morning perhaps, they would rarely drink at all, at night, so I saw no advantage in it.

The Chairman—Did you ever notice how the cow manages herself when on pasture, whether she drinks more than once a day?

Mr. George—I think she does, yes.

Mr. Favill—My brother has arrangements for watering in the stable, don’t have to turn the cows out, and he tells me that he has tried both ways, and they won’t drink enough the second time to pay for sweeping out again and letting in the water, so he has gone back to once a day, along about nine or ten o’clock. In hot weather the cows will drink three or four times a day if water is handy. I have watched my cows when I have been at work where I could see them.

Mr. Hyatt—I have experimented in this thing, I have known a cow in full milk in winter to drink 160 pounds of water a day. I tried it at different times, and the average is 125 to 150 pounds right along. Now, I don’t think they can get that down at one trip, particularly if it is ice water, and particularly if they are these small Jerseys.

Mr. Matteson—We have an abundance of water in our state. Seventeen years ago this winter, I had a big job on my hands handling two hundred cords of wood, and I had to quit feeding my cows three times a day as I had been doing, and I had to water once a day, and it worked all right.

HOW WE HANDLE OUR DAIRY TO GET 306 POUNDS OF BUTTER PER COW.

By WM. WIDMANN, Oakland, Wis.

My brother and I own (or will when it is paid for) a farm of 200 acres, situated in the town of Oakland, Jefferson county, Wis. Our father traded city property for this farm in 1881, and moved thereon in 1883. Neither he nor any of his children had had any previous experience in farming. He died in the fall of 1889, and in the settlement of his estate my elder
brother and myself bought out the other heirs and have had the
management of the same for three years.

We commenced with twenty cows, fifteen yearlings and 2-
year-olds, thirteen horses and colts and sixty hogs. The cows
were principally natives with some short-horn and Holstein
blood. About twenty acres of this farm is woodland, twenty-
five acres pasture, fifteen of which is upland marsh, and the
balance of the farm is devoted to hay and grain. About a year
before his death father had built two silos, each eighteen feet
square and twenty feet deep, all above ground. The sides are
three thicknesses of boards and one of paper, on a stone founda-
tion. These were filled in 1888 and covered with cut straw—
the one to be used first two feet deep, the other four feet deep.

For some reason the cattle did not eat the ensilage very well
the first year, and we carried over the ensilage of one of the
pits to the following winter. Not being satisfied with the first
year's results we did not fill the other silo the next fall, thus
giving us only one silo for that winter's feeding. The first
year not much was spoiled on top, but some on the sides and
in the corners. Upon opening the carried over silo we found
about two feet on top and quite a considerable on the sides
nearly half way down was in bad condition, but the balance,
what there was of it, was as bright and fresh as the year be-
fore. The cows ate it readily, but as a great deal was spoilt
the ensilage did not last very long, and when it was gone the
cows decreased in milk to a considerable extent; thus teaching
us that we should fill both silos every year as long as we keep
cows.

The next year (1891) having resolved to pay more attention
to dairying, as we concluded that it was the most profitable branch
of farming, we began taking better care of the cows, made the
stable more comfortable, and warmed their drinking water. The
feed for that winter consisted of clover hay cornstalks, straw
and ensilage, with all the bran that they would eat — eight or
ten pounds.

On the 1st of October 1891, the proprietor of the factory we
were patronizing, started the system of paying for milk by the
test plan. It developed that our milk only yielded 3.9 pounds
of butter per 100 pounds of milk. Being dissatisfied with so low a yield, we tested our cows individually; sold a number of the poorest, and started a search for a butter producing food. We concluded to try oilmeal, and commenced feeding very light, one-half pound to a feed, increasing gradually, until we fed two pounds per day. Noting that it was profitable, we continued increasing the amount, until we were feeding four pounds.

We had read a great deal about cotton seedmeal being a valuable food for butter, and determined to try it. Not being able to obtain it from any of the dealers, we sent to Chicago for a ton, and being pleased with the results, we had our dealer order a carload, agreeing to take six tons immediately, and what he could not sell of the remainder later. We did this thinking that we could persuade some of our neighbors to buy some of the meal, but failed, and finally had to take about four tons more, but did not consider this any hardship.

We fed the last of our ensilage about the 10th of March, after which the cows began decreasing in milk, but we were determined to keep up the flow, and wishing to experiment a little with cotton seed meal, we fed as high as six pounds of it and four of bran. Some of the cows were fed as high as seven and eight pounds, but this was not profitable, as they did not eat much else nor increase in milk.

Not having much land for pasture that summer, we concluded that feeding grain was necessary. We fed about two pounds each of cotton seed meal and bran as long as the cotton seed meal lasted, which was until about July 1, after which we fed nothing but bran. The omission of the cotton seed meal resulted in a decrease of both quantity and quality of milk.

This was the first summer that we fed grain, and we have concluded to feed it hereafter during summer months, as we believe by so doing, it will take less land for pasture; and the cows will do better, not go dry as long, and be in better condition for the following winter, than when no grain is fed.

During the year 1892, the old cows were dry on an average, about six weeks; and six of nine heifers were milked continuously. The largest average daily amount of milk and butter that we ever obtained per cow was the following (last) October,
while they were feeding on new seeding of clover during the day, and kept in the barn at night, and fed twenty pounds of ensilage, three pounds of oil meal, and four of bran.

Our ration for this winter has been from 40 to 50 pounds ensilage, 4 pounds sheaf oats, 5 pounds corn fodder, and one each of clover hay and millet, with three pounds cotton seed meal, two pounds oil meal and from six to eight pounds bran, salt being put on the dry meal every day. We endeavor to give each cow in our herd personal attention, and feed them individually, according to the capacity of each.

The fore part of this winter the cows were turned out in the yard at 11 a.m., received one feed out side, and were put in again at two o'clock in the afternoon. But in stormy weather they were out only long enough to drink, and if it had rained or snowed while they were out, the snow or water was carefully brushed off. At present they are turned out to drink both morning and evening, except on Sundays, when, if the weather is suitable, they are turned in the yard at about nine o'clock in the forenoon, and in again at about four in the afternoon, in order to allow us to go to church.

The first thing done to the cows mornings is feeding grain, then milked; after breakfast, while the cows are out to drink, the stables are cleaned, bedding shaken up and corn fodder fed. The cows are then put in again until about four o'clock afternoon, when they are turned out to drink and fed clover hay and millet outside to keep them quiet while we distribute the sheaf oats and ensilage and get in straw for bedding. Just before milking they are fed grain upon which we put salt.

Land plaster is used freely on the stable floors. It not only checks the evaporation of ammonia and makes an almost odorless stable, but is itself a good fertilizer and cows never slip on a floor where it is used.

During the coldest weather this winter we were troubled somewhat with the ensilage freezing in the silo until we tried covering it with boards. We found this not only prevented freezing, but retained the ensilage in a fresh and sweet condition.

We like having our cows come fresh about the first of
October, because then we have time to milk them and care for the calves, and do not have so much milking to do while we harvest and thresh our grain, cut our corn and fill the silos. Besides, the weather is not too cold and there are no flies to bother the cows; and as we commence feeding ensilage as soon as the silos are full, we have an abundance of feed in the most critical time.

We estimate the cost of keeping a cow at $40 per year; of this amount $20 is for grain and $11 for ensilage and other coarse feed in winter, and $5 for grain and $4 for pasture in summer.

For the calendar year ending December 31st, 1892, our cows gave us 179,936 pounds of milk, giving us a credit at the factory for 7,801 pounds of butter. This was an average yield per cow of 7,455 3/4 pounds of milk and 325 1/2 pounds of butter.

The largest amount of milk we ever obtained was in October, 1892, when the mature cows gave an average of forty pounds of milk per day and the heifers twenty-nine pounds. The yield of butter that month averaged one and a half pounds per day per cow.

The first year we filled our silos it took five men and eight horses fourteen days; the second year four men and six horses ten days; the third year we worked eleven and a half days with eight horses, and five men five days and three the remainder; last year five men worked five and a half days and four men five days with eight horses.

DISCUSSION.

Mr. Curtis—How many cows are you milking now?

Mr. Widmann—Twenty-four.

Mr. Curtis—What was the amount of the check you received last month?

Mr. Widmann—Two hundred and thirty-three dollars and seventy-four cents from twenty-four cows, the month before that from about twenty-two cows, twenty-nine days, one day's
milk being left home, and run through the separator, which made twenty-six pounds of butter, we had $203.76.

Mr. Goodrich—You said they did the best last October, how much did they make then?

Mr. Widmann—The matured cows gave us forty pounds, the heifers gave us twenty-nine, and this yielded on an average of the whole herd, one and one-half pounds of butter per cow. The sample is taken every day, and every third day the milk is tested, and each one of these times during December and the first few days of January it tested exactly 4 per cent.

Mr. Curtis—Do you know how much money you have received from your dairy for the past year?

Mr. Widmann—Not exactly; the butter would average about 23 cents until the first of November, and it would come to about $73 per cow.

The Chairman—The figures you have given us show the amount of butter shown by the creamery returns as having been produced from your cows?

Mr. Widmann—Yes, that is it. We send our milk to the creamery.

Mr. West—You say you put salt on your grain. Don't they have to eat it whether they want to or not?

Mr. Widmann—Of course, you have to use judgment. The cows have never refused their grain on account of the salt. I do the salting myself, and do it according to the cow’s taste, from a teaspoonful up.

Mr. F. C. Curtiss—I understand you have decided that cotton seed meal is a good thing. What quantity do you feed?

Mr. Widmann—We have fed with good results as high as six pounds, but our cows are large ones.

Mr. Curtis—Fifty or sixty years ago I lived in the cotton country, and the butter that came into the market could be known by its appearance when the cotton seed meal was fed. It had no particular value, except as a food for stock, and a great deal of it rotted.

Mr. Widmann—The proprietor of the factories say it takes our milk to make the flavor for their butter.
Mr. Curtis—If they all fed it to that extent, I think it would injure the quality of the butter.

The Chairman—How much does your cotton seed cost you at Ft. Atkinson?

Mr. Widmann—We buy it by the car load, generally, just the same price as oil meal. They are selling oil meal now for $25 at Ft. Atkinson. I don’t know that I ought to tell what we pay by the car load.

Mr. Goodrich—I am going to tell, it costs us $24 a ton?

Mr. Bender—I wish the gentleman would give us the number of cows he has fed in twelve months, and what it has cost him in grain outside of the product raised on the farm.

Mr. Widmann—The grain in the winter costs us about $20 per cow, and about $4.00 in the summer. They don’t eat much coarse food if they have that grain. We estimate about $20.00 for pasture. It takes less than an acre of land where grain is fed, and about $11.00 in the winter for ensilage and straw and such other coarse feed as they get. We estimate our ensilage at about $2.00 per ton, so that it makes it altogether about $40, and we get about $73 a head.

The Chairman. Mr. Widmann seems to get the difference between $40 and $73 as the pay for his labor. The stuff that he raises he sells to the cow. We understand that does not include the skim milk nor the calf. How much do you estimate the value of the skim milk to you per year.

Mr. Widmann—About ten dollars per cow, and we get an average of about $4.00 for our calves. We sell them the first Tuesday after they are born.

Mr. Favill—As soon as they are old enough to make pressed chicken in Chicago.

Mr. Widmann—Or canned turkey in New York.

Mr. Bender—Do you feed your stalks whole or run them through the cutter?

Mr. Widmann—The last few weeks we have not cut them. We feed our grain dry.

Question—Is there not more benefit from cutting your feed?

Mr. Widmann—I was too lazy to cut it and we thought we would try and see how it would work the other way?
Question—Will your cows stand the pressure of that heavy feed right along year after year?

Mr. Widmann—That remains to be seen; they produced more this year than last.

Question—What breed do you keep?

Mr. Widmann—They are mostly native with Holstein and Durham grades.

Question—You spoke of covering your ensilage with boards?

Mr. Widmann—That is while we are feeding in very cold weather to keep the frost out. We take off half at a time, uncover one half and take it off, and after we get it level, we cover it up again.

Mr. West—Where the factories pay on the test, I find it is almost an universal complaint that when farmers commence to feed well, the milk begins to drop down in butter fat. They get more quantity, but they cannot maintain the same percentage. Now, what are we to do about that?

Mr. De Land—The paper read by this gentleman covers the ground the most perfectly of any paper I ever have heard read, and meets my views in the matter of feeding stock the best of any paper I have ever heard at our annual meetings, and I believe that the complaint which Mr. West speaks of will not be heard if they feed in the manner that he feeds. I think the trouble in this state has been that the dairy men have taken up has been bran. I have become satisfied that bran has been a damage to the dairy interests of this state. It is a fact that it will produce more milk without increasing the butter fat as other feed will. If you will feed concentrated foods, as this gentleman has, you will not only get an increased yield, but also get butter fat to an increased proportion. I am satisfied that we could make a poor cow do much better or a good cow do very much better by persistent feeding, and the experiment which Prof. Roberts gave us a year or two ago in feeding corn to a scrub cow is proof of this very fact. I think if we feed more concentrated food and leave out the bran, then there will be no complaint that the milk is decreasing in quality.

Mr. Goodrich—I want to answer that by telling some accu-
rate experiments that have been carried on on my farm this winter. My sons at home are using the Babcock test all the time. We fed for a grain ration aside from what was in the ensilage the fore part of the winter, ten pounds of bran to a cow. After a while they put in a mixture, two pounds of corn and oats ground together. Then that was changed for two pounds of cotton seed meal, which was commenced about the first of January. Now, the test has shown no difference with these changes, every cow has been tested under the three rations, and the whole herd has figured up exactly the same. There was a difference in the quantity of the milk when the cotton seed meal was put in, but the per cent. was exactly the same as it was when they had the bran.

Mr. DeLand—It is only continuous, persistent feeding along a certain line that will show a difference.

The Chairman—But, Mr. Goodrich, you say when you fed the cotton seed meal your milk increased in quantity, and your per centage held the same; then you made a gain.

Mr. Goodrich—Certainly we made a gain.

Mr. Widmann—In feeding cotton seed or oil meal our cows increased three-tenths in their butter fat over last year the same month. It took us four months to get up to a full ration of cotton seed meal.

Question—You call 4 per cent. pretty good milk?

Mr. Widmann—I do, where the cows give a large quantity of milk.

Mr. Monrad—Mr. West is perfectly right in what he states; I have heard the same complaint of patrons. They go to a factory, and they are urged to feed well, but they can’t increase the percentage in milk, and they are doubtful whether it pays to feed well. The point in this thing is the general receipts, and we can all agree that it pays to feed well, because it increases the total yield of butter fat from our cows, because it increases the quantity of milk given by them and if that quantity holds the average per cent. of fat, of course, in that way it increases the receipts.

The Chairman—This cotton seed meal is a new thing in this state, but I have been engaged in outside dairy work for several
years and have seen considerable of it in New England and other places. I wish the dairymen of Wisconsin could just for a moment look down on the rocky, sterile coast of New England and see the dairymen down there and how they manage to make a good living and make money. Cotton seed meal comes up from the south into Sussex county, New Jersey, and Orange county, New York, and they pay $23 and $21 a ton for our bran, $26 for corn meal and $24 and $25 for linseed, and from that up to $28 for cotton seed. Those men are feeding and feeding for profit, but I notice one thing which you have forgotten in all your talk here, and that is this: Almost universally through that country where they are engaged in feeding for a high percentage of butter fat, they have a breed of cows that give a high percentage of butter fat. They understand that this percentage of butter fat question is largely a breed question, and it is largely an individual question in the breed, too. Now, in my experience with Jerseys and Guernseys, I have a heifer to-day which dropped her calf last November; she is giving eighteen and twenty pounds of milk, yielding 6½ per cent. of butter fat. I do not expect that heifer will do as well in her second year, for heifers usually give the richest milk in the first year, and perhaps in the third year a little better and from that on. We want to understand our cows and their constitution better.

Mr. Beach—When a cow is fresh in milk and giving—a large amount of milk, you must not expect that she will test as high a per cent. of fat. We must not discard her on that account. The amount of butter fat that we get from the cow in the whole year is what we should figure on. If a cow is giving a large amount of 4 per cent. milk, she may be doing better for me than when she gives 5 and 5½ per cent. with a reduced amount. The final test is the amount of butter fat she gives per day and year and not the per cent.

A Member—Please tell us something more about this oil meal.

The Chairman—There are two processes. The old process re-
tains a portion of the fat, that is oil fat; the new process is a benzine process which takes out all the fat.

DAIRY AND FARM MANAGEMENT.

C. P. GOODRICH, Ft. Atkinson.

A few days ago when I was shown this programme and saw that I was put on for "Dairy and Farm Management" I was overwhelmed. Just think of the magnitude of the subject! Why, it contains the whole thing; all we have been talking about for all these years.

Well, I am somewhat in the situation of the farmer who went out to plow in a large field. He had a yoke of wild, unbroken steers. When he undertook to plow he could not hinder them from going here, there, and all over, so he put in the plow and said, "Never mind, go where you are a mind to; this field all needs plowing." So I will put in the plow, and if I turn up a little dirt, it may be that this audience will be able to harrow it over and make it bear some fruit.

We wish to manage our dairy and farm so as to get the largest return possible for a given outlay of money and labor. To do this we must have the cow that will produce the greatest value in her milk for the amount of food consumed. We must produce or procure the foods which contain the proper elements to enable her to do her best, at the least possible cost. We must feed her these foods in such a manner and in such proportions as will enable her to consume and manufacture into milk the largest quantities possible without waste. We must care for and handle the cow in such a manner and under such conditions as will enable her to do her very best. We must dispose of the milk or manufacture it into a product so that it will bring the greatest amount of money in proportion to the cost. The farm should be managed, while doing all this, in such a manner that its fertility and productiveness will be increased, enabling the dairyman each year to raise larger crops and carry more cows and in this way lessen the cost of produc-