Proceedings of Association Cow Testers' Conference

W.F. Kumlien

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PROCEEDINGS OF ASSOCIATION COW TESTERS' CONFERENCE
Brookings

Not In Picture: E. M. Duryee.
Cow Testing Associations Active in South Dakota, June 1924.

O=Headquarters of Association.     --Approximate location of Members.
### SOUTH DAKOTA COW TESTING ASSOCIATION'S ACTIVE JUNE 1924

<table>
<thead>
<tr>
<th>Name of Association</th>
<th>Secretary</th>
<th>Tester</th>
<th>No. Herds</th>
<th>No. Cows</th>
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<tbody>
<tr>
<td>1. Day County</td>
<td>Guy Mckibben, Webster</td>
<td>Elvie M. Duryee</td>
<td>25</td>
<td>346</td>
</tr>
<tr>
<td>2. Watertown</td>
<td>S. B. Crothers, Watertown</td>
<td>H. E. Erickson</td>
<td>22</td>
<td>289</td>
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<tr>
<td>3. East Kingsbury</td>
<td>Frank Johnson, Hetland</td>
<td>Paul E. Corey</td>
<td>25</td>
<td>292</td>
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<tr>
<td>4. Hanlin</td>
<td>F. L. Hayes, Lake Norden</td>
<td>F. E. Hanson</td>
<td>27</td>
<td>256</td>
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<td>5. Moody County</td>
<td>G. L. Pickard, Colman</td>
<td>E. Ward Darber</td>
<td>25</td>
<td>331</td>
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<tr>
<td>7. Brown County</td>
<td>G. C. Ernst, Aberdeen</td>
<td>F. J. Meade</td>
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<td>277</td>
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<tr>
<td>8. Sioux Falls</td>
<td>C. J. Delbridge, Sioux Falls</td>
<td>Calvin E. Heeren</td>
<td>25</td>
<td>563</td>
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<tr>
<td>10. Clark</td>
<td>Harry Brown, Clark</td>
<td>Theodore N. Rude</td>
<td>24</td>
<td>288</td>
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</table>

Relief Testers: Henry Fred and P. W. Johnson
Purpose of Conference

H. M. Jones,
Dairy Specialist

For some time there has been a desire on the part of the testers to hold a meeting and exchange ideas for the benefit of their work. Until now there has been no opportunity for getting together, but the Dairy Field Day at Brookings today has furnished that opportunity, and hence the meeting was called.

You will note from the program that each tester is to be called on for a discussion on some phase of the work. We have also called in members of the college faculty to discuss certain phases which are of interest to all of us. There is no question but what this meeting and the subjects discussed here this morning are going to mean even better and more efficient work on the part of the testers hereafter.

The Value of Cow Testing Association Work

C. Larsen,
Dean of Agriculture

Cow testing occupies an important place in dairy improvement. There has been a remarkable growth in cow testing associations the last few years. It is becoming more standardized all the time.

In the early days of cow testing association work there were many difficulties to be met. The first association in South Dakota was at Saint Onge with Mr. Meehan employed as tester. There was strong opposition to it on the part of the beef cattle men who thought it was going to hurt their business, but the men who were leading the movement would not give up. It was necessary to take in a large territory to secure members but they won out and secured records of production for one full year.

The cow testing association records that are now being made will be used by instructors in this College, by the Extension Service, and by the United States Department of Agriculture. The group present here this morning are pioneers in cow testing association work. In years to come, people will look back at the good work you are doing now.

There is another type of organization which goes very well with the cow testing association. I refer to the cooperative bull association. In testing you find there are a number of low producers. Purebred bulls are the only sensible remedy for inherent low production. The greatest service which a cow tester can do is to formulate the right idea for dairying in his community. Incidental phases of the work can be taught. Results may come slowly. We must expect that, but the number of associations will grow as the work develops sanely and properly, as I am sure it will.
The question is often raised by the farmer, "Where do I get my money back on cow testing?" In modern farming as in business, everything must show returns. If cow testing cannot do this then it is not worth while, but there are many instances in which we can show that cow testing more than pays for itself. Certain communities in Minnesota and Wisconsin where people are buying cows and heifers, they find that cows with high records or heifers from cows which have high records sell for the most money. When a cow has a good record it always increases her value.

But the greatest means of returning the cost is by means of increasing the average production of dairy herds in a community. Records of the Barnesville Cow Testing Association show that in 1914, the year the association was organized, the average production of all cows in the association was 5418 pounds of milk and 270 pounds of butterfat. In 1922 after eight years of continuous testing the average production was 6865 pounds of milk and 359 pounds of butterfat. This is representative of the increase due to testing.

We have reached the stage where the business end of farming must be emphasized. We hear on every hand that more attention should be paid to marketing. In a sense cow testing is marketing. It is standardizing the product. It is pointing out which cows furnish the best market for our feed.

The experience which you testers are getting is of great value to you. Aside from developing dairying within the communities which you represent, you are also developing yourselves. You are meeting problems which require solving and in the solving of them you are making yourselves more useful and more intelligent citizens. Dairying involves so many details that a knowledge of it is of benefit to a person in any business. Even though the work may seem hard and tedious and has strong opposition in some cases, you will always find that the fellow who stays by the job and sees it through is developing himself.

New Facts in Dairying

T. M. Olson,
Associate Professor of Dairy Husbandry

Great advances have been made in understanding the principles which underlie the feeding of dairy cattle. We used to think that if a ration contained the right amounts of protein, carbohydrates and fat that it was satisfactory. It has now been found that even though these nutrients are present in the right proportions there may still be something lacking in the ration.

Forced feeding of dairy cows, such as that in use for the making of exceptionally high records, tends toward shy breeding and short life of the animals. Some cows become non-breeders under such conditions. This has been known for a long time, but
we are just beginning to find out some of the reasons for it. It is also well known that if a cow is bred too young she will be stunted in growth. We used to think that it was the nutrient requirements for the development of the fetus which prevented growth, but it has since been found that this theory is not true. The lack of growth is due to the fact that the cow is giving milk. All cows should have a rest period between lactations. You have probably noticed in your work that when a cow starts a lactation with low production it usually remains low.

Minerals are of vital importance in the ration of a dairy cow. The ordinary feeds which we have available are quite often deficient in calcium and phosphorous and in some places in iodine content. Professor Forbes of the Ohio Station has found that an ordinary cow giving 30 or 40 pounds of milk per day gives off in feces, urine and milk about ten grams of calcium a day or three and a half kilograms a year. This is about one-half the amount contained in the body of the average cow. Unless there is at least ten grams per day of this substance in the ration, the cow will have to draw on her body supply to produce milk.

When the roughage is of poor grade it has been found that a cow may give off as much as 30 grams of calcium in a day. If this is kept up it constitutes a drain on the cow's system. Bone meal added to the ration will improve this condition, but with high producing cows there might still remain a negative balance. Good legume hay helps in supplying mineral matter. The Wisconsin Station compared alfalfa hay cured in the windrow and under caps. It was found that when that which was cured in windrows was fed to cows it resulted in a negative calcium balance, and when these same cows were changed over to alfalfa cured under caps there was a positive balance.

Good pasture is a means of supplying the mineral requirements for a cow. If a cow is dry while on pasture she will build up the body in this respect. During the pasture season is a good time to have cows dry.

In Minnesota they have found certain areas where minerals are deficient. An analysis of the feeds showed that minerals were present but when this feed was given to cows they did not make use of it. Evidently it was not present in available form. This problem is being studied by Doctor Eckles and his associates.

I have here one of the bones from the skeleton of College Belle Wayne 2d. She was an exceptionally high producing cow. She averaged 18,273 pounds of milk and 593.73 pounds of butterfat in nine lactations. She was a very persistent milker right up to the time of slaughter. You will note that this bone is wasted away, that is, she was evidently drawing on the calcium and phosphorous in her bones to supply the needs for milk production. The softest bones are utilized first in this connection.

The lack of minerals in the ration of a dairy cow is an important subject to consider. To sum up briefly such practical remedies for mineral deficiency as we know of at present are as
follows:

1. Feed liberally of legume roughages.
2. Cure alfalfa hay properly.
3. Allow cows on pasture as long as possible and give them a rest period.
4. The science of feeding is still in its primitive stages. We must study it constantly.

The Public Testing Demonstration

F. E. Hanson, Hamlin County

At the Farm Bureau picnic on June 11 I was asked to put on a demonstration concerning the value of cow testing and the methods of conducting it. The demonstration was successful, but if I were repeating it, there are some things I would do differently.

To illustrate the value of testing, I took the case of two cows, one producing 200 pounds of butterfat in a year and valued at $75 and the other producing 400 pounds of butterfat in a year and valued at $200:

<table>
<thead>
<tr>
<th>Production of cow</th>
<th>200</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of cow</td>
<td>$75</td>
<td>$200</td>
</tr>
<tr>
<td>Value of product first year</td>
<td>$80</td>
<td>$160</td>
</tr>
<tr>
<td>Gain or loss</td>
<td>$5</td>
<td>$-40</td>
</tr>
<tr>
<td>Value of product second year</td>
<td>$80</td>
<td>$160</td>
</tr>
<tr>
<td>Gain</td>
<td>$85</td>
<td>$120</td>
</tr>
</tbody>
</table>

Thus we see that at the end of two years the $200 cow would have returned more than the $75 cow and would probably keep on doing so for a number of years.

As regards methods of testing I took up the three methods:
1. The farmers doing it themselves.
2. Having the creamery or cream station do the testing.
3. The association method.

I also brought out the fact that a testing association leads to other dairy improvements such as feeding and breeding.

People outside of the association quite often do not know the difference between a cream test bottle and a milk test bottle. I was talking with one non-member who said his separator was skimming efficiently—that there was hardly any fat in the neck of the bottle when it was tested. Upon questioning him I found that a cream test bottle had been used and that if any fat were visible at all, there must have been a great loss.

I used two samples of milk, one testing 2.8 and the other 3.4. I knew in advance that the two samples would not test the same. I let these samples represent the milk of two different cows. I also demonstrated the action of acid on cloth and
urged caution in handling it. To those who were interested I showed the books and records which are kept. In one case there was a cow which returned 90 cents for each dollar's worth of feed. Other cows in the same herd showed a good profit.

In putting on this demonstration a person should have a blackboard. Actual records of cows in the association are of value. Such a demonstration is of value to the crowd as well as to the tester himself.

The Annual Report

H. M. Jones,
Dairy Specialist.

Mr. Duryee is not here this morning, but I have here a copy of his annual report and might outline it briefly. It was published in the Reporter and Farmer. This is one way of getting it before the public, but if it were in pamphlet form I believe it would be more attractive and more permanent.

The report begins with a brief history of the association, how the members were secured and how they were organized. It includes a statement on the value of the association to the average member. Then follow statements of the cow producing the greatest amount of butterfat and milk, the herd which averaged the highest, the cow producing the greatest income over feed cost and the ration which she received.

There is included a list of cows producing more than 300 pounds of butterfat yearly in the order of production. This list includes the feed cost and the income above the cost of feed. There is also a list of the ten highest averaging herds for the year and a list of the number of cows belonging to each member and the number qualifying for the Register of Production. A list of all the members is included.

The report closes with statements of specific cases in which the association has done some good showing the value of grades over scrubs, the value of ground feed and the value of adding more protein feed to the ration.

The first annual report of the Day County testing association contains some very interesting items and might serve as a valuable guide for any other association preparing such a report.

Reorganizing the Association

E. W. Barber, Moody County

The most important thing in reorganizing an association for the second year is to retain just as many of the old members as possible. If there is a falling off in the membership and we have to look for new members they are naturally asking, "If the association is such a good thing why don't all of the old members stay in?" Of course there are people selling out and mov.
ing away or changing their types of farming which might serve as logical reasons, but it is always a good situation when all of the old members "stick". In our association we signed them up during the eleventh month of the year and secured 19 of them. During the twelfth month we made an effort to secure enough new members to fill in. By the end of the year we were ready to start the second year.

Meetings are valuable in maintaining the interest of the members and in persuading them to stay in the association from year to year. Here they can meet and talk over the things that they have in common.

It requires lots of time to reorganize an association for the second year, but it is worth while because this is a critical time in the life of an association. If they go through the second year in good shape, it should be a fairly permanent organization.

**Increased Efficiency the Second Year**

H. E. Erickson, Watertown

The work of cow testing is not nearly so difficult the second year as it is to a beginner. The person who has tested for a year knows what to look for the second year and can do the work in much less time. During the first year one is likely to let some of the book work slide with the result that it is hard to catch up. The second year he makes every effort not to let the work get behind. All book work, summaries and tabulations come much easier with a little experience. By giving it a little time through the month it is possible to have the preliminary reports ready on the last day of the month.

**The Association as a Part of the Extension Service**

W. F. Kumlien, Director of Extension

In discussing the connection which exists between cow testing association work and the Extension Service, it might be well to review briefly the origin and development of extension work. The Morrill act of 1862 created an agricultural college in each state of the union. They existed for a time teaching as best they knew such subjects as are related to agriculture. After a time they discovered that their teachings would be of far more value if they were based on the results of research work. So in 1887 with the passage of the Hatch act, agricultural experiment stations were created in connection with the agricultural colleges. Their function was to take specific problems and find solutions to them. The Babeock Test which you are using in your work is an outgrowth of that plan and illustrates the numerous things that come from experiment station work. By means of this and other activities the College of Agriculture in Wisconsin has revolutionized the agriculture of the state.
It was found, however, that the experiment stations reached directly only a comparatively few of the farmers. They had direct contact with 1,000 out of 50,000 farmers. It was to carry the findings of the experiment stations and the teachings of the colleges to all of the farmers that the Smith-Lever act was passed in 1914. The function of this work, commonly known as extension work, is to take the work of the college to the people of the state. The extent to which the Extension Service of this state is doing this is illustrated in the attendance at the series of Balanced Agriculture meetings last winter. Over 40,000 people attended these meetings in 69 different places. Cooperative work of some sort is carried on in an organized way with about 20,000 men, 14,000 women and 6,500 boys and girls in the state. Its activities are many and varied. Dairying is only one phase of extension work and cow testing is only one phase of dairying.

I am particularly interested in what the results of this testing are going to be. If we were to do only the testing and nothing more we would get no where. As I see it testing is only the first step. The outcome is the important thing. If after four or five years farmers who are members of the testing associations have not improved their feeding, housing or breeding then the work amounts to nothing. If on the other hand they find that improvement is to their advantage and if they make some improvements, then the work has been of great value, and I am sure that such will be the case.

The farms of members of these associations should serve as demonstration farms. It would be a hopeless task to get all the farmers of this state into cow testing associations, but if we have a number of cow testing association members scattered over the state, the dairy practices which they adopt will spread to other farms. Results may be a long time in the future, but there are sure to be good results from your work, if it continues to be carried on effectively.

**Association Tests and Creamery Tests Compared**

A. P. Ryger,  
State Dairy Expert

Cow testing is a comparatively new thing. I have lived in South Dakota thirty-two years and have a good understanding of the creamery business in this state. However, I was raised on a dairy farm and therefore have some understanding of the production side of the business.

The development of dairying in South Dakota has not been so different from the development in other places. For instance, the farmers of Denmark undertook dairying, not because they liked to, but because they were forced to. There was no other way to make a profit from their farms. In a sense the Danes had to milk or starve. We have similar conditions in South Dakota.
With dairying there came other things which were also valuable to the farmers. I refer to hogs and poultry. Cows, hogs and poultry have been a good combination in countless places.

The creamery business has had its ups and downs. There seemed times when a new invention of some kind or another threatened the industry. The hand separator and the centralizer have revolutionized the business. Before the days of the hand separator we had good cream but since its advent, there is a tendency to keep the cream on the farm too long. The centralizers can handle poor cream and make a profit on it because they are near the centers of consumption and can get their butter on the market a day or two after it is made. The local creameries cannot do this.

Testers should know how to produce good cream and be able to pass this information on to their members. Many farmers have an idea that quality in cream means a high test. Quality is not judged by the test but by the sweetness and freshness. It does not pay to skim higher than 35 percent of butterfat. If cream tests any higher there is going to be a loss in handling. I have found as high as 1½ pounds of butterfat lost in 1000 pounds of milk because the cream was too rich. Cream should not be too thick to pour readily, rinse readily, and handle readily and that is usually at about 35 percent butterfat.

Odors in cream are the most common causes of poor butter. Odors are usually caused by not giving the animal heat a chance to escape. It should be cooled as near to 50 degrees F. as possible. Warm and cool cream should never be mixed together.

The centralizer is not necessarily friendly to the cow testing association because in some cases it may mean their undoing. They don't want the farmers to know too much about the dairy business because when they do, they will know enough to market their cream through a system which will give them the maximum returns. That system must be based on quality.

The centralizer does not pay for improved quality and it is by means of improved quality that we have our greatest chance to better the conditions of the dairy farmers. South Dakota contributes to the creamery business in six surrounding states. It is impractical for a centralizer to attempt to grade cream. A cream buyer might be a baker, blacksmith, barber, an undertaker or what not. All cream is the same to him. In North Dakota they are trying a system of grading, but it does not help the farmers. They have a differential of 2 cents per pound on butterfat. They do not pay 2 cents more for good cream, but they pay 2 cents less for poor cream, and when it gets to the creamery both good and poor are in the same class. We must get the churn back closer to the cow before we can hope to improve the quality.

A cream station is not a necessity for profitable dairying, but it is a convenience. If it were not for the cream station system, our farmers would perhaps be getting 3 cents or 4 cents more per pound for their butterfat.
In regard to the matter of comparing your tests with the creamery tests, I wish you would understand in the first place that you cannot compare them because they do not compare and they were never intended to compare. The tests are arrived at by different methods. The cow tester gives the farmer the benefit of the doubt. The creamery man has a tendency to read the other way and as you all know cream testing is accurate only to within 1 percent and milk testing to .1 percent. Now then even though both readings may be absolutely correct, there is a chance for difference. If any of you have an honest suspicion that one of your members is being cheated please report it to my office and there will be a deputy there in a short time.

Transportation Problems
A. J. Amberg, Chester

When the association started each member took me to the next place. This plan worked all right for awhile but after they got busy in the fields this spring they were never ready to go when I was and I was never ready to go when they were. The last few months I have furnished my own transportation. Under this system it is possible for the tester to make longer moves. I believe it is much better for the tester to furnish his own transportation. He should get paid accordingly.

Collecting Association Dues
P. B. Corey, Kingsbury County

When our association started work last month there was the usual problem of getting in the dues. Several methods were discussed and it was finally decided that post dated checks should be made out payable on the tenth of each month and they should be in the hands of the secretary at the end of the first month. It fell my lot to collect these checks. At first it was a job I did not care for, but I met with fair success and on the first round got checks for the whole year from all but one member, and this member has sent his in to the secretary since then.

At first I thought the tester should not be asked to do work like this but since making the round I am convinced that it is a good way to get in the dues.

Mapping the Route
T. N. Rude, Clark

In mapping the route the thing to do of course is to have just as little distance as possible and just as few long moves as possible. I believe that is done in every association. Another thing we did was to leave three or four members who live on the gravel road for me to visit in wet weather, thus I can get those on the side roads where the traveling may be poor when these roads are at their best. Those living on the gravel I can get
even when it is raining. I also have the route planned so as to be near headquarters occasionally.

Cow Testing as an Occupation

P. W. Johnson, Greenville

Cow testing is a work which offers excellent possibilities for the person who is looking for valuable experience. I believe there is no better way in which a person can learn to apply what he has learned in school than by cow testing association work or work similar to it. This affords an opportunity to see how 26 different farmers manage their farms. One learns which practices will win out and which will not. I know of one tester who has told me that one year of cow testing association work is worth more than one year of college, and I believe he is right. It furnishes an opportunity to learn some worth while lessons while getting paid for it at the same time.

Prompt Filing of Reports

C. E. Heeren, Sioux Falls

It is very important that the reports be filed just as early as possible because the members want them and are looking for them early in the month. The receipt of these reports helps a great deal in keeping up the interest of the members. It is not so difficult to get out these preliminary reports. After finishing up the last test I find that it takes only about an hour's work to furnish all the information asked for on that sheet. I carried a summary blank with me one month and wrote down the totals for each herd while there, but I found this was not desirable. I found it better to copy the data direct from the barn book. I keep a list of 40 pound cows as I go along and it is a simple matter to count them and pick out the highest one at the end of the month. I see no reason why reports cannot be filed within a day or two after the last test is made.

A Central Testing Place

F. A. Revell, Brookings

I have a situation which is perhaps different from that of any other tester. I live here in Brookings and at the time I hired out to this association it was with the agreement that I furnish my own transportation. Most of the places are within easy driving distance of Brookings so I can keep the testing outfit at home where I have fitted up a convenient testing place in the basement and take only my barn books, sample jars and scales to the farm. If the place is close in I drive out in the evening and again in the morning. If the place is very far I drive out in the evening, take samples, stay over night and return home in the morning where I do the testing and book work.

I find that this is very convenient and that by having everything handy, as I do, I am able to do the work in much less time than if I were changing places every day and having to set up my outfit in a different place each time.
Some Details of the Work

H. M. Jones,
Dairy Specialist

There are a number of details which we should consider in order that they be carried on uniformly in all associations. The monthly summary, which includes the totals and averages for each herd in the association, has not been sent in by all testers. We have not had an opportunity to check up to see how many of them are in and you will probably receive a letter soon telling you how many you are short. I hope you will all make an effort to get these in promptly because since we do not get the duplicate sheets in the barn books any longer the monthly summary is the only record we have which is anywhere near complete.

The value of the monthly report lies in the rapidity with which we get this report back to the members. Its value decreases with each day that it is late. We are making an effort to have all preliminary reports in by the fifth and wish you would cooperate with us in this.

The individual cow strips which are to be filled out at the end of the year contain the same information that is given in the herd record book. It is well to get these strips before the end of the year so that you can do much of the copy work before your rush days at the end of the year. It is not necessary to fill out these strips for cows in the herd less than four months. Please note that "months on test" and "months in milk" do not mean the same thing. "Months on test" include the dry period. Before the end of the year make sure that your members have applications for the Register of Production for as many cows as they are likely to have qualifying. It is well to encourage the use of the daily milk sheet.

For the sake of uniformity we are asking that all amounts of milk be expressed in pounds and tenths, that is, one decimal place; that butterfat be expressed in pounds and hundredths, that is, two decimal places; that the average test be carried to hundredths or two decimal places. Always include the feed bill for a dry cow.

Please keep the central office posted of any change in your address. Some have found it advantageous to have a post office box. This is worth considering. Please report any irregularities or anything about which you may be uncertain. Perhaps the same thing has occurred in some other association where they may have found a solution. It is always well to be sure of a thing. It is unwise to guess at it.

It was moved, seconded and carried that a cow testers' association be organized. F. A. Revell was elected president and took the chair. C. E. Heeren of Sioux Falls was elected secretary-treasurer and F. E. Hanson of Hamlin County was elected vice president. A committee consisting of E. W. Barber of Moody County and C. E. Heeren of Sioux Falls was appointed to draw up constitution and by-laws and report to the next meeting. It was decided that there would be an informal meeting of cow testers at the State Fair on the School of Agriculture day.