We depend almost entirely on bran, supplemented with O. P. oil meal and gluten feed.

We not only like the bran as feed, but the manure from it is worth nearly twice as much as from oats or barley, and more than twice as much as from corn.

At the prices that maintain this year, old process oil meal is probably the cheapest feed we can buy, but of course, we cannot make this the entire grain ration.

Nearly all winter it has been offered at $22.00 per ton, delivered anywhere in Wisconsin, in car lots.

Because these are the cheapest feeds we can buy, does not prove they are the cheapest for you.

Local mills, or dealers will often sell rye or buckwheat middlings, malt products, or other by-products far below their value.

Because a feed sells for a low price, is no proof it is cheap.

In my locality, I have known farmers, this winter, to pay $12.00 per ton for buckwheat hulls, worth no more than straw.

As true producers, we must constantly study our local conditions and prices, and be governed by them in our feeding operations.

We are growing, only when we are able, year by year, to cheapen the cost of production of a pound of butter fat in our dairies.

No other state can equal Wisconsin in its ability to produce and buy cheap feed.

Let us live up to our opportunities.

DISCUSSION.

Mr. Hardy: We have but few silos in this neighborhood, and we want some cheap feed to use until we get to the silo.

Mr. Hill: It will pay you to get right to building your silo, so as to have it for next year, anyway. With that, my own endeavor would be to have corn fodder to feed in some

other way. I would not, under any consideration, for cows or any other kind of ruminants, husk, shell and grind corn to feed. I would by all means have it fed in corn fodder, outside of the consideration of the question of expense.

Secy. Burchard: While I agree most thoroughly with what Mr. Hill has said about the silo, at least for winter feeding, and am thoroughly convinced that any man in Grant county can well afford to spend, during the next summer, the necessary money for raising the corn and building a silo and filling it, yet if he doesn't think that way and wants to have a neighbor or two experiment before he goes at it, the next best thing that I know of, is to grow corn fodder. Now, that does not mean corn stalks, it means corn fodder. They have tried that up in Minnesota, and they are very much pleased with it,—not to the exclusion of the silo, but to fill in perhaps, in addition to the silo. I think Mr. Hill will agree with me, that sometimes it is not advisable to use silage exclusively for roughage; that the animal needs some dry forage with the silo; and to prove that, you can, any of you, go into the best pasture that you ever saw, filled with cattle, and if you drive through there with a load of pretty bad straw, every animal in the pasture will run after that load of straw and be hungry for it. They tell us, moreover, that out in the western country where they sometimes try to pasture alfalfa or clover, that the most sovereign remedy for what would be serious bloats in their animals, is to have a stack of straw or old hay, where the cows can go and help themselves; all of which proves that in connection with silage, you want some dry forage.

Now, to grow this fodder corn, they first plow the land and till it. They cultivate the corn largely before it is planted, they cultivate it again and again and again, and when it is thoroughly cultivated along the latter part of May or the fore part of June, they go on and plant this corn, sowing in drills very thick and not very wide apart. They use their ordinary wheat drill seeders and they shut up one or two shoes, leave open one and plant in drills, leaving but a small space between

the rows. Before the corn is up, they go over it with a drag, cultivating it again. Then, as it is coming up, they drag it again, and pretty soon it gets so high they don't need to do anything more with it, they just let it grow, and it is thick, and it makes a very fine quality of corn forage. It does not ear very much. They cut it and cure it as we would ordinary grain corn, putting it up in shocks in the field to dry it out thoroughly. It is substantially corn hay.

The Chairman: What do you say to amber sugar cane, sorghum?

Sec'y. Burchard: I don't say anything about it, simply I don't know anything about it, and I never had an opportunity to talk with any one who could satisfy me entirely in regard to it. I was talking with Dr. Peters about the poison that comes from sorghum. He was the first man to ascertain just what that poison was; it is prussic acid, and he says it develops, not because it is second growth, but it may develop in the first growth, and it is developed by the plant being stunted by drought or otherwise, and then a little something exudes right on the stalk where the leaf comes out, but he says furthermore, that if you take that sorghum and cut it and let it mature in the windrow, or otherwise, there is really no danger from it. Perhaps sorghum would take the place of corn, but I have some doubt about it. Corn is king with me, and I don't like to yield allegiance to too many sovereigns. I want to ask Mr. Hill why he has not been able to succeed with alfalfa.

Mr. Hill: We haven't tried it but once, and I did not lay it then to the alfalfa, I laid it to myself largely; although I followed out the best advice I could get at the time. I made the mistake of endeavoring to cut a crop of oat hay to keep the weeds down, and I did get a partial stand of alfalfa. I think I had the land thoroughly prepared, but I found when the next season came on, that not only was the alfalfa winter-killed, but the piece was covered with June grass, so there is more June grass than alfalfa, even where the alfalfa lived.

I am going to try it again. We got an excellent stand; it was pretty nearly eighteen inches high, for a long while it was higher than the oats. I think likely, we let it stand too long before the first cutting and still we cut it long before any grain formed.

Mr. Wentworth: Did you sow the seed with the oats or some weeks afterwards?

Mr. Hill: We sowed them at the same time.

Mr. Wentworth: Joseph E. Wing is pretty good authority upon alfalfa, and he directs it should be cut three or four times the first year, and he leaves it upon the ground.

Mr. Hill: I am going to try it this year, and we will mow it two or three times, never mind the weeds, and see what happens. I hate to see the weeds, but we are going to get alfalfa.

Sec'y. Burchard: Was this on ground where you had previously raised clover?

Mr. Hill: Oh, yes.

Mr. Wentworth: Don't you have to inoculate the ground?

Mr. Hill: It has been said so a number of times; but I have been down to Fort Atkinson a dozen times in the last two years, more to see those alfalfa fields than anything else, and I am convinced we can have it all right, and I am going to have it, that is all there is about it. I visited a number of those farms at Fort Atkinson last week, and on the Governor's farm I saw most all the animals eating alfalfa, pigs and cows, horses and everything else. Mr. Telfer has got a little piece of alfalfa and he cuts four big growths off of that; he gets pretty near all his roughage off that little patch.

A Member: Why do you prefer alfalfa to clover?

Mr. Hill: Because it has a greater yield on the same amount of land, and then it is much higher in protein. There is one objection to it, and that is you must let it lay several years in one place.

Sec'y. Burchard: Alfalfa hay contains fifteen per cent more digestible nutriment than common red clover hay, in addition to its being much higher in digestible protein.

Mr. Heany: I tried alfalfa a year ago last spring. I sowed two acres in rich soil, and sowed oats with it. The object of sowing the oats was to have an earlier feed than the alfalfa could afford. During the season, that piece of bottom was flooded and the alfalfa turned sort of yellow, and we concluded that was not the right place to sow alfalfa, and I have prepared another piece of ground on higher soil. Now, I want to ask you, will it pay to put into the silo, corn that yields fifty bushels to the acre?

Mr. Hill: I couldn't answer it any way but, yes, because our corn always yields more than that, and we put it in the silo every year.

A Member: What is the difference between silo and silage?

Mr. Hill: The silo is the building in which the silage is made. Silage is canned corn, cut stalks and all, when it is green, and put in an air-tight building that seals itself.

A Member: If you raise more than fifty bushels to the acre, and you figure the corn at 60 cents a bushel, I wish you would make a comparison between the ensilage and the corn.

Mr. Hill: The larger the yield of corn, the more valuable the silage is, and the fewer acres it takes to fill the silo.

The Chairman: When you have it in the silo, you have it husked, and shelled, and ground, and already for the cow.

Mr. Hill: A gentleman asks what our silos cost. They are old wooden silos, built in 1888, in a bay in the barn, and they cost not to exceed 75 cents per ton capacity. One of them has been relined once with half-inch lumber. It cannot be built for any such price at the present time, and if we built another, it will be built to cost two or three times that, and will last for ages, built of stone or brick,—some material that will not have to be replaced.

Mr. Goodrich: The impression seems to be, that if you put good corn, running fifty or sixty bushels to the acre, in the silo, that that corn is not worth as much as if you husked it and fed it and ground it. Is that the idea? It is worth more than you can get out of it by drying and grinding it, because

it is in a condition to be better digested. A man way up in, well, somewhere in Wisconsin—

Ex-Gov. Hoard: Up in G—.

Mr. Goodrich: Yes, up in G—, built a silo, and he had a big one, and he had a big crop of corn, and when he went to put the big crop of corn in the silo, it took all his corn, and he had ninety hogs to feed. He put it in whole, and husked the corn out and fed his hogs, and he never in his life, made such rapid growth on hogs, never made so much for his corn, as he did when he fed it out of that silo. They can eat more, it was softer, more easily masticated and easier digested. Nobody nowadays, disputes that corn can be put into the silo cheaper than any other way.

I want to say a word about alfalfa. If you are going to cut it for hay, cut it early, that is, as quick as you see some of those little purple blossoms coming out; cut it, and let another crop grow up and cut that early. If you put it off till next week, it will get woody, and you will say it isn't worth much. Cure it just the same as clover, and it will cure just as easy.

Mr. Hill: I want to say another word on this silo question. The cost of putting that ten acres into the silo was $42.80. We hired that work done and so we know the cost, and I defy any man to handle ten acres of corn and get it ready to feed, shelled and ground, for anywhere near $42. In those figures I do not figure the cost of the machine nor the rent of the land.

A Member: Did you ever feed this silage to hogs?

Mr. Hill: Not very much. They don't eat it up clean.

The Chairman: I am going to call on Governor Hoard to finish a speech he commenced a few days ago on Alfalfa.

Ex-Gov. Hoard: Gentlemen, when I was cut off in the flower of my youth, day before yesterday, I had a whole lot of stuff laid up against this audience that I wanted to fire at them. I was talking to you about the preparation of the soil and about sowing alfalfa. Now, I want to talk a few minutes upon the nutritive value of alfalfa. I never saw

such a plant. I stand in profound amazement before what that plant can do. I have, for instance, two hundred and fifty, or thereabouts, of buff Plymouth Rock fowls. They are on the alfalfa all the time. Last winter I wintered nine brood sows upon nothing but alfalfa hay. I did it of choice, in order that I might have the finest of pigs, and I got them. For years, I have been dissatisfied with the outcome of my pigs, that is, they didn't seem to be doing well, a good many of them. I kept talking to my foreman, "You are feeding too much corn," because I don't think these mothers should have too much corn, but finally I took the sow by the ear, figuratively speaking, a year ago.

Mr. Goodrich: Didn't you take August by the ear?

Ex-Gov. Hoard: No. August was a pig of another breed. I said, "August, I want you to put these nine sows on alfalfa hay (not give them a spoonful of corn) and their drink," which consisted of water and what little skim milk was left over after feeding all the calves. I went to El Paso, Texas, to stay for the winter, with my wife, and I kept writing to August, asking how the sows were getting along. When I asked him to put the sows upon that feed, the man was thunderstruck, he says, "They will starve to death." I said, "I don't think so, I am told better by men of judgment, in Colorado." After a while he commenced writing me, "I am astonished, the sows are keeping up in splendid condition." Mind you, they had nothing but alfalfa hay forked right over to them, and they ate is as greedily as a horse, and they are eating it this winter, six of them. Those nine sows had seventy-eight pigs, but one lost in the lot, and I never saw so bright, hearty, keen little fellows in my life. I saved seventy-five of the seventy-eight, fattened them and sold them last fall. The mothers gave milk like a cow, and they came along in fine condition. I think it is the most valuable discovery I ever got hold of in handling brood sows. I have fifteen pigs of last October that I am carrying through the winter in order to have something to feed my skim milk to, and those pigs are getting alfalfa hay, and it would do

your soul good to see those fellows when the man throws a couple of forkfuls over to them. They get into it, frisking their tails, and they come out with a mouthful, eating that hay in a manner that would strike you with a great deal of conviction.

Now, alfalfa hay analyzes about eleven per cent protein; bran, twelve; only one point above it; clover, 8.6; timothy, 3. Now, you men all over Wisconsin to-day are thinking that timothy is first class hay. The poorest hay I know of for the dairyman to-day is timothy, except it be marsh grass, and that makes better bedding. Now, timothy is down to 3 per cent of protein. That is the element that makes the red blood in cattle, makes the muscle, makes the casein in the cheese, that element called protein. Do you see now why alfalfa does such splendid work.

You must remember, farmers, that you cannot affect the market end a minute, as a rule. You are a patron of a creamery. Your butter sells just the same as all the rest and you cannot make any difference for yourself in the factory, you are powerless there, but at the farm end you are supreme. You can reduce the cost of making of the milk and every penny that you reduce the cost is a penny added onto the other end. Now, I have made up a ration, having all these things in view, and my ration costs me twelve cents a day. I am a pretty strong feeder; usually I feed my cows about 8 to 10 pounds of a grain ration a day. Now, what do I feed that comes to 12 cents a day—I couldn't find a man about me among thepatrons of the ceramery that was feeding for less than 16, up to 18 and 20 cents a day. My ration consisted of 35 pounds of good corn ensilage, going 75 baskets to the acre and more, 35 pounds of corn ensilage at $2.50 a ton; ten pounds of alfalfa hay at $10 a ton; 4 to 5 pounds of bran at $15 a ton. That makes a ration of 12 cents, and the cows were earning about 30 to 35 cents a day. Now, you see how I helped myself; instead of feeding 8 or 10 pounds of patent bran, I was feeding only 4 or 5, cutting the cost 50 per cent there, and all the rest of the ration I produced on the farm. Now, the creamery paid me within a few cents of $70 per cow for the cream of those cows. The cream is sep-

arated on the farm, the skim milk is fed warm and sweet to the calves and pigs twice a day, and the creamery paid me within a very few cents of $70, call it $70. The cows cost me $30.00 to keep them. So that at the farm end of this proposition, things were so worked that my cows were earning me $40 above the cost of their keep. Besides that I made the skim milk worth to me from $20 to $25, so that those cows earned me about $90 to $95 per cow. Yet when I talked to my neighbors, some of them being men of little faith, not even as much as a mustard seed, these men will say to me, "Oh, yes, Hoard, you can do this, but I can't." You hear them say, "I can't afford it." There is only one thing such men can afford, and that is poverty,—poverty not of the pocket alone, but of the brain, poverty of the judgment, poverty everywhere. You know if you are down at the bottom of a well, you can see the stars in the daytime, but what else can you see? You come up a little way and you see a little more. You are down in a hollow and your horizon is very limited. Stand up a little higher and you can see farther and farther.

Now, alfalfa is a fine forage plant; in my estimation, the most valuable thing that has ever come to Wisconsin, and it has come to stay, I hope. Give me corn ensilage, corn and alfalfa and I will solve the problem of successful dairy farming and pig raising, and I will beat any man on earth that undertakes to do this business without the two. Everything on the farm eats it. My six horses I feed only a half ration of grain when I feed alfalfa; I cut down from 16 quarts of oats to 8, and they hold up in condition and do their work. Let these things make together for truth and righteousness on the farm. You know I am very fond of quoting the Bible on this proposition, for I have discovered that the Bible and I agree a great deal better when I know more about these things.

A Member: Will alfalfa grow on rich land?

Ex-Gov. Hoard: The richer the land, the better, but there are some things you must look out for. You must not sow it where the water table is within fifteen feet of the surface; that

is, if you meet water in digging a well, you must not sow it where the rock is within that distance; you must not sow it where it will overflow. You better always sow it upon a piece of side hill land where the water will run off rapidly and not form little ice caps in the winter. Pick out just as rich a piece of land as you have got, plow it thoroughly, disc it once each way, harrow two times and then look it over and to be sure you are right, harrow it another time, and thus work up that soil just as fine as you can. Remember that the alfalfa seed is a little larger than clover seed, and will not grow as clover seed grows, but it must have a fine seed bed, as fine as for oats and better indeed. Then sow on about thirty pounds to the acre. Alfalfa seed is worth about 16½ cents a pound. If you do not sow but one acre, sow it right; don't be afraid of your seed. Don't think that it will be wise to sow two acres and put on ten or fifteen pounds of seed. You don't make anything that way. I do hope every farmer here will try it this spring, just an acre or two; do that, that you may get acquainted with the plant and as you familiarize yourself with it, you will know more and more about it, just as every man gets real knowledge from doing a thing himself on his own farm. Remember farms differ, and alfalfa acts differently on farms not a mile apart, but make a trial of it. I can't find home grown seed, so of course I can't buy it. I would advise every man to send down to Armour & Company or Swift & Company and buy about two hundred pounds of muriate of potash and put on your land. It is a wonderful responder to potash. I bought seven or eight hundred bushels of ashes in Fort Atkinson, paid ten cents a bushel for them, and hauled that out onto my alfalfa field. It is very fond of lime, and wood ashes contain a large amount of lime.

A Member: How would it do on soil that has a gravel bed two feet below?

Ex-Gov. Hoard: If it has plenty of good soil above to give it a start, it will grow.

The Member: Is there more than one variety?

Ex-Gov. Hoard: Secretary Wilson sent Prof. Hansen of

Dakota, to Russia, a very cold country, to investigate. He heard they had a variety of alfalfa, the Turkestan, that was very hardy, and he got 2,000 pounds that cost a dollar a pound. He sent me sixteen pounds of that, and I sowed three quarters of an acre, or a little more. That alfalfa is a little lighter in color, but you can hardly tell it from the ordinary alfalfa. I don't know but what it has lived there long enough to get acclimated so that it is more hardy, I can't say. I sowed that on a piece of land where the water table this last year has come to within seven or eight feet of the surface and it begins to sicken. I am learning all the while. It is a good plan to sow it thickly and one reason is that it will form stools if it isn't thick. It should always be cut early, just as quick as the little blue blossoms show, because you will get a great deal better crop the next time.

Now, just a word about curing. It is as difficult a crop to cure as clover would be in June. Go to your merchants and buy A sheeting, forty inches wide, tear off forty inches long, and make a hay cap. Tie a string to each corner, of stout cord; take old horse shoes, cut them in two, punch a hole in each half up near the cut end and tie in that half of the horseshoe to each corner, and that constitutes a weight. Lay them on the stone-boat with the weights all to one side, drive into your field and cap your alfalfa, just the same as you should do with your clover. Cut it and rake it into windrows just as quick as it can possibly be well handled by the rake. Cock it up into about one hundred pound cocks and throw over them these haycaps. You should cure your clover and your alfalfa in the shade, in the cock, and you will make nearly fifty per cent in the value of it. You will avoid losing a lot of leaves of your clover and alfalfa both, and they will be very much finer. Every second day while it stands there in the cock—and my own stood this last summer during three tremendous rain storms, some of it,—every forty-eight hours let the men go into the field, stick their forks into the cocks and pull them to you the width of them onto fresh ground and that will prevent smothering the alfalfa

underneath. When it comes a fair day, throw off these caps, open them out and give them air. You want this clover or alfalfa to go through the first sweat in the cock, and then you are safe.

Now, I want to tell you what it means to be safe. You know that that magnificent $30,000 barn of Mr. Morgan's down at Beloit burned up last fall, because a lot of stupid hired men put green clover into that barn and by spontaneous combustion, it ignited and burned up. Now, if it passes the first sweat out in the air, there is no combustion in any secondary sweating or heating. You can dump it into the barn when it is quite limp, the leaves all on it. It will heat up just a little, but it will go on and come out all right. I have a thousand of these hay caps, and I would no more think of making fine hay without them than I would think of mowing without a mower or a hay rake. It is part of my hay-making machinery, and they cost me 12 cents apiece. Now, you can have all this information, which I have worked out, very cheap, although it has cost me something to acquire the information. I know of several men who for the lack of these hay caps last year, spoiled two crops of alfalfa and only saved one.

A Member: Would you mow it the first year?

Ex-Gov. Hoard: My judgment is to let it alone. The weeds will come up of course, but never mind. They say mow it two or three times to kill the weeds but there is some risk that you will kill the alfalfa while you are killing the weeds. Down South, in Ohio, where they have a milder climate, it will stand such usage, but it don't seem to stand it in Wisconsin; we must handle alfalfa according to our climate. The second year you commence and cut it, you cut it three times and the fourth crop you let it grow in a heavy growth to go through the winter with and leave it there.

Another important thing, never allow a hoof on alfalfa as long as you live, except what is necessary in hauling it. It is very sensitive at the crown, any pressure hurts it. After the first crop is hauled off of my alfalfa field, I can trace where

every wagon wheel pressed, in the second crop and the third crop. You will see a little track right through the fields where they went. Therefore, horses and cattle are very bad on it.

FEED AND CARE OF THE DAIRY COW.

J. R. Danks, Madison.

Nearly all progressive dairymen realize that the feed and care of the dairy cow is very closely associated with the amount of butter produced, and as the profit or loss on each cow is largely determined by the butter production, it will readily be seen that the subject is an important one, as it largely effects the welfare of all dairymen.

One of the first lessons to be learned in feeding the dairy cow is that in order to get the best results from a herd it is necessary to study the individual peculiarities of each and every cow in the herd, and then try and feed them according to their individual needs. It is simply impossible to get the best results from a herd of cows by feeding them all the same ration.

In formulating a ration for the dairy cow the following factors are very important and should always be taken into consideration, viz.: 1st. The amount of butter she is producing. 2nd. Her condition or live weight. 3rd. Her temperament or tendency. 4th. Her period of lactation. The cost or market price of the various feeds, together with their actual feeding value, will of course always be taken into consideration by the feeder who is anxious to keep the cost of the ration down as low as is consistent with the best results.

Owing to the peculiar characteristics of each individual cow, no definite rules can be laid down in regard to the amount of grain a cow should be fed, even when the production of milk and butter is known. Ten pounds of grain per day would, for some cows, even when recently fresh, be a heavy feed, for the