

EQUIPMENT FOR MANY TYPES OF FARMING



Good Old-Fashioned Way Plowing With Oxen.

(By W. J. SPILLMAN, Chief of Farm Management, United States Department of Agriculture.)

It is the intention in this article to discuss the cost of the equipment for the various types of farming. The reader will of course understand that these estimates must be taken merely as estimates. For instance, in the types considered below land has, in all cases, been considered as worth \$50 per acre without buildings, fences, etc. The price of land varies enormously in different localities. In using these figures, therefore, the prospective farmer must substitute in them the proper price of land. The farm will nearly always have a dwelling upon it, and it will usually have fences, and frequently a barn that will answer the purposes. These items are usually included under the head of real estate. It will therefore be necessary, in every individual case, to substitute for the real estate items in these figures the actual values obtained by inquiry. The remainder of the items can be depended upon with a fair degree of certainty, as they do not vary so much in different sections. The following is the estimated real estate cost of a sixty-acre dairy farm:

Land, 60 acres at \$50.....	\$3,000
Dwelling.....	750
Barn (for 16 head at \$70).....	1,140
Fences, \$5 per acre.....	300
Total.....	\$5,190

Usually one can buy land with the above equipment on it by paying cash from one-fourth to one-third of its value and giving a mortgage for the remainder. Hence the necessary capital for a beginner, in order that he may start in and have his farm in full operation within one year, would then be about as follows:

One-third of the value of the real estate.....	\$1,730
13 cows at \$50.....	650
1 bull.....	75
3 horses at \$150.....	450
Harness.....	40
Wagon (farm).....	70
Wagon (spring).....	85
Dairy utensils.....	300
Implements and machinery, \$5 per acre.....	300
Minor items of equipment.....	125
3 pigs.....	6
12 hens.....	6
1 hen house.....	50
Working surplus.....	250
Total.....	\$3,987

The amount of capital thus seen to be necessary in order to start off a dairy farm properly, under the conditions here assumed, is about \$4,000 (\$3,987); or, if the farmer desires to pay cash, which is always safer, the total capital required is \$7,447. In starting such a farm it is highly important not to buy the cows until one has feed on hand for them. By starting early in the spring the farmer can usually be ready for the cows by September or October. It is, of course, possible to start in with less equipment than above given, but every item omitted at the beginning simply increases the hardships.

RAISE CORN CROP FOR ENSILAGE

First Know What Land May Be Depended Upon to Do in Way of Ordinary Production.

(By W. F. MERRILL.)
Inexperienced siloists are inclined to think that a large bulk of green matter is the first thing to be considered in securing a crop of ensilage corn, with the result that from too thick planting or cutting the crop while too immature, their experience in feeding silage is apt to be disappointing. We are desirous of course, of securing as much weight per acre in our crop, compatible with highest feeding value, but to secure the latter, which is the object in filling the silo, we must draw a sensible limit to mere bulk.

A safe rule, therefore, to follow is to first know about what one's land may be depended upon to do in way of production under ordinary weather conditions. Having this knowledge one's choice of seed should be of a corn that will grow the largest amount of fodder with a good yield of ears, the whole plant being capable of maturing in the neighborhood. When the crop must be cut to save it from being frost-bitten, while the rains are yet in the thin milk stage it will not make as good silage as the crop being cut to save it from our

Farm Interests

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"Experience Has Shown That the Right Use of Fertilizers, Barn Manure, Proper Tillage, Good Seed and Crop Rotations, Insure Farm Prosperity."

LARGER CROP YIELDS—WHY?

Three important points are illustrated in this chart.

(1) In Illinois the yield per acre of wheat, oats, potatoes and hay were not much more than half the yields produced in Germany.

(2) Illinois is far in arrears in the production per acre of these same crops in comparison with the four older northeastern states, namely, Maine, New Hampshire, Vermont and New York.

(3) The systems of farming practiced in Illinois have not obtained or maintained as high a standard of yield as have the systems followed upon the older farms in the eastern part of this country.

There is surely a reason for this superiority of yields in the eastern states of this country, and in Germany. Why have they exceeded the production per acre of the rich soils of the state of Illinois?

Undoubtedly, one of the important reasons is that both Germany and the eastern states of this country, after giving thorough attention to drainage

COMPARATIVE YIELDS BU. PER ACRE

WHEAT.	
Maine, New Hampshire, Vermont, New York, average yield per acre.....	28.1 bus.
Illinois, average yield per acre.....	18.5 bus.
Germany, average yield per acre.....	30.1 bus.
OATS.	
Maine, New Hampshire, Vermont, New York, average yield per acre.....	26.5 bus.
Illinois, average yield per acre.....	22.4 bus.
Germany, average yield per acre.....	30.5 bus.
POTATOES.	
Maine, New Hampshire, Vermont, New York, average yield per acre.....	150.0 bus.
Illinois, average yield per acre.....	62.5 bus.
Germany, average yield per acre.....	202.5 bus.
HAY.	
Maine, New Hampshire, Vermont, New York, average yield per acre.....	1.21 tons
Illinois, average yield per acre.....	1.07 tons
Germany, average yield per acre.....	1.53 tons

Record for Years 1910, 1911, U. S. Year Book.

and tillage of soil, as well as to maintenance of organic matter in it have paid close attention to balancing the plant food ration of the soil so as to make up the deficiencies of the soil and to meet the needs of the crops grown thereon.

It is high time for the Illinois farmer to give careful thought to the methods of soil tillage and fertility maintenance followed in both these eastern states, and in Germany. In many cases, at the present time, the money invested in his farm is not returning a paying interest.

IMPORTANCE OF SOUNDNESS IN WHEAT KERNEL.

The wheat kernel is the infant wheat plant. Any injury that comes to it, or any weakness that it inherits is just as injurious to its growth and development as are injuries or weaknesses to the human or animal offspring.

Some men believe that wheat seed is all right if it is cracked, or even if parts of the kernel are broken off, granted that those parts do not include the germ of the wheat. Now, any injury to the body of the kernel is just as detrimental to the wheat plant as cutting off a leg or an arm would be to the child.

Many experiments with sound wheat vs. broken wheat have proven this to be the case. Moreover, the first food supply for the tiny plant is wrapped up in the body of the seed. Therefore, if the seed is broken, part of the early food is taken away. A broken kernel of wheat, attempting to grow, is in just the same position as a child trying to develop on starvation rations. The tiny plant has to feed upon this food supply wrapped up in the seed till it can send hair-like roots into the soil in search of food.

The only way to separate the broken and shriveled wheat from the sound wheat is to fan and sift the seed thoroughly.

IMPROVED SOIL FROM SOIL FEEDING.

"The soils of New England and the soils of New Jersey, even though they have been cultivated for many years, produce more corn, more hay and more wheat per acre than the soils of Ohio, Indiana, or even Iowa or Illinois. The farmers of New Jersey have increased the yield of potatoes per acre by nearly 15 bushels the last ten years. The potato growers of Maine are able to produce 250 and 300 bushels of potatoes per acre, as are the progressive potato growers of our own state, largely because of the use of commercial fertilizers. The potato growers of Germany, Belgium and France produce large yields thanks to their knowledge of the value of commercial fertilizers."—Director Jacob Lipman, New Jersey Experiment Station, in Rural New Yorker, March 29, 1912.

PURDUE EXPERIMENT STATION ON WHEAT.

The Purdue Experiment Station, Lafayette, Ind., made a test in 10 representative counties of the State of the value of feeding winter wheat. The ground was thoroughly prepared in due season, and seed of good quality was used in each case. In connection with these valuable experiments, Purdue Experiment Station has the following to say:

Plantfood Requirements of the Wheat Crop.

"One of the principal causes of failure to secure satisfactory yields of wheat in Indiana at the present time is lack of proper attention to the matter of feeding or fertilizing the crop. There is no doubt that our farmers will have to pay more attention to this point if they wish to grow wheat at a profit. It is just as necessary to have an adequate supply of food available for a crop of wheat as it is to have plenty of food at hand in order to grow a drove of hogs."

"Fortunately most of the food elements used by wheat are present in the soil in abundant quantity, but there are three, namely nitrogen, phosphorus and potash, which are used by wheat and other crops in large amounts, that are present in the soil in small amounts; hence, after a few years cropping accompanied by the removal of the produce from the land, the available portion of these elements becomes exhausted, and in order to secure further satisfactory yields, these food elements must be added to the soil from some outside source. The principal and most common sources of plant food, aside from the soil, are barnyard manure and commercial fertilizers."

"In considering the use of fertilizers, the fact must not be overlooked that the fertility of the soil is dependent upon a considerable number of factors other than the presence of adequate amounts of plant food. Some of the most important of these are good water supply and drainage, good physical condition of the soil, good cultivation, conditions favoring the development of beneficial soil bacteria, absence of harmful materials and bacterial growths, and adequate supply of humus, and sufficient lime or other alkaline material to keep the soil from becoming acid. Unless these essential factors of plant growth are present, the feeding or fertilizing of the crop cannot be expected to produce satisfactory results any more than the feeding of an animal under unsanitary or unhealthy conditions can be expected to produce satisfactory results."

"Taking 10 representative one year experiments from the following widely separated locations, Scott, Fayette, Riplet, Sullivan, Clinton, DeKalb, Bartholomew, Johnson, Tippecanoe and St. Joseph counties, it has been found that the average gain in bushels per acre due to fertilization has been 11.6, the average cost per acre of fertilization has been \$4.14 and the average net profit per acre has been \$7.46. To this profit must also be added the benefit accruing to the land from the residual fertilizer left behind by the wheat crop and benefiting future crops."—Purdue University, Circular No. 23, Revised July, 1911.

WHAT JAMES J. HILL HAS DONE FOR MINNESOTA AND NORTH DAKOTA.

Efficiency is the watchword of the hour. It is the test of the industry as well as the individual.

With the idea of comparing the efficiency of the farms along his lines with those of older parts of America and Europe, Mr. James J. Hill, the leading railroad man of the country, has made an extended investigation of crop production. He saw that European countries were producing almost double per acre, and sometimes more, of American yields of wheat, barley and oats.

To demonstrate that America can improve her yields he located a five-acre demonstration on a large number of farms in Minnesota and North Dakota last year. He paid the farmer \$8.00 per acre for his work upon the demonstration plot, and gave him the product of the plot. He says, "The proof of the pudding is in the eating; and the vindication of the modern agricultural idea is the thrasher returns and the elevator receipt."

The results obtained were a source of wonderment to the planners of the experiment. The following table shows the average yields obtained on the Great Northern test plots compared with the average yields of the check plots, one the same farm, which were not fertilized.

Crop	Yield of Northern Check Plots (Fert.)	Yield of Check Plots (Unfert.)	Av. gain per acre.
Wheat.....	35.95	15.25	11.41 (31 farms)
Barley.....	47.47	20.29	15.22 (47 farms)
Oats.....	74.77	52.6	22.17 (31 farms)

With such remarkable results demonstrated on 129 farms, the Middle West farmer is studying more deeply than ever what are the most profitable practices in fertility maintenance.

Mr. Hill has clearly demonstrated that:

- (1st) Good drainage pays.
- (2nd) The organic matter of the soil must be kept up.
- (3rd) Barn manure must be saved and used wisely.
- (4th) Good seed must be used.
- (5th) The soil must be well tilled.
- (6th) Run-down soils, and the unbalanced available plantfood in them, can be promptly restored to proper balance, and greater productiveness by the proper use of commercial fertilizers in connection with manure—and that at a large profit to the farmer.

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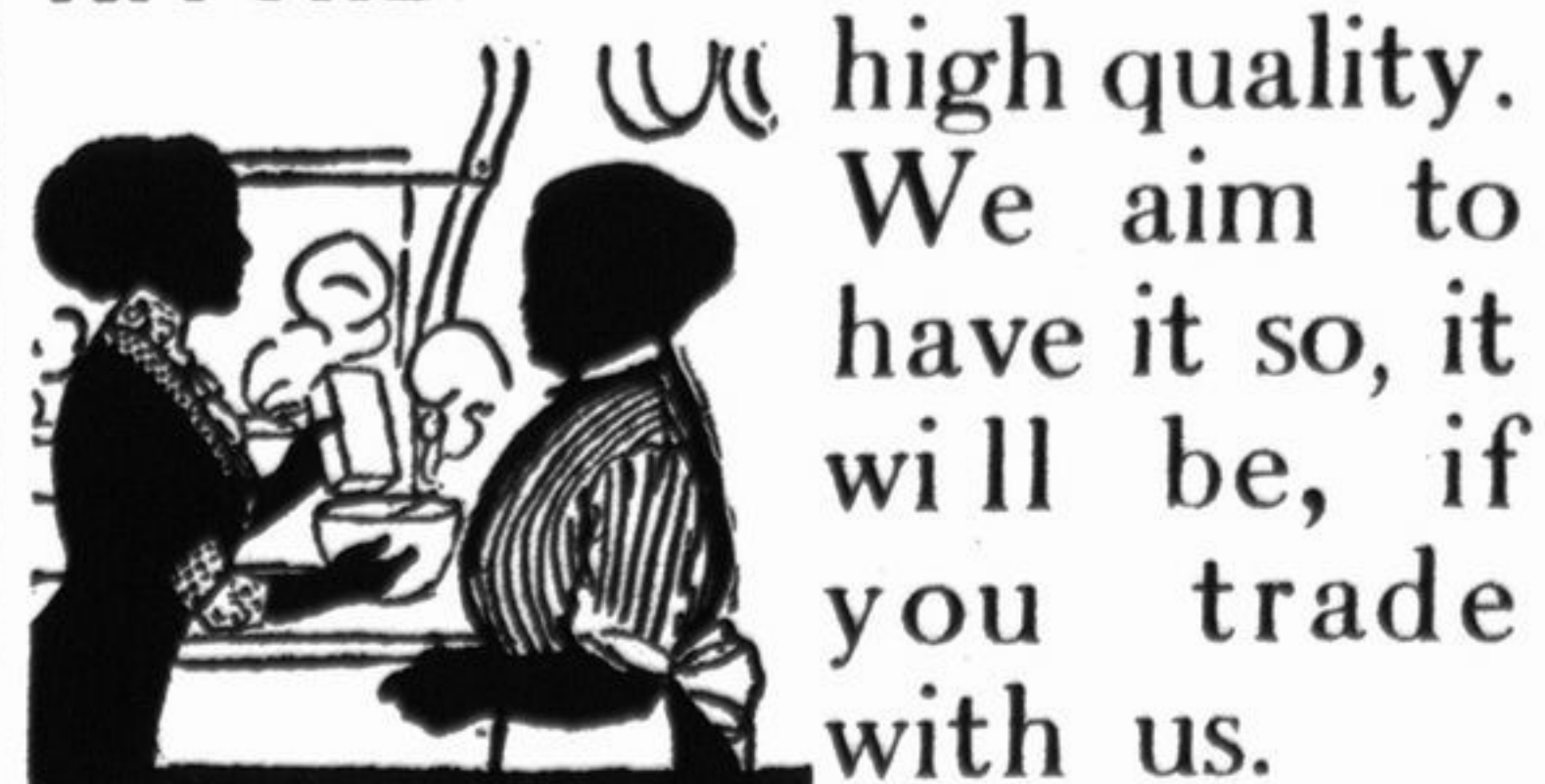
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