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A STUDY OF THE ORGANIZATION AND LAYOUT ON TWENTY-SIX  
IRRIGATED FARMS IN THE GREELEY DISTRICT, COLORADO.

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Submitted by  
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for the Degree of Master of Science  
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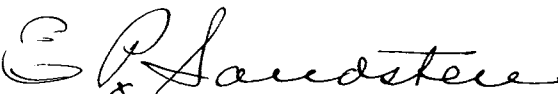
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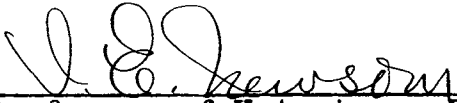
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THIS THESIS HAS BEEN APPROVED AND RECOMMENDED FOR  
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## A STUDY OF THE ORGANIZATION AND LAYOUT ON TWENTY-SIX IRRIGATED FARMS IN THE GREELEY DISTRICT, COLORADO.

The Department of Economics and Sociology in the Colorado Agricultural College and the Bureau of Agricultural Economics, United States Department of Agriculture, began cooperative work in keeping detailed farm accounting records on some 26 farms in the Greeley district in March, 1922. The area in which these studies have been conducted lies within a triangle formed by connecting the towns of Windsor, Eaton and Greeley, Colorado. This constitutes a representative section of the irrigated farm lands in the central part of Weld County. In view of the fact that an accurate farm plan is necessary to the proper understanding of farm records, it seemed desirable to make a careful analysis of farm layout in connection with the organization and operation of these

Note: This study was made possible through the cooperation of the Office of Farm Management and Farm Economics in the Bureau of Agricultural Economics, United States Department of Agriculture in the development of a detailed farm accounting route in the Greeley area. Acknowledgment is given for helpful assistance from this source. Sincere appreciation and thanks are due to Professor L. A. Moorhouse for his personal suggestions and aid in the preparation of this thesis; to Mr. D. L. Jones who did the surveying and mapping of the farms; to Miss Edna Bigelow who assisted in compiling the tables and to the very splendid manner in which the farmer cooperators assisted me in answering questions and in offering voluntary information about their business; and to all others who have made it possible for me to present this paper.

farms. So far as I am aware a study of this character has never been attempted in this area or in any of the irrigated districts of the West. Entirely apart from providing an accurate picture of farm layout in the Greeley district, this analysis will afford suggestions relative to work of this character in other areas in this general region.

CLIMATE.

The precipitation for 1922, as recorded at Greeley, was 8.32 inches which was 4.42 below the normal. The highest precipitation for one month occurred in August when the precipitation reached 1.73 inches, the lowest being 0.02 inches in April. The total snowfall was 14.9 inches. It rained 41 days during the year. There were 229 clear days, 104 partly cloudy and 32 cloudy days. The annual mean temperature for the same year was 47.1°F on July 15th and the lowest was 22°F below zero on January 18th. The last killing frost of the spring occurred May 16th and the first killing frost of the fall occurred September 24th.

During the latter part of May, 1922, and in the fall of 1923, this section was visited by severe hail storms. The one which occurred in May ruined the first cutting of hay, small late grain, beets, and the garden crops. It killed a horse and numerous calves and chickens. The grain crop that year was reduced to approximately one-third the normal.

### SOILS and SOIL MANAGEMENT.

The soil of this area which is regarded as a productive type is known as Billings loam. It grows successfully all crops which are common to this latitude. The soils are more or less spotted and it is not uncommon to find several well defined types, ranging from fine sand to adobe, within the boundaries of one farm. The top soil is about three feet deep underlaid with heavy sand. Each of these soil types, as they can be called, requires a distinct method of handling and there is a limited time in which they can be worked to the <sup>and</sup> best advantage/for the best results. Some parts of the above area are inclined to drift badly in the spring when the winds are high. In other sections the high winds cause excessive crusting following rains of a tenth of an inch or more. These two facts make farming rather difficult until the crops are well established. Fall plowing is very desirable on most of the soils as it is very liable to turn up cloddy in the spring. By following each half day's spring plowing with the harrow, a fairly good seed bed can be worked down but there is a tendency for the soil to granulate with this operation. Fall plowing seems to "slack" down and forms a very mellow seed bed and usually gives the best results for all classes of crops.

The common practice is to plow for as few of the crops as is consistent with good production. The usual method employed is to plow under the manure or green crop, plant to a row crop which is intertilled, and then not plow for the subsequent crop

whether a row crop or otherwise. In preparing the seed bed following the row crop the land is double disced or single disced or spring tooth harrowed followed by harrowing with a spike tooth harrow. In some cases the land is not leveled but I have observed that it is a very good practice to level the land as it makes irrigating easier and also the irrigator can make a better distribution of the water in the field.

The usual practice in fertilizing is to apply manure to the beet or potato ground. When it is applied to the potato ground the crop is followed by a grain or beet crop. In some cases two crops of potatoes or beets are grown in succession following manuring. The average rate of manuring in this district is ten tons per acre. The manure is either piled in ricks at the end of the field, or in small piles within the field, or spread direct. Very few follow the excellent method of discing in the manure as soon as it is applied. This method saves a great deal of manure and also incorporates it with the soil which is very beneficial.

Green manuring is practiced only in plowing under, in the late spring, the alfalfa which may have made growth up to that date. The greater part of the alfalfa is spring plowed since it is claimed that it dies more readily then than when fall plowed. When alfalfa is used for green manuring, crowning is not common. Only a few farmers among the 26 cooperators crown before the deep plowing. When alfalfa is crowned, it is plowed about two inches deep, or just under the

crown. The subsequent plowing is about eight inches deep. This is the usual depth when crowning is not practiced. It has been found that the inaccessible fields are left the longest in alfalfa or meadow and receive manure less frequently than do the fields nearer the feeding lot.

Very little alkali is found in this section and that only in the lower levels. There is a tendency on the part of land owners who have alkali on their places, to drain it off by washing it through the soil and carrying it away in drain pipes. These areas when thus reclaimed and worked down become very productive and especially good for sugar beets.

### Irrigation

The average water right per farm in this area is approximately one acre foot for each 160 acre farm. This is usually considered sufficient so far as storage water is concerned. Supplementing this is some "free water" which is distributed from the early runoff and unappropriated water. The first irrigation can usually be made with this free water. With a reasonable rainfall during the season there is sufficient water to carry the crops to maturity.

The irrigation water supply is carried almost entirely by gravity. There are very few pumps in this section. There are two main ditches which supply the lands with water. These ditches are known as the Eaton and the Greeley canals. Each has a maximum carrying capacity of 700 second feet. There are

several smaller ditches and filings upon waste water, but these do not enter materially into the consideration of the total supply.

The canals through which the water is conducted, whether main ditch or lateral, are often times in a very poor state of repairs to carry the complete allotment or decree of water. The greatest danger to the ditch comes when the load is heaviest, and this occurs when the crops need the most water. A few days lost when the crops need watering means a tremendous loss under the ditch so effected.

Many of the early canals were constructed on contour with grades in places which do not have enough fall to carry the water properly. Extremely sharp bends in the main ditch means a checking in the rate of flow which causes the water to deposit its load of silt which further checks the flow. It is not uncommon to have to shut the water from the ditch and clean it before a satisfactory run of water can be carried. The subditches, as they are plowed from the ditch, are surveyed in with the eye. This nearly always causes an undue amount of work in diking or cutting to carry the water requirements. In a great many cases the water is carried too far before it gets to the farm where it is to be used. With the water carried over sandy soil the delivery loss is so serious as to be materially noticed in the head.

There are but two methods used in irrigating in this section, namely, flooding and row irrigation. Flooding is the

only method employed to put the water on hay and grain crops. Row irrigation is practiced where the crop is grown in rows or hills. Fall irrigation is not prevalent as yet but should be better known and understood.

The water holding capacity in the reservoirs in the section is not ample for the ground which they serve. All the reservoirs are dry in the fall or nearly so. With greater water holding capacity water could be carried from year to year so that in the case of shortage there would be enough stored to relieve the situation to a considerable degree. There is some agitation to bring this about. Waste water from the farms is a problem which does not receive the proper attention. Too often the farmer lets the waste water flow where it will, be it roadway, on his neighbor's field, or into some part of his own field which he knows does not need water. Large areas are made nonproductive through this method of handling the waste water.

As a rule the more important crops grown in the area receive the following treatment from the standpoint of irrigation: Potatoes, one to six; beets, three to five; grain, one to two; alfalfa, one to four; beans and corn, one to three.



CROPS GROWN.

Much could be done to stabilize the cropping system so that equipment might be used to a maximum extent, thus cutting down the overhead costs. Then, too, by having a definite area allotted to a given crop or crops, the labor needs could be more closely determined, thus giving a reasonable amount of permanency to the labor employed. As it is now, the farm operator finds himself with several peak loads during the season when it becomes necessary to hire several extra farm hands at exorbitant rates. The price of farm labor cannot be stabilized until there is a steady employment offered. We cannot expect any laborer to be on hand for a few weeks' work several times a year and do it as cheaply as would the regular man on the farm.

In like manner the income can be distributed more evenly by planning the crops and in growing a greater variety of crops, or by planting early and late varieties of the same crop. One cooperator starts to receive cash returns from his crop as early as June 15th and continues to market his crops until he is forced to rush to market in the spring with the balance to permit him to do his spring work. The result of this is that he has working capital the year around. He also has steady employment for his summer crew. Even on a farm well above the average in size, he borrows very little to run him through the summer.

The usual practice with reference to cropping the land

is to begin with alfalfa which produces hay for three to five years in succession. When the alfalfa is broken out, potatoes are planted. After potatoes, the ground is manured and planted to beets and then to potatoes again or a second crop of beets. Beets following beets with manure at the rate of ten to fifteen tons per acre seem to give good results for a while at least. One field in this area, where beets had been grown continuously for a period of nine years, yielded each year well above the average for the loading station to which they were delivered. The row crops during the crop sequence are followed by either one or two crops of grain. Wheat, usually being the first, is followed by barley or oats. Alfalfa seed is sown with grain or sown separately and left for three years after the seedling year.

#### A. Alfalfa

The best method of planting alfalfa, as far as is known in this section, is to sow it with a nurse crop such as wheat, oats or barley, preferably the latter. In some cases it is planted with the grain and in others it is planted at a later date. It is sown either broadcast or in drills. The drills seem to give a little better results. It gets the same care as the grain crop up to the time of harvest. It is a good practice to water this crop following the grain harvest. It then takes on a good growth before the season comes to a close and makes very good winter pasture. The crop is not cut the

first year that it is planted. Very little care is given the crop after the first year save the irrigation which is done either just before the hay is cut each time or following each cutting. Very little cultivation is the rule. Only one farmer uses an alfalfa cultivator. When the crop is one-third in bloom it is cut. The last cutting is left as long as possible. There is a tendency to cut earlier and get a fourth cutting for the sheep and other stock to pasture during the winter. All the farmers pasture their alfalfa in the winter and the stock stays in very good condition on it if judgment is used as to its limitations. No alfalfa is left for seed in this section. Three to four cuttings are taken off and these stacked in the field with mechanical stackers. Hay loaders are not used. Side delivery rakes are common to the area and they facilitate in the curing.

#### B. Potatoes.

The potatoes are planted about the middle of June and on the alfalfa ground if there is any to be had on the farm. Six hundred and fifty to one thousand pounds of cut potatoes are planted per acre. Home grown seed is used to a very large extent. These are sorted from the stored potatoes and as a rule a good looking seed is used. The seed is cut in pieces having one to two eyes. No treatment is given the cuttings for any of the diseases which can be controlled by the use of dips. The fresh cutting is planted as soon as cut, using

horse planter, either double or single rows being planted at one time. The machine is set to plant the cuttings 12 inches apart in the row and the rows about 36 inches apart. The cuttings are planted about four inches deep. Following the planting the ground is hilled up very high over the row. This is gradually removed by the use of the harrow. In doing the work this way very little hand hoeing is necessary to keep the land free from weeds. Two or three cultivations are usually given the crop. Irrigation does not begin until the plants are nearly shading the ground and the soil is kept well moistened from that time on until the crop is harvested. If the plant is allowed to suffer for water during this time and then get wet, a second crop of tubers sets on or there is a second growth on the tuber itself. These potatoes are discriminated against in the market. The potatoes must be thoroughly ripe before digging or they will not keep. They may ripen either through age of the plant or by the aid of a frost. The skin when ripe will not peel under the pressure of the thumb when drawn across the potato. The digging is all done by the use of power drawn machinery. The potatoes are sacked as soon as dug and two bushels are placed in a sack. Fully 60 per cent of the crop is hauled direct to market from the fields. The balance is stored in underground cellars and sold at leisure during the winter months. The cellar losses run from eight to twenty per cent. Rurals, Russets, Pearls and Irish Cobblers are the varieties grown at the present time

for the market. A few Early Ohios are grown for the early market and for home consumption. There are few seed plots in this area and only one cooperator practices roguing the crop.

### C. Beets.

As a rule beets are planted any time after March 20th and as late as May 15th, the great bulk of the crop going into the ground around the middle of April. This crop is generally planted on potato ground or on alfalfa ground. It is preferable to plant the beets on potato ground as the alfalfa is rather hard to kill in a beet field. Eighteen to twenty pounds of seed are planted per acre with a four-row horse planter.

The crop is cultivated before bunching and thinning and cultivated as soon thereafter as the trash will permit. Four or five cultivations are given and three ditchings. Three to five irrigations are given and the aim is to cultivate after each irrigation, or so long as the foliage of the plants will permit.

The crop is universally harvested by horse power and beet pullers. There are no beets dug by hand. These are hauled as soon as topped direct to the beet dump or market. The piling and topping of the crop is a hand process. The beets are topped well into the crown with a knife made for that purpose.

The beet rows are usually 20 inches apart and the beets from 12 to 18 inches apart in the row. It has been found

that it is most practical to block the beets 14 inches apart in the row.

#### D. Grains.

A considerable acreage is allotted to the production of small grains each year. Wheat, oats and barley are grown. The following rates are used in planting the crop: Wheat, 70 lbs.; oats, 80 lbs.; barley, 48 lbs. per acre. The land is leveled after plowing, or in case it is planted without plowing, it is leveled so as to secure a good smooth surface. This is followed by harrowing and then drilled. Wheat is planted as soon as the ground can be worked in the spring, for the spring wheat, or planted any time from the middle of September until it freezes in the fall, for winter wheat. Oats are planted in April or May and barley in May and June. The very excellent practice of harrowing the crop once or twice after it is well up in the spring is followed by only two of the cooperators. There is usually only one irrigation given the small grain crop and that when it is just coming into the boot. If water is plentiful the crops may receive a second watering when the grains are coming into the dough. The grain is cut with a binder, shocked and thrashed from the field. Stacking the grain is almost unknown. The wheat is usually sold as soon as thrashed. The oats and barley are stored for feeding. A very large part of the barley is fed to sheep. The straw is either burned in the field or carted

to the feed lots for bedding. Those who do not feed seem to think that the straw is a necessary part of production but has very little value.

#### E. Truck Crops.

Truck crops are grown extensively in this section. Cabbage is the main crop followed by melons, celery, onions, peas, beans and tomatoes. All these crops are grown on a commercial basis. Such part of the crop as can be used fresh is so used and shipped. There is a very large canning factory in this section which cares for all the surplus of these crops. Various methods are employed in the planting and harvesting of these crops which is very largely done by hand save the hauling to market. Japs do most of this work. Outside of the cabbage crop our cooperators do not engage in truck farming. Early and late cabbage are grown. The rows are planted about 30 inches apart and the plants set a foot to 14 inches apart in the row. The soil is always the limiting factor in this crop so the richer part of the farm is used for this purpose. The ground is irrigated before planting and the plants are set by hand in the trench while the water is still running. The plants are set deep in this trench and the dirt is filled in around them as they grow. Clean cultivation is practiced and frequent watering.

LIVE STOCK.A. Horses.

The horses as found on the farms in this section are for the most part a very good set of stock. As there is a great deal of heavy work which the horses are called on to do there is a tendency to have horses that are larger than those found in the corn or wheat belts of the United States. The average estimated weight is 1,427 pounds. Only one farm has pure bred mares, these being percherons. The dominant blood in the horses is percheron. Plenty of horse flesh is kept on all the farms to perform the required work and to get the work done in time.

There is no tendency on the part of the farmers to raise the horses as needed, but rely upon their neighbors to buy the surplus. Only one cooperator has his plans made to raise his own stock. With the heavy work such as hauling beets and potatoes, the raising of colts is not very successful. The death losses are higher than they should be due to many causes such as abortion, colt feeding when mother is too warm, and other causes. The horse equipment cost per farm is \$155.90 or \$21.33 per horse. Most of the horse equipment is in good shape and consists of harness, halters, saddles, etc.

The average age of the work horses is 9.81 years and it was found that they die at the age of 15 years. The horse in this section works on an average of 97.6 ten-hour days. This is but a third of a day for each day in the year. It would



seem that some system should be evolved which would make it possible for the horses to work more days than at present.

Most of the farmers use pasture to keep the horses on during the time of the year when they are not working regularly. This materially cuts down the feed requirements as far as hay and grain are concerned. The average number of days that the horse is on pasture is 124.05. This is a very cheap way to carry the stock over.

The annual cost of keeping a horse is \$104.55, including pasture and all feed cost. This does not take into consideration the interest on the investment, death losses, taxes, etc.

#### Ages and Number of Horses per Farm

Class	Avg. No. per farm	Avg. No. per acre	Acres per horse	No. per Farm	
				high- est	low- est
Work horses	7.26	0.04	20.1	13	4.0
Yearlings	0.14	0.0009	1079.2	2	0.0 or 1
Two-year-olds	0.42	0.002	360.2	2	0.0 or 1
Three-year-olds	0.47	0.003	321.9	3	0.0 or 1
Four-year-olds	0.59	0.003	256.4	4	0.0 or 1

#### Kinds and Amounts of Feed Fed per Horse per Year.

Hay (tons)	Oats (cwt)	Barley (cwt)	Corn (cwt)	Bran (cwt)	Potatoes (cwt)
3.46	10.43	6.40	2.07	1.53	0.43

### B. Dairy Cows.

Holsteins and Guernseys are the main breeds kept. There are no pure breeds of either breed on the farms of the co-operators. Grade and inferior bulls are the rule. One co-operator owns one-half interest in a pure bred Holstein bull.

The cows are allowed to run on the farm during the winter months and on the roadsides during the summer months for the greater part of their keep. Two of the cooperators keep cows in surplus of the home requirements. There are no creameries in this section and all of the cream is shipped to centralizing plants in Greeley and Denver, Colorado.

The calves are sold at vealing time unless it is desired to raise another cow. No thought is given to keeping a well selected calf. The type of farming as found in this section does not lend itself readily to dairying as there are peak loads on the farm and the irrigating makes the hours long enough without the extra work of milking cows. All the farmers admit that the business may be profitable but they do not care to take the time or assume any additional labor.

The following table gives the ages and number of cattle as found on these farms.

Ages and Number of Cattle per Farm

Class	Total No.	Avg. No. per farm	Avg. No. per acre	Acres per head	No. per Farm	
					high-est	low-est
Milch cows	65	2.52	0.01	60.3	5	0 or 1
One-year-olds	30	1.14	0.007	132.7	4	0 or 1
Two-year-olds	15	0.57	0.003	265.4	2	0 or 1
Bulls	3	0.09	0.0006	1681.0	1	0 or 1

C. Hogs.

Two cooperators are in the commercial hog raising enterprise. They both raise Poland Chinas. The balance of the cooperators keep only sufficient hogs for family use. With the cheap pasture and fields to run in in winter, we should have a great many more hogs than we have at the present time.

The following table gives the number and kind of hogs as found on these farms.

Class	Total No.	Avg. No. per farm	Avg. No. per acre	Acres per Hog	No. per Farm	
					high- est	low- est
Sows	144	3.24	0.10	46.7	17	0 or 1
Pigs	176	6.76	0.21	23.8	71	0 or 2
Boars	3	0.14	0.0009	1079.2	2	0 or 1

### D. Poultry.

Several of the cooperators have large flocks of poultry on their farms. In some cases all classes of poultry are kept. There are several flocks of uniformly bred birds. A straight flock of chickens is a delight to see, and makes the farmstead stand out as something to be proud of. For the most part the young chicks are hatched under hens and barnyard gathered eggs are set. The very excellent practice of Hogonizing the hens is not carried on to any great extent.

The following table shows the poultry kept per farm.

Class	Total No.	Avg. No. per farm	Avg. No. per acre	Acres per Unit	No. per farm	
					high- est	low- est
Hens (laying)	9788	64.63	0.42	2.3	225	16
Roosters	460	3.71	0.02	40.7	10	0
Turkeys	295	1.95	0.01	72.4	10	0
Ducks	57	0.38	0.002	398.0	4	0
Geese	14	0.09	0.0006	1691.0	2	0

### E. Commercial Feeding.

Approximately 62 per cent of the cooperators are commercial feeders. Fourteen per cent fed both sheep and cattle; 14 per cent fed cattle only, and 37 per cent fed sheep during the season of 1922. The usual size of the flock fed is about 1000 head ranging from 45 to 65 pounds per head when purchased. These are all lambs. Feeders do not like the heavier lambs as they get too large before they are finished. The ideal weight for the market is 85 pounds and all the feeders try to have the lambs fat when they reach that weight. Five hundred lambs are allotted to a pen. The pens are made large enough so that all the lambs can eat hay through the panels at one time.

The ration for the lambs when they are first placed in the feed lot usually consists of alfalfa hay and two or three ounces of barley or oats. This is increased until about a pound a day is fed. One of the most successful feeders raises the grain at the rate of one ounce per day. When the sheep have been on barley for thirty days corn is gradually introduced into the ration replacing part of the barley. The corn is increased until one or one and one-half pounds per day is fed. No barley is fed when the lambs are on a full corn ration. Most feeders claim that more sheep die from too much corn rather than too little. Three to four ounces of molasses and all the wet pulp they will eat are being brought into the feeding ration with very good results.

One practice which was tried for the first time in 1923 was the lambing off of the corn crop. This met with varied results. One farmer lost 123 head out of 1635 lambs while they were given free access to the corn field. Another was reported to have lost 450 out of 3000 head. Others claim less than a one per cent loss and cannot speak too highly of the practice. On the farms on which the heavy losses occurred, the sheep were turned into the corn field and left. When given a ration of hay before going to the corn field, death losses were checked. A one per cent loss was experienced by most feeders in feeding the corn in the troughs in the feed lot.

One practice which I have watched with interest is the pouring of hot molasses over oat straw and then mixing thoroughly and feeding this mixture to the sheep. The sheep seem to like this very well and thrive on it. This is a great saving on hay consumed. The usual hay ration is about four pounds per day. The hay and corn are fed in two feeds, morning and night.

The cattle feeding is not so extensive in this section as it is in other sections of the state and around Windsor. The cattle are fed on places where there is plenty of wet beet pulp to be had. Most feeders claim that they cannot feed cattle in the area without wet pulp. Corn silage could be used to equally good or better advantage if there were a better understanding of its value.

The usual ration for cattle in the feed lot is to feed all the pulp that they will eat which varies with the size of the animal. I have fed as high as 160 pounds per day for a limited time. It seems that 80 pounds is about what most of the feeders average for the entire feeding period. Corn is sometimes given in the ration and as high as 15 pounds per day is fed. The animals are given as much hay as they will eat. Very little of the hay is ground before feeding. Cotton-cake is fed to a large extent in finishing cattle. Two pounds a day is allotted to the animals on full feed for the last 60 days of the feeding period.

When the steers come to the feeder in the fall they are often "hard" and in poor physical condition. It is practiced by some to turn them out to pasture and clean the place up. I have noticed that the feeders in this section who make that a practice get cheaper and better gains than those who do not do it. They are mellowed up and ready to go if this method is followed.

Beet tops form a considerable portion of the ration during the early part of the feeding period. These are piled in the field and the cattle run to them at will and glean the field at the same time. The feeder cattle are two or three-year-old stock and are <sup>steers</sup> for the most part. High priced cattle are the exception rather than the rule. Very few of the feeders practice feeding according to known methods of "balancing a ration."

The following table is a digest of the sheep feeding operations. Ten farms feeding.

Total number sheep fed 12,879 head, or 1,840 units.  
 Animal units per farm 184.  
 Animal units per acre fed 0.97.  
 Highest number per farm 353.  
 Lowest number per farm 100.

Feed	Total Amount Fed	Amount fed per Animal Unit
Ensilage	125.3 tons	0.06 tons
Beet pulp	230.2 "	0.12 "
Molasses	65.0 "	0.03 "
Hay (alfalfa)	1052.1 "	0.57 "
Bran	1900.0 cwt	0.01 cwt
Corn	11385.0 "	6.18 "
Barley	2369.7 "	1.28 "
Potatoes	636.2 "	0.34 "

The following table is a digest of the cattle feeding operations. Five farms feeding.

Total number cattle fed 230 head.  
 Animals per farm 46.  
 Animals per acre 0.36.  
 Highest number fed on one farm 62 head.  
 Lowest number fed on one farm 25 head.

Feed	Total Am't Fed	Amount fed per Animal Unit
Beet pulp	455.8 tons	10.13 tons
Molasses	33.8 "	0.14 "
Alfalfa hay	159.8 "	0.69 "
Corn	347.8 cwt	1.51 cwt
Potatoes	840.0 "	3.52 "



EQUIPMENT.

All the farms carry a complete complement of machinery.  
The following illustrates the more common types in use.

Machine	Number per Farm			Acres per Machine
	Average	Highest	Lowest	
Grain:				
Drill	1.09	2	0	33.22
Binder	0.86	2	0	42.45
Thresher	0.03	0.33	0	764.10
Corn:				
Planter	0.10	1	0	10.42
Binder	0.05	1	0	20.84
Hay:				
Mower	1.43	2	0	33.12
Sulky rake	1.00	1	1	47.31
Bull rake	0.76	2	0	62.10
Side delivery rake	0.76	2	0	62.10
Stacker	1.05	2	1	45.16
Beets:				
Drill	0.33	1	0	41.16
Cultivator	1.00	2	0	13.72
Beet puller	1.11	3	0	12.52
Potatoes:				
Planter	0.86	2	0	40.43
Sprayer	0.28	1	0	169.32
Cultivator	1.24	3	1	26.95
Ditcher	0.09	1	0	363.69
Digger	0.80	1	0	42.81
Sorter and sacker	0.71	1	0	48.52
Beans & Peas:				
Drill	0.14	1	0	29.07
Cultivator	0.04	1	0	87.21
Bean cutter	0.33	1	0	8.72
Seed bed equipment:				
Walking plow	0.80	2	0	178.78
Sulky plow	0.09	1	0	1519.62
Two-way plow	1.38	3	0	104.80
Gang plow	0.05	1	0	3039.25
Tractor plow	0.09	1	0	1519.62
Disc harrow	0.19	1	0	759.81
Spike harrow	1.14	2	0	126.63
Spring tooth harrow	0.95	2	0	151.96
Roller	0.33	1	0	434.18
Leveler	0.71	1	0	202.61

## Equipment continued.

Machine	Number per Farm			Acres per Machine
	Average	Highest	Lowest	
Miscellaneous:				
Manure spreader	0.95	2	0	151.96
Ditcher	0.47	1	0	303.92
Wagons	2.38	6	1	60.78

Average machinery investment per farm - \$880.50

Average machinery investment per acre - 5.82

Machinery equals 2.62 per cent of total investment.

FARMSTEADS and GARDENS.

For the most part the farms have good buildings on them. It is a noticeable fact that the farmer's dwelling is comfortable with the exception of one or two places. The barns are a rather mixed combination, housing in some cases the horses, cows and hogs. About 50 per cent of the barns are good, the balance gradually grading off into mere sheds

## Investment in Farm Buildings. (Average 26 farms).

Building	Average Investment		Investment	
	Per Farm	Per Acre	Highest	Lowest
Operator's Dwelling	\$2998.42	\$19.81	\$8500.00	\$400.00
Hired man's "	316.90	2.09	1500.00	25.00
Beet laborer's house	55.60	0.37	400.00	25.00
Horse barn	164.20	1.09	3500.00	275.00
Cow barn	78.00	0.52	1000.00	175.00
General barns	1118.23	12.01	2500.00	150.00
Hog house	11.66	0.07	100.00	15.00
Hen house	71.52	0.47	500.00	10.00
Granaries	135.47	0.89	600.00	35.00
Machine sheds	57.14	0.34	500.00	125.00
Root cellar	533.33	3.29	4000.00	120.00
Other buildings	487.14	3.21	2000.00	55.00
Total	6,727.61	44.16		

The water supply on the farms is variable as to the quality and quantity. There are some wells in the area studied which are not well located from a sanitary standpoint. About 33 per cent of the farms have the water piped in to the house from the well. The wells vary in depths, ranging between 250 to 1000 feet. The deep wells have "soft" water and the deeper the well the "softer" the water. There are no artesian wells

in this area so far as I have been able to learn. Some of the farms have the well a long distance from the house and in case it is not piped into the house it must be carried as needed.

The farms which do not have deep wells are supplied with cisterns or tanks and the water is hauled from nearby deep wells or from the nearest town having good water. This is a very expensive process. Hauling water teaches conservation of the commodity.

It is significant to note that all of the farms with one exception, having water piped into the house, have electric lights also. The old kerosene lamp is a relic. Gasoline lamps with mantles are very widely used and are cheap to operate.

It is estimated that the value of the garden ranges from \$25.00 to \$100.00. Bush and tree fruits are the exception rather than the rule on the farms. Very few of the farmers grow enough garden truck or fruit so that there may be a supply canned for the winter. When handled properly there is no plot of ground on the farm which will give a better return than the garden.

With one exception there are no walks about the farmstead. Dirt trails lead the way to the various buildings. In spring and during wet weather the dirt tracked into the house causes a great deal of extra work for the good wife who must find it rather difficult to be cheerful under such trying circumstances.

Five of the cooperators have furnace heat in their homes, the balance use stoves and all burn coal for fuel. One family uses electricity for cooking and the house is thoroughly modern in all other respects.

Four of our cooperators have radios. Those who have them find that they take away the irksomeness of the long winter evenings. Wonderful programs can be heard in this section from all parts of the United States and Canada. They state that the market reports as given out by the United States Department of Agriculture are of sufficient value and interest to warrant the expense of installation.

The average size of the farmstead is 2.62 acres. The largest farmstead is 5.64 acres and the smallest is 1.20 acres.

GENERAL INFORMATION PERTAINING TO ORGANIZATION OF FARMS.

The following statistical analysis gives the distribution of the total acres studied, number of fields, size of fields, nonproductive land, etc.

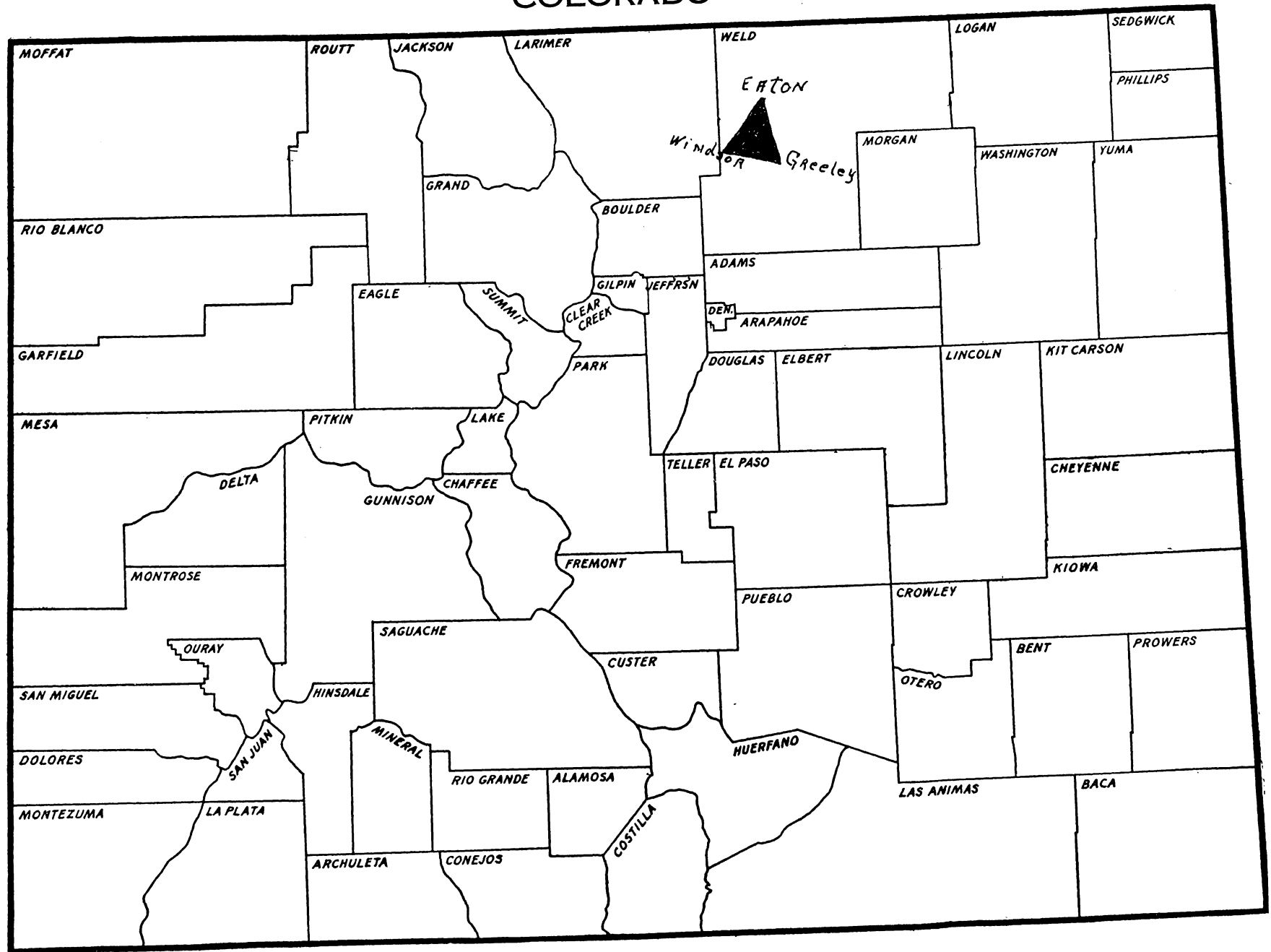
Total number of acres studied 3,177.15  
 Average number acres per farm 151.29  
 Largest farm 375.15 acres.  
 Smallest farm 62.66 acres.  
 Average investment per acre \$222.11  
 Average number of fields per farm 11.08  
 Greatest number fields on one farm 22  
 Smallest number of fields on one farm is five.  
 Average size of fields 12.45 acres.  
 Largest field 59.54 acres.  
 Smallest field 0.07 acres.

Nonproductive lands	Acres per Farm		
	Average	Highest	Lowest
Farmstead	2.62	4.08	1.20
Permanent ditches	2.17	10.17	0.50
Waste land	1.71	13.97	0.21
Head lands	2.37	5.43	0.39
Lanes	0.54	1.58	0.00
Dry land	1.32	20.68	0.00
Total	10.73 acres equals 7.09 non-productive land.		

Fifty-five per cent of these farms are operated by tenants; the remaining farms are operated by owners.

Note: The maps are reduced approximately one-sixth from the original drawings.

# COLORADO



DETAILED ANALYSIS OF FARM LAYOUT.Farm No. 1Area: 79.4 acres

This farm has been in the hands of the present owner for the past four years. The operator lived here with his father for 12 years preceding his acquirement of the land. The cost price of the farm was \$16,000 of which \$2000 was paid in cash. Within the past four years the operator has spent \$2800 in improvements such as buildings, fences and tiling. During the year 1922, this farm was cropped as indicated by fields.

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>			
A	7.45	Alfalfa	3	tons	per	acre
B	11.01	Potatoes	9840	lbs.	"	"
C	14.31	Alfalfa	3	tons	"	"
D	16.54	Wheat	35	bu.	"	"
E	6.69	Oats	50	bu.	"	"
F	6.03	Alfalfa	3	tons	"	"
*G	10.22					
H	0.51	Potatoes	9840	lbs.	"	"
I	3.70	Pasture				
J	1.83	Farmstead				

\*Rented to neighbor in exchange for similar acreage on adjoining farm.

There are seven head of work horses on the farm valued at \$570. Three cows are maintained on this farm and only the surplus products are sold. No young stock is kept as the calves are sold as soon as they are fat or can be taken from their mothers. No hogs are raised or fattened on farm. A good grade of poultry is kept on this place which is a profitable source of revenue to the household. Barred Rock chickens are kept. There are 85 hens valued at \$68.50. There is a small but good flock of sheep. These sheep are allowed



to graze about the farmstead and on the roadway. There are 14 head of grade Hampshire sheep kept valued at \$112. No commercial feeding is done.

A complete complement of machinery is kept to operate this farm. All of the machinery is very well cared for so far as repairing goes but it is not covered or housed. The total value of all machinery and small tools is \$745.50.

The topography of this farm is gently rolling with a sandy loam soil and uniform throughout the farm. Very little drainage is needed on this farm save for a small portion in the northeast corner which is too wet at times to work to the best advantage. Flood irrigation is the practice for all grain crops and the alfalfa crop. When row crops are grown the water is passed between the rows. The water is well handled on this farm and there is always thought to conservation. Deep plowing and a liberal use of the harrows is the rule.

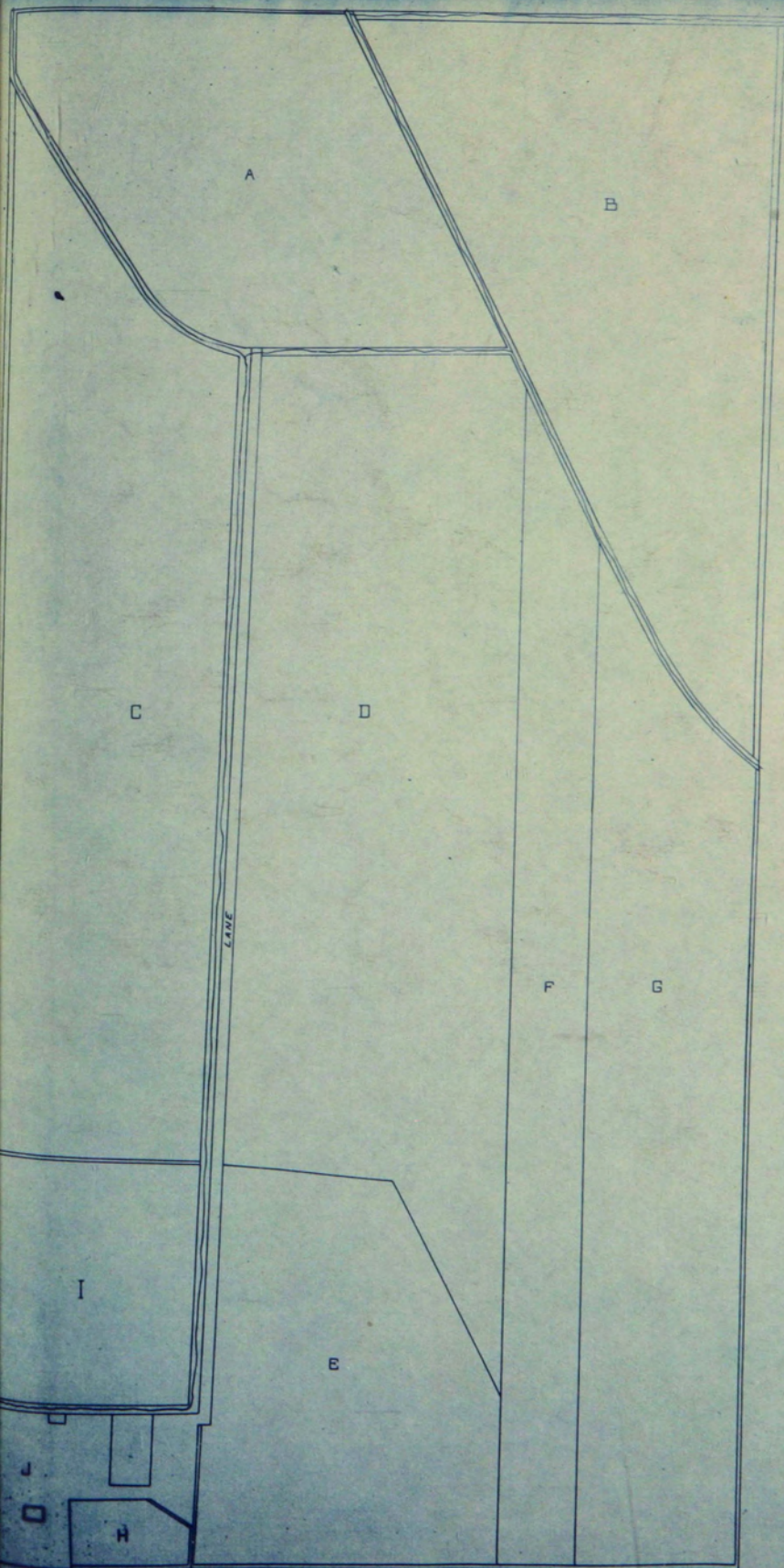
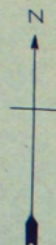
The farm is well located as to market, being but one and one-half miles to a thriving city on a railroad. It is well suited to the type of farming which is being practiced. All the fields are accessible from the farmstead with good lanes provided. One alteration which could be made on the farm is to tile the large dike running from north to south dividing the farm in two parts. If this were done it would permit the reclamation of considerable land and fields could be connected up to better advantage.

A modest but comfortable home, lighted with gasoline lamps affords living quarters. Water is furnished by a nearby well. A good combination cow and horse barn is on the place and a large root cellar is on the farmstead. Shade is provided for in the yard by large trees. The arrangement of the buildings is good and the yards about them are kept clean and neat. A small garden which produces seasonal vegetables and fruits is maintained and is considered a definite part of the farm operation.

FARM  
No. 1  
SCALE 1"=120'

# LEGEND

Field	Cropped Acres	Adjoining Headlands	Total
A	7.30	0.15	7.45
B	10.90	0.11	11.01
C	13.90	0.41	14.31
D	16.50	0.04	16.54
E	6.60	0.09	6.69
F	6.00	0.03	6.03
G	10.00	0.22	10.22
H	0.47	0.04	0.51
I	3.70	0.00	3.70
J	1.83	0.00	1.83
LANES			0.61
DITCHES			0.50
TOTAL			79.90



Farm No. 2.Area: 80 acres

This is one of the oldest farms in the section and it has had but the one operator. He has lived here for 36 years. The original price of the farm was \$3000. About \$10,000 has been spent on the place in improving it since purchased, all of which has been provided through the farm. The following is a sketch of the field and a history of crops grown in 1922.

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>	
A	14.97	Beans	21,141 lbs.	total
B	26.02	Alfalfa	95 tons	"
C	5.69	Potatoes	814 cwt	"
D	9.19	Beans		
E	6.57	Beans		
F	6.47	Wheat	111 bu.	"
G	6.85	Oats	171 bu.	
H	0.26	Garden		
I	1.30	Farmstead		
J	0.96	Pasture		
K	0.97	Pasture		

There are four head of work horses kept on the farm. The sum of the ages of these horses is 85 years, an average of 21 years. These horses, though old, do the work very well. One driving horse is kept. The horses are valued at \$350.

Two dairy cows are maintained which provide sufficient milk for household purposes. One heifer to replace a cow is being raised. The total value of the dairy stock is \$150. Few hens are kept, there being but 12 in all. No hogs or other livestock is kept and commercial feeding has not been practiced.

The farm equipment is complete for the class of farming

which is being carried on. This equipment has been well cared for as it is in good working order altho it has been used for some time. Very little of it is housed or covered.

In topography this farm lays well with a high ridge running through the farm from north to south. This affords an opportunity for the water to be taken out and distributed two ways as the land slopes east and west from this ridge. There is a small part of this farm which needs draining but this would be a difficult matter as there is no apparent outlet for the water. The irrigation practices on this farm are those usually found in this area. Spring plowing is the rule. The soil is a light sandy loam which blows freely in the spring of the year. The farm is two miles from a station.

The farm is well suited to raise the crops which it is growing. Beans seem to thrive on light sandy soils as well as the potatoes. One serious objection to the methods used is the pronounced lack of manure to keep up the fertility of the soil.

The fields are well located and accessible from the farmstead. Permanent lanes are maintained. Provision is made for a garden in which seasonable vegetables are grown. A goodly supply is laid away for the winter months. Bush and tree fruits are also raised.

The home is comfortable, located at a point where the drainage and view are as good as can be found in the entire section. The barns are of the shed type and shelter all

the live stock kept. Kerosene lamps are used for lighting and wells furnish the water for family and stock. The value of the buildings is \$3868.

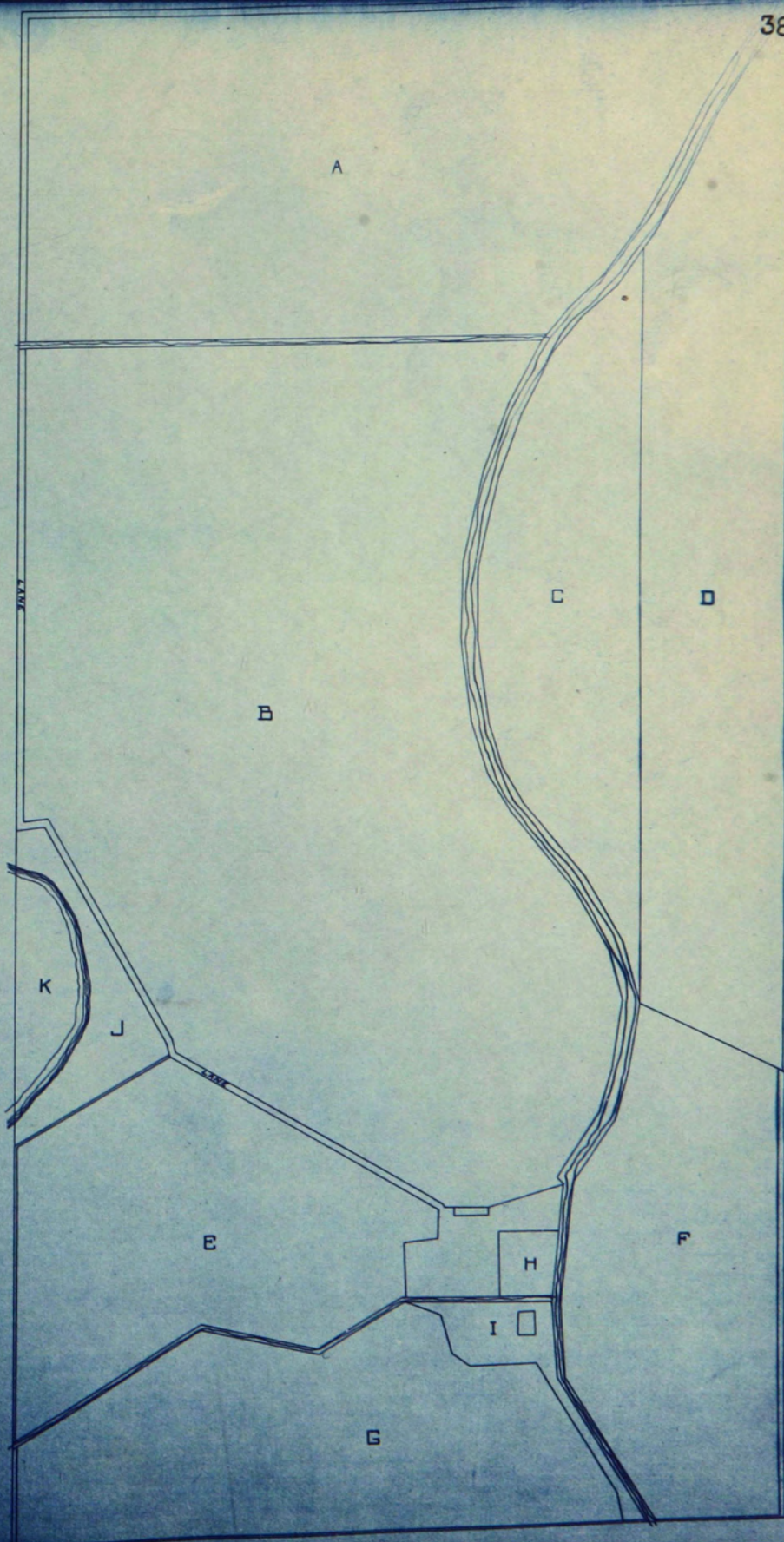
A portion of field J could be plowed and crops grown. The field sizes should be equalized in order to permit systematic rotation. The main ditch should be straightened so as to reduce cost of operation.



FARM  
No 2  
SCALE 1"=120'

LEGEND

Field	Cropped Acres	Adjoining Weald lands	Total
A	14.88	0.69	15.57
B	25.73	0.23	26.06
C	3.44	0.23	3.67
D	8.98	0.21	9.19
E	6.43	0.14	6.57
F	9.17	0.30	9.47
G	6.66	0.19	6.85
H	0.26	0.00	0.26
I	1.30	0.00	1.30
J	0.96	0.00	0.96
K	0.97	0.00	0.97
LANES			0.50
DITCHES			1.35
TOTAL			81.10



Farm No. 3.Area: 80 acres

There is a renter on this farm. He has been here two years. The original cost price was \$10,000, \$5,000 of which was paid in cash. Since its purchase there has been an expenditure of \$500 for buildings. The following shares are given as rental: One-fourth of the beets, one-third of the grain, potatoes and beans and one-half of the beet tops. This farm is located about one mile from a town which has facilities for handling the various crops grown. The crop acreages and yields of the various crops for 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>				
A	4.34	Alfalfa	2 1/2	tons	per	acre	
B	8.22	Potatoes	200	bu.	"	"	
C	7.44	Alfalfa	2 1/2	tons	"	"	
D	7.82	Wheat	17 1/2	bu.	#	"	
E	2.53	Barley	22 1/2	bu.	"	"	
F	5.61	Potatoes	200	bu.	"	"	
G	11.16	Seed beans	9 1/2	bu.	"	"	
H	5.49	Beets	9 1/2	tons	"	"	
I	1.78	Farmstead					
J	8.10	Potatoes	200	bu.	"	"	
K	3.47	Beets	9 1/2	tons	"	"	
L	8.42	Pasture					
M	2.43	Pinto beans	3.75	bu.	"	"	

The work stock consists of four horses of average weight and quality valued at \$667.50. There are two cows on the place which supply the family with milk and its products valued at \$80. One hog is kept for butchering valued at \$10. There are 160 chickens including baby chicks, friers and hens valued at \$81.50.

The farm machinery is being kept up in good condition. A part of this is being kept undercover to protect it from



the elements. A farm blacksmith shop is maintained which has enabled this operator to keep all machinery in a good state of repair. The total value of farm machinery is \$533.

The topography is very gently rolling and has not materially interfered with the lay of the fields. With the exception of the headlands the sides of the fields are parallel. The soil on the farm is uniform type and is a sandy loam. Field H and a portion of field L of this farm need draining but this will be a difficult problem as there is no easy outlet for the water. A unique method of irrigating the row crops has been developed on this farm. A small one and one-half inch pipe was burried in the bank of the lateral and the exact amount of water can be controlled through these pipes for each row. By the use of this method there was no washing or erosion in the field. The type of farming as practiced is good altho I would advocate the keeping of more dairy cows to utilize the pasture land and to maintain the fertility of the farm.

The farm buildings are located along the mainhighway about the center of the farm. Good lanes connect all fields. There is a farm garden maintained for family use. A few tree and bush fruits are utilized.

The home and farmstead are well located with reference to drainage and sanitation. The building arrangement as related to the house and the barn and these to the corrals are not well arranged as too much space is needed for the size

of the herds, flocks and buildings. The corrals should be rearranged so as to conserve area so far as possible. The ditches on this farm have been well laid out. That part of field B lying north of field A should be attached to field A. The high portion of land between field K and field L should be graded off and carried so far as possible into the low ground in field L. Field H should be drained and brought under cultivation.

FARM

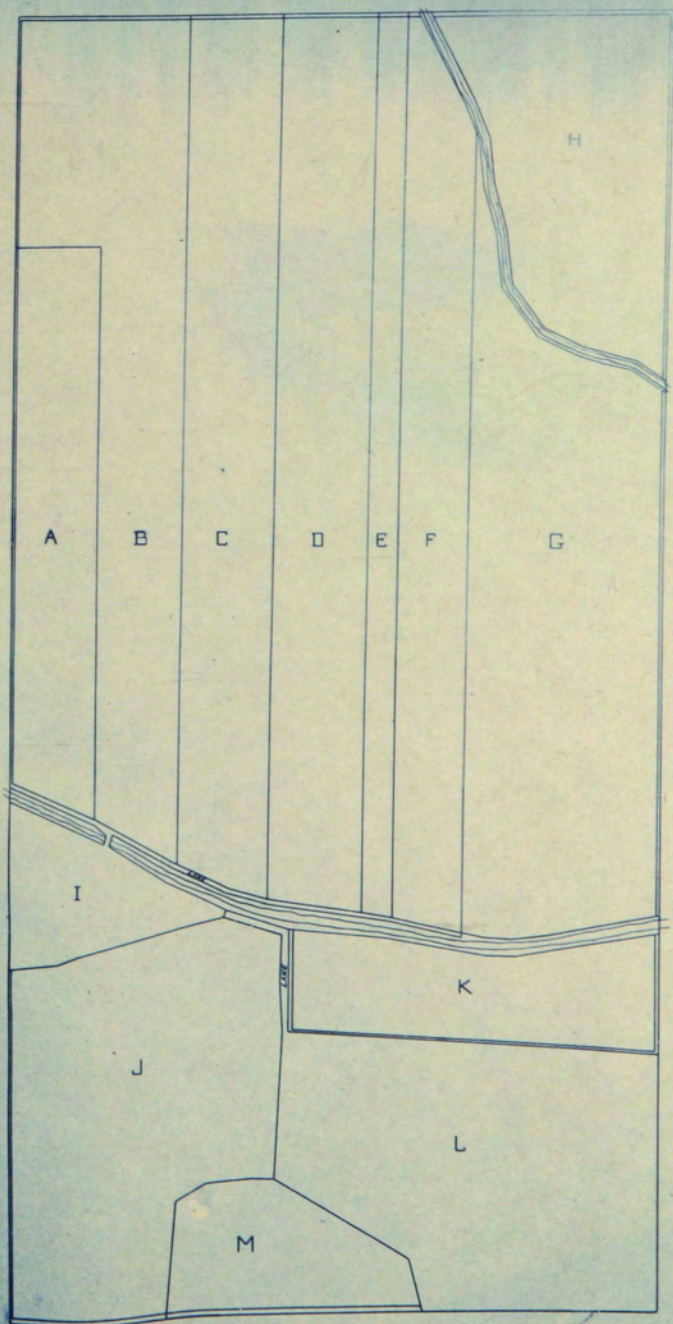
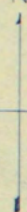
No. 3

SCALE 1"=20'

## LEGEND

Field	Ground Area	Requiring Irrigation	Total
A	4.10	0.10	4.20
B	1.12	0.10	1.22
C	1.81	0.00	1.81
D	1.10	0.00	1.10
E	1.10	0.00	1.10
F	1.10	0.00	1.10
G	1.10	0.00	1.10
H	1.10	0.00	1.10
I	1.10	0.00	1.10
J	1.10	0.00	1.10
K	1.10	0.00	1.10
L	1.10	0.00	1.10
M	1.10	0.00	1.10
		LANES	0.00
		DITCHES	1.00
		TOTAL	10.00

N



Farm No. 4Area: 90 acres

This farm was purchased in 1909 for \$6000 cash. Since that time there has been an expenditure of \$20,000 in cash for the various improvements such as buildings, fences and drainage, and the farm has not paid as yet for any of the cost price. The soil is sandy loam. The acreages and crops on this farm for 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	2.84	Oats	Failure
B	28.77	Alfalfa	1 1/2 tons per acre
C	9.27	Corn	8 " " "
D	25.59	Alfalfa	1 1/2 " " "
E	15.51	Potatoes	2321 lbs. " "
F	0.77	Machine sheds	
G	0.63	Garden	
H	0.94	Farmstead	

The work stock on this farm consists of five head of work horses valued at \$300 and two colts at \$20. Some outside horse labor is used in the operation of this farm. A purebred Guernsey herd is kept with 49 head valued at \$12,355. The products from these cows are sold in the city of Greeley as bottled milk. All the modern appliances for the operation of a successful dairy have been installed in the farm creamery. Forty-six head of registered Poland China hogs valued at \$615 are being raised. Seven head of purebred Hampshire sheep are kept about the place to keep down the weeds and grass. Sixty-three head of poultry valued at \$33 are on the place. No commercial feeding was conducted during this year. The total farm machinery and miscellaneous equipment is valued

at \$1,112.

The topography of this farm is gently rolling with the slope to the east. There is no drainage problem. The farm irrigates very easily but due to the porous nature of the soil and sub-soil it takes considerable water in a given head to force it through the usual length of row.

The farm is located about one-half mile from a loading platform which affords a place to market the usual farm produce, save the milk, which is hauled seven miles to town. The farm buildings are located in the southeast corner of the farm. The fields are not readily accessible because the farm is divided nearly in the middle from north to south by a high dike which is necessary to carry the water across the farm to adjacent land. In order for the operator to get to field C he must travel one-half the length of the side and across the farm. This is also relatively true of the balance of the fields. The ditch running between field B and C, D and E should be tiled so that the fields could be carried in one and a definite size established for each field. The corrals should be moved away from the ditch which runs through it so as to conserve fertility.

There are three living quarters on the ranch which are all very comfortable and partially modern, having electricity and running water. The barns and sheds are located entirely too close to each other to minimize fire hazards. Ample room is provided to house all of the livestock, machinery and

other equipment about the place. This farm is almost entirely electrically driven and all of the machines needing power are driven by this force. A small farm garden is maintained. No bush fruits are grown.

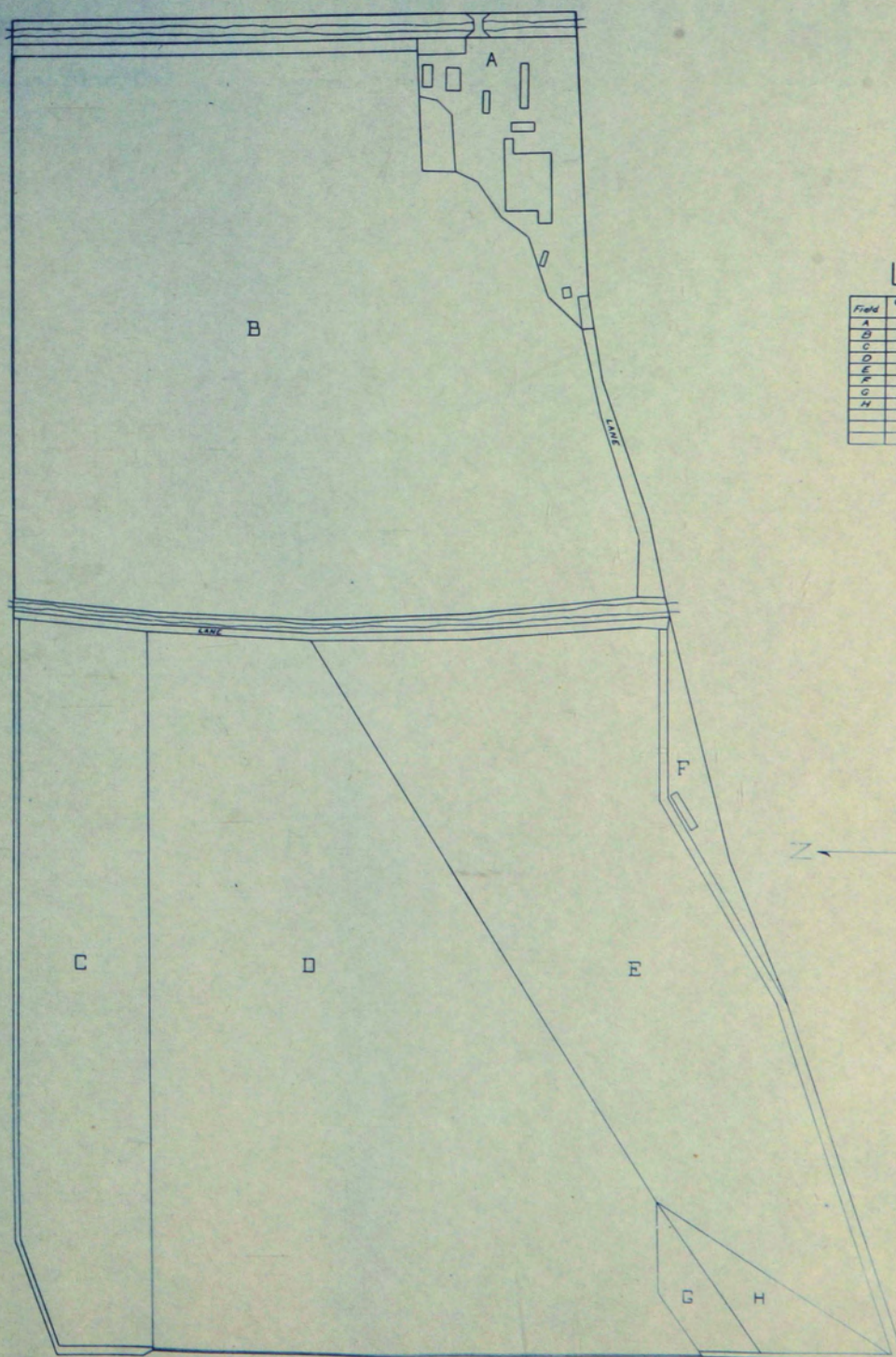


# FARM No. 4

SCALE 1"=120'

## LEGEND

Field	Cropped Acres	Adjoining Highlands	Total
A	284	000	284
B	2872	065	2937
C	308	025	333
D	2554	005	2559
E	1488	043	1531
F	077	000	077
G	060	003	063
H	087	007	094
	LANES		077
	DITCHES		119
	TOTAL		8623



Farm No. 5Area: 153 acres

This is a tenant farm. It was purchased 24 years ago at a cost of \$3000 with a first payment of \$350. There has been an expenditure of approximately \$6000 on various improvements in the intervening time. All taxes, assessments, material for repairs, alfalfa seed and seed corn are furnished by the landlord who in turn takes one-third of the grain and potatoes, one-fourth of the beets, one-half of the hay, beet tops and corn silage. The acreages and crops for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	2.87	Farmstead	
B	14.42	Potatoes	5500 sacks, total (120 lbs. each)
C	4.36	Alfalfa	2 tons per acre
D	35.89	Alfalfa	2 " " "
E	5.99	Alfalfa	2 " " "
F	0.33	Garden	
G	17.10	Potatoes	
H	12.82	Corn	10 " " "
I	27.75	Potatoes	
J & K	32.09	Wheat	30 bu. " "
L & M	4.13	Waste land	

Eight horses valued at \$820, and two others valued at \$35 constitute the total number and value of work stock. Two dairy cows valued at \$180, and two others valued at \$55 are kept. The entire product of these cows is consumed by the family. Two hogs for butchering valued at \$28; 103 head of poultry of various classes valued at \$59 and 10 stands of bees valued at \$50 are maintained for family use.

Farm machinery involving an investment of \$2,607 is all



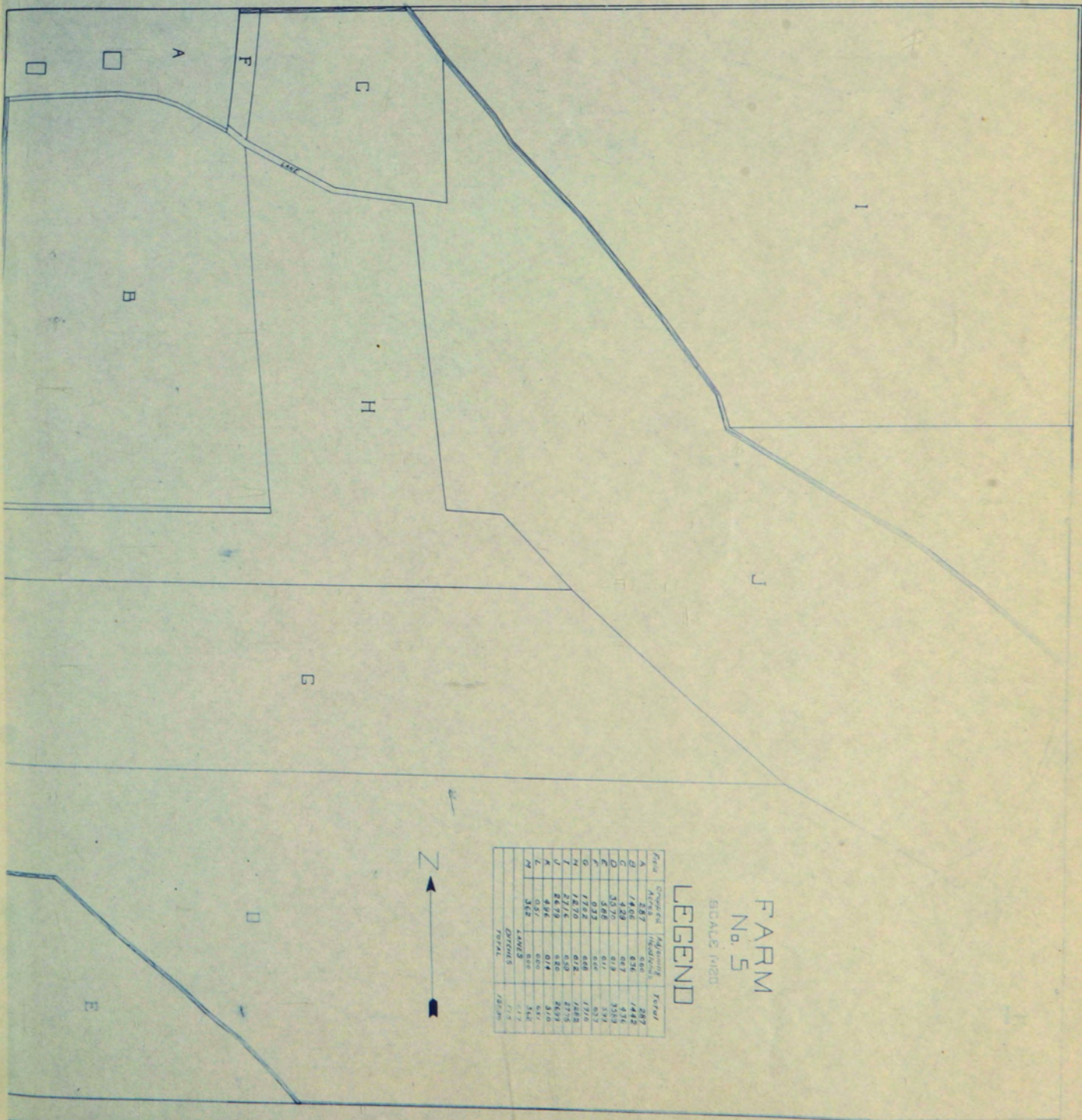
that is necessary in the way of equipment to properly handle this acreage.

The topography of this farm is rolling for the greater part, making irrigation rather difficult. There is a small drainage problem in the southeast corner of field D which is at the present time not being cropped. The irrigation is about as usual with the exception that it takes more water to do the same amount of good on a farm which is as rolling as this is as compared to the more level farm. The soil is sandy loam in character. Very thorough tillage is given to all the crops and clean cultivation is the rule. The potatoes are rogued in an endeavor to free them from diseased and undesirable hills. Incidentally this has led to a demand for these potatoes for seed purposes.

The farm is located three and one-half miles from the nearest market. The road leading to this point is a difficult one to haul crops over as it is very steep in many places. The cooperator usually takes his produce to another market which is four and one-half miles away. The type of farming might be changed with some benefit to the cooperator. Crops which yield heavy tonnage per acre, as beets and potatoes, could be grown to better advantage and more economically where the hauling charges are not so great. It would seem advisable for this cooperator to raise more livestock and utilize the feed on the farm and market it in a more concentrated form.

The buildings are located in the northwest corner of the farm which makes it necessary to travel a long distance to get to the opposite side of the holding. However, the buildings are well located on high, well drained, sanitary grounds. The house and the barn are a considerable distance apart and the root cellar lies well beyond the barn. Each time that the operator goes to the root cellar he must open two gates.

One of the very best gardens in the entire study is being grown on this farm. All the common vegetables are grown in quantities which enable them to save a considerable amount for winter use. Currants, gooseberries, plums, grapes, apples and cherries are found in the orchard. The relationship of the farm buildings to each other is very good, although a considerable acreage is being occupied by them. One criticism of the yard surrounding the house is the too close proximity of broad leafed trees which shut out the light from the house. Some of these should be removed. The house is lighted by kerosene and gasoline lamps. A deep well supplies the water.

[illegible]

Farm No. 6Area: 120 acres

This farm has been in the possession of the present owner for the past 14 years. It was purchased by the owner's father in 1897 for \$9300 cash. Since this date there has been an expenditure of \$4000 in building improvements. The acreages and crops for 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	19.85	Oats	63 bu. per acre
B	19.60	Alfalfa	3 tons ". "
C	1.45	Pasture	
D	1.24	Farmstead	
E	14.08	Alfalfa	3 " " "
F	17.66	Potatoes	9900 lbs. total
G	17.39	Peas	Abandoned (hailed)
H	7.52	*Pinto beans	
I	1.20	Waste	
J	1.32	Garden	
K	16.74	Pasture	

\*These were mixed with beans from another farm and no record was secured.

The livestock consisted of 8 head of horses valued at \$655; 5 dairy cows; 88 head of registered Poland China hogs valued at \$955, and 49 chickens valued at \$70. No commercial feeding was practiced during the year. The farm machinery and miscellaneous equipment is complete for the class of farming that is being done and has a value of \$890.

About one-half of the farm lies very well for tillage and irrigation; the balance is too rough for successful agriculture and can only be used for pasture. There are no drainage problems. Irrigation practices are those usually followed in this area. Spring plowing is the rule and the alfalfa which has made a spring growth is plowed into the ground. The soil

is known as Billings loam.

The farm is located three miles from a town which has a large canning and sugar factory and affords a ready market for the farm produce.

The type of farming as followed on this farm is perhaps too much general agriculture for so much rolling land. More dairying and the utilization of the crops on the farm would be advisable so that the land may produce to the utmost and every acre be utilized.

The farm buildings are located in approximately the center of the farm which is on the main highway. A good farm garden is maintained. The farmstead is well arranged with reference to the buildings and accessibility from the house to the various buildings. The dwelling is electric lighted and supplied with hot and cold water.

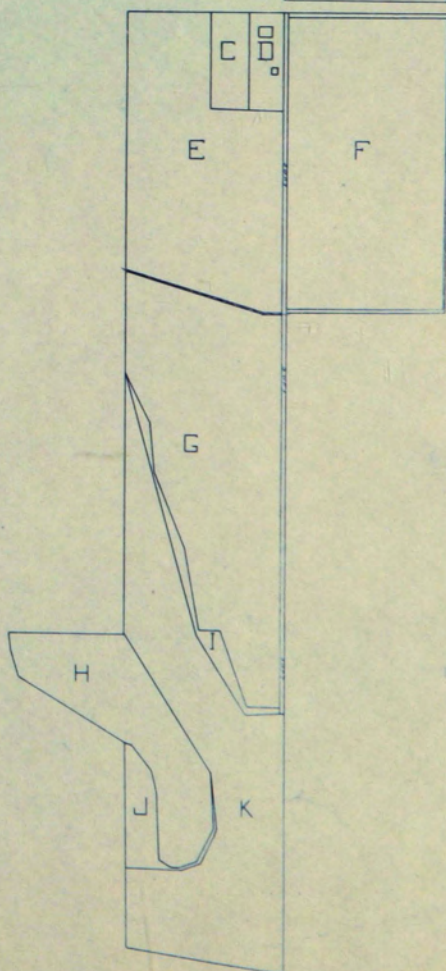
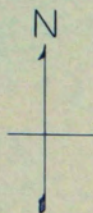


# FARM No 6

SCALE 1"=300'

## LEGEND

Field	Cropped Acres	Adjoining Headlands	Total
A	12.21	0.64	12.85
B	12.20	0.20	12.40
C	1.25	0.00	1.25
D	1.25	0.00	1.25
E	12.05	0.03	12.08
F	12.26	0.20	12.46
G	12.26	0.03	12.29
H	7.26	0.16	7.42
I	1.22	0.00	1.22
J	1.22	0.00	1.22
K	16.79	0.00	16.79
Lanes			1.55
Ditches			1.97
Total			121.57



Farm No. 7.Area: 60 acres

This farm was purchased 29 years ago by the present operator's father who paid \$12,000 for this tract now owned by the son. There has been an expenditure of \$6,250 for buildings, fences, and ditches since the farm was purchased. The land is a productive sandy loam soil. The acreages and crops for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	9.59	Potatoes	1032 cwt. total
B	9.72	Alfalfa	2 1/2 tons per acre
C	10.27	Wheat	221 cwt. total
D	8.77	Peas	Abandoned
E	9.82	Alfalfa	2 1/2 tons per acre
F	11.21	Beets	187.7 tons total
G	1.70	Farmstead	

The livestock on this farm consists of four head of horses valued at \$530 and one saddle pony valued at \$25; one grade Jersey cow for family use valued at \$100; and 19 chickens valued at \$19. All the necessary farm machinery for operating this farm is valued at \$604.

This farm lies the best, perhaps, of any of the farms in the entire study, the land having the proper slope for easy and successful irrigation. There are no drainage problems and no waste lands on this farm. The irrigating is done in a very thorough way and great pains are taken by the operator to secure the highest possible duty on the water allotted to him. Good tillage and systematic cropping are practiced in the management and operation of the land. The farm is located one and one-fourth miles from market on a macadam road.

The fields as related to the building site lie very well and are all connected with permanent lanes. A small farm garden is maintained with the usual seasonal vegetables growing in it. Few tree and bush fruits are used. The farm home on this place is thoroughly modern in every respect. The cooking and lighting are done by electricity and the house is heated by a furnace. They have their own water system under pressure which forces it to all parts of the house. A very well kept yard with croquet grounds and tennis court adjoin the dwelling.

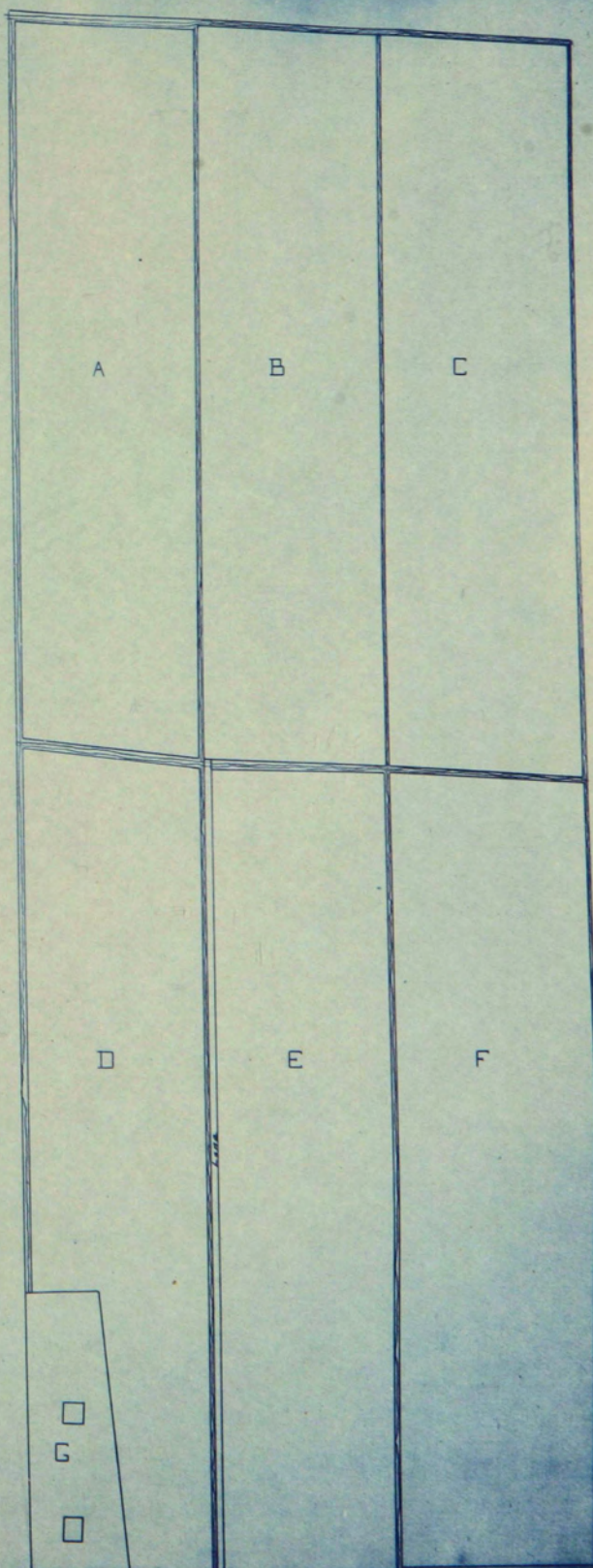
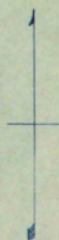


FARM  
No 7  
SCALE 1"=120'

# LEGEND

Field	Cropped Acres	Adj. to Hundred	Total
A	9.16	0.91	9.53
B	9.45	0.25	9.70
C	10.00	0.27	10.27
D	8.50	0.27	8.97
E	9.51	0.01	9.62
F	10.30	0.21	11.11
G	1.70	0.00	1.70
Lakes			5.26
Ditches			1.32
Total			62.66

N



Farm No. 9.

Area: 183 acres

This farm was purchased in 1916 for \$56,000. Approximately \$5,125 have been spent for improvements about the farm. It is operated by a tenant. The taxes, assessments, materials and repairs, new improvements and all the alfalfa seed is furnished by the landlord who gets one-third of the potatoes, grain and grain crops and one-half of the hay. The acreages and crops for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	25.27	Barley	56,616 lbs. total
B	58.57	Potatoes	7,800 cwt. "
C	28.09	Alfalfa	2 1/2 tons per acre
D	0.25	Tenant farmstead	
E	0.34	Straw stack	
F	28.74	Alfalfa	2 1/2 tons per acre
G	23.02	Oats	57,676 lbs. total
H	3.02	Farmstead	

The livestock on this farm consists of 9 head of horses, which are work horses valued at \$1,385, the other being a driving horse valued at \$50. Four cows valued at \$112 and other cattle with a value of \$80 constitute the herd. There are 10 head of poultry valued at \$58. This farm is an extensive sheep feeding place. Upwards of 2,000 lambs are fed each year for the market. This enterprise furnishes profitable results during the winter.

The farm machinery necessary to operate this farm is valued at \$2,617 and is complete in every respect, including a one-third interest in a small threshing machine and gasoline engine necessary to operate it.

The topography of this farm is very gently rolling which affords good drainage to the entire place. The soil is a sandy loam. One outstanding feature in the irrigation of crops on this farm is the frequency with which the potato crop is irrigated, it being the custom of this operator to irrigate his potato crop once each week from the time the potatoes start to form on the end of the stem until they have reached their full growth. The ditches are laid out by the aid of an instrument and are not on the general contour. Heavy manuring and deep plowing are the rule for the potato crop on this farm. No beets were grown in 1922.

The farm lies one-half mile from the city of Eaton where there is a flour mill and a sugar factory and ample facilities for caring for all the crops which are grown in this section.

The type of farming consists of a cash crop and grain for the feeding of sheep together with the necessary hay. A good rotation is being maintained and high yields of grain are usually secured. During this year a heavy hail storm cut the yields materially on the grain crops and hay. It did not affect the potato crop.

The building site is well located in relation to the balance of the farm, however, to get from it to fields F and C it is necessary to drive around the ditch lying between fields F and H. A bridge should cross the ditch between fields E and H which would make these fields a little more

accessible. The children care for the family garden. The house is lighted by electricity, heated by stoves and has running hot and cold water. The relation of the other buildings to the dwelling is satisfactory.

A few changes could be made on the farm which would make it a little easier to operate. The tenant house in field A might be moved over and adjoin field H on the northeast side of it. That portion of field C extending south beyond the south boundry line of field B might be disposed of and the necessary amount purchased to square up field C on the south and west property lines. Other than these changes the farm is well laid out.

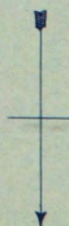


FARM  
No 9  
SCALE 1"=150'

LEGEND

Field	Cropped Acres	Adjoining Hwy/road	Total
A	25.22	0.67	25.89
B	57.28	1.10	58.38
C	27.27	0.02	27.29
D	0.25	0.00	0.25
E	0.25	0.00	0.25
F	20.60	0.15	20.75
G	22.90	0.62	23.52
H	3.02	0.00	3.02
Totals			171.78

N



G

B

C

A

E

H

D

D

Farm No. 11.Area: 80 acres

This farm was purchased in 1919 for \$30,000 in cash. There has been an expenditure of \$20,000 to date for improvements. It is operated by the owner's son who divides the crop as follows: One-third of all the crops except hay of which the landlord gets one-half. The landlord furnishes taxes, assessments, fences, corrals and all material for maintenance and new construction. The acreages and crop yields in 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	2.70	Farmstead	
B	18.68	Alfalfa	3 tons per acre
C	19.90	Beets	16.67 " " "
D	20.15	Wheat	30.8 bu. " "
E	18.50	Potatoes	12,000 lbs " "
F	0.21	Waste	

The livestock consists of 8 head of horses valued at \$800. These belong to the operator. There is a joint ownership of dairy cows and also of chickens. Long yearling calves are put in the feed lot on this farm to utilize the molasses and pulp allotment received from the sugar factory. About 100 head are fed annually. The farm machinery is valued at \$1,272 and is complete for this type of farming.

The topography of this farm is level with a gentle slope to the south. There are no drainage problems. The irrigation as practiced by this operator is to give the beets and potatoes the benefit of all the water which he has at his command, letting the hay go to the last if necessary. Deep plowing and thorough cultivation are practiced.

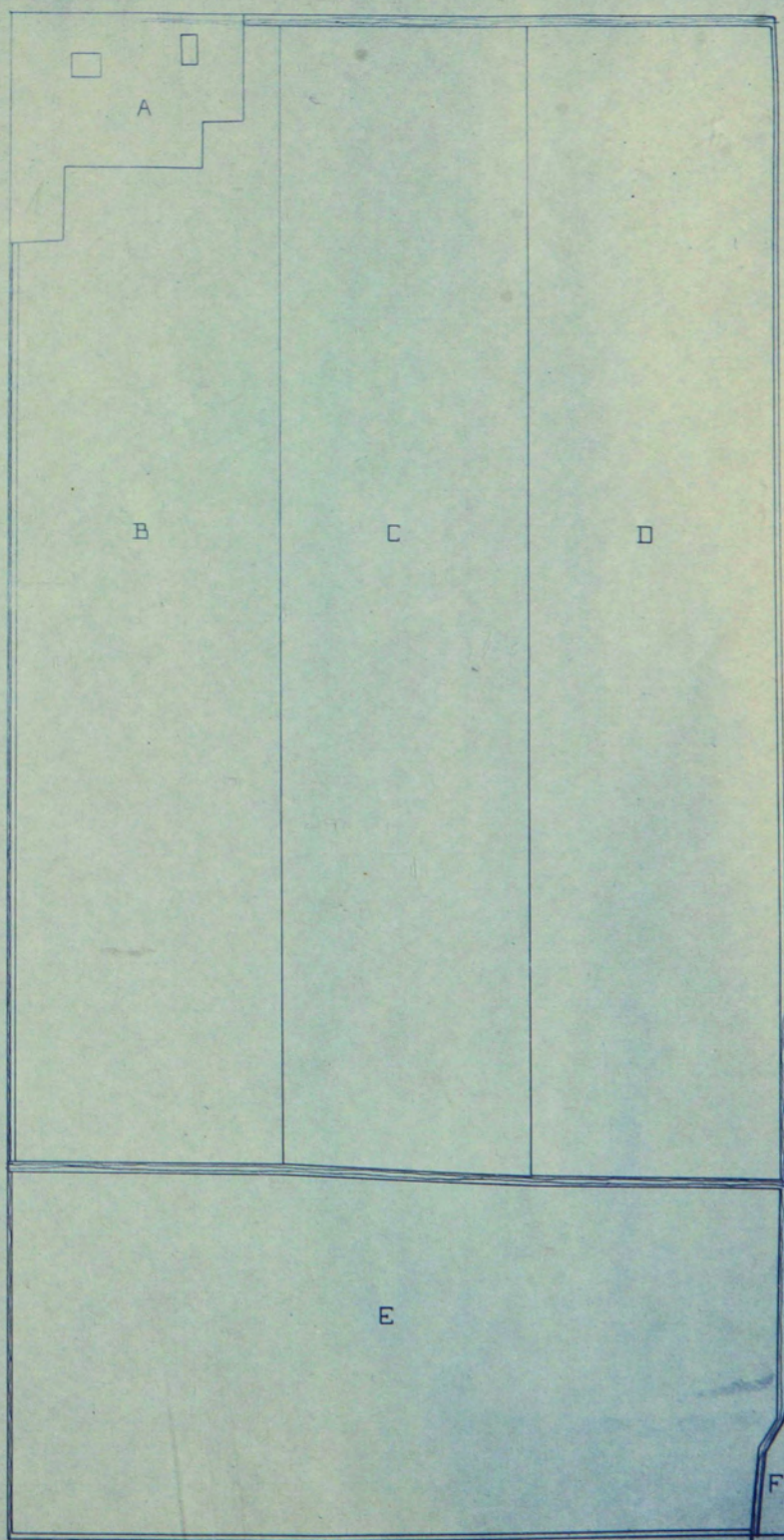
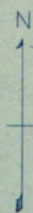
The farm is located one and one-half miles from market on a graveled highway. The buildings are well situated with lanes leading to the various fields. The farm garden is small. The dwellings are surrounded by lawn and good shade trees. The house is lighted by electricity. Water is obtained from a nearby well. That portion of the farmstead projecting beyond the marked line should be taken in by field B and the east line of field A should be placed upon the west line of field C, thereby squaring both fields. The small field F should be leveled up and included in field E. With these two exceptions this is one of the well planned farms. All the ditches have been laid out with the aid of surveyors' instruments.



FARM  
No II  
STATE WED

LEGEND

Field	Croped Area	Remaining Meadows	Total
A	1.20	0.00	1.20
B	18.61	0.00	18.61
C	19.70	0.00	19.70
D	15.00	0.00	15.00
E	10.00	0.00	10.00
F	0.81	0.00	0.81
Totals			0.26
Disposal			0.26
Total			71.06





Farm No. 12.Area: 159 acres

Farms 12 and 23 are owned and operated by the same party. The holdings were purchased during the years 1916 to 1919 at a total price of \$53,250 for 337 acres, with an initial payment of \$15,000. Farm improvements have been made costing \$2,200. Approximately 30 per cent of the purchase price of the farm has been paid off by earnings from the farm operations. The acreages and crop yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	28.96	Alfalfa	2.96 tons per acre
B	20.81	Potatoes	120 bu. " "
C	11.94	Barley	35 bu. " "
D	20.98	Beets	10.36 tons " "
E	6.71	Wheat	24 bu. " "
F	26.81	Wheat	24 bu. " "
G	2.72	Farmstead	
H	11.84	Beets	10.36 tons " "
I	25.63	Alfalfa	2 1/4 tons " "

The work stock consists of 13 head of work horses valued at \$1,771 and 3 other horses valued at \$120; 2 cows worth \$160 supply the place with dairy products; 21 chickens valued at \$15.75 constitutes the poultry flock. The operator feeds approximately 2,000 lambs annually.

The total farm machinery is valued at \$1,930. All the machinery is kept in first class working condition. The party operating these farms owns one-third interest in a small farm sized thrashing machine and the engine necessary to operate it.

The farm is gently rolling with sandy loam soil, having very good drainage and free from alkali. Some portions of

the farm lie a little too steep for successful irrigation. One small portion in field E is irrigated by pumping the water from the ditch between fields I and E. This field is too large to attempt to grade down so that it can be watered by a gravity flow. The customary tillage methods are employed.

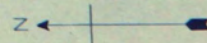
The type of farming as carried out by this operator is well adapted to the locality in which the farms are situated. The farmstead lies very well with relation to the balance of the farm. All the fields are easily accessible from it. There is a beet dump on the farm together with necessary side track and platforms for handling all the crops and marketing livestock which are marketed in this section.

A small family garden was maintained on this place to supply the tenant laborers with vegetables. The yards are kept clean and neat. There is a good water supply. Lamps and lanterns furnish light for the house and about the place.

FARM  
No. 12  
SCALE 1"=120'

LEGEND

Field	Cropped Acres	Adjoining neighboring	Total
A	28.02	0.04	28.06
B	20.30	0.43	20.73
C	11.60	0.06	11.66
D	20.75	0.27	21.02
E	6.00	0.12	6.12
F	26.00	0.22	26.22
G	2.72	0.04	2.76
H	11.00	0.00	11.00
I	28.18	0.48	28.66
LANES			0.00
DITCHES			3.16
TOTAL			159.17



Farm No. 13.Area: 160 acres.

This farm was purchased by the operator in 1918, the consideration being \$27,600 in cash. There were practically no building improvements on the place. Since that time \$15,000 has been paid for buildings and fences. Of the total purchase price of the farm 50 per cent has been paid to date. The acreages and crop yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	0.08	Tenant house	
B	1.56	Farmstead	
C	27.97	Potatoes	140 bu. per acre
D	26.77	Alfalfa	2 1/4 tons " "
E	31.70	Potatoes	140 bu. " "
F	36.64	Barley	42 bu. " "
G	18.20	Alfalfa	2 1/2 tons " "
H	2.47	Oats	80 bu. " "

The work stock on this place consists of 4 head of horses valued at \$900; 2 dairy cows valued at \$150 supply the place with milk; 52 chickens valued at \$56 are maintained. About 4,000 sheep are fed annually.

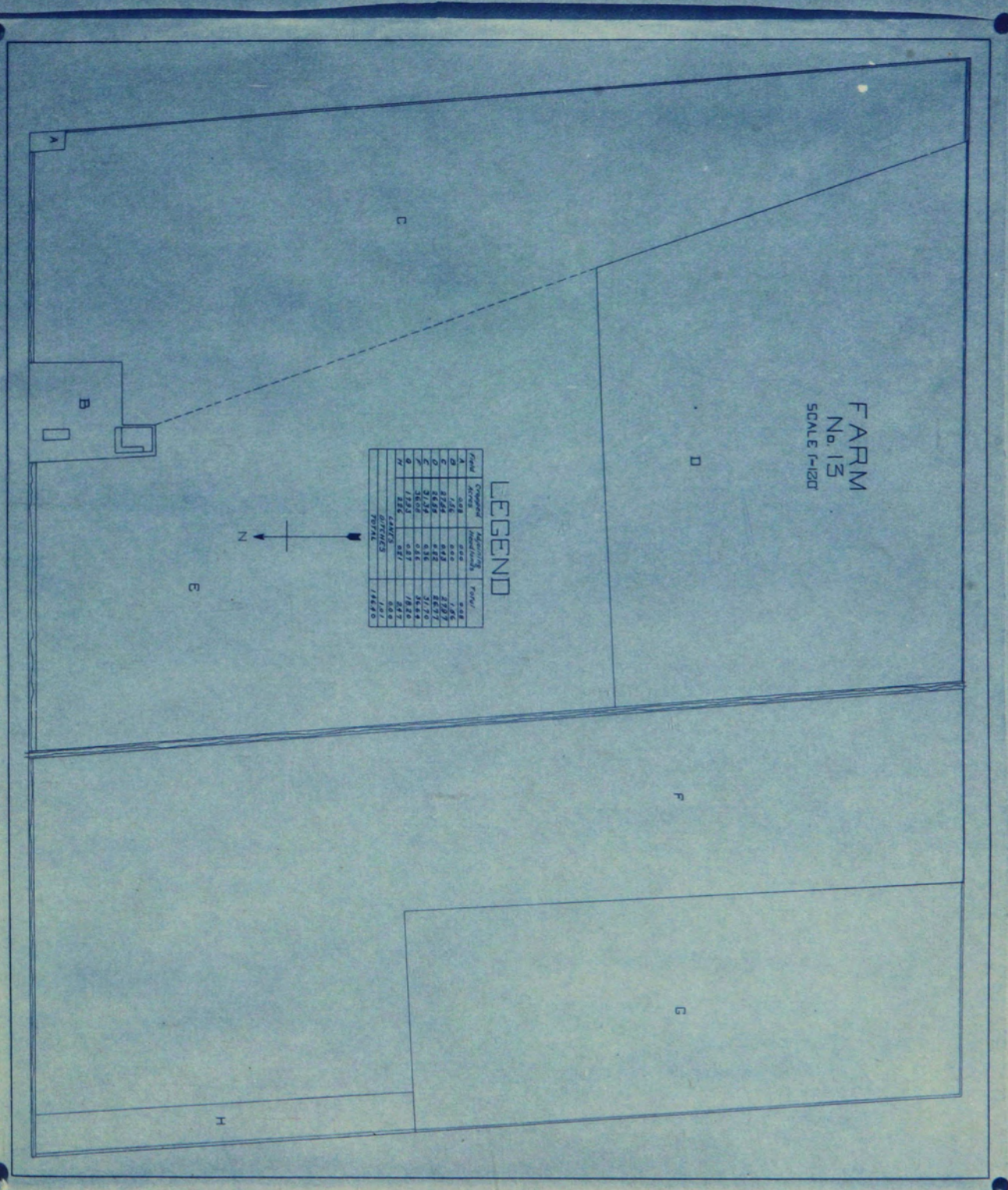
A very complete set of farm machinery together with tractors, tractor plows and harrows, as well as one-third interest in a small threshing outfit is maintained on the place. The valuation of the machinery is \$2,745. It is exceptionally well housed.

The topography of this farm is gently rolling. The soil is of a sandy loam type for the greater part and the sub-soil affords good drainage over the entire farm. The ditches are all laid out in straight lines and considerable work and

effort has been spent on them in order to build up the farm into a high state of cultivation. The practice of this operator in plowing under alfalfa is to crown it and then replot deeply in the spring.

This farm is well suited to the production of heavy farm crops as it is only one mile to market where all classes of farm crops are purchased. The general type is organized around the production of potatoes. The farm lies well with reference to the buildings and all fields are easily accessible. A good farm garden is maintained but no tree or bush fruits are grown. There is a comfortable, modern house on the farm and a large machine shed and root cellar combined houses all of the machinery and such part of the potato crop as he desires to hold for winter delivery. The buildings are well arranged with reference to each other. Particular thought was spent on sanitation about the premises and very good results were obtained.





Farm No. 14.Area: 230 acres

This farm has been in the family since 1892, the original cost being \$2,000. The price to the present operator is unknown as it was an inheritance. The acreages and crop yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>		
A	21.97	Potatoes	3600	cwt.	total
B	8.88	Cabbage	172.4	tons	"
C	2.25	Celery	9000	doz.	"
D	41.30	Alfalfa	328	tons	"
E	17.76	Potatoes			
F	25.22	Barley	1253	bu.	"
G	6.83	Beans	11,440	lbs.	"
H	7.11	Alfalfa			
I	26.87	Alfalfa			
J	5.64	Farmstead			
K	29.20	Wheat	640	bu.	"
L	31.74	Beets	449.7	tons	"

Ten head of mules valued at \$1300 do all the work on this place. Two cows valued at \$120 and two calves valued at \$10 are kept. Seven sheep valued at \$14 were left over from the commercial feeding in 1921-22. Twenty-six chickens valued at \$21 make up the poultry flock. This operator is an extensive sheep feeder and usually handles approximately 2,000 head. The farm machinery, which is very complete, is valued at \$2,146.

The topography of this farm is gently rolling and bears off to the east. No part of the farm is so steep that it cannot be watered successfully. There is no drainage problem in connection with this farm. The irrigation ditches have been laid out very carefully by the aid of surveying instruments and a great deal of time, money and effort have been

expended in laying these ditches so as to minimize the water loss and labor requirements to properly irrigate the farm.

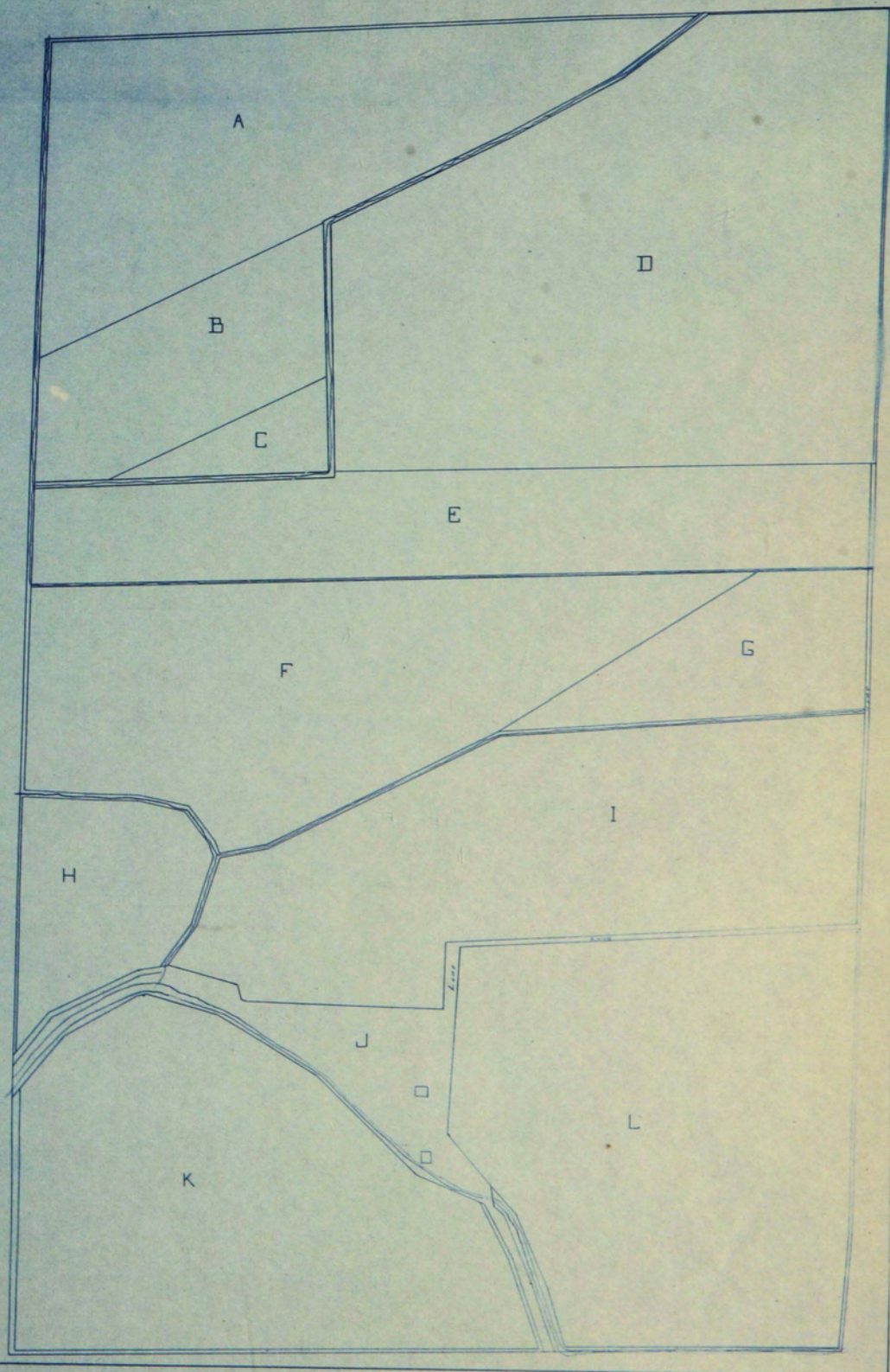
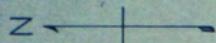
The farm is located two and one-half miles from market and is well adapted to the type of farming which has been adopted. The buildings are well located on well drained land so far as the balance of the farm is concerned. Suitable lanes well cared for lead to the various fields. A farm garden is not maintained on this place as a small portion of the farm is usually rented to Japanese farmers for growing truck crops and the vegetables are derived from this area by mutual understanding. A thoroughly modern house provides a dwelling for the family and good barns and sheds house the livestock and equipment. The buildings are readily accessible. The only change that could be made in this farm is that fields A, B and C might be considered as one field. This would mean a tract of approximately 33 acres.



FARM  
No 14  
SCALE 1"=180'

# LEGEND

Field	Cropped Acres	Adj. Wm. Headlands	Total
A	21.51	0.56	22.07
B	0.70	0.10	0.80
C	2.16	0.09	2.25
D	40.91	0.29	41.20
E	17.09	0.22	17.31
F	20.62	0.27	20.89
G	6.60	0.15	6.75
H	0.95	0.16	1.11
I	26.66	0.21	26.87
J	5.69	0.00	5.69
K	28.26	0.09	28.35
L	36.29	0.20	36.49
Ditches			3.88
Total			229.60



Farm No. 15.Area: 160 acres

This farm was purchased in 1910. The price has not been obtained as a part of the record. The acreages and crop yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	2.76	Dryland	
B	18.18	Alfalfa	152 tons total
C	18.96	Barley	51 bu. per acre
D	1.57	Farmstead	
E	18.71	Potatoes	180 bu. " "
F	6.50	Oats	58 bu. " "
G	0.91	Barley	51 bu. " "
H	1.51	Barley	51 bu. " "
I	17.61	Potatoes	180 bu. " "
J	26.19	Alfalfa	
K	8.78	Waste land	
L	24.67	Beets	301.74 tons total
M	9.15	Barley	51 bu. per acre

Six horses valued at \$283 do all the work on this farm; one cow valued at \$60 supplies the household with milk; there is one calf valued at \$20; 3 hogs valued at \$60 and 33 chickens valued at \$22.80 make up the total livestock on this farm. The farm machinery, which is in fair repair, was inventoried at \$644.

The topography of this farm is gently rolling and all of the fields slope toward a common center in the farm which makes a low swampy place running through the entire premises. This is developing a serious drainage problem. All of the fields are well laid out so as to afford easy application of water to the crop. The beets as grown on this farm are cultivated more frequently than is the usual farm practice and perhaps so often as to bring the operator very small

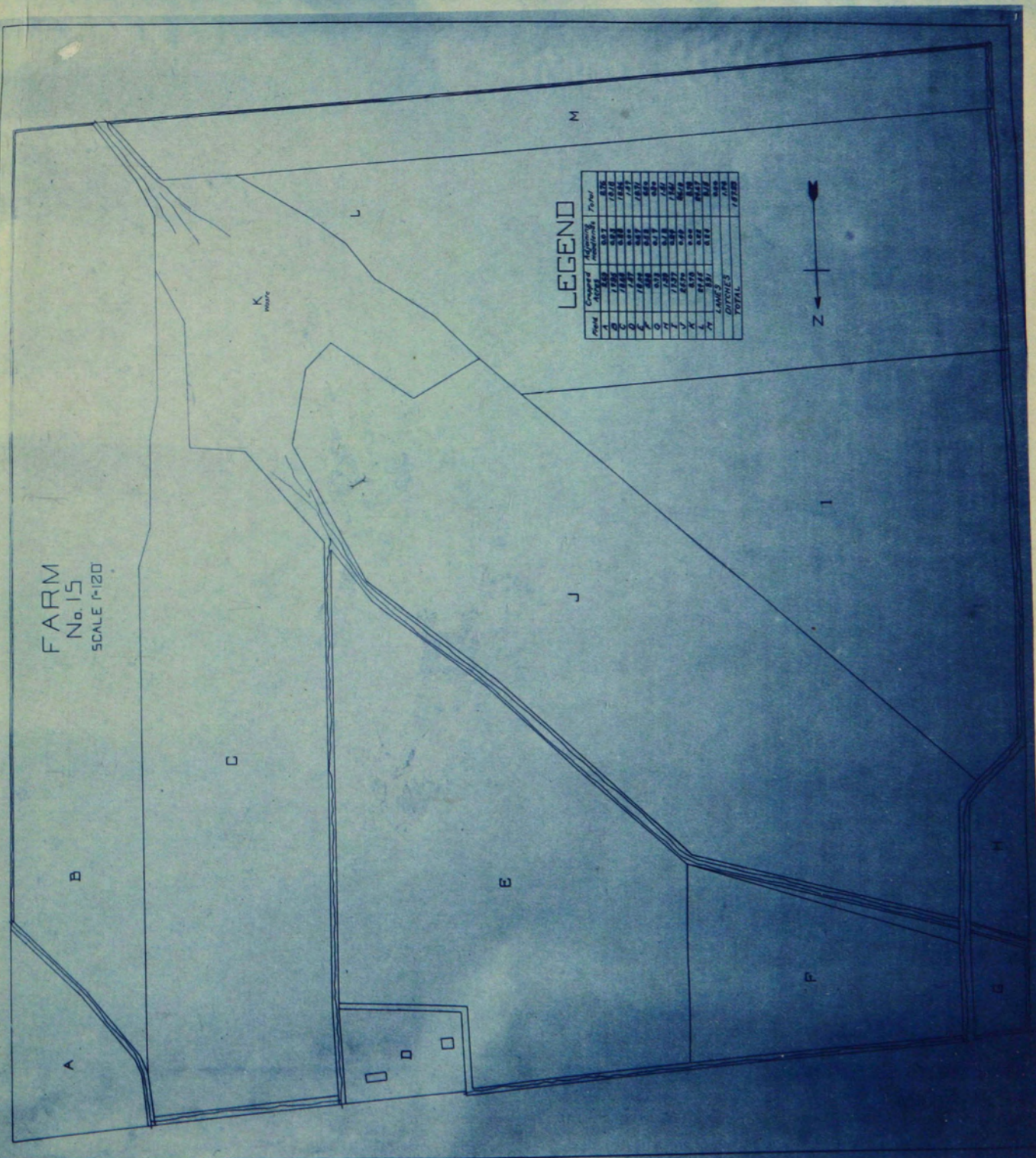
returns for the extra amount of work that is performed.

The farm is located one and one-half miles from market where all farm produce can be sold. The undrained portion of this farm should be fenced separately and used for a pasture so that there would not be a waste of the entire seeped area. A great deal of unnecessary travel to get from the farmstead to the fields is caused by the ditches running diagonally through the farm from the northwest corner to the southeast corner.

No garden is maintained. A modest dwelling and small barn constitutes the buildings on the place, the entire valuation being placed at \$1,850. The farm could be improved if field K were drained and the knoll in the center of field J were leveled off toward the northwest and a tile drain placed in the ditch which leads out of the southeast corner of the farm. By leveling off two small knolls in field H and eliminating the ditch which lies to the east of it and constructing a new ditch on property line would throw this small field into F and J thus eliminating unnecessary labor and waste of land.



FARM  
No. 15  
SCALE 1"=120'



Field	Crushed Alfalfa	Adaptation score, 1-5	Time
1	1.63	0.7	1.76
2	1.63	0.8	1.76
3	1.63	0.8	1.83
4	1.63	0.8	1.83
5	1.63	0.8	1.83
6	1.63	0.8	1.83
7	1.63	0.8	1.83
8	1.63	0.8	1.83
9	1.63	0.8	1.83
10	1.63	0.8	1.83
11	1.63	0.8	1.83
12	1.63	0.8	1.83
13	1.63	0.8	1.83
14	1.63	0.8	1.83
15	1.63	0.8	1.83
16	1.63	0.8	1.83
17	1.63	0.8	1.83
18	1.63	0.8	1.83
19	1.63	0.8	1.83
20	1.63	0.8	1.83
21	1.63	0.8	1.83
22	1.63	0.8	1.83
23	1.63	0.8	1.83
24	1.63	0.8	1.83
25	1.63	0.8	1.83
26	1.63	0.8	1.83
27	1.63	0.8	1.83
28	1.63	0.8	1.83
29	1.63	0.8	1.83
30	1.63	0.8	1.83
31	1.63	0.8	1.83
32	1.63	0.8	1.83
33	1.63	0.8	1.83
34	1.63	0.8	1.83
35	1.63	0.8	1.83
36	1.63	0.8	1.83
37	1.63	0.8	1.83
38	1.63	0.8	1.83
39	1.63	0.8	1.83
40	1.63	0.8	1.83
41	1.63	0.8	1.83
42	1.63	0.8	1.83
43	1.63	0.8	1.83
44	1.63	0.8	1.83
45	1.63	0.8	1.83
46	1.63	0.8	1.83
47	1.63	0.8	1.83
48	1.63	0.8	1.83
49	1.63	0.8	1.83
50	1.63	0.8	1.83
51	1.63	0.8	1.83
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58	1.63	0.8	1.83
59	1.63	0.8	1.83
60	1.63	0.8	1.83
61	1.63	0.8	1.83
62	1.63	0.8	1.83
63	1.63	0.8	1.83
64	1.63	0.8	1.83
65	1.63	0.8	1.83
66	1.63	0.8	1.83
67	1.63	0.8	1.83
68	1.63	0.8	1.83
69	1.63	0.8	1.83
70	1.63	0.8	1.83
71	1.63	0.8	1.83
72	1.63	0.8	1.83
73	1.63	0.8	1.83
74	1.63	0.8	1.83
75	1.63	0.8	1.83
76	1.63	0.8	1.83
77	1.63	0.8	1.83
78	1.63	0.8	1.83
79	1.63	0.8	1.83
80	1.63	0.8	1.83
81	1.63	0.8	1.83
82	1.63	0.8	1.83
83	1.63	0.8	1.83
84	1.63	0.8	1.83
85	1.63	0.8	1.83
86	1.63	0.8	1.83
87	1.63	0.8	1.83
88	1.63	0.8	1.83
89	1.63	0.8	1.83
90	1.63	0.8	1.83
91	1.63	0.8	1.83
92	1.63	0.8	1.

Farm No. 16.Area: 160 acres

This farm was purchased in 1888 for \$6,500 of which \$1,500 was cash. An expenditure of \$15,000 for all improvements has been made since its purchase. The landlord pays taxes, assessments, furnishes materials necessary for repairs and in return takes one-third of the grain crop and potatoes, one-half of the hay crop and beet tops and one-fourth of the beets. The acreages and crop yields grown in 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	2.47	Alfalfa	2 tons per acre
B	3.09	Alfalfa	2 " " "
C	52.9	Potatoes	200 bu. " "
D	32.53	Barley	47 bu. " "
E	3.07	Farmstead	
F	20.42	Beets	10 tons " "
G	21.89	Alfalfa	2 1/2 " " "

Ten head of horses valued at \$1,265 do the farm work and two colts valued at \$70 are being raised. One cow valued at \$75 supplies the household with milk and one calf valued at \$35 is being raised. The poultry flock consists of 117 head valued at \$68. This operator feeds sheep jointly with his landlord each year and the usual number fed is 1500 to 1600 head of lambs.

Good machinery is used on this farm, its inventory value being \$1,733. A substantial dwelling for the landlord with a well laid out lawn and suitable shrubbery and trees together with the tenant's house and barn, sheds and other outbuildings are valued at \$4,034.

The farm slopes gently to the east which affords ample drainage for the entire farm with the exception of the north-east portion of field G. This part of the farm requires drainage. The farm is well laid out from the standpoint of the irrigation ditches. The water will run through all the rows before the land becomes waterlogged.

The farm is located one-fourth of a mile from a beet dump where the staple farm crops can be marketed. For the marketing of such heavy tonnage crops as beets and potatoes this tract is well situated. All of the fields are easily accessible to a well laid out farmstead. The buildings are well laid out with reference to each other. There is a good farm garden with bush and tree fruits to supplement the vegetables.

Two corrections could be made on the farm which would materially help in its operation. One is to grade off a knoll in field A, carrying the dirt to the northwest so that it can be irrigated more easily. Another correction that could be made would be to grade down the break indicated by the arrows in field G into the lowland and let it drain into the slough immediately across the road.



FARM  
No. 16  
SCALE 1"=20'

Field	Cropped Area	Adjusting multiplier	Total
A	207	0.0	1.57
B	3	0.0	0.09
C	816	0.1	68.59
D	3817	0.31	38.89
E	307	0.0	3.07
F	1833	0.3	64.41
G	813	0.86	6.89
H	840	0.0	0.00
LANES			
			1.17
TOTAL			137.68



Farm No. 17.Area: 120 acres

This farm was purchased in 1909. The usual division of crops is agreed upon between the landlord and tenant. The landlord furnishes the usual material for repairs and upkeep. The acreages and crop yields for this farm in 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	9.93	Beets	15 tons per acre
B	2.85	Alfalfa	2 " " "
C	4.28	Potatoes	180 bu. " "
D	16.19	Alfalfa	2 tons " "
E	17.17	Potatoes	180 bu. " "
F	12.41	Alfalfa	2 tons " "
G	12.07	Barley	58 bu. " "
H	0.15	Beet shack	
I	6.53	Beets	15 tons " "
J	21.44	Alfalfa	2 " " "
K	.21	Garden	
L	17.62	Barley	58 bu. " "
M	2.12	Farmstead	
N	1.07	Alfalfa	2 tons " "

Five head of horses valued at \$450 and two old horses valued at \$30 each comprise the horse power on this place. One cow valued at \$60 furnishes the necessary milk for the household. Four hogs, two of which are breeding hogs, valued at \$65 are kept on the place. The poultry flock consists of 43 hens valued at \$33. Usually cattle and sheep are fed during the winter. At the time this inventory was taken he was about to finish off 60 head of steers and 1100 head of lambs.

The equipment which has a value of \$924 is kept in a good state of repairs. He has sufficient of all classes of machinery to perform the usual farm work. The farm is more or less

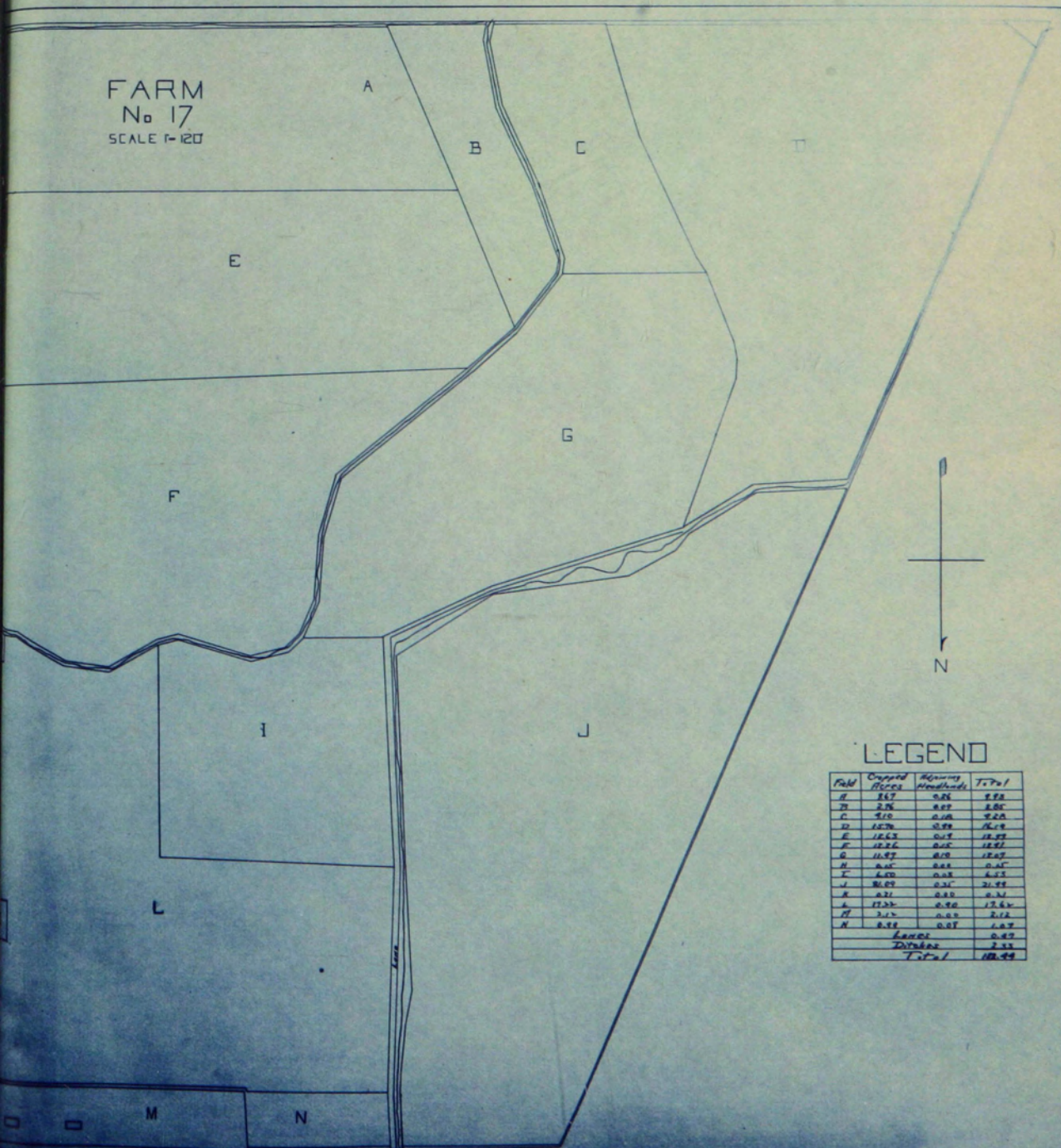


cut up due to its rolling nature and a seepage stream which crosses the farm in a meandering fashion. No drainage problems present themselves. The irrigation as practiced by this operator consists of liberal applications of water on the potato and beet crops. This operator applies his manure to the beet land and usually grows two or more crops of beets, one following the other, on the same piece of land.

The farm is located one and one-half miles from market where ready sales can be made for all classes of farm produce. The type of farming is well adapted to the soil and lay of the land as related to the crops. The farm is not as readily accessible to the farmstead as are some of the other farms studied in this area and cannot be operated so economically as some of the other farms in this group. A small farm garden is maintained. A modest dwelling, which is lighted by electricity, and ordinary barns and sheds constitute the building equipment. They are well located as to sanitation and fire hazards.

A part of field B could be affixed to field A and the remaining portion joined to field E. Field I should be joined to field L and the garden, field K, should be moved into some corner of field L. These changes would improve the present layout.

FARM  
No 17  
SCALE 1"=120'



# LEGEND

Field	Croped Acres	Remaining Woodlands	Total
A	2.67	0.25	2.92
B	2.76	0.27	3.03
C	5.10	0.10	5.20
D	12.70	0.28	12.98
E	12.63	0.19	12.82
F	12.66	0.25	12.91
G	11.57	0.10	11.67
H	0.45	0.22	0.67
I	4.40	0.25	4.65
J	8.10	0.25	8.35
K	0.21	0.20	0.41
L	17.22	0.40	17.62
M	3.12	0.20	3.32
N	0.22	0.27	0.49
Land			0.27
Ditches			2.22
Total			100.00

Farm No. 18.Area: 100 acres

This farm was purchased in 1910 for \$15,000. It is operated as a tenant farm. The usual division of crops is made between landlord and tenant as well as the usual method of keeping the farmstead in repair. The acreages and crop yields during the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	6.03	Potatoes	1747 cwt. total
B	3.12	Potatoes	
C	12.93	Barley	1105 bu. "
D	2.46	Farmstead	
E	1.07	Beans	1302 lbs. "
F	10.33	Alfalfa	80 tons "
G	6.37	Beets	76.77 tons "
H	17.50	Barley	
I	13.06	Potatoes	
J	18.07	Alfalfa	

The livestock inventory includes eight head of work horses valued at \$1,500; two milch cows valued at \$120; one calf valued at \$15; six hogs valued at \$94; two sheep valued at \$20 and 47 head of poultry valued at \$58. The operator on this farm feeds sheep rather extensively during the winter season; 12,000 head were handled during this present season. The machinery inventory approximated \$660.

The topography of this land presents a gentle slope toward the south. The farm consists of a sandy loam soil admirably adapted to the production of the usual farm crops. No drainage problems present themselves. All the ditches are laid out on grade with considerable thought and effort on the part of the operator. The usual irrigation practices are used.

Tillage as given to the potatoes and beets is perhaps a little more thorough than on some of the adjoining farms. The farm is located one and one-half miles from a market which will care for all the crops that are being grown at the present time. The building site is not well located with reference to general farm operations since it is necessary to travel around the place to reach certain fields. A farm garden produces the usual seasonal vegetables. A very substantial house, barn and other outbuildings have been erected on this place since it was purchased by the landlord. All the buildings are of brick construction, lighted by electricity with furnace heat and hot and cold water in the house. One suggestion offered with regard to improving the fields is to level off that small portion of field C lying north of field G and constructing the ditch to follow the field lines around the new field. Field a could be made into a permanent pasture advantageously.

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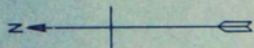
FARM

No 18

SCALE 1"=150'

## LEGEND

Field	Cropped Acres	Adjoining Head lands	Total
A	5.91	0.12	6.03
B	3.12	0.00	3.12
C	12.84	0.09	12.93
D	2.46	0.00	2.46
E	1.07	0.00	1.07
F	10.26	0.07	10.33
G	6.32	0.02	6.34
H	17.49	0.01	17.50
I	13.06	0.00	13.06
J	17.99	0.08	18.07
LANES			0.81
DITCHES			1.27
TOTAL			92.39



Farm No. 20Area: 200 acres

The original farm was purchased in 1895 for \$12,000. In 1901, 40 acres were added at a consideration of \$1,683. The usual division of crops and furnishings are in effect between the landlord and tenant. The acreages and crop yields for 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>			
A	10.07	Beets	9.72	tons	per	acre
B	0.43	Waste				
C	26.28	Alfalfa	1 1/2	"	"	"
D	5.66	Alfalfa	Burned			
E	0.61*					
F	28.27	Wheat	27.5	bu.	"	"
G	28.85	Beets	9.72	tons	"	"
H	5.99	Wheat	27.5	bu.	"	"
I	1.80	Beets	9.72	tons	"	"
J	0.36	Garden				
K	0.11	Waste				
L	0.80	Beet shacks				
M	25.96	Alfalfa	1	ton	"	"
N	1.43	Farmstead				
O	5.07	Beets	9.72	tons	"	"
P	15.81	Potatoes	105.2	cwt	"	"
Q	5.73	Barley	36.07	bu.	"	"
R	2.35	Alfalfa	Burned			
S	3.82	Feed yard				
T)	2.20	Barley	30.0	bu.	"	"
U)	0.60	With field T				
V	0.66	Waste				
W	0.72	Railroad				

\*Reverted to neighbor's farm.

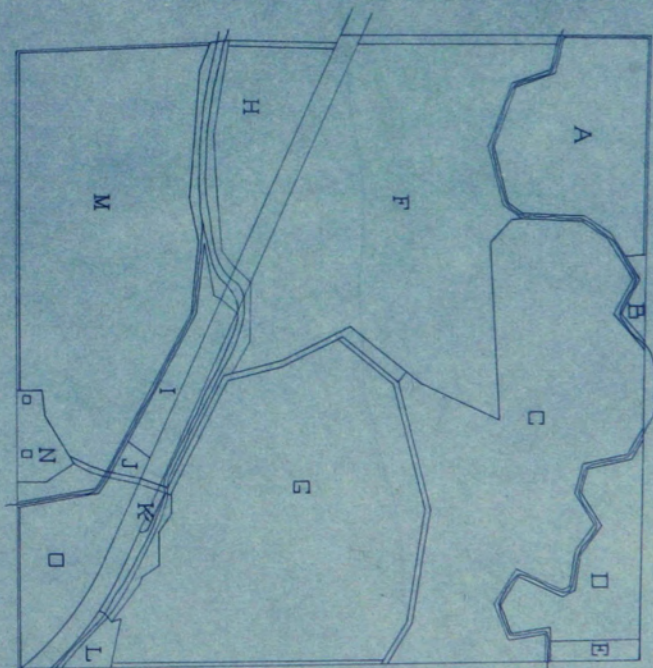
The livestock equipment embraces 11 head of horses valued at \$1,337; 3 cows valued at \$132; 3 head of young stock valued at \$55; one hog valued at \$10; 113 head of poultry valued at \$36. The farm machinery is complete, fairly well maintained and valued at \$793. The soil of this farm ranges from a sandy loam to an adobe and presents many and varied problems as to the best method of soil management.

Field G could be improved if it were drained. The irrigation ditches on this place are all laid out on contour. The laterals were not surveyed in but merely approximated which has caused an endless amount of unnecessary shoveling and washing of the land. The production of beets is the main item of his farming operations. The center of this farm is located about one mile from a sugar beet dump which also handles the grain and other crops from the farm. This farm is not adapted to the production of potatoes because of the nature of the greater portion of the soil. Beets, grain and alfalfa are used in the rotation.

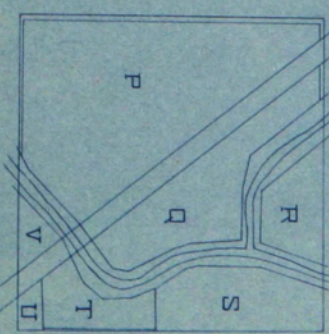
The buildings as related to the rest of the farm are inaccessible and long distances must be traveled to get to the various fields. A good farm garden is maintained. The house is located on a barren gravel knoll where little or no vegetation grows; it being dryland no effort is being made at the present time to improve it.

Field E should be joined to field D and field D to field A; I should be joined to fields J and S, T and U should combine in one field. A bridge should be constructed over the canal so that this area may be operated from field S. In like manner a railroad crossing should be put between fields P or Q, or a bridge should be constructed between fields T and Q in order to permit greater economy of operation.





Factor	Mean	Standard deviation	Mean	Standard deviation
A	0.8	0.1	0.6	
B	0.4	0.2	0.6	
C	0.2	0.3	0.6	
D	0.2	0.3	0.6	
E	0.2	0.3	0.6	
F	0.2	0.3	0.6	
G	0.2	0.3	0.6	
H	0.2	0.3	0.6	
I	0.2	0.3	0.6	
J	0.2	0.3	0.6	
K	0.1	0.6	0.7	
L	0.2	0.3	0.6	
M	0.2	0.3	0.6	
N	0.2	0.3	0.6	
O	0.2	0.3	0.6	
P	0.2	0.3	0.6	
Q	0.2	0.3	0.6	
R	0.2	0.3	0.6	
S	0.2	0.3	0.6	
T	0.2	0.3	0.6	
U	0.2	0.3	0.6	
V	0.2	0.3	0.6	
W	0.2	0.3	0.6	
X	0.2	0.3	0.6	
Y	0.2	0.3	0.6	
Z	0.2	0.3	0.6	
AA	0.2	0.3	0.6	
AB	0.2	0.3	0.6	
AC	0.2	0.3	0.6	
AD	0.2	0.3	0.6	
AE	0.2	0.3	0.6	
AF	0.2	0.3	0.6	
AG	0.2	0.3	0.6	
AH	0.2	0.3	0.6	
AI	0.2	0.3	0.6	
AJ	0.2	0.3	0.6	
AK	0.2	0.3	0.6	
AL	0.2	0.3	0.6	
AM	0.2	0.3	0.6	
AN	0.2	0.3	0.6	
AO	0.2	0.3	0.6	
AP	0.2	0.3	0.6	
AQ	0.2	0.3	0.6	
AR	0.2	0.3	0.6	
AS	0.2	0.3	0.6	
AT	0.2	0.3	0.6	
AU	0.2	0.3	0.6	
AV	0.2	0.3	0.6	
AW	0.2	0.3	0.6	
AX	0.2	0.3	0.6	
AY	0.2	0.3	0.6	
AZ	0.2	0.3	0.6	
BA	0.2	0.3	0.6	
BB	0.2	0.3	0.6	
BC	0.2	0.3	0.6	
BD	0.2	0.3	0.6	
BE	0.2	0.3	0.6	
BF	0.2	0.3	0.6	
BG	0.2	0.3	0.6	
BH	0.2	0.3	0.6	
BI	0.2	0.3	0.6	
BJ	0.2	0.3	0.6	
BK	0.2	0.3	0.6	
BL	0.2	0.3	0.6	
BM	0.2	0.3	0.6	
BN	0.2	0.3	0.6	
BO	0.2	0.3	0.6	
BP	0.2	0.3	0.6	
BQ	0.2	0.3	0.6	
BR	0.2	0.3	0.6	
BS	0.2	0.3	0.6	
BT	0.2	0.3	0.6	
BU	0.2	0.3	0.6	
BV	0.2	0.3	0.6	
BW	0.2	0.3	0.6	
BX	0.2	0.3	0.6	
BY	0.2	0.3	0.6	
BZ	0.2	0.3	0.6	
CA	0.2	0.3	0.6	
CB	0.2	0.3	0.6	
CC	0.2	0.3	0.6	
CD	0.2	0.3	0.6	
CE	0.2	0.3	0.6	
CF	0.2	0.3	0.6	
CG	0.2	0.3	0.6	
CH	0.2	0.3	0.6	
CI	0.2	0.3	0.6	
CJ	0.2	0.3	0.6	
CK	0.2	0.3	0.6	
CL	0.2	0.3	0.6	
CM	0.2	0.3	0.6	
CN	0.2	0.3	0.6	
CO	0.2	0.3	0.6	
CP	0.2	0.3	0.6	
CQ	0.2	0.3	0.6	
CR	0.2	0.3	0.6	
CS	0.2	0.3	0.6	
CT	0.2	0.3	0.6	
CU	0.2	0.3	0.6	
CV	0.2	0.3	0.6	
CW	0.2	0.3	0.6	
CX	0.2	0.3	0.6	
CY	0.2	0.3	0.6	
CZ	0.2	0.3	0.6	
DA	0.2	0.3	0.6	
DB	0.2	0.3	0.6	
DC	0.2	0.3	0.6	
DD	0.2	0.3	0.6	
DE	0.2	0.3	0.6	
DF	0.2	0.3	0.6	
DG	0.2	0.3	0.6	
DH	0.2	0.3	0.6	
DI	0.2	0.3	0.6	
DJ	0.2	0.3	0.6	
DK	0.2	0.3	0.6	
DL	0.2	0.3	0.6	
DM	0.2	0.3	0.6	
DN	0.2	0.3	0.6	
DO	0.2	0.3	0.6	
DP	0.2	0.3	0.6	
DQ	0.2	0.3	0.6	
DR	0.2	0.3	0.6	
DS	0.2	0.3	0.6	
DT	0.2	0.3	0.6	
DU	0.2	0.3	0.6	
DV	0.2	0.3	0.6	
DW	0.2	0.3	0.6	
DX	0.2	0.3	0.6	
DY	0.2	0.3	0.6	
DZ	0.2	0.3	0.6	
EA	0.2	0.3	0.6	
EB	0.2	0.3	0.6	
EC	0.2	0.3	0.6	
ED	0.2	0.3	0.6	
EE	0.2	0.3	0.6	
EF	0.2	0.3	0.6	
EG	0.2	0.3	0.6	
EH	0.2	0.3	0.6	
EI	0.2	0.3	0.6	
EJ	0.2	0.3	0.6	
EK	0.2	0.3	0.6	
EL	0.2	0.3	0.6	
EM	0.2	0.3	0.6	
EN	0.2	0.3	0.6	
EO	0.2	0.3	0.6	
EP	0.2	0.3	0.6	
EQ	0.2	0.3	0.6	
ER	0.2	0.3	0.6	
ES	0.2	0.3	0.6	
ET	0.2	0.3	0.6	
EU	0.2	0.3	0.6	
EV	0.2	0.3	0.6	
EW	0.2	0.3	0.6	
EX	0.2	0.3	0.6	
EY	0.2	0.3	0.6	
EZ	0.2	0.3	0.6	
FA	0.2	0.3	0.6	
FB	0.2	0.3	0.6	
FC	0.2	0.3	0.6	
FD	0.2	0.3	0.6	
FE	0.2	0.3	0.6	
FF	0.2	0.3	0.6	
FG	0.2	0.3	0.6	
FH	0.2	0.3	0.6	
FI	0.2	0.3	0.6	
FJ	0.2	0.3	0.6	
FK	0.2	0.3	0.6	
FL	0.2	0.3	0.6	
FM	0.2	0.3	0.6	
FN	0.2	0.3	0.6	
FO	0.2	0.3	0.6	
FP	0.2	0.3	0.6	
FQ	0.2	0.3	0.6	
FR	0.2	0.3	0.6	
FS	0.2	0.3	0.6	
FT	0.2	0.3	0.6	
FU	0.2	0.3	0.6	
FV	0.2	0.3	0.6	
FW	0.2	0.3	0.6	
FX	0.2	0.3	0.6	
FY	0.2	0.3	0.6	
FZ	0.2	0.3	0.6	
GA	0.2	0.3	0.6	
GB	0.2	0.3	0.6	
GC	0.2	0.3	0.6	
GD	0.2	0.3	0.6	
GE	0.2	0.3	0.6	
GF	0.2	0.3	0.6	
GG	0.2	0.3	0.6	
GH	0.2	0.3	0.6	
GI	0.2	0.3	0.6	
GJ	0.2	0.3	0.6	
GK	0.2	0.3	0.6	
GL	0.2	0.3	0.6	
GM	0.2	0.3	0.6	
GN	0.2	0.3	0.6	
GO	0.2	0.3	0.6	
GP	0.2	0.3	0.6	
GQ	0.2	0.3	0.6	
GR	0.2	0.3	0.6	
GS	0.2	0.3	0.6	
GT	0.2	0.3	0.6	
GU	0.2	0.3	0.6	
GV	0.2	0.3	0.6	
GW	0.2	0.3	0.6	
GX	0.2	0.3	0.6	
GY	0.2	0.3	0.6	
GZ	0.2	0.3	0.6	
HA	0.2	0.3	0.6	
HB	0.2	0.3	0.6	
HC	0.2	0.3	0.6	
HD	0.2	0.3	0.6	
HE	0.2	0.3	0.6	
HF	0.2	0.3	0.6	
HG	0.2	0.3	0.6	
HH	0.2	0.3	0.6	
HI	0.2	0.3	0.6	
HJ	0.2	0.3	0.6	
HK	0.2	0.3	0.6	
HL	0.2	0.3	0.6	
HM	0.2	0.3	0.6	
HN	0.2	0.3	0.6	
HO	0.2	0.3	0.6	
HP	0.2	0.3	0.6	
HQ	0.2	0.3	0.6	
HR	0.2	0.3	0.6	
HS	0.2	0.3	0.6	
HT	0.2	0.3	0.6	
HU	0.2	0.3	0.6	
HV	0.2	0.3	0.6	
HW	0.2	0.3	0.6	
HX	0.2	0.3	0.6	
HY	0.2	0.3	0.6	
HZ	0.2	0.3	0.6	
IA	0.2	0.3	0.6	
IB	0.2	0.3	0.6	
IC	0.2	0.3	0.6	
ID	0.2	0.3	0.6	
IE	0.2	0.3	0.6	
IF	0.2	0.3	0.6	
IG	0.2	0.3	0.6	
IH	0.2	0.3	0.6	
II	0.2	0.3	0.6	
IJ	0.2	0.3	0.6	
IK	0.2	0.3	0.6	
IL	0.2	0.3	0.6	
IM	0.2	0.3	0.6	
IN	0.2	0.3	0.6	
IO	0.2	0.3	0.6	
IP	0.2	0.3	0.6	
IQ	0.2	0.3	0.6	
IR	0.2	0.3	0.6	
IS	0.2	0.3	0.6	
IT	0.2	0.3	0.6	
IU	0.2	0.3	0.6	
IV	0.2	0.3	0.6	
IW	0.2	0.3	0.6	
IX	0.2	0.3	0.6	
IY	0.2	0.3	0.6	
IZ	0.2	0.3	0.6	
JA	0.2	0.3	0.6	
JB	0.2	0.3	0.6	
JC	0.2	0.3	0.6	
JD	0.2	0.3	0.6	
JE	0.2	0.3	0.6	
JF	0.2	0.3	0.6	
JG	0.2	0.3	0.6	
JH	0.2	0.3	0.6	
JI	0.2	0.3	0.6	
JJ	0.2	0.3	0.6	
JK	0.2	0.3	0.6	
JL	0.2	0.3	0.6	
JM	0.2	0.3	0.6	
JN	0.2	0.3	0.6	
JO	0.2	0.3	0.6	
JP	0.2	0.3	0.6	
JQ	0.2	0.3	0.6	
JR	0.2	0.3	0.6	
JS	0.2	0.3	0.6	
JT	0.2	0.3	0.6	
JU	0.2	0.3	0.6	
JV	0.2	0.3	0.6	
JW	0.2	0.3	0.6	
JX	0.2	0.3	0.6	
JY	0.2	0.3	0.6	
JZ	0.2	0.3	0.6	
KA	0.2	0.3	0.6	
KB	0.2	0.3	0.6	
KC	0.2	0.3	0.6	
KD	0.2	0.3	0.6	
KE	0.2	0.3	0.6	
KF	0.2	0.3	0.6	
KG	0.2	0.3	0.6	
KH	0.2	0.3	0.6	
KI	0.2	0.3	0.6	
KJ	0.2	0.3	0.6	
KK	0.2	0.3	0.6	
KL	0.2	0.3	0.6	
KM	0.2	0.3	0.6	
KN	0.2	0.3	0.6	
KO	0.2	0.3	0.6	
KP	0.2	0.3	0.6	
KQ	0.2	0.3	0.6	
KR	0.2	0.3	0.6	
KS	0.2	0.3	0.6	
KT	0.2	0.3	0.6	
KU	0.2	0.3	0.6	
KV	0.2	0.3	0.6	
KW	0.2	0.3	0.6	
KX	0.2	0.3	0.6	
KY	0.2	0.3	0.6	
KZ	0.2	0.3	0.6	
LA	0.2	0.3	0.6	
LB	0.2	0.3	0.6	
LC	0.2	0.3	0.6	
LD	0.2	0.3	0.6	
LE	0.2	0.3	0.6	
LF	0.2	0.3	0.6	
LG	0.2	0.3	0.6	
LH	0.2	0.3	0.6	
LI	0.2	0.3	0.6	
LJ	0.2	0.3	0.6	
LK	0.2	0.3	0.6	
LL	0.2	0.3	0.6	
LM	0.2	0.3	0.6	
LN	0.2	0		





Farm No. 23.Area: 178 acres

Crop acreages and yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>				
A	22.8	Beets	10.36	tons	per	acre	
B	23.56	Alfalfa	1 1/2	"	"	"	
C	20.72	Wheat	25	bu.	"	"	
D	20.88	Oats (dryland)	Failure				
E	32.00	Potatoes	15	bu.	"	"	
F	25.42	Alfalfa	1.4	tons	"	"	
G	24.04	Potatoes	150	bu.	"	"	
H	0.52	Pasture					
I	2.52	Alfalfa	2.52	tons	"	"	
J	1.31	Farmstead					

This farm is rolling in topography and from this standpoint is rather difficult to operate. There are no drainage problems but the irrigation of this farm with its deep sand hills presents problems that are not easy to solve. The tract lies diagonally across the road from farm No. 12 and since the same party operates both farms the management is similar.

A large portion of field D, which is dryland, could be reclaimed by constructing a ditch leading away from the main ditch and diking the banks for a considerable distance on the main ditch so that the water could be carried onto the place more economically. In irrigating a farm with steep side hills similar to this farm, I believe that a little better results could be obtained if the rows were planned diagonally across the fields which would help check the flow of water and prevent erosion.

FARM  
No 23  
SCALE 1:150

A B C

D E

F

G

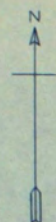
H

I

J

# LEGEND

Field	Cropped Acres	Adjoining Highway	Total
A	20.41	0.31	20.72
B	23.04	0.92	23.96
C	22.09	0.71	22.80
D	19.95	0.73	20.68
E	31.53	0.47	32.00
F	24.85	0.47	25.32
G	23.24	0.80	24.04
H	0.82	0.00	0.82
I	2.52	0.00	2.52
J	1.31	0.00	1.31
LANES			0.31
DITCHES			3.32
TOTAL			177.20



Farm No. 24.Area: 155 acres

This farm was purchased in 1913 for \$12,000 cash. Improvements such as building silos and fences have been erected at a cost of \$2,000. The farm has paid for itself since it was purchased. The usual division of crops and expenses are covered in the agreement existing between the landlord and tenant. Crop acreages and yields for the year 1922 were as follows:

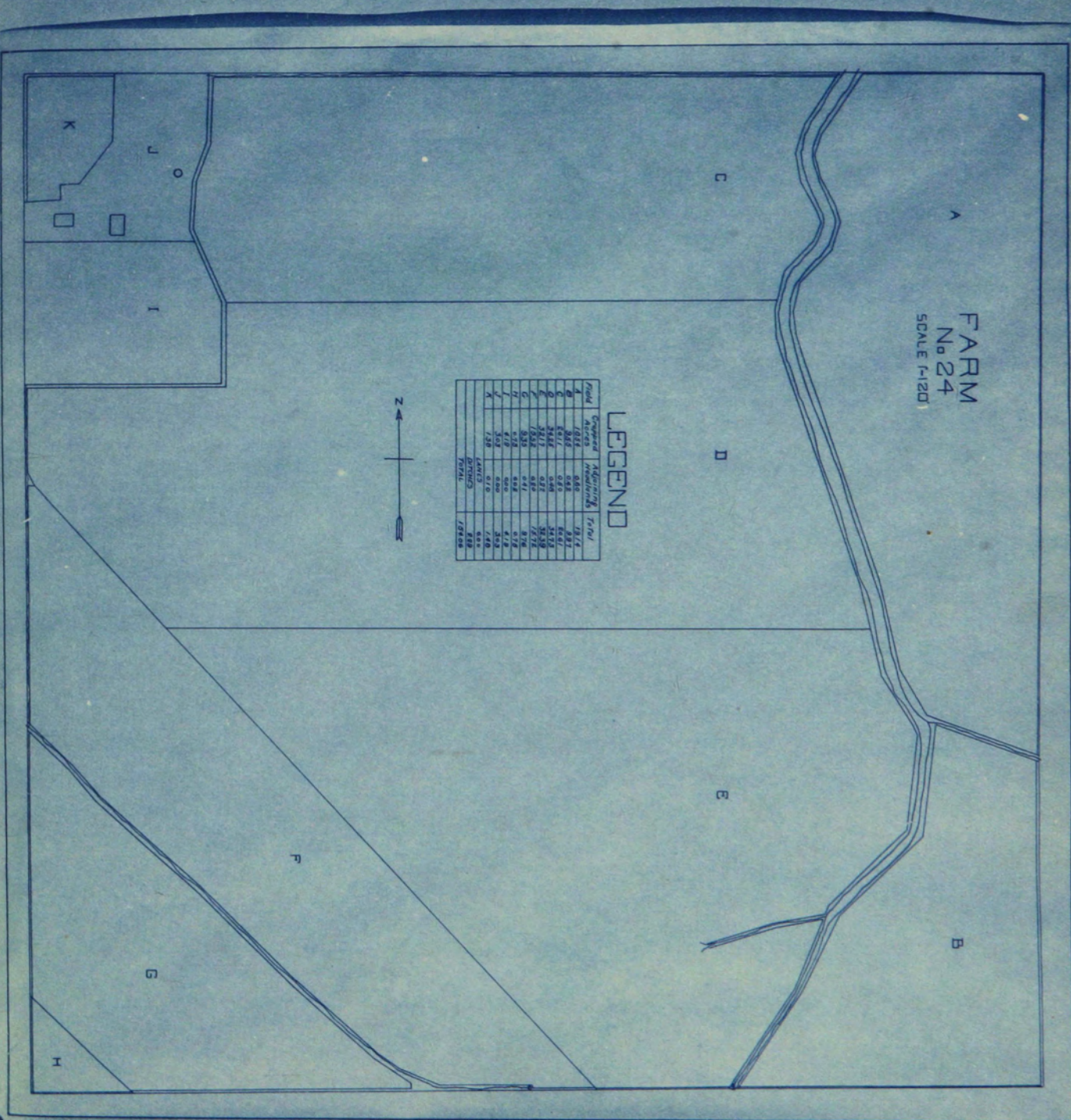
<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	19.14	Wheat	Failure
B	9.97	Alfalfa	74 tons total
C	20.61	Wheat	1360 bu. "
D	34.73	Potatoes	6120 cwt. "
E	32.39	Alfalfa	
F	15.72	Wheat	
G	9.76	Potatoes	
H	0.75	Alfalfa	
I	4.19	Pasture	
J	3.03	Farmstead	
K	1.48	Wheat	

The livestock kept on this farm consists of eight head horses valued at \$800; one dairy cow valued at \$50; 105 Rhode Island Red hens valued at \$96. The inventory value of farm machinery was \$1,416.

The farm is gently rolling and of the sandy loam type soil and highly productive. There are no drainage problems and the place is very easily irrigated. This farm is located about one-half miles from <sup>a</sup> good market. The facilities for access to the various fields are extremely poor, due to arrangement of lanes and roads. A good farm garden is kept. The

house and barns and other outbuildings are very well located with one exception, the house being lower than the other buildings with adjacent corrals. Field H should be combined with field J.





Farm No. 25.Area: 117 acres

This farm was purchased in 1915 for \$25,000. The first payment amounted to \$20,000. Thirty-five hundred dollars worth of improvements have been placed on the farm since 1915. The soil is a heavy loam, having a gentle slope to the south. Taxes, assessments, materials for repairs, all the equipment, one-half of the beet labor, one-half of the thrashing bill and all seeds are furnished by the proprietor, for which he takes two-thirds of all crops produced and their by-products. This is an agreement between father and son. Crop acreages and yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>			
A	23.32	Alfalfa	3.4	tons	per	acre
B	12.93	Wheat	32	bu.	"	"
C	5.55	Potatoes	120	lbs.	"	"
D	4.00	Beets	11	tons	"	"
E	9.50	Beans	6	bu.	"	"
F	1.22	Orchard				
G	3.04	Farmstead				
H	1.98	Oats	70	bu.	"	"
I	5.80	Barley	44	bu.	"	"
J	5.40	Beans	5	bu.	"	"
K	17.33	Potatoes	120	lbs.	"	"
L	11.99	Beets	11	tons	"	"
M	13.54	Alfalfa	3.4	tons	"	"

Eight head of horses do the farm work and are valued at \$1,025. One other horse valued at \$10 is on the farm. Other livestock includes: two Jersey cows valued at \$180, two other cattle invoiced at \$95; five hogs valued at \$28 and 137 poultry valued at \$110. This operator feeds both cattle and sheep for market. The machinery necessary to operate this farm, including miscellaneous equipment, is valued at \$1,007.

The topography of this farm is uniform, there being just sufficient slope to irrigate properly. In most cases it is not necessary for winding ditches to carry the water to all parts of the farm. No drainage problems exist. The irrigation on this farm is so arranged as to leave a maximum amount of water for the production of beets and potatoes. The tillage methods employed in connection with the various crops grown are consistent with those used on neighboring farms. The farm is located one-half mile from market which is equipped to handle farm produce and livestock shipments. It is especially well adapted to the production of beets, beans and potatoes. All the fields are readily accessible from the building site which has a lane leading from it and abutting on all the fields within the farm. A very good garden is maintained, furnishing an abundance of vegetables; it also contains the various bush and tree fruits.

The farmstead is well laid out having ample buildings to house all the livestock and machinery. The house is modern except heat. One correction which could be made in this farm is that of joining field H to field E and eliminating the small ditch existing between fields J and I, making these ditches one. This farm is in a very high state of cultivation and is being constantly improved and carries a wide diversification of crops.







Farm No. 26.Area: 160 acres

This farm was purchased in 1917 at a cost of \$28,500. An initial payment of \$8,000 was made. Since the date of purchase \$10,000 has been expended in buildings, \$1,000 in fences and \$2,000 in tile drains. The farm has earned \$17,000 and this amount has been applied towards liquidation of indebtedness.

The crop acreages and yields in 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>		
A	22.48	Beets	225.61	tons	total
B	10.96	Barley	150	bu.	"
C	10.84	Oats	300	bu.	"
D	29.04	Alfalfa	148.4	tons	"
E	16.78	Wheat	270.83	cwt.	"
F	5.20	Pasture			
G	30.11	Potatoes	3960	cwt.	"
H	19.06	Alfalfa			
I	0.67	Garden			
J	4.01	Farmstead			
K	1.90	Wheat			
L	0.40	Beet shack			

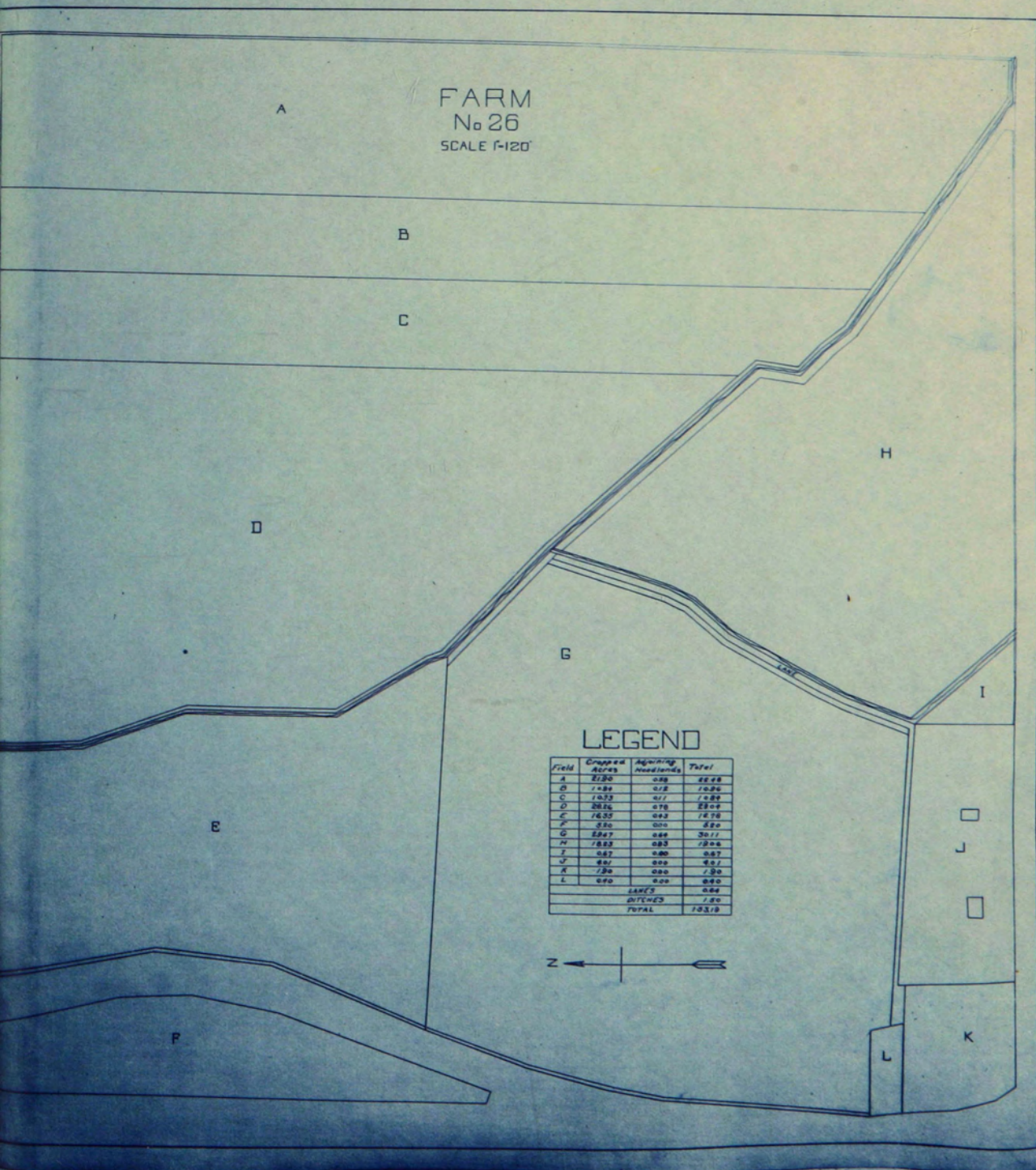
The work stock consists of 10 head of horses with an invoice value of \$1,130; there are four young horses valued at \$165. The other livestock consists of five cows valued at \$300; 10 head of growing calves valued at \$205; 28 head of growing hogs valued at \$270, and 139 head of poultry valued at \$109. The operator feeds sheep commercially during the fall and winter months. The machinery necessary to operate this farm is valued at \$1,231.

The topography of this farm is gently rolling. The soil is a productive sandy loam. No drainage problems are apparent on this place at the present time. The operator of this farm is laying out one of the best irrigation systems to be found

in the entire area. He is piping all of the ditches on the farm with thought of conserving water. All these ditches have been surveyed with the aid of surveyors' instruments and very careful planning has resulted in a well laid out farm. This farm is located one mile from market. The farmstead is well situated with reference to all the fields and a good system of lanes makes it easy to reach every part of the tract. This farm is well adapted to various farm crops and a wide diversification in the usual farm crops is practiced. The operator has a rotation in mind which he is endeavoring to establish. A good farm garden carrying a wide variety of vegetables, bush and tree fruits is maintained. New buildings have been erected which house the family and shelter the livestock and equipment.

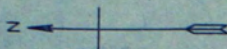
Contemplated changes by the operator are as follows: To lay a pipe line along field D, across the bend of the ditch, in order to straighten that ditch. There is a small knoll in the south central portion of field A which can be graded off to the north, thus eliminating a lateral leading to that knoll. A similar knoll exists in the center of field F which can be graded off to the southwest and eliminate a lateral leading to that field.

FARM  
No 26  
SCALE 1"=120'



LEGEND

Field	Cropped Acres	Agri-cul-tural Lands	Total
A	2.25	0.00	2.25
B	1.48	0.12	1.60
C	10.73	0.11	10.84
D	28.16	0.78	28.94
E	16.55	0.00	16.55
F	3.80	0.00	3.80
G	28.47	0.00	28.47
H	12.13	0.03	12.16
I	0.67	0.00	0.67
J	0.00	0.00	0.00
K	1.20	0.00	1.20
L	0.00	0.00	0.00
LAKES			0.00
DITCHES			1.80
TOTAL			103.18



Farm No. 27.Area: 120 acres

This farm was purchased in 1902 for a cash price of \$4,-500. Since that time there has been an expenditure of \$1,160 for building improvements. This tract is operated as a tenant farm. The division of crops on the place as follows: One-half of the hay and potatoes, one-fourth of the beets, one-third of the grain, all of which go to the landlord. The necessary money for taxes, assessments and maintenance of buildings and fences is paid by the landlord. The crop acreages and yields for 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	7.13	Potatoes	1008 cwt. total
B	2.05	Potatoes	
C	7.42	Barley	56 cwt. "
D	27.96	Pasture	
E	6.31	Alfalfa	52.35 tons "
F	0.34	Waste	
G	9.44	Beets	101.34 tons "
H	2.79	Waste	
I	2.03	Farmstead	
J	3.27	Waste	
K	10.39	Alfalfa	
L	8.02	Corn	28 tons "
M	3.15	Pasture	
N	9.46	Wheat	145 cwt. "
O	4.24	Alfalfa	
P	7.36	Wheat	

Eight head of work horses valued at \$760 and two other horses valued at \$150 constitute the work stock. The productive livestock consists of five cows valued at \$295; five other cattle valued at \$165; two hogs valued at \$45; and 102 poultry worth \$12. The machinery equipment is valued at \$822.

The topography of this farm is very irregular, the farm

being a series of knolls and small hollows throughout its entire area. A serious drainage problem confronts the owner for there is a seep stream running through the farm in field D. All of the ditches are laid on contour and are very crooked. Many ditches are maintained to carry the water properly to the various fields. The tillage given the crops on this farm is nearly the same as that given on other farms included in this investigation.

The farm is located two and one-half miles from market. It is not well adapted to the usual type of farming due to its rough topography, although diversified farming is practiced. The buildings are well located and are well situated with reference to the fields, although where an area is as badly cut up with ditches as this farm is, it is extremely difficult to have all the fields accessible. A good farm garden is maintained. A modest but comfortable house, lighted with lamps, provides the family with living quarters. There is sufficient stable room to care for the livestock.

By grading off fields E and B toward and into fields C and A, the ditch leading between field A and B could be removed and similar grading of field F into field A would permit a ditch to be constructed on the property line on the east side of the farm. Fields J and K should be joined and made into one field. Very few other improvements could be effected unless the lowlands are drained and a great deal of grading done on the balance of the fields so as to make them larger

and straighten their boundary lines. These costs would perhaps be prohibitive in relation to the benefits derived. This farm is admirably adapted to the growing of hay and dairying.

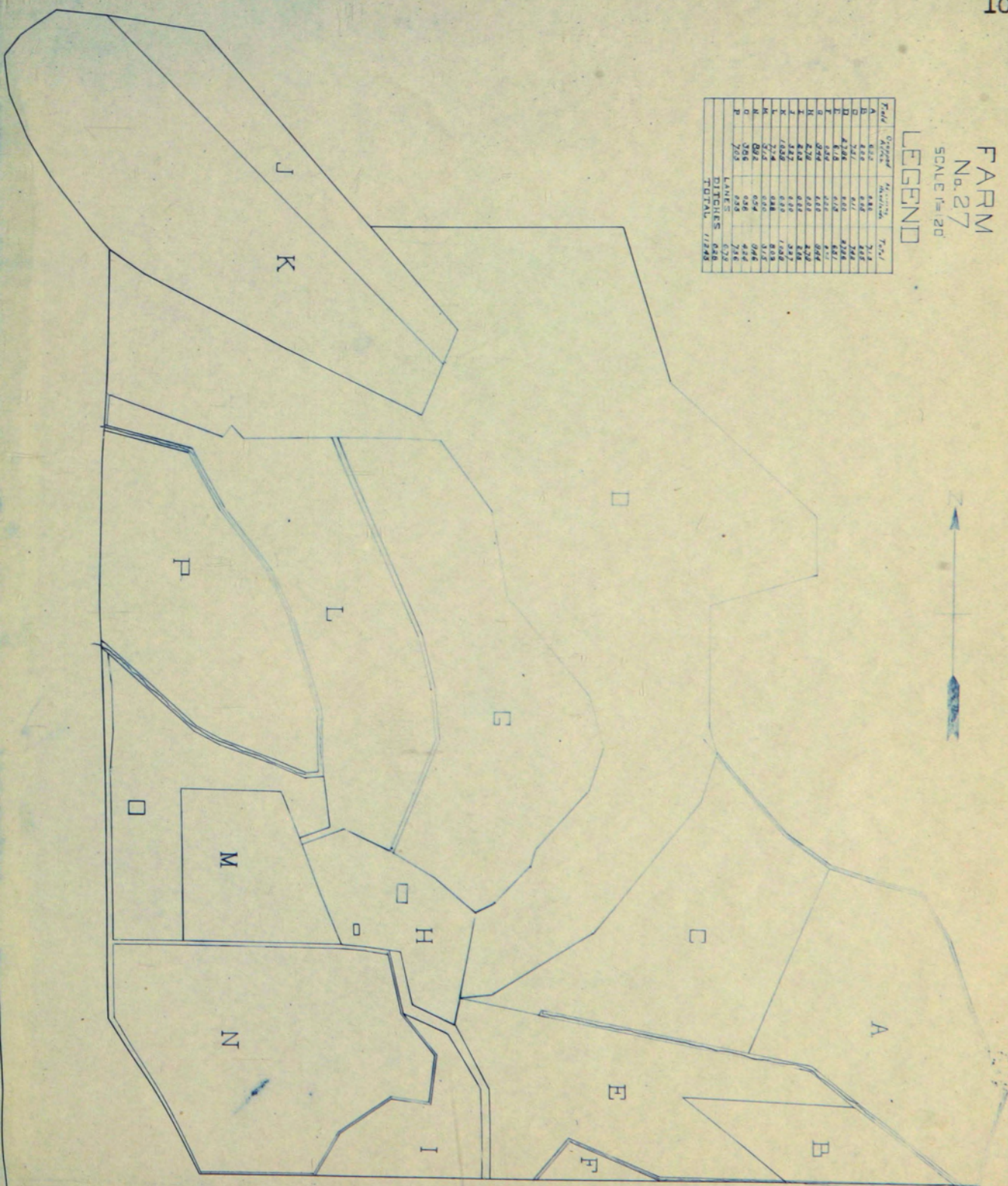


FARM  
No. 27

SCALE 1"=20'

## LEGEND

Field	Original	Revised	Total
A	6.00	6.00	6.00
B	6.00	6.00	6.00
C	7.51	6.11	7.51
D	8.24	6.00	8.24
E	6.00	6.00	6.00
F	6.00	6.00	6.00
G	6.00	6.00	6.00
H	6.00	6.00	6.00
I	6.00	6.00	6.00
J	6.00	6.00	6.00
K	6.00	6.00	6.00
L	6.00	6.00	6.00
M	6.00	6.00	6.00
N	6.00	6.00	6.00
O	6.00	6.00	6.00
P	6.00	6.00	6.00
LANDS	70.0	70.0	70.0
DITCHES	6.00	6.00	6.00
TOTAL	112.0	112.0	112.0



Farm No. 28.Area: 120 acres

This farm was purchased in 1916 for the sum of \$9,500 of which \$2,500 was paid in cash. Since purchasing the place \$6,000 has been expended in buildings and 55 per cent of the purchase price has been earned and paid by the farm. The crop acreages and yields for the year 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>	
A	23.89	Alfalfa	100 tons	total
B	11.23	Wheat	1310 bu.	"
C	10.11	Alfalfa		
D	27.02	Wheat		
E	0.43	Root cellar		
F	0.34	Wood lot		
G	2.85	Pasture		
H	0.21	Garden		
I	1.20	Farmstead		
J	0.30	Tenant place		
K	32.15	Potatoes	3858 cwt.	total

The livestock inventory embraces six work horses valued at \$565; two cows valued at \$120; one beef yearling valued at \$30; two hogs valued at \$60; three sheep valued at \$18; and 93 chickens valued at \$94. The machinery necessary to operate this farm was invoiced at \$615.

This farm is sandy loam soil and is gently rolling with a ridge running through it from the northwest toward the southeast which carries the necessary irrigation water for the various fields. In field D there is a low seepy portion of land which materially cuts production for that field. There is no visible outlet to drain this area without a prohibitive expenditure of money. This being a hay, potato and grain farm most of the irrigation water is conserved for the production of the potato crop. Good tillage is the rule on this place.



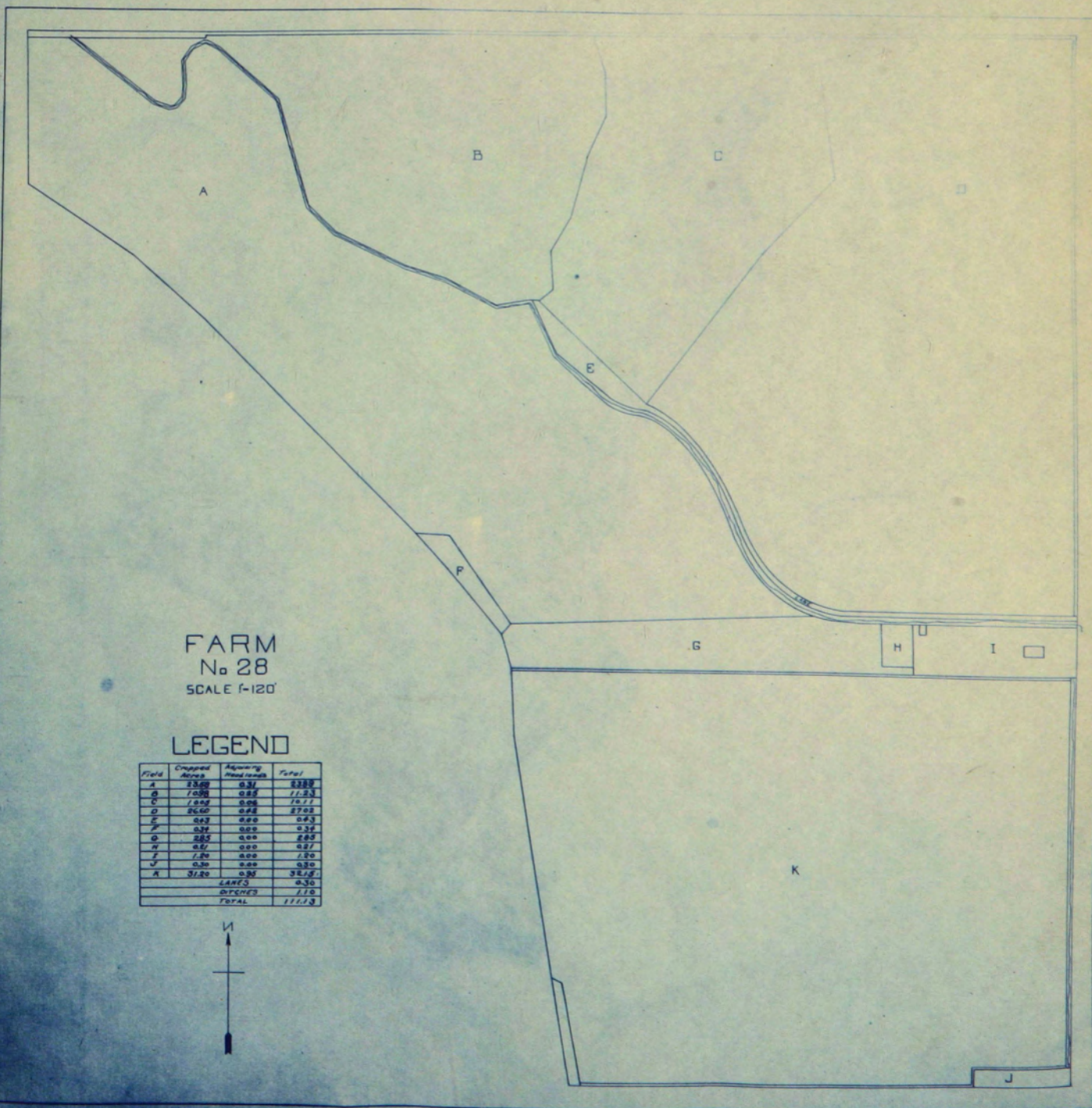
It is located two miles from a good market. A wider diversification of crops should be practiced and more livestock might be maintained in order to keep the farm in the proper state of fertility. The buildings are well located with reference to accessibility of the fields. A small farm garden with bush and tree fruits in it is kept. A comfortable and modern home houses the family and sufficient stable room is provided to house the livestock. There is no machine shed on the place.

In field A there is a small dryland knoll which could be leveled off and worked down to the point where the water could be carried along the property line, thus eliminating a very crooked ditch which forms a complete letter "S". Fields K, G and A could be joined and laid off in equal sized fields.

FARM  
No 28  
SCALE 1-120'

# LEGEND

Field	Cropped Acres	Adjoining Road (mils)	Total
A	25.60	0.31	25.91
B	1.000	0.00	1.000
C	1.000	0.00	1.000
D	26.60	0.00	26.60
E	0.43	0.00	0.43
F	0.32	0.00	0.32
G	28.5	0.00	28.5
H	0.07	0.00	0.07
I	1.20	0.00	1.20
J	0.30	0.00	0.30
K	31.20	0.30	31.50
LANES			0.30
TOTAL			111.53



Farm No. 29.Area: 151 acres

This farm was purchased in 1910 in the raw state for \$9,-060. The first payment amounted to \$1,812. Since its purchase \$12,000 has been expended in various improvements necessary for successful operation. The crop acreages and yields for 1922 were as follows:

<u>Field</u>	<u>Acres</u>	<u>Crop</u>	<u>Yield</u>
A	19.53	Alfalfa	115 tons total
B	1.97	Farmstead	
C	14.99	Alfalfa	
D	0.58	Dry pasture	
E	0.12	Garden	
F	5.70	Tenant farmstead	
G	30.35	Wheat	1221 bu. total
H	27.96	Alfalfa	
I	12.28	Wheat	
J	4.56	Dry land	
K	3.49	Dry land	
L	23.74	Potatoes	1966 cwt. total

Seven head of horses valued at \$580 furnishes ample work stock. Other livestock includes three dairy cows valued \$120; two dairy cows valued at \$20; 21 hogs valued at \$221; 80 head of grade Hampshire sheep valued at \$418; and 109 poultry valued at \$94. The necessary machinery to operate this place was invoiced at \$709.

This farm is gently rolling in its contour and is made up of sandy loam soil which is very productive. No drainage problems exist and the usual irrigation practices are in vogue. The farm is located one-half mile from a small but thriving town where there is a ready market for all the commodities produced. Diversified farming which is practiced is building up

the fertility of this place. The buildings are located along the main highway but due to a large canal which traverses the farm and the absence of bridges across it, makes a large amount of travel necessary to get to the various fields. An excellent garden is maintained. The farm home is strictly modern in every respect and was built at an expense of approximately \$8,000.

By raising the dike and laying a pipeline between fields J and L and extending into field K a large portion of the latter field could be irrigated. It would be necessary however to grade portions of field K off to the northeast and southwest to properly irrigate that field. Field J could be leveled off and irrigated as there is good opportunity to spread the dirt thus removed and it would help the fields into which it was taken. A bridge should cross the ditch at the end of the lane leading from the farmstead to the east which would save many miles of travel in the operation of fields G, L, K, J and I.



FARM  
No 29  
SCALE 1:4200

# LEGEND

Field	Cropped Acres	Adj. Woodlands	Total
A	18.2	0.0	18.2
B	1.2	0.0	1.2
C	18.2	0.0	18.2
D	0.0	0.0	0.0
E	0.0	0.0	0.0
F	0.0	0.0	0.0
G	0.0	0.0	0.0
H	0.0	0.0	0.0
I	0.0	0.0	0.0
J	0.0	0.0	0.0
K	0.0	0.0	0.0
L	0.0	0.0	0.0
LANDS OTHERS			0.0
TOTAL			17.6



CONCLUSIONS.

1. The size, shape and arrangement of the fields are influenced directly by the methods used in laying out and constructing the irrigation ditches. On many farms the fields must conform to the plans which have been developed for the purpose of carrying water to the various parts of the tract. These features are conspicuous in farms No. 20, No. 23 and No. 27. In connection with farm No. 27 it is pointed out that by grading off fields E and B toward and into fields C and A, the ditch leading between fields A and B could be removed. Similar grading of field F into field A would permit a ditch to be constructed on the property line on the east side of the farm.

2. The system of cropping on these farms is rather flexible; it is not definitely fixed except in a few instances and it does not bear a direct relation to farm layout. Farm No. 7, No. 11 and No. 13 are using fixed rotations. Farm No. 11 is undoubtedly the best illustration in this list. The crops grown are alfalfa, potatoes, sugar beets and grain. A regular sequence is observed in cropping.

3. It would appear that the topography and location of certain of these farms might permit wider use and adaptation of livestock enterprises in order to utilize pasture lands located on areas that are partially waterlogged, or areas above the ditch that are devoted to dryland pasture. Notable illustrations of this feature may be found in farms No. 2, No. 3



and No. 15. In the analysis of farm No. 3 it is pointed out that the type of farming as practiced at the present time is good, although it would seem to be desirable to keep more dairy cows in order to utilize completely available pasture land.

4. In the main the farm buildings are well located with respect to economy of labor in performing farm work. However, attention is directed to certain specific cases in the manuscript to modifications which would undoubtedly prove to be highly beneficial. These comments will be found in the discussion of farms No. 9, No. 20 and No. 29. In the case of farm No. 20 it is pointed out that field E should be joined to field D and field D should be combined with field A. Field I should be made a part of fields J and S and fields T and U can be consolidated to advantage. A bridge constructed over the canal would assist in making certain areas on the farm more accessible.

5. It is obvious that irregular shaped fields require more labor per unit and had a higher percentage of waste land than well proportioned fields. Hence the proposals which are made concerning certain changes looking towards consolidation and expansion in order to secure a better balance in the fields of the farm would undoubtedly prove to be good business changes for these particular tracts. Farms No. 12 and No. 25 illustrate this point.