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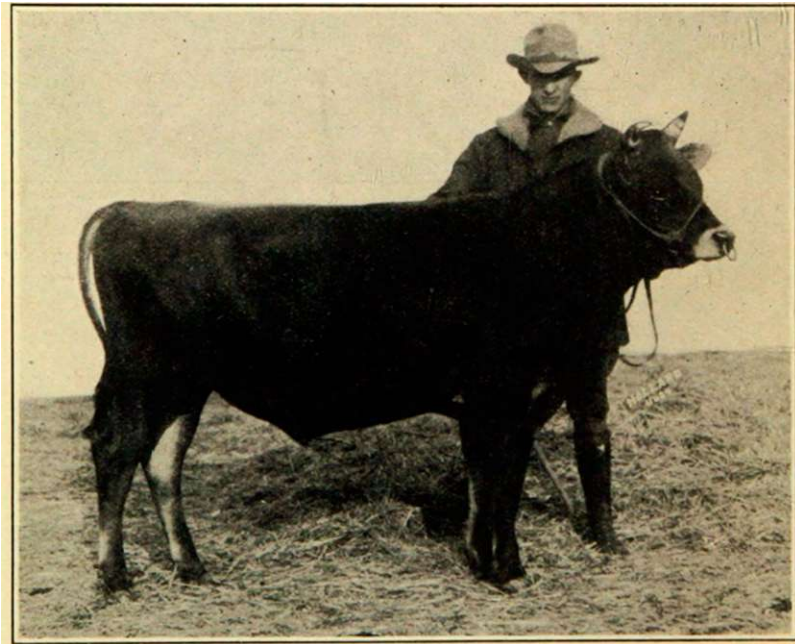


A Good Bull Produces Profitable Cows

COLORADO AGRICULTURAL COLLEGE

EXTENSION SERVICE

FORT COLLINS



The Purebred Sire is from the Best Blood that Men Have Produced

PUREBRED DAIRY SIRES PRODUCE PROFITABLE COWS

By CHARLES I. BRAY, Associate Professor of Animal Husbandry

When scrub sires are directly compared to purebred sires the evidence is always greatly in favor of the purebreds. Two cow testing associations in Wisconsin have recently published comparisons. In one association, cows sired by grade bulls averaged 144.8 pounds butterfat; those by purebred sires 230 pounds. In the second association, the grade sire's daughters produced 215 pounds butterfat per year as compared to 295 pounds per cow for those sired by purebred sires. Eighty pounds more butter at 40 cents a pound means \$32.00 per cow per year; or \$320.00 for each ten heifer calves produced; which means \$640.00 to be credited to the purebred sire for two years' use if he sired ten heifers per year. Since it requires about 200 pounds butter per cow to break even, no profit was made on the daughters of the grade sires; and the owners who used these sires had low wages if any for their labor.

Purebred Sires Improve Cows.— Three experiment stations have reported on the improvement made on common cows by using purebred sires. North Dakota tested out several purebred bulls on common cows. The following record shows the improvement made by three of these bulls, in the amounts of butterfat produced per year.

| INCREASE IN POUNDS BUTTERFAT | | | |
|------------------------------|--------------|--------------|--------------|
| | Sire 1 | Sire 2 | Sire 3 |
| Grade dams | 227.4 pounds | 208.7 pounds | 277.4 pounds |
| Daughters | 500.8 | 278.9 | 358.9 |
| Increase | 273.4 pounds | 70.2 pounds | 81.5 pounds |

The Minnesota Station had an even more striking test. They compared the production of common cows with that of their daughters sired by grade sires and also with their daughters by a purebred Guernsey sire. The table below shows the milk and butterfat produced by the three classes of cows:

IMPROVEMENT MADE BY PUREBRED SIRES COMPARED TO GRADE SIRES

| | Annual Production of Cows | |
|---------------------------------------|---------------------------|------------------|
| | Pounds Milk | Pounds Butterfat |
| Foundation Cows | 5177 | 219 |
| Daughters by scrub sire | 5550 | 211 |
| Daughters by Guernsey sire | 6091 | 306 |
| Increase from purebred sire | 914 | 87 pounds gain |
| Increase from grade sire | 373 | 8 pounds loss |

Improvement Does Not Stop with the First Cross.—The Iowa Experiment Station bought a number of scrub cows from Arkansas in 1907. They kept records on them to see how much they would improve by good care and feeding, and how their offspring by the college dairy herd sires would compare with the old cows. The table below shows the improvement in two generations from using purebred Holstein sires on the original scrub cows;

INCREASE FROM TWO CROSSES BY GOOD SIRES

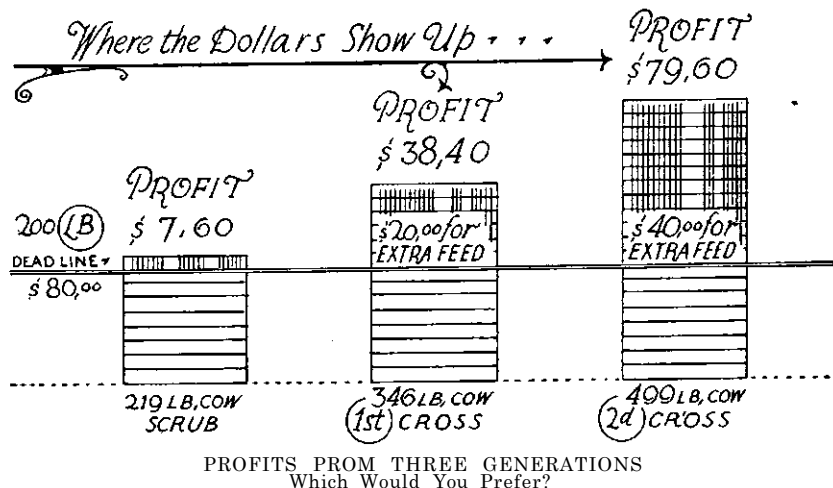
| | Lbs. Milk | Increase | Per Year Lbs. Butterfat | Increase |
|----------------------|-----------|----------|----------------------------|----------|
| Scrub cows | 3,688 | | 219 | |
| First cross heifers | 6,747 | 82.1% | 346 | 58.5% |
| Second cross heifers | 10,325 | 178.8 | 499 | 127.8 |

Better Feeding of Scrubs Gives only Small Gains.— Under better methods of feeding and management, the scrub cows increased only 13 percent in milk flow and 12 percent in production of butterfat over their first year's records. The increase in production after two generations of purebred sires had been used was 178.8 percent in milk and 127.8 percent in butterfat produced. The biggest factor in improving scrubs is not better feed but better sires.

What is a Good Sire Worth?— It has been calculated on the basis of actual observation that ten heifers produced per year by a good sire would for three years be worth \$1620.00 more than the same number sired by a common sire, if each heifer by the purebred sire produced only 50 pounds more butterfat per year than her scrub sisters. After deducting for increased feed cost there would be an increased profit of only \$9.00 per year per cow, in six years this average production would be \$54.00 for each heifer sired. For thirty heifers (three years' crop of calves) this would be \$1620.00, which would be the value of the good sire over the common sire. Of course, all heifers from a purebred sire may not prove profitable, but on the other hand, the estimated increase in profit per year per heifer is very low compared to some of the actual increases recorded.

If it requires 200 pounds of butter per year to pay for a cow's feed and for labor, depreciation, interest on investment, etc., and if we use this estimate in interpreting the returns from these Iowa grade cows we get some interesting results. The scrub cows would have only 19 pounds butter to pay for handling them one year. The first cross Holstein heifers would have 146 pounds butter per year to pay above cost and the second cross would have 299 pounds butter extra. At 40c per pound this would make a profit for each of the scrub cows of \$7.60 per year, the second generation heifers would make \$58.40 over cost, and the third generation heifers \$119.60 over cost.

Some will say, however, that the heavier producing cows would require more feed than the poorer cows. If we say then that the first cross heifers would cost \$20.00 more to feed, and the second cross \$40.00 more, this would still leave \$38.40 profit per cow per year for that group, or \$30.80 more than the profit of their dams. The second cross heifers would still have \$79.60 profit each year, or \$72.00 above the original scrub cows. If a herd of 20 such heifers could be built up as a result of such breeding and each cow was in the herd only five years, the increase from the use of two good bulls would be \$7200.00, or \$3600.00 per bull.



Mr. H. R. Lascelles, Fieldman for the Colorado State Dairy Commission, makes the following statement in regard to profits:

"The 892 cows completing records during 1924 in every cow testing association in Colorado averaged a production of 8,122 pounds of milk containing 297.7 pounds butterfat. The milk brought an average price of \$2.20 per cwt. or an actual cash return for the product of \$178.42 per cow per year.

"The average cow in Colorado, according to the U. S. Department of Agriculture, produces 2993 pounds milk annually, which if sold for \$2.20 per cwt. would return \$65.75 per cow per year. There are 253,000 such cows in Colorado. If these 253,000 cows were all producing the amount that the average cow testing association cow is producing, the dairymen of Colorado would increase their milk checks by \$28,505,510.00 annually.

"The cow producing 300 pounds of butterfat annually will return above all feed cost nine times as much net profit as the cow producing 100 pounds."

The best cows in Colorado cow testing associations return approximately \$90.00 per head above cost of feed, while the average cow in the state does little more than break even. These cow testing association herds are all high grade or purebred cows.

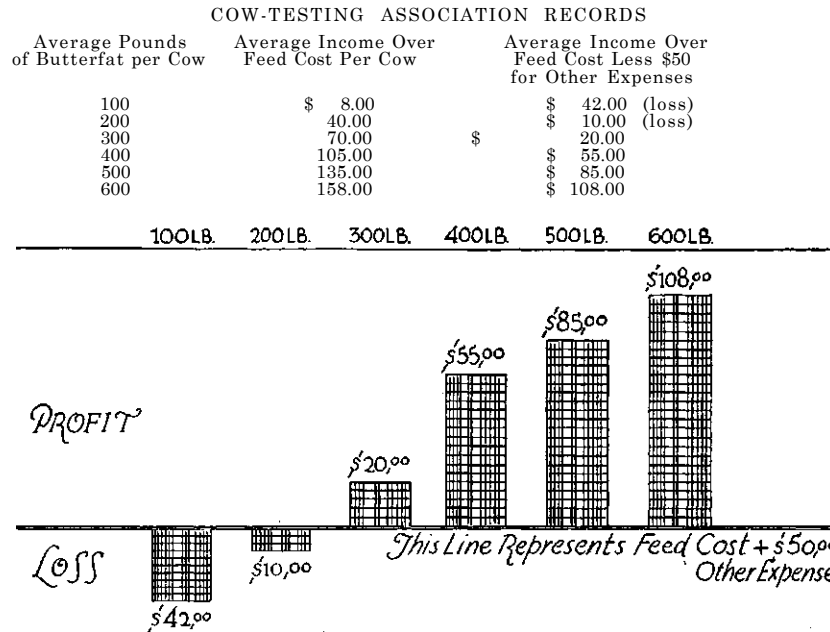
The Test of Experience.—It is estimated that 95 percent to 98 percent of all who once use purebred sires keep on using them and never return to grade or scrub sires. If purebred bulls did not pay in dollars and cents few would continue to use them.

The countries that use purebred sires exclusively have the highest average milk records. The table given below shows the average of five different countries compared to the average cow in the Colorado cow testing associations (1924) and the average Colorado cow.

| | Average Milk Yield Per Cow Per Year |
|-----------------------------------|-------------------------------------|
| Colorado Cow Testing Associations | 8,112 pounds |
| Holland | 7,585 pounds |
| Switzerland | 6,614 pounds |
| Great Britain | 5,562 pounds |
| Germany | 4,350 pounds |
| United States | 4,260 pounds |
| Colorado | 2,993 pounds |

Holland, Switzerland, and Great Britain use practically only purebred sires. The herds in the Colorado cow testing associations represent the best and most productive herds in the state and all use purebred sires. Colorado as a state has one purebred dairy sire for every three grade sires, and the average production of milk per cow is correspondingly low.

High Yields Mean High Profits.—Very likely some will say that high producing cows require more feed and cost more to care for and are not necessarily more profitable. The following table shows the average of the records and profits made by all cows in the cow testing associations of America for one year.



This table shows that the higher producing cow is the more profitable and returns more, over and above feed cost, than does the low producer. The cow producing 200 pounds makes about one-half the profit of the cow producing 300 pounds, if we count only the feed cost against her. But if we take off \$50.00 more for labor, depreciation, interest, taxes, and other expenses she pays only one-fourth the profit; while the 100 pound cow pays no profit but is kept at a \$42.00 loss.

Breeding vs. Buying Cows.—Some may think they can buy cows cheaper than they can raise them and that if they sell all their calves for veal they have no need for a good bull. Buying cows is not profitable as a regular practice. One usually buys what the other man wants to sell, which generally includes all his low producers, shy breeders and otherwise unsatisfactory animals. If a buyer gets one good

cow out of every three he buys he is doing well, unless he knows the animals beforehand and pays good prices for them. In buying unknown cows there is also danger of introducing tuberculosis, contagious abortion, or other diseases into the herd which may work havoc with profits later on. By buying good sires, saving the heifers from the good cows, and then testing them out, a good herd can be built up at reasonable cost.

High-Grade Cows are Good Producers.—It may be objected that many of the high records and high averages quoted in this bulletin include the records of the best purebred herds in the country and that such yields are not within the reach of the average dairyman. Experience shows, however, that good high grade cows can rank with some of the best purebreds in milk and butter production. In a state-wide competition in Iowa several years ago grade cows stood third and fourth among over 100 of the best cows in the state, for one year's butterfat production, being beaten only by two purebred Guernseys, one of which was champion three-year-old of that breed. In the Colorado testing Associations, grades by purebred sires have always stood high.

In 1922 a grade Holstein, Carla 2d, was high cow in the Johnstown Cow Testing Association with a record of 20,331 pounds milk and 631.8 pounds butterfat. This record is second highest for the association in five years, being beaten by a small margin one year by one purebred cow. A grade Holstein was high cow in milk production in the old Fort Lupton Association in 1922, and a grade Guernsey was highest in butterfat production. The high herd in profit over feed cost in the Brighton-Denver Association last year was a grade herd with a record of \$139.27 per cow. In the Arkansas Valley Association a grade herd had the lowest cost per 100 pounds milk (59c per 100 pounds) and stood second in net returns over feed cost with \$113.75 profit per cow.

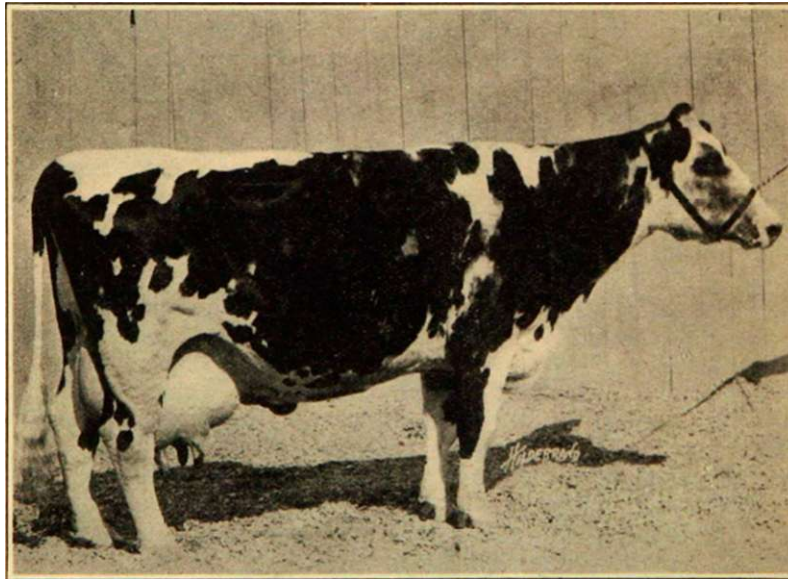
The champion cow of all American testing associations is a high grade Holstein with a record of 23,538 pounds milk and 1,022 pounds of butter in one year. Her feed cost was \$242.00 and her product sold for \$590.61, or \$348.09 over cost of feed. In one 80 cow herd of which the writer had personal charge for six years, of which three-fourths of the cows were high grades and the balance purebreds, one or another of the grade cows stood at the head of the production list each of the six years. The only place the grade animal falls down is in siring good stock. The purebred sire is from the best lines that men have selected, along all lines of his pedigree. The grade traces along some lines to inferior stock and will transmit some of these inferior qualities.

Selection is Necessary.—Using any kind of a purebred sire will not insure success. Poor animals are produced occasionally in purebred herds and judgment is needed in selecting a purebred sire. A poor individual with a registration certificate back of him may be some better than a grade with no pedigree, but that will not make him a profitable investment. A good sire needs to be a well balanced indi-

vidual, he should be by a proven sire, out of a high producing dam, and with plenty of good producing ancestry back of them.

The best proof of a good sire is to have produced uniformly good offspring, but such sires are not often for sale except at high prices. If an animal cannot produce good offspring, neither pedigree or show type is of much value, but it is unlikely that such a combination will occur. True type is just the best form that according to all the experience of breeders is likely to produce good results. A good pedigree is one which, according to all the laws of animal breeding, should produce good results. A combination of the two in a herd sire should guarantee satisfactory offspring as far as one can judge without an actual test in the herd.

Stick to One Breed.—To get the most value out of purebred sires always use animals of the same breed. Crossing breeds may sometimes produce high grade individuals from the standpoint of production, but it breaks up the lines of heredity so that no continuation of good qualities is likely. If, however, one uses purebred sires of one type, for ten years or more, he will produce a high-grade herd with a high selling value, excellent appearance, and high production combined.



Scrub Sires Never Produce Cows Like This

CO-OPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS—U. S. DEPARTMENT OF AGRICULTURE AND COLORADO AGRICULTURAL COLLEGE CO-OPERATING.

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