 per hundredweight of the tenant's share of the crop. This $0.372 is made primarily from an 8-cent per bushel threshing charge, which is the equivalent of $0.25 per hundredweight for the tenant's share.

Alfalfa

The stacking labor was considered as dependent on yield, and all other labor was used as a fixed charge in calculating cash expense on alfalfa. The tenant's cash expense per acre was $4.08 and his variable costs $2.82 per ton for the tenant's share of the crop.

The landlord's fixed cash expense was $9.34 per acre, which includes the cost of alfalfa seed.

TABLE 4.—*Summary of tenant and landlord fixed and variable cash expense, 1922-32 averages.*

Crop	Alfalfa	Potatoes	Sugar beets	Barley
	Tons	*Lbs.*	*Tons*	*Lbs.*
Average yield 11 years	2.38	8,984[1]	15.3	2,419
Tenant's fixed cash per acre	$4.08	$30.31	$30.72[3]	$ 6.86
Tenant's variable per ton or cwt.	2.82	.2924	2.073[2] 1.94	.372
Landlord's fixed cash per acre	9.34	8.50	8.50	8.50
Landlord's variable per cwt.	...	.075	...	...
Hours per acre used as basis of calculation				
Fixed—man	10.50	31.77	27.69	10.96
horse	9.26	63.17	52.15	17.65
truck	.08	.30	.02	.07
tractor	.12	2.04	1.62	.84
Variable—man	5.23	17.43	11.66	3.04
horse	10.31	9.13	20.37	2.97
truck	...	1.87	3.67	.25
tractor	.12	...	...	.06

[1]Yield accounted for 81.58 percent of total yield harvested.
[2]Tenant's variable cash per ton changes at 12-ton total yield; $2.073 per ton of tenant's share up to 12-ton total yield; $1.94 per ton above 12-ton yield.
[3]This includes $12 contract labor up to harvest.

Table 4 summarizes the fixed and variable cash expense of tenant and landlord, based on the 11 years, 1922 to 1932. The records of labor by operations were calculated at the 1930 farm 5 cash rates, together with seed and contract labor. It is important to note that no value of operator's labor, value of family labor, or interest on investment were included in these cash rates. The farm 5 cash rates were as follows: Man labor, 16.48 cents; horse labor, 8.70 cents; overhead, 7.16 cents; equipment, 6.96 cents; truck, 73.2 cents; and tractor, 72.5 cents per hour worked.

Total Tenant and Landlord Charges per Acre

By using the average rates per hour, as shown in Colorado Station Bulletin 353 (7), for the 6 years 1922 to 1927, inclusive, *i. e.*, man labor 32.8 cents, horse labor 14.05 cents, overhead 10.11 cents, equipment 6.22 cents, truck 64 cents, and tractor $1.00, table 5 shows total fixed and variable charges to include average payment for operator's labor, family labor, and 6 percent interest on operator's investment. The landlord's fixed total charge per acre was based on the assumption that $8.00 per acre above all cash and depreciation charges would represent a reasonable earning. (The actual average of 6 tenant farms was $180 valuation per crop acre; the $8.00 would give 4 percent on $200 crop land.)

TABLE 5.—*Summary of tenant and landlord fixed and variable total expense, 1922-32 averages.*

Crop	Alfalfa	Potatoes	Sugar beets	Barley
Tenant's fixed total expense per acre..	$ 6.55	$40.01	$39.08	$10.00
Tenant's variable per ton or cwt.....	6.02	.393	2.91[1]	.600
			2.78	
Landlord's fixed total expense per acre	17.34	16.50	16.50	16.50
Landlord's variable per cwt.....	....	.075	....	....

[1] $2.91 per ton of tenant's share up to 12-ton total yield; $2.78 per ton above 12-ton yield.

The interest rates assumed in this discussion are somewhat arbitrary. Six percent was used on the tenant's investment because of the more perishable nature of the tenant's investment. Four percent was used on the landlord's investment because it represents a reasonably satisfactory net return above all expenses and is somewhat close to federal rates on farm mortgages. The legal rate on loans in Colorado is 8 percent, but many loans to farmers in this area are made by financial agencies within the 4 to 6 percent range.

Effect of Yield Upon Net Income

Using the variable cash expenses shown in table 4 and average Colorado prices for the 25 years, 1911 to 1935, inclusive, as reported by the Colorado crop statistician (8), table 6 shows the effect of potato yield upon the net cash income of tenant and landlord.

Table 6 is based upon the potato yield "accounted for." The harvested production, when resorted from storage, showed 18.42 percent shrinkage during the 11 years, 1922 to 1932, inclusive.

Table 6 involves one assumption which would require some modification if sufficient evidence were available to make it possible. The tenant fixed cash costs were assumed to be $30.31 per acre re-

TABLE 6.—*Effect of potato yield upon cash returns per acre.*

Yield accounted for	Tenant's cash variable @ $0.2924	Tenant's total cash, including $30.31 fixed	Tenant's value, ⅔ share @ $1.26	Tenant's net cash income	Landlord's total of variable @ $0.075 plus $8.50 fixed	Landlord's value, ⅓ share @ $1.26	Landlord's net cash income
Cwt.[1]							
20	$ 3.90	$ 34.21	$ 16.80	$—17.41	$ 9.00	$ 8.40	$ .60
40	7.80	38.11	33.60	—4.51	9.50	16.80	7.30
60	11.70	42.01	50.40	8.39	10.00	25.20	15.20
77.34	15.08	45.39	64.97	19.58	10.43	32.48	22.05
80	15.59	45.90	67.20	21.30	10.50	33.60	23.10
88.41	17.23	47.54	74.26	26.72	10.71	37.13	26.42
89.84	17.51	47.82	75.46	27.64	10.75	37.74	26.99
94.42	18.41	48.72	79.32	30.60	10.86	39.65	28.79
100	19.49	49.80	84.00	34.20	11.00	42.00	31.00
101.23	19.73	50.04	85.04	35.00	11.03	42.51	31.48
120	23.39	53.70	100.80	47.10	11.50	50.40	38.90
140	27.29	57.60	117.60	60.00	12.00	58.80	46.80
160	31.19	61.50	134.40	72.90	12.50	67.20	54.70
180	35.09	65.40	151.20	85.80	13.00	75.60	62.60
200	38.99	69.30	168.00	98.70	13.50	84.00	70.50

[1]Yield accounted for was 81.58 percent of the average yield produced.

gardless of yield. Since these costs include no spray or fertilizer, they are chiefly labor.* No significant relationship was found on the farms in this study between the amount of labor used in preparing and caring for potatoes and the resultant yield. Within the limits of yield actually secured during the 11 years, 1922 to 1932, therefore, it would be close to reality to ignore such a relationship. The methods actually used in this area are the best known to the individual farmer. The fields are well cared for. They are free of weeds. The soil is easily handled. Yields depend upon the rotation, use of farm manure, and the available water supply. Occa-

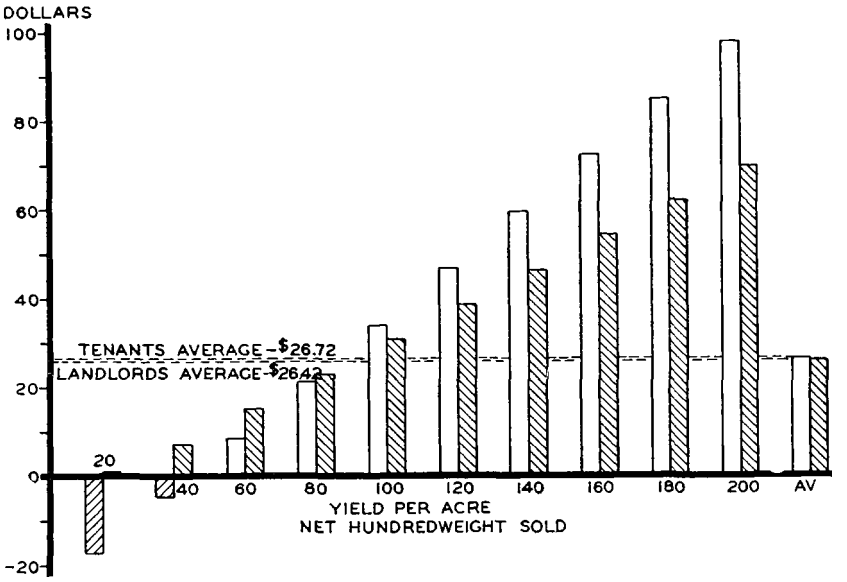

Figure 10.—Effect of quantity of potatoes sold per acre upon cash incomes of tenant and landlord, marketed at $1.26 per hundredweight. Above the zero line unshaded bars represent the tenant's income, shaded bars the landlord's income. Below the zero line shaded bars represent the tenant's loss. See table 6.

sionally insect pests or hail will cut the crop, in which case the final result would show an increased use of labor on the crop and a reduced yield. For these reasons, the uniform fixed cash expense may be used without serious error within the limits of yield used in the table.

As a matter of fact, farm 5, with better yields than the average of all farms, had $29.48 fixed cash costs per acre for potatoes compared with $30.31 for all farms for the 11 years; it had 30.72 cents variable costs per hundredweight accounted for compared with 29.24 cents for all farms. With larger yields, the tenant on this farm had practically the same fixed costs, and higher variable costs than

*In the years since 1932 spraying potatoes has been a standard practice, costing approximately $2 per acre, and frequently paid for on a share basis.

the average. The average for all farms has been used in this analysis as being somewhat more representative of a larger number of farms.

It would be interesting to compare the total cash expense of producing potatoes if yields per acre were less. For example, the 10-year potato yield of irrigated land in Weld County was 7,734 pounds per acre. On that basis farm 5 would require 37.321 acres to produce the potatoes which it did produce on 30.57 acres. The extra area of 6.751 acres at $30.31 per acre would increase the tenant's fixed costs for producing potatoes by $205. A similar comparison for sugar beets would show $267 extra fixed cash tenant costs. The better yields on farm 5 were secured, using these average costs per acre, at considerable saving.

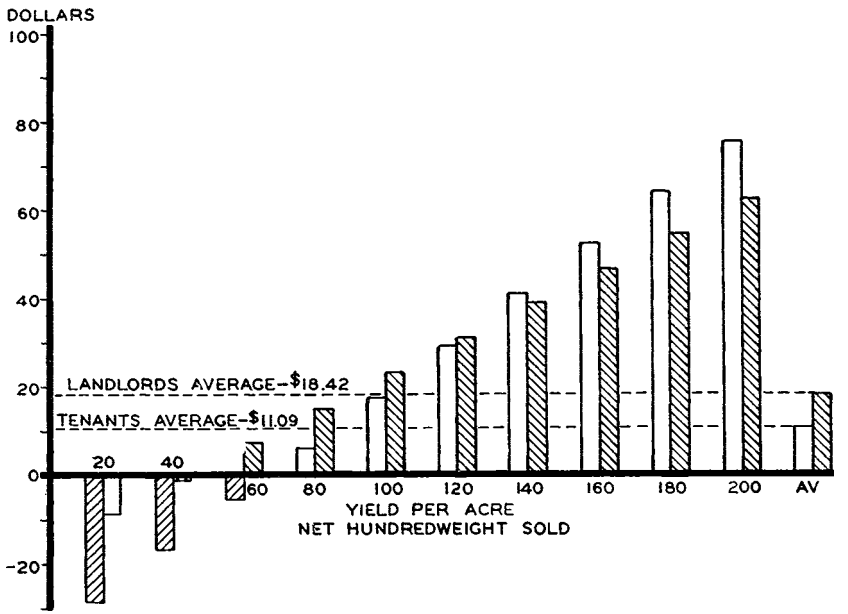

Figure 11.—Effect of quantity of potatoes sold per acre upon net return above all expenses of tenant and landlord, marketed at $1.26 per hundredweight. Above the zero line unshaded bars represent the tenant's net return, shaded bars the landlord's net return. Below the zero line shaded bars represent the tenant's loss, unshaded bars the landlord's loss. The chart is based upon rates quoted in table 5.

Column 5 of table 6 shows that the tenant fails to meet cash costs when yields fall below about 50 hundredweight, which is approximately 100 bushels field production. The landlord fails to meet his cash expense when the yield is about 20 hundredweight. This indicates that landlords suffer less cash loss from low yields than do tenants.

Effect of Price Upon Net Cash Income

If the variable cash expense per hundredweight be subtracted from the quoted market price, the difference represents the net price

available to pay for fixed expenses and for non-cash expense. Table 7 has been prepared to show how this works for tenant and landlord. For example, with a 60-cent market price the tenant has $0.3076 per hundredweight above variable costs to pay on fixed costs. It would require a tenant's ⅔-share amounting to 9,854 pounds of potatoes at $0.3076 per hundredweight to meet the $30.31 fixed cash costs. At this same price the landlord's net price would be $0.525 per hundredweight, and a ⅓-share of 1,619 pounds of potatoes would meet $8.50 fixed costs. At every price shown in the table, yields must be larger to cover tenant's expenses. The landlord can meet cash expenses on potatoes with low yields.

When all costs are considered (table 8), the yields are comparatively higher, but the landlord can meet all costs with less yield than can the tenant.

It is apparent that tenants are in financial difficulties whenever yields or prices are low. Could a lease be devised that would give a more even risk at low prices or yields, and yet be fair under normal conditions?

TABLE 7.—*The effect of price upon net yields of potatoes necessary to meet fixed cash costs.*

Market price per cwt.	Tenant's net price above the $0.2924 variable	Tenant's share at this price to cover fixed cash expense of $30.31	Landlord's net price above the $0.075 variable	Landlord's share at this price to cover fixed cash expense of $8.50
		Lbs.		*Lbs.*
$ .50	$ .2076	14,600	$ .425	2,000
.60	.3076	9,854	.525	1,619
.70	.4076	7,436	.625	1,360
.80	.5076	5,971	.725	1,172
.90	.6076	4,988	.825	1,030
1.00	.7076	4,283	.925	919
1.10	.8076	3,752	1.025	829
1.20	.9076	3,340	1.125	756
1.30	1.0076	3,008	1.225	694
1.40	1.1076	2,737	1.325	642
1.50	1.2076	2,510	1.425	596

The cash tenant and landlord expenses per acre for each yield, shown in table 6, were analyzed to determine what share of these was landlord expense. As crop yields increased from 20 hundredweight per acre to 200 hundredweight, the landlord's share of total cash expenses decreased from 20.4 percent with the 20 hundredweight yield to 12.5 percent for the 200 hundredweight yield.

When total costs are similarly analyzed, the landlord's share of

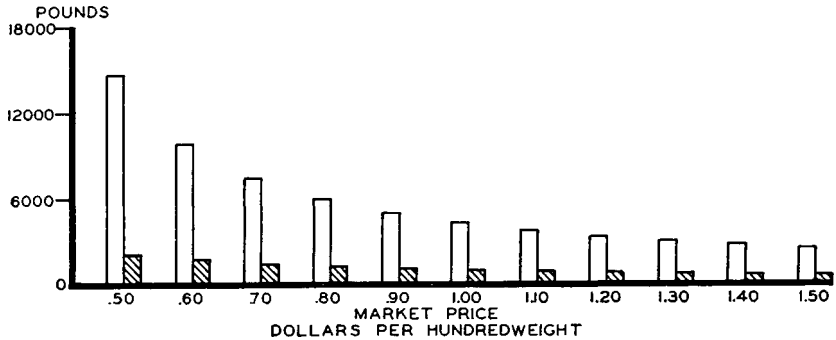

Figure 12.—Effect of market price of potatoes upon necessary quantity sold per acre to meet all expenses of tenant and landlord. Unshaded bars represent the quantity of potatoes the tenant must sell to cover his cash expenses, the shaded bars the quantity the landlord must sell to cover his cash expenses. See table 7.

all costs was 27.2 percent for the 20 hundredweight yield, which decreased to 16.8 percent for the 200 hundredweight yield.

These two statements deal with necessary yields and with expense as a basis for division of the crop. It might be equally necessary to consider a division of profits.

Suppose, for example, that 60 hundredweight of potatoes were sold at prices ranging from $1.00 to $1.75 per hundredweight and that the landlord desired one-half the profit above all cost. What

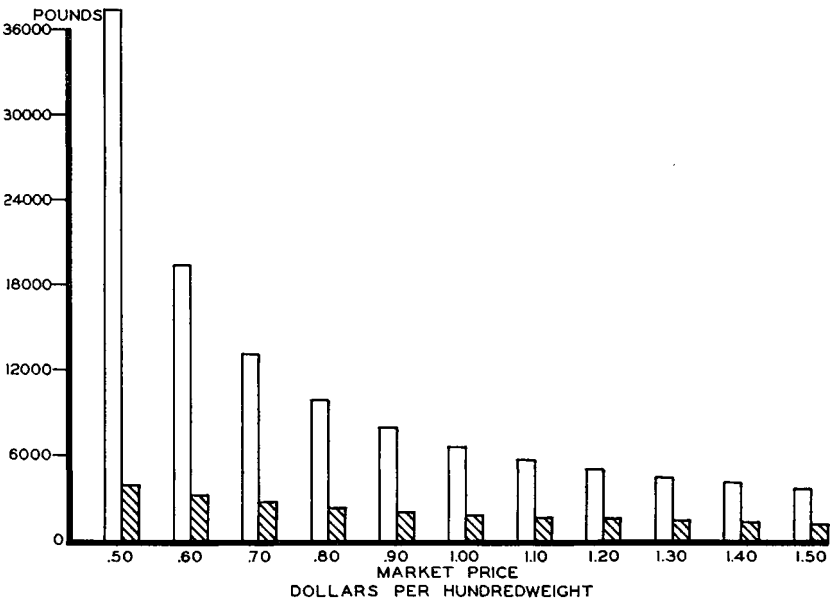

Figure 13.—Effect of market price of potatoes upon necessary quantity sold per acre to meet all expenses of tenant and landlord. Unshaded bars represent the quantity of potatoes the tenant must sell to cover his total expenses, shaded bars the quantity the landlord must sell to cover his total expenses. See table 8.

would be the necessary share? It would range from 18.6 percent with the $1.00 price to 32 percent with the $1.75 price. Other yields per acre and other prices would give other percentages as the indicated landlord share.

Enough has been said to justify an answer to the original question, "Could a lease be devised that would give a more even risk at low prices or yield and yet be fair under normal conditions?" Yes, such a lease could be devised, but no one would ever know what share of the potato crop would go to the landlord until after the final yield and price were known. Each year it would be different. Would

TABLE 8.—*The effect of price upon net yields of potatoes necessary to meet all expenses.*

Market price per cwt.	Tenant's net price above the $0.393 variable	Tenant's share at this price to cover fixed cash expense of $40.01	Landlord's net price above the $0.075 variable	Landlord's share at this price to cover fixed cash expense of $16.50
		Lbs.		*Lbs.*
$ .50	$ .107	37,392	$ .425	3,882
.60	.207	19,328	.525	3,143
.70	.307	13,032	.625	2,640
.80	.407	9,830	.725	2,276
.90	.507	7,892	.825	2,000
1.00	.607	6,591	.925	1,784
1.10	.707	5,659	1.025	1,610
1.20	.807	4,958	1.125	1,467
1.30	.907	4,411	1.225	1,347
1.40	1.007	3,973	1.325	1,245
1.50	1.107	3,614	1.425	1,158

such a situation work in practice? Few would even consider it, hence the ideal potato lease remains in the theoretical stage. The best that might be hoped for would be the introduction of clauses into existing contracts which would give the tenant some concession when yield or price was exceptionally low, and possibly give the landlord some extra return when prices were exceptionally high. Even that would be of questionable value.

It again means added confusion in arranging for the year's work, and it ignores the farm as a whole. If the farm is consistently a low producer or high producer, that fact should be considered in the lease and the tenant be given some concession which would provide a reasonably fair return. If that is not feasible, cash rent or a workable partnership lease should be devised.

The preceding analysis has been confined to one crop, potatoes. Similar studies might be made for sugar beets, alfalfa, barley, or other crops. With the variable expenses previously discussed and

the 25-year Colorado average price, the tenant, under customary shares, suffers first from low yields or low prices for sugar beets. The landlord, however, suffers first from low yields or prices for alfalfa and barley, although neither makes any profit from barley except when yields are above 40 bushels and prices are above $1.00 per hundredweight.

In general, the unsatisfactory returns to tenants from low yield or low prices have been important incentives toward the purchase of tractor-power and labor-saving machinery, in the hope of thereby reducing the fixed costs per acre. Also, they have stimulated tenants' efforts toward securing better yields (see fig. 16).

There has been some added interest in the fifty-fifty lease for the same reasons. Since this lease apparently originated in and has had widest adoption in the Corn Belt, it was comparatively new in Colorado until recent years. Consequently, many variations in terms have been used in this state. Its more common terms are analyzed later in this report. It deserves very careful study before anyone adopts it as a cure-all for tenancy ills.

Potatoes vs. Sugar Beets

Before leaving this topic, something more may be said about the relative profitableness of these two cash crops. They are not adapted equally throughout the entire Platte Valley, but where both may be grown much argument arises.

In the 25 years, 1911 to 1935, inclusive, the crop statistician (8) reports the average Colorado price of potatoes equivalent to $1.26 per hundredweight and the sugar beet price as $6.91 per ton. Simple division will show that 550 pounds of potatoes will sell for the price of 1 ton of beets. If 80 percent of the harvested potato crop were sold, 688 pounds would be dug to secure the 550 pounds for sale.

The four tenant farms used as a basis for much of the analysis in this report sold 600 pounds of potatoes per acre for every ton of beets sold per acre. That was the sale ratio between these crops. A crop of 15 tons per acre for beets would be equivalent to 90 hundredweight of salable potatoes on these four farms. (Incidentally, the 14-year, 1922-1935, average for all farms studied showed 605 pounds of potatoes sold per acre for every ton of beets produced per acre; and the Weld County irrigated farm average for the 10 years, 1923-1932, showed 702 pounds of potatoes produced for every ton of beets, which would permit the sale of 573 pounds of potatoes if average shrinkage could be assumed.)

It should be obvious that potato and sugar beet prices do not hold the ratio just stated; each is subject to considerable variation. When beets are $6.00 per ton, potatoes at $1.00 per hundredweight would keep the ratio. When potatoes are $2.00 per hundredweight, it would require $12.00 beets to preserve the ratio of 600 to 1.

It would be risky to assume that the "costs" of producing these quantities (90 hundredweight of salable potatoes and 15 tons of beets) were identical, but it is apparent that the customary practices and methods of handling these two crops result in production that has the ratio of 1 ton of sugar beets to 6 hundredweight of usable potatoes. If a farmer failed to secure 6 hundredweight of potatoes with the same effort that he produced 1 ton of sugar beets, it would seem that he might find potato production less attractive.

One of the tenant farms in this study produced 4.67 hundredweight of potatoes for every ton of sugar beets. The tenant on this farm abandoned potato production after 2 years and concentrated his efforts on sugar beet production. Another tenant had a potato production of 7.06 hundredweight for every ton of sugar beets. He is an enthusiastic potato producer. Another tenant had the ratio of 5.23 hundredweight of potatoes. He grows both, but tells his landlord that sugar beets are the most profitable crop on the farm.

The evidence does not justify an arbitrary statement, but it does suggest that it would be desirable to study the potato-sugar beet ratio. Whenever that ratio falls below 6 hundredweight per ton, it may mean that the soil and other conditions are better for sugar beets. It also suggests how to test the effect of any change in practice, such as the use of more irrigation water per acre or other efforts to increase yield. If, for the same effort, 6 hundredweight of potatoes or 1 ton of sugar beets can be produced, then both crops respond equally well to the new methods. Carry this comparison through to the higher yields, and it will be obvious that 180 hundredweight of potatoes would balance with 30 tons of sugar beets per acre. Actually, it is more difficult to secure 30 tons of beets. None of the farmers in this study secured 30 tons of beets, but several secured over 180 hundredweight of potatoes.

Relationship Between Tenancy and Crop Yields

Farm 5 was selected for most of the detailed analysis in this study because of its long continuous record. It has some value for another reason. In 1914 a survey by officials of the U. S. Department of Agriculture included this farm which was operated by a tenant who had been on the farm 3 years. At the end of 1923 this tenant moved to his own farm which he had purchased in 1917. A new tenant came on farm 5, starting in 1924, and was there at the end of the period studied. The landlord was a banker. In 1914 the crop yields per acre reported were as follows: alfalfa, 3 tons; barley, 63 bushels; sugar beets, 17 tons; and potatoes, 180 bushels.

The 14-year record on this farm, for 1922 to 1935, which includes some years with a short water supply, showed the following average yields per acre: alfalfa, 2.35 tons; barley, 49.5 bushels; sugar beets, 18.6 tons; and potatoes, 193 bushels. Two of these yields are higher than those reported for the year 1914, and two are lower.

There is no indication that yields have been reduced by the long period of tenancy. The only indication of failing productivity is a seep spot along one side of the farm which has shown increased alkali from seep of an adjoining farm, and which will need drainage or lining of a farm lateral to restore it. This is not a fault of operation, but rather of topography.

Again, our early records are lacking in adequate detail, but in 1924 the first tenant reported that more than $18,000 had been paid on his new farm. How much of this saving came from the 12 years as tenant on farm 5, and how much came from the 7 years when

TABLE 9.—*Number of farms studied in Weld County.*

Year	Owner farms	Tenant farms	Total farms
1914	88	128	216
1915	77	105	182
1921	54	96	150

he was landlord for his newly purchased farm, cannot be stated. At least some saving came from his tenant farming during this period.

It is a matter of record in the community that one man has remained 27 years as tenant on one farm, with a lease similar to this. He now owns several farms free of debt and rented out—the accumulated savings of his farming days.

Leases on these farms were of 1-year duration, yet the tenants remained as long as both parties were satisfied. The landlords "look after" these farms. The tenants are as interested as the landlords in securing good crop yields. This is not a study of a decadent method of farming. It is a study of an active, successful business arrangement. Yet it is not a perfect arrangement.

The small number of farms available for study during the period 1922 to 1935, inclusive, may cause some to question the validity of the conclusions. Data for a reasonably adequate number of farms are available for certain points. If there is essential agreement on the points covered by this larger group, it will tend to meet this criticism and strengthen the findings from this limited study.

Farm survey records of Weld County irrigated farms in the immediate area included in this study are available for the years 1914, 1915, and 1921. The records for 1914 and 1915 were taken by the Office of Farm Management, U. S. Department of Agriculture, and were loaned to the Economics and Sociology Section, Colorado Experiment Station. The 1921 records were secured by the Economics and Sociology Section as a background for the detailed study commencing in 1922.

The method of selecting these farms was to take every farm along each road or crossroad, omitting from interview such farmers as were

TABLE 10.—*Areas and yields of Weld County irrigated farms.*

	Owner farms			Share tenant farms		
	1914	1915	1921	1914	1915	1921
Number records	88	77	54	128	105	96
Total area	120	110	105	146	152	127
Average area, crops	99	91	90	125	126	112
Real estate investment	$18,634	$17,744	$27,240	$22,249	$23,222	$30,400
Machinery investment	703	657	1,221	697	704	1,320
Crop area:						
Alfalfa	38.6	32.7	28.1	51.0	47.7	35.9
Barley	10.3	5.6	8.1	12.4	10.1	7.7
Oats	5.2	3.2	4.1	9.5	9.4	7.3
Wheat	5.5	6.2	6.8	7.5	9.9	13.3
Beans	4.7	5.5	1.8	4.5	5.3	2.4
Beets	17.4	16.4	18.2	23.5	23.7	18.9
Potatoes	9.0	12.8	17.3	15.1	17.9	23.4
Peas	3.9	3.6	1.7	0.7	0.5	1.1
Cabbage	0.8	1.5	1.7	...	0.5	1.3
Corn	0.9	2.3	0.9	0.4	1.0	0.3
Miscellaneous	0.5	1.6	1.6	...	0.2	0.5
Crop yields:						
Alfalfa, tons	3.3	2.8	2.9	3.1	2.4	3.0
Barley, bu.	46.0	50.3	51.2	47.0	54.3	47.7
Oats, bu.	54.0	48.1	49.6	52.6	49.0	55.2
Spring wheat, bu.	34.0	27.7	33.1	32.4	30.4	31.0
Winter wheat, bu.	30.0	14.5	36.3	24.0	20.0	32.8
Beans, bu.	18.0	22.5	22.6	17.7	22.0	26.7
Sugar beets, tons	15.1	14.9	15.4	15.7	14.7	16.2
Potatoes, bu.	158	254	168	183	259	172
Cabbage, tons	15.4	19.0	14.0	20	18.4	14.1
Farm income—farm as a whole	$ 2,306	$ 3,404	$ 2,388	$ 3,033	$ 4,295	$ 3,174
Operator's labor income above 6%	982	2,130	528	1,426	2,280	1,219
Landlord's percentage on investment	....	....	....	6.4	7.7	5.6
Percentage of total (farm as a whole) receipts from livestock	43.7	34.5	26.5	22.4	27.0	22.6

away from home at the time and those unable or unwilling to give a record. The area covered was both east and west of the Greeley-Ault highway. The crops grown are somewhat more diversified within this area than in the extreme east and west parts of the northern Colorado irrigated area.

Table 10 shows the average area of each crop for all farms each year and the average yields as reported for eight crops. Tenants show better yields for six of these crops. Owners reported better yields for alfalfa and wheat.

The farms included in the 1922-to-1935 period show better yields of alfalfa, barley, sugar beets, and potatoes on tenant farms. There is nothing in this comparison to indicate that yields were reduced by tenant occupancy.

The labor income (defined as the income remaining for the operator after paying all expenses, including depreciation, decreased inventories, family labor, and 6 percent interest on investment) of the operator and the percentage earned on investment by landlords indicate that both were successful under the conditions existing in 1914, 1915, and to a less extent, 1921. These returns include all sources. Winter feeding accounted for about one-fourth of all receipts on tenant farms and somewhat more than this on owner farms.

No attempt has been made to analyze these early records to show the income solely from crop production, but the totals indicate that the division of income was reasonably fair. Some individual farms from this early group show instances where either tenants or landlords appeared to be "getting the best of it." This was not associated with any recorded difference in method of sharing receipts and expenses but seemed to be due to some "specific condition" on the individual farm.

There have been changes in the share rent within the years 1914 to 1935. The years immediately following the World War, with high prices, caused landlords to ask for larger shares of some crops. For instance, 71 percent of the sugar beet rent in 1914 was on a ¼-share basis, while in 1921, 63 percent was on a ⅓-share basis. Since 1921 the customary share for sugar beets has returned to ¼ in this area. Potatoes, alfalfa, and barley show practically no shift in customary shares during this period, 1914 to 1935.

These 1914, 1915, and 1921 records differ in no important particular from the few records used for analysis in this report. Hence it seems reasonable to assume that the analysis of these few records does offer some valuable clues to the tenancy situation in the northern Colorado irrigated area.

Effect of Rental Terms Upon Income

Customary Lease

The 14-year average "crop" farm income for farm 5 is shown in table 11. The crop sales used in assembling this yearly income were calculated figures arrived at as follows: The actual crop sales for an individual crop were shown as of the year the crop was grown. The crops used for winter feeding were reported as "cash sales" in order to keep the crop record free from possible added profits or losses from winter feeding. By means of these adjustments, changes in inventories of crops were eliminated from the analysis, thus permitting a direct comparison between expenses and receipts.

TABLE 11.—*Yearly farm income of farm 5, adjusted to a crop basis.*

Year	Tenant	Landlord	Tenant's advantage	Landlord's advantage
1922	$ —985.20	$ 604.94	.....	$ 1,590.14
1923	875.67	1,341.55	.....	465.88
1924	2,464.91	2,287.79	$ 177.12	.....
1925	4,969.61	3,193.25	1,776.36	.....
1926	3,430.38	2,112.61	1,317.77	.....
1927	3,569.93	1,789.54	1,780.39	.....
1928	1,379.20	1,474.00	.....	94.80
1929	2,953.32	2,408.11	545.21	.....
1930	1,762.36	1,492.71	269.65	.....
1931	—152.01	396.19	.....	548.20
1932	47.11	68.60	.....	21.49
1933	1,944.61	1,034.24	910.37	.....
1934	111.87	479.15	.....	367.28
1935	2,738.84	1,873.09	865.75	.....
Average	1,793.62	1,468.27	325.35	.....

The last line shows the 14-year average "crop" farm income of tenant and landlord. Under the original lease the tenant shows an income of $1,793.62 and the landlord $1,468.27. Anything which would have reduced the tenant's income $162.68, and at the same time increased the landlord's income the same amount, would have given each the same farm income. There are many things which obviously affect tenant's or landlord's income. Yields and prices loom large in any such comparison. In 5 out of the 14 years the landlord had a larger farm income than the tenant under the actual conditions of those years.

A variation in yield will usually affect both expenses and income. Sometimes it will not change the total farm expense because the labor, for example, is paid by the month, regardless of yield. Contract items such as threshing, picking potatoes by the sack, or hauling beets by the ton will vary directly with the yield.

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.

Using the 14-year average area on farm 5 and the 25-year average Colorado prices, and the cash costs which vary with production, the substitution of average yields on all farms would reduce the tenant's farm income by $494.40, making this revised farm income $1,299.22. It would reduce the landlord's farm income by $271.90, making it $1,196.37.

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 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. To illustrate, assume the following prices: alfalfa, $8.00 per ton; barley, 75 cents per hundredweight; potatoes, 70 cents per hundredweight; and sugar beets, $5.00 per ton. Under these conditions, if there are no changes in average expense, the tenant's farm income would be reduced to $367.87 while the landlord's farm income would be reduced to $771.01. This shows $403 in favor of the landlord. With these assumed prices the tenant's income fell $2.04 for every $1.00 the landlord's income fell.

Again, it would seem that the tenant suffered most from the low prices. Changing the relative areas of each crop and changing the comparative price would result in some other effect, but it would appear difficult with these four crops to find any price, area, or yield combination that would result in the tenant weathering low yields or low prices better than the landlord.

Several statements have been made in this report which agree in this conclusion. Why does the analysis of these records indicate that tenants have more financial difficulties during a depression, while local opinion frequently claims that landlords or owners are hit the worse? Possibly one comment will be sufficient answer. Owners, operating their own farms, have all the fixed costs which this discussion has shown tend to drag tenants into difficulty. In addition to that, farms of many owners are heavily mortgaged. The addition of a large fixed interest payment will obviously hasten the financial distress of a mortgaged owner during periods of depression.

Usual Fifty-Fifty Crop Lease

Columns 3 and 4 in table 12 show a calculated expense and receipt for tenant and landlord when the actual results on farm 5 for the 14-year average are modified by the usual terms of a fifty-fifty lease. This lease has been widely advocated as a step toward more equitable terms of leasing. For a more extended discussion of this lease, see references 9 to 19, inclusive.

Many reports refer to this as a livestock share lease. Where livestock are kept the year around, it is impractical to separate live-

TABLE 12.—*Actual expenses and receipts modified to substitute the usual fifty-fifty lease; farm 5, 14 years average, 1922-35.*

Item	Line	Original lease		Usual 50-50 lease	
		Tenant	Landlord	Tenant	Landlord
Column		1	2	3	4
Regular labor	1	$ 571.30	$ .89	$ 572.19	.....
Contract labor	2	780.23	.93	781.16	.....
Machine repair	3	150.73	3.61	154.34	.....
Truck repair	4	51.29	.....	51.29	.....
Tractor repair	5	.72	.....	.72	.....
Building repair	6	22.85	53.05	.....	$ 75.90
Purchased feeds	7	64.11* 174.40	....	87.20	87.20 .....
Silo filling	8	6.75	25.51	15.24	16.13
Livestock expense	9	12.59	.....	6.87	5.72
Seed	10	42.81* 127.53	30.37	78.95	78.95 .....
Twine	11	23.83	.29	12.06	12.06
Threshing	12	124.72	.....	62.36	62.36
Spray	13	14.08	2.66	8.37	8.37
Sacks	14	123.50	42.20	82.85	82.85
Misc. irrigation	15	7.02	.....	7.02	.....
Water tax	16	11.12	319.49	.....	330.61
Fuel and oil	17	86.37	.....	86.37	.....
Automobile	18	93.92	.....	93.92	.....
Phone	19	15.42	2.43	17.85	.....
Personal tax	20	38.57	.....	37.05	1.52
Real estate tax	21	.....	449.99	.....	449.99
Miscellaneous	22	62.62	13.86	62.27	14.21
Total cash expense	23	2,606.48	945.28	2,218.08	1,225.87
Unpaid family labor	24	139.69	.....	139.69	.....
Livestock loss	25	.....	.....	47.52	.....
Depreciation	26	532.42	310.10	527.06	316.35
Total expense	27	3,278.59	1,255.38	2,932.35	1,542.22
Receipts					
Crop sales	28	5,047.29	106.92* 2,609.43	3,828.37	3,828.35 .....
Livestock increase	29	20.41	7.30	.....	75.23
Other sources	30	4.51	.....	4.51	.....
Total receipts	31	5,072.21	2,723.65	3,832.88	3,903.58
Difference or farm income	32	1,793.62	1,468.27	900.53	2,361.36

*Purchases and sales between landlord and tenant.

stock from crops in analyzing the results. In the area studied (northern Colorado irrigated farms) winter feeding is a separate enterprise. It is comparatively easy to keep expense and receipts separate from the balance of the farm; accordingly columns 3 and 4, table 12, have been prepared on the crop basis. Inspection of the table will show that with the fifty-fifty lease the tenant furnished all labor, machinery, and automobile expense and related expense. The landlord furnished all building repairs, water, and real estate expense. The other expenses were shared equally. The slight differences in silo filling charges (line 8) arise from the fact that the tenant owned some silo-filling equipment on farm 5 and received some rental from the landlord. The tenant's livestock expense (line 9) is larger because he paid all costs on horses while sharing expense on other livestock. The tenant, under the fifty-fifty lease, shows a loss from livestock (line 25) while the landlord shows a gain (line 29). This gain arises from tenant ownership of horses which caused the net loss and from joint ownership of other livestock which gave the landlord some net income.

When the 14-year record is summarized, line 32 shows that the tenant had an average $900.53 farm income, while the landlord had $2,361.36. The "partnership" features of this fifty-fifty lease are more theoretical than real under the conditions on this farm. If this tenant had listened to the sponsors of a partnership method of leasing this farm, he would have paid $893.09 per year ($1,793.62 minus $900.53) for the privilege of being a "partner" to his landlord. Few would value the arrangement that highly.

What is wrong? Why has this lease had such widespread approval in other parts of the United States while being unadapted to Colorado irrigated farms? The answer may be found in (1) a too ready acceptance of the word "partnership"; (2) a too ready acceptance of the "labor-against-capital" philosophy; and (3) conditions in this irrigated area which are unlike those in the Corn Belt, where this form of lease has had widest acceptance.

The conditions of crop production in northern Colorado include a rather heavy contract labor charge ($781.16 as a 14-year average on farm 5). This item should be considered as a special partnership crop cost and paid fifty-fifty. But to stop there would not result in a balanced return. If the $572.19 regular labor bill also were shared fifty-fifty, it would increase the tenant's farm income to $1,577.21 instead of $900.53, and would reduce the landlord's farm income to $1,684.68 in place of $2,361.36. This is still slightly to the advantage of the landlord. To offset this advantage, the tenant has the value of farm produce consumed by the family which, as a 14-year average, was $152.22 greater than the value of farm board furnished to paid labor.

Under the conditions existing on this farm for a 14-year period, the fifty-fifty lease needs a radical change in its basic philosophy in

order to be fair to both parties. The tenant's own labor and that of his family, and the tenant's horses, equipment, and tractor were enough to balance the landlord's investment. All other expenses, including all paid labor and tractor fuel, where it is an important item, should be shared equally. This would be a real partnership lease.

There are many modifications of the partnership idea. One involves payment of all seed costs and half the contract labor on sugar beets by the landlord, with costs of twine, sacks, and threshing shared equally. This would improve the tenant's income about $150 for farm 5, compared with the usual fifty-fifty lease just illustrated on farm 5; but it does not go quite far enough to give equality of risk and income. Landlords who operate under this system report an increase in their time and effort in managing these farms. They

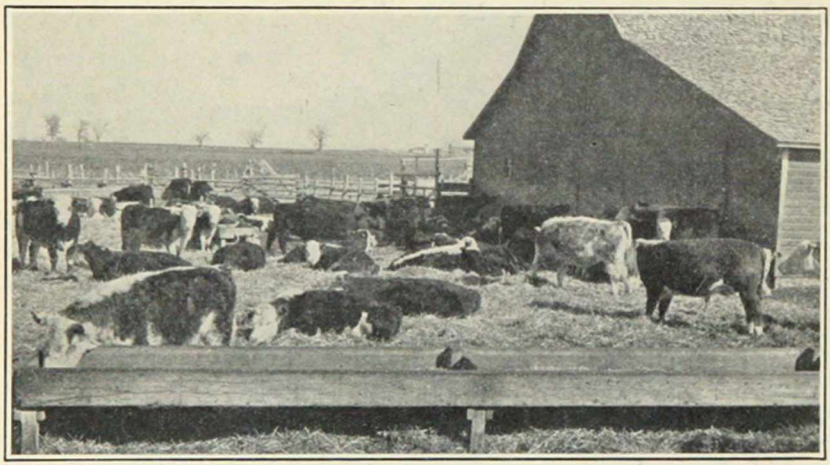

Figure 14.—Winter feeding is common practice on successful tenant farms.

practically control the cropping sequence and cultural practices to be followed by their tenants. Possibly this justifies the increased income secured by the landlord, but it offers the tenant small opportunity for improving his conditions, especially if he is ambitious to use his own abilities.

Winter Feeding on Tenant Farms

The emphasis in this discussion has been upon a crop lease, with no consideration given to winter feeding. This has been a deliberate choice. Many tenants do not feed livestock. Many landlords do feed on their tenant farms, paying the tenant for his crops and for his labor in feeding. These are separate contracts, having no relation to the cropping lease or program. Feeding increases the income and is a desirable practice.

It is necessary to study the crop lease separately from any effect of feeding. Most winter feeding on tenant farms is on a partnership basis, *i. e.*, the tenant's labor is offset by the use of capital furnished by the landlord. All cash and feed items are shared equally, and all returns above the expenses of cash items are divided equally to pay the tenant for his time and the landlord for his interest on capital. This is a fairly satisfactory arrangement; but this same idea, applied to the cropping system, is not a satisfactory arrangement; hence, feeding is not included in this analysis of the partnership lease.

Conclusions as to Rental Terms

The customary share terms may be lacking in flexibility to meet all conditions of change. They are most frequently unjust when new crops and new conditions come into the area. But the only conclusion justified by this historical analysis of the results from their use must be that customary shares on northern Colorado irrigated farms under average conditions are a fairer lease system than the Corn Belt fifty-fifty lease.

If men are to be partners, possibly they should go all the way and be partners in fact and not in name. This raises a legal problem. Partners have joint and unlimited liability. Few tenants or landlords would desire this in farm leasing. It may be avoided by drawing a contract and specifying items to be furnished by landlord and tenant, and showing the exact method of handling receipts and expenses. This would escape the risk of unlimited liability. (See proposed lease contract form p. 49.)

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 will be fair to both. It recalls the words of J. D. Black, "Good farming and good management and right relationships between landlord and tenant will add more to incomes of both than a better division of income will add to either" (4).

One thing is certain. A "fair lease" is fair under its own conditions, not under different conditions in another area. If nothing else remains from this study, that point may endure. The mistakes which men make with leases arise in part from transferring lease terms to a new setting or applying them to a new crop without inspection, analysis, or challenge. Then the trouble begins!

This discussion, so far, has been centered upon a search for some method of easing the burden of customary leases upon tenants when yields or prices are low. If it results in a greater public acceptance of the fact that tenants do suffer most from these ills, and are thereby entitled to some concessions, it will have justified itself.

But what of the other side of the picture? What is fair when yields and prices are above normal? Who should benefit most under these conditions? Before attempting an answer to these questions it may be desirable to settle another matter, *i. e.*, what is responsible for these superior yields: the inherent quality of the soil, the care and management exercised in operating the farm, the climatic and moisture conditions, the seed and producing ability of the crops grown, or the use of manure or other fertilizer? If the better yields are natural and inescapable, it is controversial who should benefit from them. If they are the result of superior ability in managing the farm, the one who does the managing should benefit. What is needed here is a method of leasing which will attract superior tenants and reward them for their abilities (unless landlords wish to operate as overseers and dictate every move, and that seldom is the case). This would suggest at least that some flexible provision is needed in the lease that will increase the tenant's share of production which is in excess of the normal or customary for the region. When tenants receive this extra reward for building up the productivity, less attention will be given to paying tenants for unexhausted improvements, and more attention will be given to long-time or renewable leases and to finding tenants of superior ability.

This problem involves the farm as a whole. Individual crops may not require any special concession to induce greater tenant effort. The discussion of the effect of low yields upon income indicates that the tenant suffered most from low yields. The corollary of this relationship obviously is that the tenant will benefit most from improved yields. With reasonably stable leasing and continued tenure, possibly this may be sufficient inducement for the tenant.

The fact that tenants, operating under customary shares in this area on quarter section farms, have been able to accumulate savings and buy farms of their own may also stand as proof that no additional incentive is needed to induce tenants to improve yields. However, not all farms are large enough, and not all tenants are so favorably situated. The need for additional incentives will be more essential on the poorer tenant farms.

The landlord who seeks superior tenants, and who asks for an increased share of the crop when productivity is high, is trying to go in two directions at once. Superior tenants may be attracted by favorable lease terms. Increased rental shares defeat any plan for building up the land unless the landlord, at the same time, pays an increased share of the cost and expense for such soil building.

Cash rent would solve this riddle to a large extent, but cash rent is not widely favored at the present time in this irrigated area. A real partnership lease requiring the joint managing abilities of landlord and tenant and having joint risk and income would be even more

desirable, but real partnership leases await cooperatively-minded landlords and tenants.

There remains the possibility of a sliding-scale lease offering to the tenant concessions when general business conditions show below normal possibilities of income, and offering him an increased share of the crop whenever yields increase beyond a certain point. Under normal or average conditions this lease would resemble the customary lease of the region.

For example, one lease which is winning favor in the Arkansas Valley provides for ¼ of the sugar beets as the share rent. The lease outlines a method of fertilizing the beet crop, and states that the rental share will be ⅕ if these provisions are completely followed. If ½ the beet area is properly fertilized, the rental share is 22.5 percent. Here is an incentive to the tenant to care for the land in such a way that yields will be improved.

This same principle could be applied to any important crop, using average local yields as the starting point and offering a reduced rental share as the tenant secures higher yields. It has been suggested (20) that these concessions should be made by offering the tenant an opportunity to substitute by his own labor for the reduction in rent, thus replacing the cash value of part of the rent.

If tenancy is to remain in the farm picture, as it undoubtedly will, and if individuals are to have some incentive to improve their lot, then there is need for a lease which will induce tenants to strive for high production.

Some may argue that high yields will use up the fertility of the soil. The high yields themselves should be the answer to that fear. Plant food if not used will leach away or accumulate as alkali. Nature intended the soil as a growing place for plants. Man needs but to treat the soil wisely and watch for a sign of need for some element of fertility. Otherwise the risk of loss of fertility is a minor phase of Colorado farming. The things which will restore or maintain soil fertility automatically improve crop yield.

Length of Lease

Some writers have stressed length of lease as an important factor in better tenancy relationships. No attempt was made to secure complete information as to length of lease on all the farms studied. Farm 5 had a signed lease for the first year of the tenant's operation on the farm. This was not resigned nor brought up for discussion, except when a change in lease terms was contemplated. Many landlords follow this practice; other landlords secure a signed lease every year. Some depend upon verbal agreements.

It is the writer's opinion, based upon study of these farms, that the mere details of signing a lease each year and the length of the lease in years are of minor importance in securing satisfactory land-

lord and tenant relationships. The two men concerned are the key. If they will work in harmony, any leasing procedure is satisfactory —verbal, yearly, or long-time. If they are antagonistic, no lease will work.

It has been said that long leases are necessary to maintain soil fertility. Nothing in this study justifies such a conclusion.

There are some definite advantages in a yearly lease, subject to renewal. Each party has some incentive to act fairly in order to retain the lease. There is a yearly opportunity to seek correction of some mistake in the lease.

Size of Farm Necessary for Adequate Income

Some of the misunderstandings over rental agreements arise from attempting to support too many families from the returns of one farm. A 160-acre farm can support one landlord and one tenant and the necessary labor. But when this is tried on 80 acres, nearly everyone is dissatisfied. When two landlords depend upon one 160-acre farm, neither feels well paid. A tenant on 80 acres gets a short living and so does his landlord, if both must make their living from that one farm.

One owner with all the income from 80 acres can live comfortably. For example, the average farm income per crop acre on farm 5, if applied to 75 acres of crops, would give a tenant $897 and a landlord $734 per year for labor and interest on investment. If out of debt, each could live on a moderate standard with this amount. An owner with both these incomes would have $1,631, which would be a reasonably adequate income.

One productive 80-acre tenant farm has caused almost constant controversy between landlord and tenant. Although neither seem aware of it, the small area upon which both depend for a living is at the bottom of their strife. The time spent in trying to work out fair lease terms for 80-acre farms might better be spent looking for a larger farm.

But size of farm and productivity of the soil do not in themselves assure success. There remain the uncertainties of crop failure, price collapse, and increased costs. The records show instances where tenants have failed under the most favorable circumstances. In some instances the failure has been due to financial management, such as plunging too heavily into a highly speculative enterprise such as sheep feeding, or in spending money faster than it could be earned.

Likewise, it is possible to save and accumulate sufficient funds to purchase a farm without having 160 acres. In some instances this is done by keeping the family in "secondary poverty" (21), defined as "going without the necessities of life in order to achieve some cash-saving goal."

The soundness of this analysis is indicated by reference to another tenant in this general area. In 1937 he completed 20 years on a

highly productive farm, with approximately 100 acres in crops. He operates under the customary lease. Questioned as to his experience, he replied, "I have made a good living from this farm, but I have not been able to save enough to buy a farm. It takes about as much power and machinery and regular labor to run this farm as it would if I had 160 acres." Other men believe that the operator of an 80-acre farm is penalized even more for the same reason.

Tenants who are planning to become farm owners should give first attention to the farm they rent. Under average conditions, very few farms will produce enough to permit a tenant to make a substantial down payment on a farm. With better than average production, the 160-acre farm will achieve this goal. Larger farms will do even better.

Farm 5, during the drouth and depression of the 1930's, barely made a living for its tenant. In the 4 years, 1931 to 1934 inclusive, the farm income on farm 5 averaged $426 per year, and this was all made in one year; the other three years showed actual losses. From this meager income must come interest on the operator's investment and pay for his own time, *i. e.*, this was his living during this period of time. It is doubtful whether any size of farm would have "paid for itself" during those depression years.

Effect of Changing the Crop System

It is reasonably correct to arbitrarily introduce a change in yield or in price and show the effect upon the original record. But a change in acreage disturbs the entire farm program. It requires more work or less work on the part of the farmer. It is not at all certain that these changes could be made with no disturbance to the other parts of the business. Consequently, any adjustment in crop areas, though made with the best of intentions, may in practice have quite different results from those anticipated.

Despite that uncertainty, the data on farm 5 offer some alluring possibilities. The adverse effects which cannot be determined would need to be great indeed to cancel what seems to be the advantage from a change in the cropping system. For example, with details available for the year 1930, silage corn on farm 5 showed a net cash income per acre for the landlord of $8.40, while the tenant lost $7.50 per acre that year. Similar detail was not analyzed each year, but a rough approximation for the 11 years, 1922 to 1932, inclusive, indicates that the landlord on farm 5 had about $1.00 net cash income per acre from corn silage, while the tenant lost about $2.65 per acre. There could be a large error in these figures before it would absorb the apparent difference between corn silage and other row crops such as sugar beets, potatoes, or beans. Among other unknowns, of course, would be this important point: Could sugar beet yields be maintained at an 18.6-ton average if the 16.59 acres

of corn on this farm had been added to the beet area? Undoubtedly the answer would be no. But when one seeks the answer as to how much reduction might result, there is no definite answer. Possibly the 10-year Weld County irrigated sugar-beet yield of 13.5 tons might be the answer. That yield apparently would reduce the tenant's net cash income by $19.00 per acre on sugar beets. However, all farms studied had 14.61 tons average sugar-beet yields. This yield apparently would reduce the tenant's net cash income by $14.85 per acre.

Figure 15.—Absentee landlords and soil erosion are too frequently partners.

If the sugar-beet yield on farm 5 were reduced to the 10-year Weld County average by adding 16.59 acres to the sugar-beet acreage of this farm, the net for the farm as a whole from the change would be less than that from the present areas. If the sugar-beet yield on all farms studied should be the result, then the tenant's net would be increased by putting all the corn-silage area into beets.

A similar assumption for potatoes would show an increased net for the tenant when either the average for all farms studied or the Weld County 10-year potato yields were used. Farm 5 did not secure potato yields as far above the average, hence there was less decreased income involved in making these assumptions.

These Weld County yields might be considered lower than reasonable expectation due to the proposed shift in the corn-silage area, hence one would be justified in the conclusion that an increased area of other row crops and abandonment of corn silage would increase the crop income from this farm. How much it would be increased would obviously depend upon resulting yields and prices, but with the past as a guide it seems that the increases might vary

from a small actual gain per acre of corn silage shifted to over $20.00 per acre and, in good years, to over $30.00 per acre. This added income should more than compensate for the loss of feeding advantages from using corn silage.

This comparison has been based entirely upon crop income. If a tenant can feed his share of the crops and secure additional income from livestock, that will, of course, improve his financial position. As a matter of fact, farm 5 does feed livestock, which in part accounts for the yields secured.

Recommendations for Improved Landlord-Tenant Contracts

1. Reduce all verbal agreements to writing to avoid the risk of differences at a later date.
2. Make a provision for changing the terms of the lease to meet new or unexpected conditions. State how this change in the agreement is to be reached.
3. Try to develop lease terms which will be fair for the farm as a whole, even if they are slightly in favor of one party on one crop.
4. Try to develop lease terms which will build up the farm without penalizing either party.
5. Make provision for a method whereby the tenant may secure compensation for improvements which he has made.
6. In long-term leases arrange for more favorable terms for the tenant as yields increase, thereby offering inducement for building productivity.
7. Use a one-year lease with a renewal clause that permits it to remain in force unless either party gives adequate notice.
8. When new crops or methods are to be used, make arrangements for a temporary agreement as to division of receipts and expenses, subject to arbitration (as stated in no. 2), after each has had opportunity to study the effect of the crop upon costs and income.
9. Consider a lease a mutual agreement for the use of labor and capital, wherein cooperation is necessary to success.
10. Only under special conditions and after careful study should a complete partnership lease be used.
11. Beware of highly recommended or costly cure-alls for leasing ills.

Recommended Lease Forms

There are many printed forms used in preparing leases. Some of these are satisfactory. Nearly all make provision for written modifications. The conditions in Colorado vary so widely that these semi-blank lease forms are more satisfactory than any lease printed in all its detail ready to sign. As stated earlier in this study, a lease should be judged by its results. No lease will guarantee satisfactory income if the soil is poor, or the farm too small, or if other unfavorable conditions arise. "Changing the lease" is not the cure here,

unless the tenant gets a new lease on a new farm or the landlord finds someone who can use this land as part of his entire farm operations.

A proposed lease form is appended at the end of this study.

Customary Terms for Renting Colorado Farms

This study has been confined to the analysis of rather detailed records on a few northern Colorado irrigated farms. The method of handling tenant farms varies somewhat throughout the state. Space and data are lacking to make a similar analysis for every region. For reference purposes the more common rental terms are summarized for the other areas of Colorado.

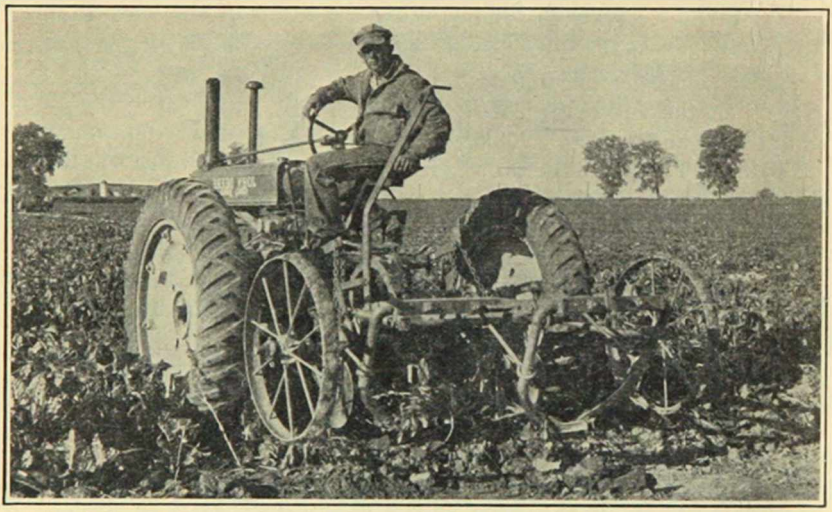

Figure 16.—Labor-saving machinery is popular on tenant farms.

Colorado Farm Leases

Source of Data

The Colorado Experiment Station has studied tenant farm data from farm-survey records, from detailed farm-accounting records, from interviews with interested parties, and from special questionnaires distributed through the cooperation of the Colorado Extension Service.

Methods of Leasing

Colorado farms are rented on a share basis, except in rare instances. Cash rent is used chiefly for grazing land or for small areas used for fruit or truck crops. Colorado farmers believe that the share system permits both landlord and tenant to share in such risks as weather, pests, and prices.

Eastern Plains Area

Shares paid the landlord in the better dry-farming areas or on improved land of the eastern Colorado plains area were one-third of all grain crops, beans, or sorghum. On less improved farms one-fourth was the customary share of crops paid as rent.

The expenses reported for landlords were real estate taxes and the materials needed to repair buildings and fences. Some landlords paid their share of threshing costs.

Estimates as to prevailing cash rent varied in the plains country. In the driest areas land for grazing was renting for taxes or an estimated 6 to 10 cents per acre. In other counties the price quoted was from 15 to 25 cents per acre. Dry-farm crop land was quoted as renting from 11 cents to $1.00 per acre cash rent.

A few reports on methods of renting livestock suggested one-half the milk, butterfat, or increase as the most common rent for cattle and hogs. In some instances it was reported that the landlord furnished either all the cattle and all the hogs or one-half the cattle and one-half the feed for the cattle, when receiving one-half the increase.

Northern Colorado Irrigated Area

The studies reported for northern Colorado show that the prevailing share lease gave the landlord one-third of the corn, grain, beans, potatoes, and vegetables; one-fourth of the sugar beets; and one-half of the alfalfa. In some counties this was modified to one-fifth of the sugar beets and one-fourth of the potatoes, beans, and vegetables. This is a reasonably fair lease under average conditions.

The most variable condition of share leases in this area is the one dealing with aftermath pasture, straw, and sugar-beet tops. Where tenant and landlord feed on a share basis, such feeds are used without any question as to ownership. On farms where the tenant does the feeding these by-products are used by the tenant without question, and the landlord benefits from improved yields from use of manure. On farms where the landlord does the feeding he uses these by-products without paying the tenant for them but allows the tenant to pasture his workstock and milk cows.

Some landlords introduce another variable where they own several farms, asking one-third of the sugar beets on highly productive farms close to the loading stations and reducing that to three-tenths or one-fourth for the farms which are less productive or farther from the loading station.

Under the customary lease the landlord furnishes the real estate and water taxes, one-half the cost of extra water hired or pumped, all the alfalfa seed, a share of the sacks for potatoes, and all the buildings and fence cash-repair costs. Frequently the landlord pays

the labor cost of these repairs, except in the case of minor labor used in fence repair.

In recent years a modification of the crop-share lease in which the landlord furnishes all the seed grain and secures a one-half share of the grain as rent has been tried in some instances. Other landlords are paying for all seed and for one-half of the direct crop costs, such as beet-contract labor, threshing, sacks and spraying, and taking a one-half share of all crops. These modifications favor landlords and reduce the tenants' income when compared with the customary lease.

Little or no share renting is done with livestock, except where lambs and cattle are fed on a labor-against-capital, or fifty-fifty, basis.

Very little cash renting was reported in northern Colorado. From $7.00 to $10.00 per acre for farm land and from $2.00 to $4.00 per acre for irrigated pasture land seemed to be the prevailing rates.

Arkansas Valley Irrigated Area

In the Arkansas Valley there is considerable variation in methods of share leasing. These variations have resulted from the uncertain conditions of the past 10 years.

In general, the landlord receives one-third of the corn and grain, with a tendency for the landlord to pay one-third of the threshing; he receives also one-fourth of the sugar beets, beans, and tomatoes; one-fifth of the market cantaloupes and one-fourth of the seed cantaloupes; one-half of the alfalfa; and one-fifth or one-fourth of the onions, depending upon the method of sharing expenses. With a one-fifth share the landlord furnishes no onion expense. In recent years the landlord has received one-half of the value of all aftermath pasture, straw, or beet-top pasture.

The landlord usually furnishes all irrigation water, both regular and extra, all the alfalfa seed, and all cash costs of repairs. Some landlords furnish all the seed for corn and small grain and let the tenant pay all threshing costs, with the share remaining one-third as indicated.

One interesting modification in methods of leasing in the Arkansas Valley has been the introduction of a sliding-scale share payment for sugar beets, depending on how completely the tenant fulfills the landlord's instructions concerning the use of farm manure for sugar beets. A one-fifth share is taken where the tenant fulfills the contract, a one-fourth share where he does not, and a variable share between these two extremes in proportion to the percentage of sugar-beet land manured as requested by the landlord.

Cash rents of irrigated lands in the Arkansas Valley, in instances reported, varied from $8.00 to $15.00 per acre.

Very little share renting of livestock was reported. The landlord receives one-half of the dairy products or calves, grown poultry, or hog increase when he furnishes the original livestock.

In the parts of the Arkansas Valley where water shortage has been most acute, and where incomes have been most uncertain, landlords have in some instances charged cash rent for the use of buildings or pasture and share rent for the crops, or have increased the share of crops taken as rent. These changes have been made in order to secure some return to the landlord to help pay taxes, when the tenant has feed for his "cow, sow, and hen" but no salable crops to divide with the landlord.

Western Slope Irrigated Area

The Western Slope irrigated area reports are similar to those of the other irrigated areas in most respects. Landlords receive one-third of the corn, grain, beans, and potatoes; one-half of the alfalfa; one-fourth of the cantaloupes; and one-fifth of the sugar beets. Fruit is handled under more variable conditions. In some instances the landlord pays one-half of the spraying and package cost and receives one-half the crop. In other cases the landlord pays none of these costs and receives from one-fourth to one-third of the crop.

The landlord pays one-third of the costs of sacks and all regular irrigation charges, alfalfa seed costs, and costs of material for repairs to buildings or fences. In some cases the landlord pays for all seed grain and receives one-half the crop. A few reports indicate that the landlord pays for phosphate fertilizer in the same proportion that he shares in the crop to which the fertilizer is applied. In some instances each pays one-half the cost of extra irrigation water.

Cash rents vary from $3.50 to $7.50 per acre for crop land and are about $2.00 per acre for irrigated pasture. Special fruit or vegetable land rents for greater amounts.

The landlord receives one-half the increase or product when he furnishes dairy cattle or hogs.

San Luis Valley

No one method of share leasing is used throughout the San Luis Valley. For instance, some landlords pay for one-half of the contract labor; one-half of the cost of sacks; one-half of the cost of winter sorting; and receive one-half the potato crop. Other landlords pay for one-fourth the costs of potato sacks and winter sorting and receive one-fourth the potato crop. Others settle on a one-third share basis. Some landlords pay the costs of one-half the seed and one-half the threshing, receiving one-half the grain. Others receive one-third or two-fifths of the grain, and the tenant pays all expenses. Field peas and alfalfa are usually shared equally. The landlord furnishes all alfalfa seed and all cash repairs for buildings and improvements.

Some livestock is rented on a fifty-fifty basis. There is a tendency toward a general fifty-fifty basis on which landlord and tenant

share all cash expenses equally and all crops equally, except alfalfa, of which the landlord receives two-thirds, and vegetables, for which the landlord receives one-third.

Cash rent for irrigated farms varies from $2.00 to $10.00 per acre, depending upon the productivity of the land. Special vegetable land may bring more than these amounts.

Northwest Colorado Area

The northwest Colorado area is chiefly a range area where paying of cash rent for state or private grazing lands is the common practice. Prevailing rent varies from 10 to 25 cents per acre for grazing land. Little or no livestock renting is found in this area. There is some cash renting of dry crop land and of irrigated pasture land, but this is on an experimental basis, and rates have not been established as yet.

Irrigated farms are rented for one-third the grain and one-half the hay. Some landlords pay one-half the cash crop expense and receive one-half the grain.

Dry-land crop rent is mostly on a share basis, with the landlord receiving one-fourth the grain and one-half the hay, or in some instances one-third of the grain. Some tenants are renting land temporarily for the payment of taxes or for keeping up the fences.

Some owners who wish to find tenants have furnished all machinery, including a tractor, and paid one-half of all cash costs for the tractor; or have furnished all the machinery and workstock and received one-half of all crops produced. Others have offered to accept one-fifth of the grain if they can secure reliable tenants. Landlords seldom pay any expense other than taxes.

These variations indicate a condition of adjustment on lands formerly used for grazing and now under crop.

Southwest Colorado Area

Irrigated farms of southwestern Colorado are rented for one-third the grain, beans, or potatoes; one-half the fruit; and one-half the hay. The landlord furnishes all the alfalfa seed, sacks, and twine in the same share as he receives the crop; and materials for repairs to buildings and fences.

Dry farms customarily rent for one-fourth the grain and beans and one-half the hay.

Cattle are leased by landlords for one-half the increase.

There is very little cash renting in this area, except of grazing lands, which are handled on a per head basis at the rates charged by the Grazing Administration or the U. S. Forest Service.

Proposed Colorado Farm Lease

1. Agreement:

This rental agreement is made this.....day of....., 19..... between....., address....., termed the Landlord, and....., address....., termed the Tenant.

It is further agreed that this lease is prepared in a spirit of understanding and cooperation, the object being to plan for a successful farm business, with attention to the maintenance and improvement of productivity, the maintenance of farm improvements, the protection of the health of workers upon the farm, and the possibility of a long period of tenure.

2. Description of Property:

In consideration of the rental terms hereinafter set forth, the Landlord hereby leases to the Tenant, for farming purposes only, the following land and improvements consisting of.....acres located in..... section ....., township....., range....., in..... county, ...

3. Yielding Possession:

The Tenant agrees to return said property without further demand or notice to the Landlord at the end of the lease period in as good condition as it now stands, after allowing for ordinary depreciation and for unavoidable accident, fire, or damage from the elements. The Tenant also agrees to assign this lease to no person, nor to sublet any part of the property without written consent of the Landlord.

The Tenant shall surrender possession of the stubble land, for the purpose of plowing, in the fall preceding the termination of this lease, as soon as the crop has been removed from the same.

4. Length of Lease:

The Tenant agrees to cultivate the farm in a satisfactory manner, and to do necessary work in good season for a period of.....years from and after the.....day of....., at 12 M. 19..... and terminating on the.....day of....., at 12 M. 19.....

The terms of this lease shall be binding upon the heirs, executors, administrators and assigns for both Landlord and Tenant in like manner as upon the original parties, except by mutual agreement.

It is mutually agreed that this lease will continue in full force from year to year after the stated expiration of the lease unless notice to the contrary is given in writing by either party to the other at least 6 months prior to the end of any lease year.

It is further agreed that rental rates will not be increased because of any improvements made by the Tenant, unless the Tenant has received a fair compensation from the Landlord for such improvements.

The Landlord agrees to make concessions in rent, in the event of disaster over which the Tenant has no control.

5. Lease Terms:

The Tenant agrees to deliver to the customary market or to pay to the Landlord the cash equivalent of the following shares:

a. Crop	Share	Crop	Share
Alfalfa		Oats	
Barley		Rye	
Wheat			
Potatoes			
Sugar beets			
Corn			
Beans			

b. By-products: All straw, corn fodder, beet tops, and stubble pasture shall be fed on the farm, except by mutual consent. If fed off the farm or sold, the proceeds shall be divided.....share to the Landlord and.....share to the Tenant. When fed on the farm, no division or payment shall be made for the feeding of these by-products. The Tenant agrees to conserve the manure and apply it to the land in a satisfactory manner.

c. Feeding: The winter feeding of sheep or cattle on this farm shall be arranged by a separate contract, not a part of this farm lease. In the absence of such a contract, the Landlord reserves the right to enter the premises and feed sheep or cattle, without, however, depriving the Tenant of sufficient stubble pasture and by-products for his work stock and for.....head of dairy cattle.

d. Pasture: Permanent pasture not to exceed.....acres will be maintained as part of the farm for the use of the Tenant's workstock and.....head of..... Any area of permanent pasture in excess of this area shall be paid for by the Tenant at $..... per acre. The Landlord will furnish all seed for renewing permanent pasture.

If any crop such as corn, peas, or grain is to be pastured, the Tenant agrees to pay the same share of local values of such pasture, as would be paid for the harvested crop.

e. Additional Lease Terms:

.....

.....

.....

6. Payment of Rent:

The Tenant agrees to pay or deliver all rent promptly as the crops are harvested or sold, subject to the wishes of the Landlord.

.....

.....

.....

7. Landlord's Expenses:

Item	Share to be paid by Landlord
Threshing	
Purchased fertilizer	
Spray materials	
Poisons	
Sacks	
Twine	
Silo filling	
Extra irrigation water	
Repairs to improvements	
Seed	

.....

.....

In addition, the Landlord agrees to pay the regular irrigation charges, to furnish all alfalfa seed, sweet clover seed, or other seeds for hay; to keep fire insurance on buildings; to furnish skilled labor for major repair to improvements; to pay all real estate taxes. It is mutually agreed that the Landlord shall not be liable for crop damages due to a shortage of irrigation water.

.....

.....

.....

.....

8. The Tenant's Expense:

The Tenant agrees to furnish the necessary machinery, equipment, work horses, and other power and labor necessary to handle the farm; to haul the materials and repairs to improvements furnished by the Landlord and to maintain the improvements in repair except for skilled labor needed in repairing; to keep fire insurance on his personal property.

The Tenant agrees to keep noxious weeds from going to seed along fences and ditches; to spread manure on the fields agreed upon by himself and Landlord; to burn no straw or other by-products without consent of the Landlord; to prevent injury to fields by the trampling of livestock; to handle the farm according to good farming practice.

The Tenant agrees to irrigate all growing crops to the full extent permitted by the water supply and as frequently as necessary to secure the best results; to make and fill the necessary farm laterals for irrigation; to clean and maintain the laterals leading from the main ditch and join with others in using the same to the full extent of his proportionate share of such work.

9. Right of Entry:

The Landlord reserves the right to himself, his employees or assigns to enter upon said farm at any time for the purpose of viewing same, or for making repairs and improvements that do not interfere with the Tenant's occupancy, or for other purposes which do not interfere with the normal operation of the farm, or for performing needed farm operations for the crop year following termination of this lease.

10. Lien on Tenant:

The Tenant agrees that all unpaid rents shall be a perpetual lien on any and all crops and personal property of the Tenant. The Tenant further agrees to compensate the Landlord for any unusual depreciation in the Landlord's property, provided such depreciation is due to the Tenant's improper farming methods, neglect, or violation of the provisions of the lease. The amount of such compensation for damage will be determined by three people, one appointed by the Landlord, one by the Tenant, these two in turn to select a third.

11. Surrendering Possession in Case of Default or at End of Lease:

It is understood and agreed that if the Tenant shall from any cause fail to comply with any or all his agreements herein, then the said Landlord may at any time when such failure occurs, at his option, take active possession of said premises and buildings thereon (which Tenant agrees to surrender, without claim for damages from Landlord) and employ other persons to tend such crops and perform all the agreements of the Tenant herein contained as fully as the same are contemplated by this agreement, and after deducting all monies advanced, and monies and crops due for rent, and the expense of attending said crop as aforesaid, to pay the residue, if any, to the Tenant.

12. Privileges for Which no Rent Will Be Paid:

The Landlord agrees that no rent will be charged for the Tenant's use of buildings necessary to the farm operations, nor for a garden, nor for farm products used by the Tenant's family.

13. Additional Agreements:.....

.....

.....

.....

.....

In witness whereof—We affix our signatures and execute this lease on the day and date first written.

.....

Landlord

by.....

.....

Tenant

Summary

Tenant farm records in the Greeley-Fort Collins area for the years 1922-1935 were analyzed to show causes of variation in income and to determine the effects of changes in prices, yields, and methods of leasing. According to the U. S. Census reports, the percentage of farms operated by tenants has been greater in Weld County, Colorado, than for Colorado as a whole or than for the United States (p. 8).

Share leasing is predominant in the irrigated areas of Colorado, due to conditions within the area which cause local sentiment to favor the share rather than the cash method of leasing.

The 14-year average of all tenant farms included in the study showed 141 acres of crops and a farm income of $1,603.62 for the tenant and $1,111.30 for the landlord. The tenants failed to have any income in 2 of the 14 years. This indicates a reasonably satisfactory return for each. The tenants' farm income was equivalent to $11.37 per acre of crops, to pay for their own time and for interest on their investment. The landlords had the equivalent of $7.88 per acre of crops to pay interest on their investment. This includes all income from both crops and winter-feeding (p. 11).

Tenant farm 5 was selected for detailed study. The records show 5 years of the 14 in which the tenant failed to make any farm income. While winter feeding increased the average income on this farm, it also increased the number of years when there was a loss from the operation of the farm.

Potatoes, sugar beets, barley, and alfalfa were studied to find the fixed and variable expense of producing these crops for both tenant and landlord. The tenant's variable expenses were comparatively heavy because they were borne by the tenant's share of the crop. Consequently, the landlord could survive lower crop yields, or lower prices for potatoes and sugar beets, without "going in the red." However, with barley and alfalfa the tenant could survive lower yields because fixed costs for these crops were relatively heavier for the landlord. This suggests the need for a flexible lease which will permit adjustments when prices or yields are far from normal.

Potatoes and sugar beets in this area were produced under conditions which indicated that 600 pounds of marketable potatoes sold

during a 25-year period, 1911-1935, for approximately the same price as 1 ton of beets.

Farms of 160 acres in size were necessary if the tenant were to have a reasonable chance to make enough income to permit making a down payment on a farm of his own.

Tenant farms in this area had better yields than owner farms, indicating that tenancy in this area operates under favorable conditions.

When the Corn Belt stock-share or partnership lease was applied to the record for a representative tenant farm in this area, it reduced the tenant's farm income by $893, indicating the necessity for extreme care in introducing a new form of lease into an area. The conditions in the particular area affect the choice of a workable lease.

A recommended lease form was prepared to indicate the more common terms which should be included. A 1-year renewable lease is recommended.

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Colorado Experiment Station

Fort Collins, Colorado