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A S T U D Y O F B U L L A S S O C I A T I O N S

in

CACHE COUNTY, UTAH

By

Arthur J. Morris

\*\*\*\*\*



A Thesis submitted to the Faculty of the Utah  
State Agricultural College in partial fulfillment  
of the requirements for the Degree of Master of Science

May, 1930

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## INTRODUCTION

"A cooperative bull association", according to the United States Department of Agriculture, is "a farmers' organization formed for the purpose of joint ownership, use, and exchange of high class, purebred dairy bulls."

The members of the association are divided into three or more groups of neighboring farmers, each group being known as a block. A block may consist of one herd or several herds and contains from 40 to 60 cows. One bull is used in each block, and in order to prevent inbreeding, each bull is moved to another block every two years. If all the bulls live and are kept until each has made one complete circuit, no new bulls need to be purchased for six or more years, or as long as these bulls continue to be serviceable. During this time, each member will have had the use of a high class, purebred bull.

A similar organization to this has been known in Europe for a number of years. The first bull association was started in the United States by the Michigan Agricultural College in 1908 and since that time the movement has spread throughout our whole country, and in 1925 the United States Department of Agriculture reported 220 associations containing 1003 bulls. Each association had an average of 31.1 members, 4.6 bulls, 40.9 purebred cows, and 157.7 grade cows. There was an average of 6.8 members and 43 cows per bull.

Of the 39 states reporting associations at that time, Idaho ranked first with 32 associations and Utah fifth, with 14.

From the "Summary of Bull Associations in United States, January 1, 1929," we find that there has been some increase over 1925. The report gives 339 active associations with 6353 members owning 1569 bulls. Texas, instead of Idaho, is now on lead with 57 associations and Utah is reported as having 18 associations with 77 bulls.

HISTORY OF BULL ASSOCIATIONS IN UTAH AND CACHE COUNTY.

In 1920, there were two bull associations in Utah, and since that time we have had several start which at one time brought the total to 29. However, several have become disorganized until, according to the County Agents' report of January, 1930, we have only 11 associations reported as active in Utah. Some of the associations have reverted back to private ownership and bull clubs. In the last government report, Idaho has lost several of her associations also.

In studies made of the cause for the decrease in the number of associations in Utah and Idaho, it appears that most of the trouble lies in the lack of leadership and proper organization.

In the County Agents' report, the bull associations in Utah were distributed among four counties, as follows:

- Cache County- - - -5 associations with 17 bulls
- Duschesne County- -1 association with 3 bulls
- Sevier County - - -2 associations with 10 bulls
- Utah County - - - -3 associations with 4 bulls

In 1923 Cache County, with the help of the County Agent and the Utah State Agricultural College, organized four bull associations, 3 Holstein and 1 Guernsey. Professor John T. Caine, III, selected the bulls for the Holstein Associations, in the North West.

Most of the bulls arrived in May. Four of the bulls went to the Lewiston Cooperative Bull Association, 5 to the Hyrum-Providence Association, 3 to the Paradise Association, and 3 to the North Logan Association. The bulls of the North Logan Association were Guernseys.

Five years later, 1928, Hyde Park organized a bull association known as the Hyde Park Holstein-Friesian Breeders Association, and procured 3 bulls. This made a total of 5 associations with 18 bulls in Cache County. Cache County has about 16,000 cows and of these 921 are bred to association bulls. Just recently, one block in Providence was discontinued and the bull sold so that at present there are 17 association bulls.

#### REASONS FOR WRITING THESIS

The writer's work at the Branch Agricultural College of Utah, Cedar City, is in dairying. Dairy production in farming is very new in that section of the State. In order to help the farmers start a more organized, progressive method of increasing the production of their grade herds, the study of bull associations was undertaken as a first step in that direction. Cache Valley having done more work along this line than any

section of the state was selected as the place to make the study.

Another reason for making the study was to fulfill the thesis requirements for a Masters Degree at the Utah State Agricultural College.

#### SOURCES OF INFORMATION

Besides reading government and state bulletins and circulars, the information for this thesis was obtained in the following ways:

1. By interviewing the Head of the U. S. A. C. Dairy Department and County Agent of Cache County.
2. By interviewing farmers in bull associations.
3. By interviewing cow testers.
4. By compiling records of daughters of the different bulls in associations and also records of their dams. These records were obtained from the cow testers and the individual farmers by personal visit.
5. By taking photographs of association bulls, their daughters, and the dams of the daughters on the various farms of bull association members.
6. By sending a questionnaire to the president of each bull association.

Most of the information was obtained during a three weeks survey period in July, 1929.

### ORGANIZATION OF BULL ASSOCIATIONS

As stated before, the cooperative bull association is composed of three to five blocks each containing 40 to 80 cows. The associations in Cache County were started on a basis of not less than 40 cows. A block may contain one member or more, just so the desired number of cows are obtained. In this study, however, there was no block with only one member.

The following table will give the number of blocks, members, cows, and bulls in each association May 1, 1930.

Names of Associations	No. of Blocks	No. of Members	No. of Cows	No. of Bulls
Lewiston	4	33	250	4
Hyrum-Providence	4	52	211	4
Paradise	3	40	240	3
North Logan	3	16	90	3
Hyde Park	3	33	190	3
Total	17	174	981	17

From the above table we find that there are an average of 10.2 members and 57.7 cows per block, or an average of 5.7 cows per member. The dairy men with large herds usually have a bull of their own or belong to a bull club which is an organization of usually three or four farmers owning one bull.



A board of directors is elected by the members annually to handle the business and policies of the organization. Usually a director is elected from each block. The directors choose a president, vice-president, and secretary and treasurer from among their own members. These officers control all business of the association, make proper arrangement of blocks and membership therein, provide a serviceable bull for each block, fix the rate of breeding fee, arrange for a keeper of each bull and his compensation, and for the care and handling of the bull.

Two of the associations have incorporated recently and feel that they have strengthened their organization by so doing. They have no more trouble collecting breeding fees now, and before incorporating they were confronted with disorganization because fees did not come in and feelings were aroused by some refusing to pay.

In the beginning, the associations raised funds by paying \$10.00 per cow to buy bulls and build pens with. After that a \$2.00 charge to members for each breeding was made to help pay expenses. \$5.00 per service is charged to non-members.

The caretaker is located as near the center of the block as possible and he pays breeding fees the same as the other members. His pay for caring for the bull is in the consideration of the fact that he has the bull close at hand for his own cows. An annual assessment is made for funds with which to purchase feed for the bulls.

In Idaho, to replace bulls the most popular method is to accumulate money through a sinking fund, and that method is recommended very highly by government authorities. In Cache Valley, however, one association used the sinking fund method and the secretary, according to reports, got away with it, so the common practice among most of the associations is to make a special assessment to raise bull replacement money.

In selecting members and officers, care should be taken to see that enthusiasm doesn't sweep aside better judgment. Members must be of the type that will cooperate. The president and secretary and treasurer should be real leaders and men of character. In Cache Valley, the associations with good leaders are strong today and have had little trouble, while others are incorporating for stability and another is practically disrupted because of still poorer leadership. As a safeguard against the effects of poor leadership, it is wise to incorporate and put officers under bond. Officers should be good dairymen, business men, public spirited, and have the confidence of the people.

A sample constitution and By-Laws are published for distribution by the Dairy Division of the U. S. Department of Agriculture. All the associations of Cache Valley have

patterned their constitutions after the government model. Where an association has become incorporated, their constitution must, of course, be changed to meet requirements of the law.

In the rotation of bulls, the blocks are numbered and the bulls rotated numerically. This method should be definitely understood before organizing so that as soon as calves begin to mature some of the members will not become disgruntled and change the plan of rotation. Some farmers, after calves start to mature, do not want to rotate, but this can be overcome by buying all the bulls of high quality. That the bulls belong to the association and not to the block should be kept in mind by all members.

#### MAINTAINING INTEREST AMONG MEMBERS

In interviewing officers of the associations and the county agent, the response was that one of the most difficult jobs in the bull association was keeping up the interest of the members. They, like the association officers and dairy experts from other states, claim that the maintenance of interest among members of the bull association is one of the biggest factors for success.

It is very noticeable that one association in particular in Cache County is having excellent success in keeping the members of the organization united by maintaining their interest. Besides having regular meetings, conducting affairs

in a business-like manner, this association takes a dairy tour each year and has a yearly banquet which brings the members together. On their tour, they discover what their fellow members are doing and then they visit the dairies of other associations.

Besides these methods of maintaining interest, others have been inaugurated and highly recommended. Among them are the local dairy shows which bring the daughters of each bull and the bulls themselves together for inspection by the members. They have a chance for comparisons and demonstrations at such a show and can see what the bull that will come to them next is doing.

Proper publicity of bulls, cows' records, sales in the association, and various placings of the animals at the local shows will lend to community pride and interest.

An educational program fostered by the association to teach more about pedigrees, breeding, feeding, care and management, and fitting for show and sale has helped promote interest.

The county show herd from Cache County has been a help in creating interest and community pride, especially when an association animal gets in the herd. This has very often been the case. A number of the best show animals have come from herds in bull associations.

To have continued help and supervision from the county agent and Agricultural Extension Division prevents future

mistakes and trouble. When an association is started, the job has only begun. The replacing of bulls and improving of care and management requires expert help and when this help is given it is sure to bring about membership enthusiasm for their organization.

#### CARE AND MANAGEMENT OF ASSOCIATION BULLS

The proper care and management of bulls is a very important problem and one which is very often neglected, causing dissention among members and poor results from the bulls. Several members withdrew from the associations in Idaho because they disapproved of the treatment given the bull in their block. However, in Cache Valley we find no such loss of membership, but we do find that some of the bulls could receive much better care. In one or two cases the pens were too small for proper exercise of the bulls, and in those same pens manure from last winter had not been cleaned out, and I dare say that long hoofs and rheumatism can be traced to such conditions.

#### Feeding of Association Bulls

All the bulls in Cache Valley associations seem to be fairly well fed with plenty of good alfalfa and a moderate amount of grain. Where alfalfa was fed alone--and especially where fed liberally--the bull developed too much barrel and became lazy.

The average cost of feed and care of a bull, per year, in the Idaho Bull Associations, according to Mr. H. A.

Mathjeseh, was as follows:

Feed	\$79.50	
Labor	29.00	
Interest & Deprec.	<u>6.00</u>	\$114.50

According to questionnaires sent out to associations in Cache County, the average yearly cost was \$101.40 per bull.

#### Bull Pens

Most of the association bull pens were built on the government plan, with shed in one corner for bull, and breeding pen or crate in another corner so that bull or cow could be handled without the keeper getting in to the pen with the bull. This is a very desirable feature, since the only safe bull is a dead one. The building of pens is figured in with the purchase of the bulls.

The cost of building pens in Idaho associations varied from \$5.00 to \$75.00. The variation in cost was probably due to the variation in kind of material and in the amount of paid labor. Their material used for pen construction varied considerably and much more than it did in Cache Valley.

The following shows the number of each type of construction:

<u>Number of Pens</u>	<u>Kinds of Material</u>
27	Poles
15	2x8 lumber
5	2x6 lumber
5	Log slabs
4	Barbed wire
4	Boards 1" material
2	2x10 lumber
1	2x12 lumber
1	Heavy plank

The most satisfactory material seems to be poles or 2x8 lumber.

#### Disease Control

Management problems cannot be considered without considering the control of disease. All bulls should be free from contagious disease and should be tested for tuberculosis and contagious abortion. This will prevent farmers blaming the bull for the spread of tuberculosis or for the sterility in their non-breeding cow. Too often the farmer blames the bull when the cow is to blame for shy-breeding or sterility.

Any cow bred to a bull three times without settling should be examined by a licensed veterinarian. However, if several cows come back, then the bull should be examined. If he proves to be sterile, the cause of his sterility should be determined so that he may be handled properly to overcome the condition, if temporary, or replaced if permanent.

In Cache Valley, very little trouble from disease is experienced and only two bulls have been disposed of as

non-breeders. It appeared, however, that even under these conditions, the bulls that were the best breeders and most vigorous and healthy were that way because of better care and management, with plenty of opportunity for exercise.

#### LOSS OF MEMBERSHIP

After the newness of the association wears off, the problem of maintaining the membership becomes one of the outstanding problems of the board of directors.

Of the original membership of the associations of Cache County, about 20% have dropped out. The reasons given for members dropping out of Holstein associations are listed in their order of importance as follows:

<u>Number</u>	<u>Reasons</u>
18	Disliked leading cows
6	Disliked association bull
4	Enlarged herd and purchased own bull
4	Too far to lead cows
4	Refused to pay assessments
3	Left farm
2	Not interested in better breeding
1	Breeding troubles
1	Sold cows

About eighty percent (80%) of the members dropped did so because of the "leading" problem and dislike for the association bull. In many sections of the United States, several farmers withdraw because of leaving the dairy industry. This was not the case in Cache Valley, however, as indicated by the above figures which show that only one farmer sold his cows.



The dairymen of Cache Valley are more dairy-minded as a whole than are dairymen in other sections visited in the State. This is especially true when compared with dairy farmers of Southern Utah, for as Dr. W. E. Carroll once said, "The farmers of Southern Utah milk on horse back."

In Idaho <sup>1</sup>40% of the avoidable losses of membership were due to the fact that farmers disliked to lead cows or had too far to lead them. According to the study made by H. A. Mathiesen and F. W. Atkeson of bull associations in Idaho, <sup>1</sup>34.6% of the members of Idaho associations were avoidable losses. This corresponds very closely to the proportion of avoidable losses in Cache Valley, which was about one third. These avoidable losses were due to faulty organization or management.

Incorporating, rearranging blocks, appointing new caretakers when needed, electing more public spirited officers, and closer cooperation with the County Agent will help to avoid such losses of membership. However, it is to be expected that there is a certain number who will drop out no matter how well the organization is managed.

#### LOSS OF BLOCKS

The loss of blocks has not been a problem in Cache Valley as only one or two have been lost out of the 15 blocks started in 1923 and 1924.

<sup>1</sup>Idaho Bul. No. 161

### LOSS OF BULLS

Of the twelve original Holstein bulls, five are still in service. Two of the six lost from the associations were sold as non-breeders while the rest died of physical ailments, such as rheumatism, etc.

Herd improvement associations test nearly all of the cows of the bull associations and no bulls have been found unproductive and sent to the block for having poor daughters. Up to date, the only ones sent to the block were non-breeders.

### RESULTS AND ADVANTAGES OF BULL ASSOCIATIONS

The most interesting and profitable side of this study is the result of the cooperative bull association work as seen in the topics and tables discussed in the remainder of this thesis.

#### Better and Fewer Bulls for Less Money.

According to a survey made by the U. S. Department of Agriculture,<sup>1</sup> of 8 districts in Iowa, Minnesota and Massachusetts, it was shown that 1219 farmers owning 817 bulls could have managed with one-fourth that number had they organized into bull associations. These bulls cost an average of \$76.00. Had they used this money for the purchase of bulls of a superior quality, they could have had one-fourth as many at \$283.00 each.

Before the organization of associations in Idaho,<sup>2</sup> the average price paid for bulls was \$82.00 and most of these bulls were owned individually. After associations started, besides

1--U. S. D. A. Farmers Bul. No. 993

2--Idaho Bul. No. 161

cutting down on the number of bulls, \$213.00 was the average price paid for the bulls of higher quality and it only cost each member an average of \$35.00 or \$6.36 per cow. The individually owned bull cost the owner \$82.00.

The figures are not available on the average cost of bulls before associations began in Cache Valley, but the average cost of ten of the first twelve association Holstein bulls bought was \$386.00. The highest price paid was \$535.00 and the lowest was \$150.00. The prices paid show that the bulls procured were of very high quality. This is shown further by the following table:

Name of Bull	Price Paid	Mature Fat Production of Dam for 365 days
King Pontiac Colanthus	\$535.00	1036.00 #
Sir Patrick Milk Pontiac	525.00	1132.0 #
Gem Segis	500.00	932.0 #
Walker Prince Segis	350.00	596.3 #
Vernway Pontiac Segis Tritomia	?	709.3 #
Lilyth Segis Judge	200.00	696.7 #
Hollywood Canary Homestead	500.00	1096.6 #
Hollywood Segis Lyons	350.00	565.1 #
Hollywood Howtje Segis 2nd	350.00	799.5 #
Vermeay Aggie Pietertje Pont.	400.00	848.0 #
Sagamore Patricks Pontiac	150.00	592.0 #
Average	\$386.00	818.5 #

The buying of these bulls was a big saving to Cache Valley. They not only displaced their own number, but eliminated about 15 others.

The average cost of the above ten bulls per member was about \$29.24 and per cow about \$6.02. No individual could hope to buy breeding so cheaply and of such high quality. The average mature fat production of their dams was 818.5# and the lowest was 565.1#.

#### Less Risk of Capital

Besides the original cost of the bulls being divided between a large number of members, it is also distributed over a longer period of time due to the rotation of the bulls from block to block. In an association, the purchase of bulls is usually necessary about every six or eight years, while with an individual it happens about every two or three years.

Losses are shared by the members. This is quite different from the loss which an individual would have to stand were he the sole owner.

The maintenance of association bulls costs more than privately owned bulls, but the cost is less per member.

#### Quick Returns on Investment

<sup>1</sup>One hundred fifty farmers interviewed in Maryland, Michigan, and Minnesota estimated that the use of bulls belonging to associations increased the value of the offspring

in the first generation from 30 to 80 percent, with an average of 65 percent. In Idaho, calves from association bulls sold, on an average, for \$9.25 per head more than other calves. This high percent of returns makes the investment in association bulls very attractive from a business point of view. The surplus calves and cows of Cache Valley are sold very readily at high prices because of their breeding.

If the heifer calves sired by association bulls are worth \$10.00 more per head than the average calves of our State, and there are 15 heifer calves in a year from each bull, that would mean that the bull would be worth \$150.00 per year more than the average individually owned bull. The bull, at that rate, would easily pay for his additional original cost. This is not taking into consideration the increase in production of the daughters he sires.

A good idea of the investment value of the good, proved sires of Cache Valley bull associations, based on records of dams and daughters, may be seen in the following table:

'No. of Sire'	'Av. Butter Fat Prod. per cow'		'Av. gain of daughters over dams'	'No. of daughters'	'Value of gain @ 45¢ per lb. butterfat'		'Amt. of money on Int. @ 6% to earn as much as gain of daughters'
	'Dam'	'Daughters'			'For 1 daughter'	'For all daughters'	
1	386.5	469.4	82.9	14	37.30	522.20	8703.00
2	306.9	417.9	111.0	6	49.95	299.70	4995.00
3	264.1	335.4	71.3	5	32.08	160.40	2673.00
4	338.2	408.7	70.5	7	31.72	222.04	3700.00
5	400.9	438.6	37.7	9	16.96	152.64	2544.00
6	390.7	398.7	8.0	5	3.60	18.00	300.00

#### Source of Proven Sires

Through the rotation of bulls from block to block, they are held in service until their daughters freshen. This gives a good opportunity to prove their merits as a sire of production. The best method of increasing herd production is through the use of a proven sire and the association helps to make possible the proving of sires which prevents their sale to the butcher.

The method of selecting good bulls through associations also culls out the poor ones. They are sent to the block, but the proven ones may be used as long as they are useful. It takes about four years to prove a bull. A number of bulls in Cache County have been proven since the organization in 1923. These will be discussed later.

#### Definite Breeding Program

Another important advantage of the bull association is

that it establishes a systematic breeding program and standardizes one breed in a community. The individual farmer often changes breeds when buying a new bull and all his neighbors who have been using that bull usually change with him. As far as a breeding program is concerned, this practice is ruinous. On the other hand, if three to five bulls are brought into a section the breed the bulls represent is going to be established.

The rotation of the bulls makes it possible to improve from a scrub or grade herd to a very high grade herd in a few years. The standard of the bull used in an association is kept above the average of the cows served, while the quality of bull bought by an individual farmer might vary according to the price of bulls or the price of butterfat.

Bull associations give a wonderful opportunity to practice line breeding, to concentrate the blood of one of the best bulls in the rotation. Again it prevents inbreeding because a bull only remains two years in one block. These facts alone justify the organization of a bull association.

#### Encourages Community Breeding and Cooperation

Nothing succeeds like success. Bull associations are the backbone of community breeding which gives to a community **an** agricultural enterprise that excels and builds a reputation for the community throughout the country. Community breeding

standardizes one breed and makes it possible to sell by car load which advertises over a greater area. Cooperation, of course, stimulates better breeding and better breeding creates more community pride and a community individuality. This resulting cooperative spirit carries on to further development and to team work in other activities.

Dairy shows, tours, educational campaigns, and short courses are an outgrowth of the cooperation and community breeding which is stimulated by bull associations.

#### Eradicating Disease

Bull associations are a form of organized dairy-farming, and it goes without saying that organized dairying is better than unorganized dairying in preventing the spread of disease. Abortion and tuberculosis tests are taken more systematically and cleaner herds result. Counties become free of the disease so that buyers are attracted to purchase cattle from them to ship into diseased areas.

The educational work given on diseases makes the members alert to eradication.

#### Bull Associations Increase Production

If only one reason could be selected for organizing bull associations it would be that of increasing production. It is true that feeding and management are responsible for much of the increase in milk production but the foundation of it all



is in heredity. Heredity determines how far one can go in production with the stimulus of feed and management. It would be a very rare condition if feed and management caused a cow sired by a two hundred pound sire to produce four or five hundred pounds of fat. To get a five hundred pound fat production we must have good cows and select sires from dams that produce as much or more than is desired.

The average production of fat in the first Cow Testing Association of Cache Valley in 1910 was 255.5 pounds fat. The average production in 1929 in Herd Improvement Associations was 337 pounds. This increase has been largely due to the use of sires from higher producing dams. Bull associations of the County have played no small part in helping to make this increase.

The following table gives the production of association bulls' daughters, as compared with their dams, in Idaho:<sup>1</sup>

	<u>Milk</u>	<u>Fat</u>
Average of Dams	8118#	330.8#
Average of Daughters	9183#	407.6#
Increase	1065#	76.8#
Percent Increase	13.17	23.2

An average percent of increase of this kind shows real progress.

<sup>1</sup> Idaho Bul. No. 161

In a government report we find the following information regarding 155 dam-daughter pairs in connection with bull association work.\*

	<u>Milk</u>	<u>Fat</u>
Average of Dams	7112#	299#
Average of Daughters	8071#	342#
Increase	959#	43#
Per Cent Increase	13.5	14.4

In comparison with the above two tables, we have the following table of the productions of all the dam-daughter pairs available in Cache Valley bull associations, July 1, 1929:

	<u>Milk</u>	<u>Fat</u>
Average of Dams	9190.6#	339.2#
Average of Daughters	11274.8#	400.0#
Increase	2084.2 #	60.8#
Percent Increase	22.6	17.9

\* U. S. Dept. Agric. Bul. 1532



Figure 1. King Pontiac Homestead Colanthus, 368647,  
and some of his daughters which helped make  
the production of fourteen of them reach  
an average of 469.4# fat, an increase of  
21.4% over their dams.



In making a study of the records of the daughters of association Holstein bulls of Cache Valley, every producing daughter that had a dam with a Herd Improvement association record was included in the study. Sixty-six such dam-daughter pairs were used in this thesis. All records were figured to a ten month lactation period equivalent, and these in turn were brought to the mature equivalent. The table used to figure the ten month lactation equivalent was found in Missouri Station Bulletin No. 217. The mature production was figured on the basis that a cow of 2, 3, or 4 years of age produced 70%, 80%, and 90% respectively, of its production at maturity, which is considered five years of age or older.

J. C. McDowell, Associate Dairy Husbandman, of the U. S. Department of Agriculture, in his cow testing record work uses five dam-daughter pairs as a minimum to prove a sire. In this work every sire was used that had two or more pairs because it was felt that while the results obtained from less than five dam-daughter pairs would not prove a sire, it would give an indication of what might be expected from him. The information would be a stimulation to a keener observation of what the bull's future may reveal.



Figure 2.

Daughters of Lilyth Segis Judge, 366997. He was one of the outstanding bulls of the Lewiston Bull Association. Five of his daughters whose dams had records showed an increase in fat production of 36.1%. These daughters averaged 417.9# of fat.



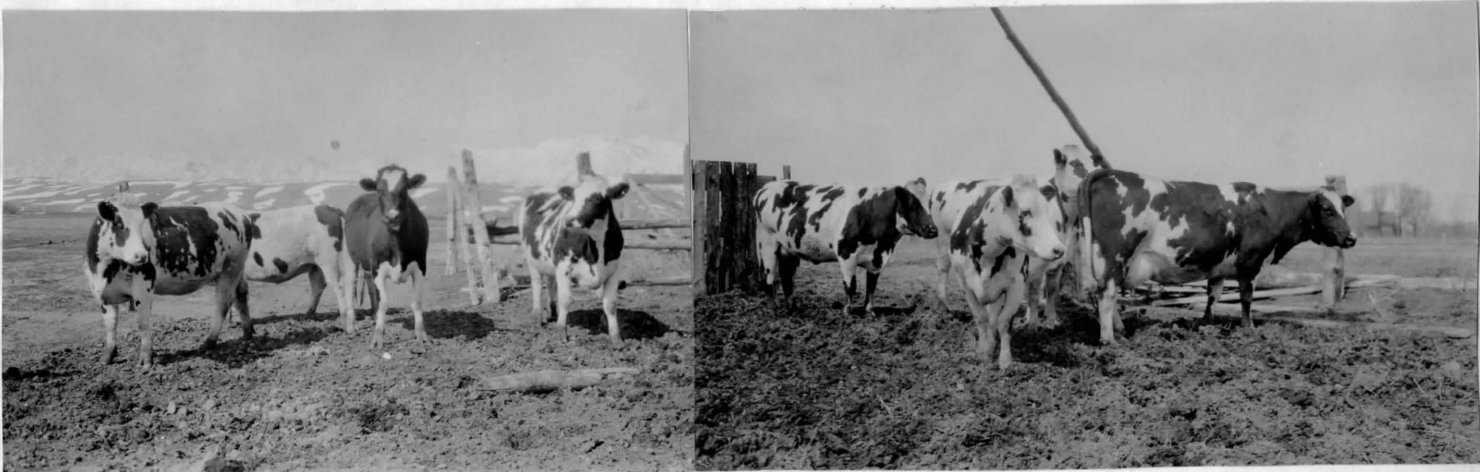
In the following tables, each bull of the associations in Cache Valley is given with his daughters' and their dams' production records.

Table No. 1

Records of Daughters of King Pontiac Homestead Colamthus

No. 368647

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
14,220.5	12,505.0	526.7	463.8
14,220.5	16,200.0	526.7	570.1
12,124.0	12,611.4	406.9	481.2
8,824.0	12,002.8	324.5	446.6
15,317.1	15,037.5	498.2	483.5
8,682.0	8,232.8	302.3	311.7
9,606.0	14,542.5	340.5	538.0
9,606.0	14,380.0	340.5	569.0
9,606.0	13,578.0	340.5	504.0
9,116.0	9,517.7	313.6	330.0
9,685.0	8,470.0	389.7	307.0
10,899.0	16,211.0	399.5	588.2
10,899.0	13,774.0	399.5	477.8
8,682.0	13,376.2	302.3	500.8
Av. 10,820.5	12,888.5	386.5	469.4
Incr. over Dam	2,068.0		82.9
Percent Increase	19.1		21.4



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Figure 3.

Sir Patrick Milky Pontiac, 386310, and a group of his promising daughters.

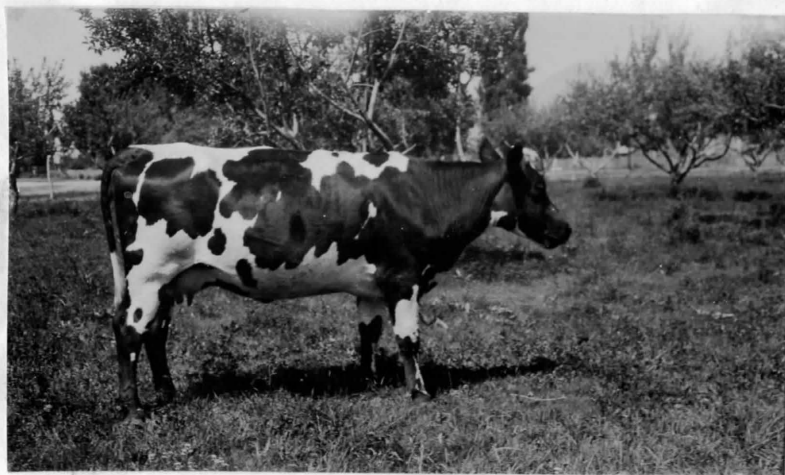
The cow to the right of the group is very typy and produced 13051.2# milk and 464.3# fat in a ten month lactation period.



29

Cow No. 1:

Milk - - 6924.0#  
Fat - - 282.9#



Cow No. 2:

Milk 9806.2#  
Fat 404.2#

Cow No. 3:

Milk 10,835.7#  
Fat 385.7#



Figure 4. A beef type grade cow, <sup>No. 1</sup> and her two daughters sired by Sir Patrick Milky Pontiac, 386310.



Table No. 2

Daughter of Lilyth Segis Judge, No. 366997.

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
9,629.0	12,411.4	292.0	470.0
12,639.0	10,014.2	422.4	363.4
11,918.0	13,111.8	350.4	395.3
9,293.0	15,745.7	306.5	556.7
7,753.8	13,949.0	218.4	352.4
7,986.0	11,465.0	252.0	369.7
Av. 9,869.8	12,782.8	306.9	417.9
Increase	2,913.0		111.0
Percent Increase	29.5		36.1

Table No. 3

Vernway Aaggie Pietertje Pontiac, No. 360030.

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
13,670.0	11,418.9	482.5	412.2
13,670.0	10,438.5	482.5	356.0
12,382.0	12,126.2	429.8	416.1
8,847.2	8,754.8	336.9	329.5
7,911.0	9,609.5	388.6	393.8
7,945.0	10,901.0	343.4	434.4
9,890.0	8,451.4	388.7	347.5
Av. 10616.4	10,242.9	393.2	384.2
Increase	- 373.5		-9.0
Percent Increase	- 3.5		- 2.2

Table No. 4

Vernway Pontiac Segis Tritomia, 364528

MILK PRODUCTION		FAT PRODUCTION	
Dam	: Daughter	Dam	: Daughter
9,017.0	: 12,864.2	301.2	: 460.7
10,228.0	: 12,630.0	337.2	: 366.7
14,536.0	: 17,487.1	535.1	: 590.4
7,986.0	: 12,547.1	252.0	: 415.0
13,165.0	: 12,681.4	421.1	: 440.2
14,636.0	: 13,212.8	535.1	: 450.5
14,536.0	: 13,932.8	535.1	: 488.8
13,165.0	: 12,678.5	421.1	: 398.5
7,865.0	: 11,041.4	280.6	: 337.2
Av. 11,703.7	: 13,230.5	400.9	: 438.6
Incr. over Dam	: 1,526.8		: 37.7
Percent Incr.	: 13.0		: 9.4

Table No. 5

Hollywood Canary Homestead, 364698

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
m10,694.0	11,236.6	335.0	418.4
6,504.0	12,285.7	513.0	496.1
10,385.0	14,333.7	381.2	491.6
6,510.0	12,824.2	233.8	425.4
Av. 8,523.2	12,670.0	315.7	457.8
Increase	4,146.8		142.1
Percent Increase	48.6		45.0



1



3



2



4

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Figure 5. An improvement in type and production.

Cow No. 2 produced 12,630.0# milk and 366.7# fat and is a daughter of cow No. 1 which produced 10,228.0# milk and 337.2# of fat. Cow No. 2 was sired by Vernway Pontiac Segis Tritomia, 364528.

Cow No. 4 produced 16211.0# milk and 588.2# fat which is a great increase over her mother's (cow no. 3) production of 10,899.0# milk and 399.5# fat. Cow No. 4 was sired by the outstanding bull, King Pontiac Homestead Calamthus, 368647.

Cow No. 4 has another by the same sire that produced 13,774.0# milk and 477.8# fat.

(All records are figured on a ten months mature basis)

Table No. 6Vernway Pontiac Segis Beets

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
7708.0	9729.7	271.1	331.5
8880.0	11204.0	341.6	381.0
Av. 8294.0	10465.8	306.3	356.2
Incr. over Dam:	2171.8		49.9
Percent Incr. :	26.1		16.2

Table No. 7Ferndale Johanna Gem Segis

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
9226.8	12,417.7	352.1	436.0
10,265.1	8,816.7	444.6	339.1
Av. 9,745.9	10,617.2	398.3	387.5
Incr. over Dam:	871.3		10.8
Percent Incr. :	8.9		- 2.7

Table No. 8

Walker Prince Segis, 384301

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
8,756.0	9,475.7	307.6	323.2
9,440.0	11,981.8	293.9	424.2
5,895.6	10,882.5	357.5	445.6
8,627.0	7,778.0	348.7	257.2
6,420.0	10,377.1	207.2	366.8
9,993.0	18,971.2	368.2	611.4
11,207.5	11,465.2	484.6	452.7
Av. 8,619.8	11,561.5	338.2	408.7
Incr. over Dam	2,941.7		70.5
Percent Increase	34.1		20.8

Table No. 9

Steilacoom Colantha Fayne Segis, 388326

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
8,199.0	9,000.0	322.8	327.5
5,128.2	9,120.8	262.5	332.2
6,795.0	6,660.0	285.5	273.1
4,344.0	10,076.2	153.8	382.7
8,373.0	10,268.0	296.1	361.4
Av. 6,607.8	9,025.0	264.1	335.4
Incr. over Dam	2,417.2		71.3
Percent Incr.	36.5		27.0

Table No. 10

Hollywood Segis Lyons, 382688

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
6,997.0	11,693.7	240.6	414.3
6,997.0	9,906.1	240.6	356.2
Av. 6,997.0	10,799.9	240.6	385.3
Incr. over Dam	3,802.9		144.6
Percent Incr.	54.0		60.0

Table No. 11

Hollywood Howtje Segis 2nd, 439689

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
6,997.0	11,691.1	240.6	412.2
9,110.0	11,908.7	351.7	430.6
9,723.0	7,046.0	396.8	240.7
Av. 8,610.0	10,215.3	329.7	361.2
Incr. over Dam	1,605.3		31.5
Percent Incr.	18.6		9.5

Table No. 12Sir Patrick Milkey Pontiac, 386310.

MILK PRODUCTION		FAT PRODUCTION	
Dam	Daughter	Dam	Daughter
12,861.0	13,051.2	550.7	464.3
12,950.0	10,528.0	475.6	370.1
9,736.0	9,771.0	361.6	369.4
6,924.0	10,835.7	282.9	385.7
6,924.0	9,806.2	282.9	404.2
Av. 9,879.0	10,798.4	390.7	398.7
Incr. over Dam:	919.4		8.0
Percent Incr. :	9.3		2.0

Herd Improvement records reveal the facts not only on the cows but the searchlight is turned on the bulls as well. After studying the pedigrees of the association bulls, one would not think that any of them would sire daughters with production records less than their dams. But such is the fact in the case of bull No. 3. Out of 7 daughters, only two produced more than their dams. The records that were increased by the daughters of bull No. 3 were the lowest two records of the seven. This probably shows that this bull would increase the production of the daughters of low or average producing cows but not the production of cows already producing over 350# of fat. A similar result is found in the case of bull No. 7.





Figure 6.

Hollywood Canary  
Homestead, 36469  
and some of his  
daughters.

Four of his daughters  
averaged 438.6# fat,  
which was an increase  
of 45% over their dams.



A comparison of the bulls can be seen to better advantage in the following tables.

Comparison of Association Bulls of Cache County,  
Each Having Five or More Tested Daughters

No.	No. of Daughters	MILK				BUTTERFAT			
		Dams	Daughters	Incr. or Decr.	Dams	Daughters	Incr. or Decr.		
		Lbs.	Lbs.	Lbs. Percent	Lbs.	Lbs.	Lbs. Percent		
2	6	9869.8	12782.8	2913.0 29.5	306.9	417.9	111.0 36.1		
9	5	6607.8	9025.0	2417.2 36.5	264.1	335.4	71.3 27.0		
1	14	10820.5	12888.5	2068.0 19.1	386.5	469.4	82.9 21.4		
8	7	8619.8	11561.5	2941.7 34.1	338.2	408.7	70.5 20.8		
4	9	11703.7	13230.5	1526.8 13.0	400.9	438.6	37.7 9.4		
12	5	9879.0	10798.4	919.4 9.3	390.7	398.7	8.0 2.0		
3	7	10616.4	10242.9	-373.5 -3.5	393.2	384.2	-9.0 -2.2		

Note: Figures in columns marked "\*" are all plus (increase) with the exception of those marked (-), or decrease.

Comparison of Association Bulls of Cache County,  
Each Having Less Than Five Tested Daughters

No.	No. of Daughters	MILK				BUTTERFAT			
		Dams	Daughters	Incr. or Decr.	Dams	Daughters	Incr. or Decr.		
		Lbs.	Lbs.	Lbs. Percent	Lbs.	Lbs.	Lbs. Percent		
10	2	6997.0	10799.9	3802.9 54.0	240.6	385.2	144.6 60.0		
5	4	8523.2	12670.0	4146.8 48.6	315.7	457.8	142.1 45.0		
6	2	8294.0	10465.8	2171.8 26.1	306.3	356.2	49.9 16.2		
11	3	9610.0	10215.3	1605.3 18.6	329.7	361.2	31.5 9.5		
7	2	9745.9	10617.2	871.3 8.9	398.3	387.5	-10.8 -2.7		

1 - Proven Sire

These bulls must be above the average in quality to increase the production of their daughters over their dams because the average fat production of the dams used in this study is 339.2#. All the bulls increased the production when used on cows of the above average production, but two of them failed when used on cows of higher production.

Bull Number 4 obtained an increase in fat production through his nine daughters of 9.4% and his percentage would have been much higher had he not bred a cow with a fat production record of 535.1# and the two resulting daughters showed a decrease of 84.6# and 22.6# fat. One of the big problems of the future is to select bulls which will continue to increase the production of the daughters over the high producing cows which they already have.

From the records up to July 1, 1930, the writer would select bull No. 1 as the outstanding bull of the associations. His fourteen daughters showed an increase in fat of 21.4% over dams with average productions of 386.5# of fat. His daughters have the highest average production of any bull's daughters in the associations of Cache County.

Bulls No. 2, 9, 8, and 4 are also outstanding bulls, and when more records of their daughters are made they probably will equal or surpass bull No. 1. These bulls are a credit to the men who selected them and any others who helped to put

over the idea of bull associations for the dairymen of the Valley.

Except in a few instances, the association bulls are proving of higher quality than bulls privately owned even by dairymen with large purebred herds. In one section of the Valley a comparison of four prominent, privately owned bulls was made. This comparison, when compared with the work of association bulls, gives a picture of the standing of association bulls in the Valley with others. The table of comparison of the privately owned bulls in one cow testing association follows:

\*  
Comparison of Four Privately Owned Bulls in One  
Herd Improvement Association of Cache County

6

No.	No. of	MILK				BUTTERFAT			
		Sires	Daugh: Dams	Daugh- ters	Incr. or Decr. Lbs. Percent	Dams	Daugh- ters	Incr. or Decr. Lbs. Percent	
1	10	10255.0	10603.0	348.0	3.0	352.67	365.63	12.96	3.5
2	9	8340.0	9263.0	923.0	10.0	317.5	321.4	3.9	1.0
3	9	11137.0	11326.0	189.0	1.6	374.0	365.2	8.8	-2.0
4	10	9437.0	10234.0	797.0	7.8	311.1	373.8	62.7	16.0

Note: Figures in columns marked (\*) are all plus (increase) with the exception of those marked (-) or decrease.

One of the most prominent high priced, privately owned bulls of the County showed, with 18 of his daughters, an

\* This table used through courtesy of Reuben Hanson.

increase of fat over their dams of 25%. The average of the dams was 360.4# of fat. This record is no better than the records of the best association bulls.

From the records thus far, there should be no question as to the great value of cooperation in dairy breeding. Such records and foregoing advantages will stimulate more interest in improved cattle, and more purebreds will be bought.

#### Improve Type

Besides the increase in production, the type, on the average, is much improved. A trip through Cache Valley will give a wonderful example of this improvement. The writer saw group after group of daughters of association bulls which showed great improvement in show and dairy type over the dams on the same farms. Figures 5, 7, 8, 9 are examples of just such type improvement.



Sir Patrick Millsy Pontiac, 386510      Ferndale Johanna Gem Segis,  
398298

1-



2



3



Figure 7. Study of the Affects of Using Two Different Bulls on a type

Cow No. 1 produced 9226.8# milk and 352.1# fat. She is the dam of cows numbers 2 and 3. Both daughters show a large increase over their dam.

Cow No. 2 is sired by Sir Patrick Millsy Pontiac and shows a great improvement over dam in type.

Cow No. 3 is sired by Ferndale Johanna Gem Segis.



This heifer  
shown in the  
County herd.

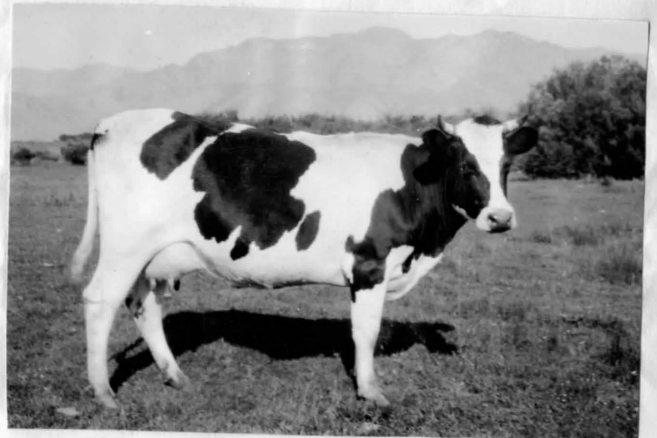


Figure 8. Some young cows sired by Vernway Pontiac Segis  
Tritomia, 364528

This bull sired 9 daughters that averaged 438.6# of fat, an increase over the high average production of the dams amounting to 400.9# fat.





Figure 9. Two beautiful daughters of Walker Prince Segis,  
384301

Five of his daughters averaged 408.7# of fat and showed an increase of 20.8% over their dams. Their increase over the dams in milk amounted to 34.1%.



### Developes Better Dairying Practices

Another important advantage of bull associations is the fact that they develop better dairy practices.

We have no figures on the per cent of increase in improved dairy practices before and after the organization of bull associations in Utah, but Mathiesen and Atkeson of Idaho have done considerable work along these lines. They found that the number of farmers in Herd Improvement Associations increased from 3.6% to 30%, due to bull associations. They also found that the average age of the first freshening in heifers was increased. The number of dairy cattle tested for tuberculosis was increased from 48.0% to 88.6% as a result of bull association work.

In feeding practices, they found that 41.5% of the farmers fed grain, and after the associations were organized 60% fed grain. The number feeding succulants increased from 21.5% to 30%.

The improvement in dairy practices because of the stimulus from Cache Valley bull associations is about the same as in Idaho, and is one of the talking points in favor of the organized breeding movement.

### SUMMARY AND CONCLUSIONS

This study was made on three of the five bull associations in Cache County. One association was somewhat disorganized and another was just recently organized, so the three that had records available for study were the first Holstein Associations. All

records in this study are figured on a ten months basis.

The goal of bull associations is better cows.

The organization is composed of three to five blocks, each containing an average of 10.2 members and 57.7 cows.

Selection of officers, constitution and by-laws, and incorporation are foundational factors for success in the organization of bull associations. The Constitution and By-Laws, published by the U. S. Department of Agriculture, was used as a model.

Bulls are replaced by assessments, but the practice in most states is to have a sinking fund which is more reliable. If organization is incorporated and officers bonded the fund will be protected.

To incorporate gives the organization power to collect breeding bills.

Eighty per cent of the members who dropped from associations did so because of a dislike for leading cows or having to lead them too far.

Only one bull was inferior in increasing production. Two bulls were lost because of becoming non-breeders, and 5 died.

Bull pens should not be smaller than 1800 square feet. The government plan was used in building bull pens, but two or three of them are too small. Cost of bull pens depended on

material used and method of building.

Feed and management is a vital factor in the success of the association. Bulls give longer service in clean pens with proper exercise and feed. Average feed cost per bull was \$101.40 per year.

Association gets better bulls by cooperation of members and selection by experts. The cost of bull is divided among members at a certain rate per cow. This distributes the cost and makes the burden light for any one member. The average price per bull was \$386.00; average per member was \$29.24; and average per cow about \$6.02. Good bulls bring large and quick returns as an investment. The average mature production of the dams of these bulls was 818.5# fat per year.

The cost of maintenance and risk of capital are distributed among so many members that the individual cost is greatly reduced.

The bull association is a source of proven sires. Six bulls were proven and four more showed good promise.

The H. I. A. records show, without a doubt, which cows should go to the butcher. The comparative records of dams and daughters show which bulls should be sent to the block. Thus the same records serve a dual purpose.

The association is the backbone of a definite breeding program. It avoids inbreeding and stimulates line breeding

when desirable. It makes it possible to keep all proved sires for service as long as they live or are fit.

Offspring from association cows bring better prices than do those from average cows outside of the association.

"The record of a dam of any sire is a promise, but the records of a large number of high-producing daughters are the fulfillment of that promise."

The records of the 66 daughters of the association bulls of Cache County showed an average production of 11274.8# of milk and 400.0# fat. In milk production, the daughters excelled their dams by 22.6% and in butterfat production by 17.9%.

Six of the association bulls based on records up to July 1, 1929 were proven. One bull proved inferior because out of 7 daughters only 2 produced more than the dams, and the average of all 7 showed a decrease in production. This bull would probably increase production of dams producing under 300# fat.

Association bulls are selected for type as well as production and the offspring therefore show an improvement in show and dairy type.

Better dairy practices are developed and stimulated as a result of associations.

The most rapid progress in dairy breeding will come when dairy sires are selected on the production records of their daughters. When a bull is proved, he must be conserved for the benefit of the dairy industry.

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