again and buy another good sire with the idea it is not going to make very much difference whether you pay two, or three, or five hundred dollars for that sire, because what does it amount to?

Think what the interest would be on a sire that cost you $500 if he increased the value of each heifer but $5.00. Breed the second sire upon these half-bloods, and what follows? You have three-quarters of the best blood in the veins of the breed that you have chosen. Cross again and you have got 87 1-2 per cent. See how quickly you can bring up your herd with the right kind of a sire. But the sire must prove himself a getter, a good stock, just as much as the dairy cow must prove herself a capable animal at the pail. When you purchase a bull you are taking a certain chance, even if he has within his veins the blood of the best of the breed.

Mr. Hill owns five or six bulls at the present time that he is lending his neighbors as a test upon their grade cows. He goes to the farms and looks over the progeny of the different sires before he selects one of them to head his herd.

VALUE OF SILAGE AND ROOTS.

L. P. MARTINY, Chippewa Falls, Wis.

In treating this subject, what I shall have to say will be more applicable to the northern half of the state and the conditions as we find them.

I do not wish to quote a lot of statistics or analyses to prove my points, for I do not think the chemist has ever given us the value of a succulent feed as compared with dry feed. The old cow herself is the best guide we have to go by in determining the value of roots or silage.

The real intrinsic feeding value of corn silage depends on the maturity of the corn put into the silo, the efficiency of the silo itself and the variety of the corn.

I will take it for granted that the silo is a good one, with straight, smooth perpendicular walls that are perfectly rigid and perfectly air tight. The next thing will be the selection
of the variety of corn. Right here is where many dairymen make a mistake. In some way they labor under the delusion that when they put up a silo, they must at the same time get a new variety of corn, and usually their idea is to get corn that will make a bigger growth than the variety they are in the habit of growing which is a serious mistake right at the outset because it means a sour and watery silage that has a tendency to produce indigestion. Select the variety of corn that has given best results for you before you had a silo.

If you do not already have a variety that is suitable to your locality and is sure to ripen, I would recommend the flint corn or some of the very earliest types of dent, such as Wisconsin No. 8, or Minnesota No. 13, which are supposed to be the same thing.

If land is comparatively free from weeds, one will get a little larger yield by planting in drills; on the other hand, if weeds and grasses are going to bother, it had better be planted in checks so it can be cultivated both ways.

The next consideration will be the time to put it in the silo. Here again the beginner usually makes a mistake by putting the corn into the silo too green. He intuitively thinks that if green undried corn makes silage, the greener the corn the better. To make the best silage, corn should be fully matured, corn well dented and some leaves beginning to dry up at the bottom of the stalks. Silage made from well matured corn will not be so sour, will be drier, can be fed in larger quantities, and will give better results. Don't be afraid to let your corn mature in the northern half of the state, as there will be no danger of its not having enough moisture to make good silage.

In regard to growing roots, would say that it is much easier and simpler than most people are aware and the yields in the northern half of the state are enormous, ranging from ten to fifty tons per acre, depending on the stand, fertility of land, etc. For roots to grow, I would recommend first, the rutabaga; second, the different varieties of beets; and third, carrots.

Perhaps the simplest way to grow rutabagas is to sow one-fourth to one-half pound of seed per acre on new breaking, from the middle of June to the first of July, at the same time
the breaking is being done. In a good year this will give a good crop without any cultivation or attention whatever.

Another way that involves more work, but gives larger returns, is to prepare a piece of old ground, having it very fertile. Keep the land well disked up to the last of May to the 20th of June when the soil should be “fine as a garden”. Sow the seed with a hand garden seeder in rows about two to two and one-half feet apart. After the plants come up, start cultivation. When the plants are two to four inches high, thin them to at least one foot apart in the row. Keep the cultivator going until the tops prevent further cultivation.

In case one has land that is wet, or there is some other reason that it cannot be worked, rutabagas or beets may be planted in rows in the garden and later transplanted, just like cabbage, pinching off some of the outside leaves at the time of transplanting. This method insures a perfect stand, less labor, hoeing and cultivating, but requires the extra labor of transplanting.

Now as to the feeding value of silage and roots, will say they compare very favorably with good pasture grass.

We all know how stock that has been wintered on dry feed begins to thrive; cows increase their milk flow and shed their hair and take on new life and vigor when turned out to grass. The chemist would tell us there is not as much feeding value in grass as there is in hay, but the old cow gives more milk on the grass, and as dollars and cents are what we are after, we will go by the cow. When a dairyman provides silage or roots for his stock during the long winter months, he is giving them pasture conditions so far as feed is concerned.

Stock of all kinds not only relishes silage and roots, but it will eat more other feed, will have a slick, short coat of hair and a nice loose skin all through the winter, providing it is properly housed in a good, clean, well lighted and well ventilated barn.

For the new settler starting in to open up a farm I would say, grow some roots to feed the first cow you have. Depend on roots instead of silage until you get five or six milk cows and some young stock. Then if you are financially able and can hire a cutting outfit quite conveniently you are ready for a silo.
Right here some will want to defer building the silo until after they build that big barn they are dreaming of some time in the future. Don't let that excuse defer the silo. Your first silo may be quite crude. Haul pine or hemlock logs and have them sawed into 2x6's. Have your blacksmith make some hoops and then for a very small outlay of labor and money, one can have a silo that will give very good service for a few years and will pay for itself many times over.

The silo is not such an expensive, mysterious, complicated monster, whose building and using is to be dreaded, as some people think it is.

Make up your mind to build a silo if you need one. Build it and when you see the results you get, you will be surprised how easily and cheaply it all came about.

Afternoon Session, Dec. 11, 1912.

President Jacobs in the Chair.

Secy. Glover: I want to say in addition to what Mr. Martiny has said that the best dairy farmers of the country have learned that the more nearly the dairy cow can be supplied with feed such as she gets from June pasture the better are the results. The cow's digestive organs are such that she requires a large amount of bulky feed. In that respect she differs from the horse and the hog, both of which have small stomachs in comparison with the paunch of the cow. There is something about the succulent feeds as Mr. Martiny says, which seems to make it possible for the dairy cow to consume a larger amount of fodder corn, for instance, in the form of ensilage, so as to give a better result for all she consumes.

Mr. Gibbs: How much should a cow produce and what should the milk test before she should be discarded as not being on a paying basis?

Mr. Glover: That question cannot be answered definitely because sometimes a man may be so situated that though he knows his results are poor, yet he must get along until he can do better. It is pretty well established that at the present price of feed and butter fat, a cow must produce about 150 pounds of butter fat in order to pay for the feed she eats.

The Chairman: Let us not get away from the silo question.

A Member: How many cows should a man have before he can afford to build a silo?
Secretary Glover: I say twelve to fifteen; some say six to ten.

The Chairman: I should say if you have ten cows and are working into the dairy business build a silo and you will soon have fifteen cows. I notice this paper says, if you are financially able build a silo. That does not strike me as right because I had to do it before I was financially able, or I never would have built one. I built one without being financially able, and on account of building it I now have two. I do not know of anything I would feel more like putting a mortgage on my farm for, than to raise the money to build a silo.

Mr. Gibbs: We could not expect people to patronize a store until there is a store to patronize, and we could not expect the cows to patronize a silo until there is a silo. I believe in building the silo first; then we will get the cows later to patronize the silo. That is right, isn’t it?

Secretary Glover: To a certain extent. You would not build the store until there were people to purchase goods.

Mr. Gibbs: You will get the patrons if you build the store.

A Member: I am feeding seven cows from a small silo.

Secretary Glover: I am very much in favor of the silo, but in my experience I have seen some bad mistakes made in building silos, and such mistakes always create a prejudice against them. I know of communities to-day where you can’t get them to build silos because somebody made a mistake.

The Chairman: There is one thing we are losing sight of. There are some principles involved in the building of silos and feeding out of them not involved in the building of barns and granaries. In building a silo build it in height according to the time you are going to feed the silage, and in diameter according to the size of the herd to be fed. Whether you are going to feed three cows or thirty you want it about thirty to thirty-five feet deep, because any number will feed for the same length of time. Now, a silo that is thirty feet deep and only broad enough to feed three cows a day, taking off enough so the rest of it will not spoil, is not of proper proportions. If you are going to have a silo at all you want it during the feeding season. After you have it a year or two, you will want to have that feeding season last the entire twelve months, as most of us have, and we have found it necessary to build another silo.
Mr. Gibbs: Where a silo is sixteen feet across and thirty feet high, how much is it necessary to feed off a day in order that we may maintain the real value of what is left in the silo?

The Chairman: It does not make any difference how wide it is. You have to feed from an inch to two inches a day. One inch a day in a winter like this would be enough, about $2\frac{1}{2}$ inches in the summer time.

A Member: It has been suggested that the machinery necessary to fill a silo costs in the neighborhood of $500. Of course that is a great expense and would be as great for a small silo as for a large one. Our way of getting around that is, that the machinery is bought coöperatively, and rented to each man for six dollars a day. A man goes along and tenders the engine. That makes it reasonable for each man.

Mr. Gibbs: That is one of the questions bothering the farmers in our neighborhood. Can we better ourselves by coöperating or can we go about this thing individually and thereby get along just as well?

Mr. Glover: You can do better by coöperation, of course.

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**THE IMPORTANCE OF A PURE BRED SIRE.**

C. L. Hill, Rosendale.

While the average production of the cows in our Wisconsin herds is increasing each year, there is still such a wide margin between this average and the results obtained in herds that are bred and fed right, that there will be chance for improvement in most of our herds for an indefinite period. I say herds that are bred and fed right, for while you will find some cows of nondescript breeding that are doing well at the pail, you will find that all of the herds in the vanguard are the result of careful breeding along strictly dairy lines. Along dairy lines, because the question of dual-purpose vs. strictly dairy breeding is now so well settled that it does not need our attention, more than to remark in passing that the effort now being put forth to turn some of the so-called dual-purpose breeds into special dairy breeds is not deserving the attention it is re-