

successful cultivation must be carefully studied by all interested in its production. To the lack of attention to these conditions by the average farmer is due, in no small measure, the failures reported.

Silage for Steers.

Silage is recognized as one of the main roughage feeds for farm stock. Bulletin No. 118 of the Pennsylvania Experiment Station says: "As the value of hay, corn and other feeds generally used for fattening beef cattle has shown a tendency to increase very rapidly, many who consider it necessary to finish steers for market, in order to keep up the fertility of the soil, are tempted to abandon the making of beef, to sell the grain and roughage produced, and depend upon restoring the plant food to the soil in the form of green manures and commercial fertilizers. Experiments at this and other stations have shown that the addition of corn silage to the rations that are usually fed to fattening animals results in cheaper and more rapid gains in the feed lot, and that its succulent nature causes cattle to shed the hair early and to look more attractive than those fed exclusively on dry feeds. The purpose of this particular experiment was to determine to what extent silage could be profitably used in steer feeding, and the following summary shows the results.

	Lot 1 (12 Steers) 126 days	Lot 2 (12 Steers) 126 days
Length of feeding period	126 days	126 days
Initial value per cwt. in feed lots	\$5.07	\$5.07
Initial weight	10,615 lbs.	10,560 lbs.
Final weight	13,425 "	13,360 "
Total gain	2,810 "	2,800 "
Average daily gain per steer	1.86 "	1.85 "
Total feed consumed:		
Ear corn	20,892.5 "	11,377.5 "
Cottonseed meal	3,167 "	3,167 "
Corn silage	34,087.9 "	50,397.2 "
Air-dry matter consumed	31,403.4 "	30,037.9 "
Average daily feed per steer:		
Ear corn	13.81 "	7.52 "
Cottonseed meal	2.09 "	2.09 "
Corn silage	22.54 "	33.33 "
Average air-dry matter consumed per steer daily	20.76 "	19.86 "
Total cost of feed*	\$319.25	\$252.64
Cost of feed per 100 lbs. gain*	11.36	9.02
Total cost of cattle and feed	857.43	788.03
Cost per cwt. at close of expt.	6.39	5.90
Selling value per cwt. in Pittsburgh	7.20	7.00
Selling value at home	6.52	6.32
Net receipts	875.58	844.35
Total profit*	18.15	56.32
Price received per bushel of corn fed after paying for other feeds*	.761	1.046
Price received per ton for silage after paying for other feeds*	4.65	5.73

*Based upon ear corn at 70c. per bushel; cottonseed meal at \$32.00 per ton and corn silage at \$3.50 per ton.

This shows that the feeding of corn silage as the only roughage resulted in satisfactory gains in each lot, and that while there was a profit in feeding ear corn throughout the entire feeding period, a greater profit was secured when light plain feeders averaging 880 pounds at the beginning of the feeding period were carried for two months on a ration consisting entirely of corn silage, followed with a grain ration toward the end of the feeding period. In estimating profits, full market value has been allowed for all feeds so as to cover the labor of feeding. No credit is given for manure or for pork produced from the droppings of the cattle. It is generally estimated that hogs following steers will gain 2 pounds for each bushel of ear corn fed to cattle. If this additional increase were allowed the profit in Lot 1 would be increased \$47.84, and in Lot 2, \$26.80 over and above that indicated in the summary. A record of bedding used and manure produced in Lot 1 was kept, which shows that 25,675 pounds of sawdust and 2,762 pounds of straw were used for bedding.

The manure weighed out amounted to 101,560 pounds. Allowing \$1.00 per ton for sawdust (the cost delivered at barn), \$8.00 per ton for straw and \$1.50 per ton for manure, there was an additional profit of \$31.24 to that made from direct feeding of steers and production of pork from droppings in Lot 1 during the 126 days of feeding. This shows that in cattle feeding, the profits secured from the by-products of feed lots may amount to more than the direct financial gain on the cattle. The test shows conclusively that silage can be used as roughage even in the coldest of winters when fed in an open shed; that there was a considerable saving of corn by the exclusive use of silage during the first part of the feeding period, and that the value of feeds utilized in the production of beef during the winter of 1911-12 was much greater than their market value.

Great improvement in yield of crops is possible through careful selection.

Silage corn should at least reach the milk stage in an average season.

Elms are said to thrive better in pastures and lawns than in mowings, and they are usually benefitted by application of fertilizers and cultivation.

Clover under Corn Silage.

Editor "The Farmer's Advocate":

I have been a constant reader of your paper for several years, and get much valuable information from it. After reading your article on clover ensilage is the issue of October 3rd, and "Mac's" letter in October 24 on that subject, I concluded to give you the results of our experience on clover silage.

Whenever we have clover ready to cut, when we cut the corn we put it in the bottom of the silo. We select a dry day and cut the clover in the forenoon, rake and put it into small coils in the afternoon, and cart it to the barn any time within a week. Our silo being in the barn with

a high drive floor we can conveniently drop it into the silo without cutting. The only object in cutting it down during fine weather is the convenience in handling. Once it is in the silo we would prefer it wet, and if it gets much dried we wet it in the silo. The best clover silage we ever fed was raked and carted with about all the water it would hold.

We have never tried cutting it up, but think this would be necessary for summer feeding if it can be safely carried over until then.

We have a corn cutting outfit so that we can fill our silo whenever we wish, and when the clover is in we cut in our corn, the whole job taking from a week to ten days to complete. A delay of three or four days after the clover is in before cutting in the corn will make no difference with the quality. The clover, however, should be carefully distributed and tramped as it goes in.

A cubic yard of this clover silage will go much further than the same volume of corn silage, and we have found it should be fed out faster than the corn needs to be, or it will spoil on top by heating. We also think it should be fed during cold weather, as it has a greater tendency to heat during the warm weather in May than during the winter. We have never ventured to carry it over into summer.

Cattle are very fond of this clover silage, and give good returns from it.
Compton Co., Que.

MACK.

Best on the Market.

I have taken your paper for a number of years and have always enjoyed reading it. It's pages are always full of hints and helps, and conveniences for the farmer. It is the best agricultural paper on the market.
Middlesex Co., Ont.

JOHN. W. HODGSON.

A Useful Rack.

Editor "The Farmer's Advocate":

Hay racks, as everybody knows, should be built in the busiest time in haying or harvest, so this article should be cut out and preserved till that time, as I'm afraid I shall forget to write when the time comes.

Having made my excuses for writing out of season, I will proceed.

The flat, solid-bottom rack I am writing about has been in use on this farm since the middle of last harvest, and has given the most complete satisfaction in every way.

The rack is made with spruce sills and spruce bottom; the bottom should be made of one inch spruce boards; if tongued and grooved it will be more satisfactory. A narrow strip one inch high by two inch wide should be put round the edge of the rack, which will keep the grain from sliding off. Four rock elm cross-pieces should be sufficient. The edging should be bolted on, one bolt for each cross-piece for the sides, and three bolts for the hind and fore edge. The bottom now needs very few nails; one or two for each board in the centre cross-pieces should be ample. Two uprights should be placed at the hind end, and three cross-pieces, the width of the rack, should be bolted to them; this will do away with building to a great extent on the hind end. The same could be done to the fore end, but it gets somewhat in the way when handling the lines. A centre stake is, in my opinion, a clumsy, unnecessary affair, and should be done away with.

During harvest there was no risk of a leg dropping through a hole.

The slings, when laid down on the rack, are there, and not down through and caught on something underneath, so that the danger of lifting the rack is done away with. If the same happens to bolt you have solid footing to stand on. Any grain which threshes out of the sheaves is there when you finish for the day and not scattered between the barn and the field.

As a corn-rack, ours has been to every silo-filling around here, and I can safely say that a better rack has not been seen on the job, and it has had the entire approval and praise of all who saw it. For drawing in roots, we can put a load on which will stick the team and not a beet roll off. For drawing grain to the mill, you can put all the load on your team can draw and not lose a bag, and if a bag bursts the grain is there. For hauling sawdust for bedding, etc., a board or two raised on each side and the ends will give you all the team can draw if you fill it. For cut straw, sides are not hard to make; anyway, a couple of good wooden gates, with a few short boards tacked on to make them the right length, is all that is required. As a pig or sheep rack, sides can easily be put on, and you could not wish a roomier or better rack. For hauling out manure in winter, what more do you want?

Of all the improvements on this farm this year, there is one thing which now we have we would not be without, and that is the above-mentioned rack.
Gray Co., Ont.

R. W. C.

Reducing the Cost of Production

The full utilization of equipment is an important means of reducing the cost of production, since it reduces the amount of equipment necessary. The average farm horse in the Northern States works only three hours a day. This is because the system of management on the average farm is so poorly planned that at certain times the work is very heavy, while at other times there is nothing to do. It is necessary to keep horses enough to meet the needs of the farm when the work is heaviest, but at other times these horses are idle. The average cost of horse labor on the farm under these conditions is about 10 cents an hour. With a well-planned cropping system that distributes the farm labor equally throughout the season it is possible to get six hours' labor per day out of the horses. When this is done the cost of horse labor per hour is reduced to 5 cents.

Many a \$12 plow is used to plow not more than 10 acres a year. At this rate the cost per acre for the use of the plow is about 18 cents. When the same plow is used to plow 40 acres a year the plow cost per acre is reduced to about 5 cents, or less than one-third what it is when the plow is used on only 10 acres. Approximately the same thing is true of all other items of equipment. On poorly planned farms the equipment cost is excessive because each item of equipment is used to less than its capacity. For the reason that the equipment must be sufficient to do a great deal of work in rush periods the amount of equipment on poorly managed farms must be much larger than on well-managed farms where there are no rush seasons. On the latter type of farms the work is well distributed, so that no great amount of it must be done at the same time, thus making possible a minimum of equipment.—U. S. Bulletin 359.

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