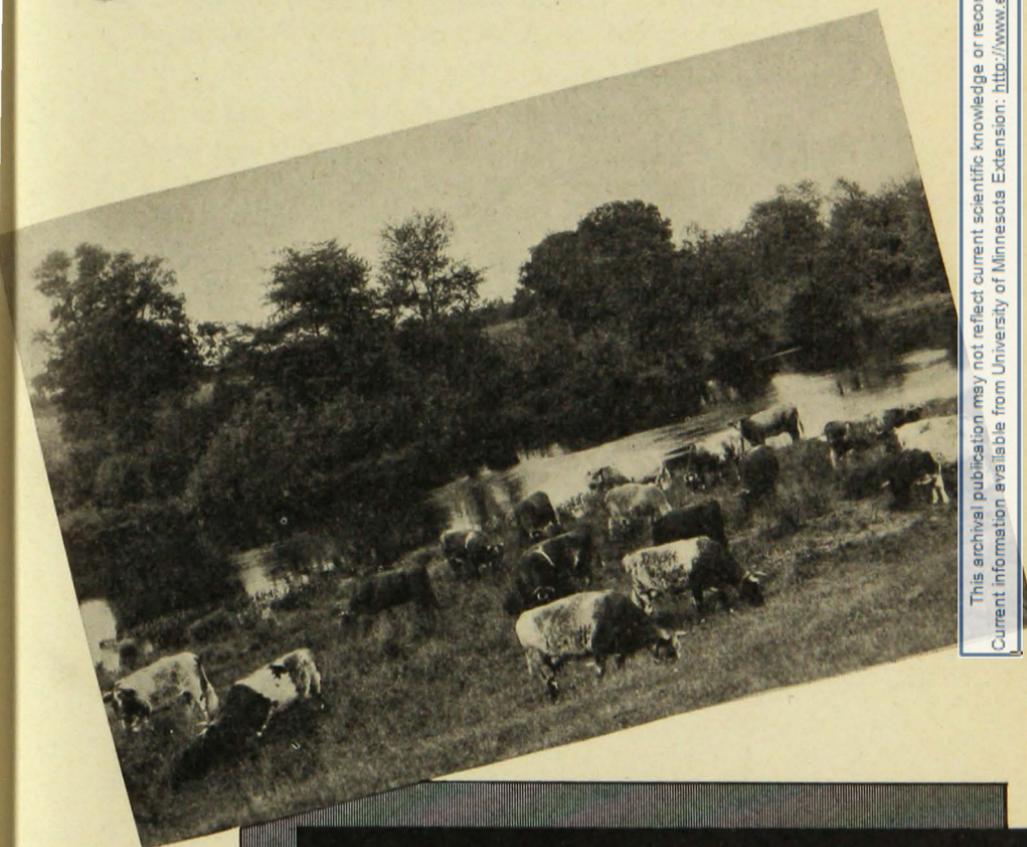


DUAL PURPOSE DUAL PURPOSE

Cattle



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UNIVERSITY OF MINNESOTA
Agricultural Extension Service
U. S. DEPARTMENT OF AGRICULTURE

DUAL-PURPOSE cattle production is best adapted to the medium-sized farm of 160 to 320 acres. On such farms the calves produced are profitable converters of surplus pasture, roughage, or grain into more readily salable form.

Fall freshening of the cows generally offers a larger opportunity for profit than spring freshening.

Fifty-two herds of dual-purpose cows in Minnesota cow-testing associations in 1938 averaged 237 pounds of butterfat per cow.

The successful breeding of dual-purpose cattle for improvement requires careful selection of bulls and cows toward correct dual-purpose type plus the keeping of butterfat records and the eliminating of cows that do not reach the minimum of 250 pounds of butterfat per year as mature cows.

A dual-purpose cow can be expected to maintain her body weight and produce 15 to 18 pounds of milk daily on pasture or suitable roughage as the only feed. Beyond this, grain should be fed in proportion to the amount of milk produced.

On farms where grain is available, dual-purpose calves can be most profitably marketed as fat yearlings. In the absence of grain for fattening, they may be successfully and profitably grown to older ages on grass and roughages and may be marketed as feeders.

Dual-Purpose Cattle

W. H. Peters, J. B. Fitch, H. R. Searles, and W. E. Morris

MINNESOTA may justly be called the center of production of dual-purpose cattle in the United States. Geographically the state forms the approximate center of the North Central states where the dual-purpose type of cow found favor with many of the early settlers and has maintained a strong position ever since. Minnesota has many herds of grade cattle using a Milking Shorthorn or a Red Polled bull as a sire and also many purebred herds of these two breeds.

MAJOR CATTLE TYPES

In present-day cattle production, three major cattle types are recognized: the beef type, the dairy type, and the dual-purpose type. Although specialized beef cattle and specialized dairy cattle have found a somewhat larger adaptation, the dual-purpose or combination milk-and-beef type has maintained an important place in progressive agriculture. Both of the dual-purpose breeds, the Milking Shorthorn and the Red Polled, have a world-wide distribution, having originated in England where they were recognized as pure breeds before animals forming the foundation stock of the two breeds were imported into the United States.

ADAPTATION OF DUAL-PURPOSE CATTLE

The dual-purpose type of cattle is especially adapted to the medium-sized farm of 160 to 320 acres. A farm of this size often has too little labor and equipment to milk enough cows to utilize the entire supply of feed, especially of pasture and roughage. In such a case, if dual-purpose cows are

used, the calf crop will consume the additional pasture, forage, and grain without greatly increasing the requirement for equipment or labor. The calves may be raised on skim milk and then fattened and marketed as fat yearlings, if the surplus feed is principally corn or grain, or they may be grown out and marketed as feeders, if the surplus feed is principally pasture and roughage.

It cannot be emphasized too strongly that adaptation to the farm should be the determining factor in the selection of the type of cattle to be kept. While a personal preference or liking for a type or breed of animals is an asset in the management of livestock, it cannot be given as a sound reason for the production of dual-purpose cattle in preference to specialized beef or dairy cattle. There is a definite adaptation of the specialized dairy type to smaller farms where the labor supply is large relative to the amount of feed produced. On the other hand, the specialized beef type is especially adapted to larger farms, particularly those adapted to large-scale production of roughage and corn, where the large amounts of feed must be utilized with relatively little labor. Some dual-pur-

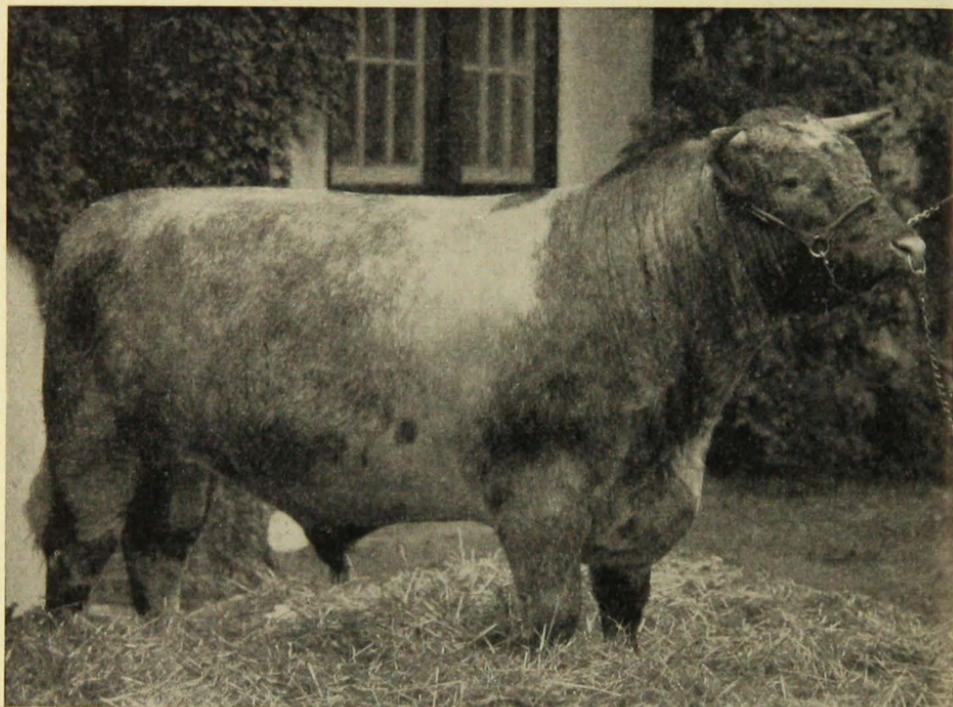


FIG. 1. Milking Shorthorn bull, showing approved dual-purpose type

pose breeders say they prefer these cattle because they are more rugged and easier to care for and feed than cattle of the specialized dairy type. While dual-purpose cattle may be somewhat more rugged than some breeds of specialized dairy cattle, this advantage is not enough to make their production more profitable than the production of cattle of specialized dairy type on farms that are suited to specialized dairy production.

The claim is sometimes made that on farms suited primarily to dairying it is desirable to maintain the dual-purpose type of cattle, milking the cows and selling butterfat when butterfat is high in price, and allowing the calves to nurse when butterfat prices are low, thus converting the butterfat into beef.

This procedure has gained so much approval during recent years that an

occasional dairyman with a herd of specialized dairy-type cows has tried to follow it by mating his cows to a beef bull. In the main, this procedure is not sound either in maintaining a dual-purpose or a dairy-type herd. A herd that is to be maintained successfully for milking had better be managed continuously for milk production. Otherwise, improvement will be retarded and the herd will not be profitable for either beef or dairy production. The opportunity afforded by the dual-purpose herd to follow the market trend, selling butterfat when it is high in price and selling beef when the butterfat price is low, is not a sound basis on which to choose the dual-purpose type of cattle. Dual-purpose cattle will give best results on farms that are especially adapted to this type, when they are consistently managed so that the cows produce

milk at a moderate level and the calves are grown and marketed for beef.

Available data on comparisons of specialized dairy herds, specialized beef herds, and specialized dual-purpose herds in net profit per cow are limited. One such comparison can be cited. Table 1 gives a comparison of the returns from 70 specialized dairy herds and 50 dual-purpose herds taken from the Annual Report of the Southwestern Minnesota Farm Management Service for 1941. The information was collected and the report published by the Agricultural Economics Division of the University.

Table 1 includes a comparison of all the dairy and dual-purpose herds in the Farm Management Service in about eight southwestern Minnesota counties. Several of the farmers in both the dairy and dual-purpose groups used beef bulls and included the young stock in the beef herd so they do not appear in this comparison. This comparison shows that the total returns and the returns per \$100 worth of feed were not greatly different between the two groups at the levels of production attained by these herds. These figures substantiate the contention that the dual-purpose herd does offer an opportunity to market surplus feed satisfactorily through the calf crop.

MANAGEMENT OF THE DUAL-PURPOSE HERD

Since milk production is one of the important objectives in choosing the dual-purpose type of cattle, the cow herd should be housed, cared for, and fed much as a good herd of specialized dairy cows would be. The cows should be milked and the calves raised on skim milk by hand feeding.

From the standpoint of milk production, fall calving will offer the same advantages as in a specialized dairy herd. 1. Heaviest production comes during the period of high dairy prices. 2. Pasture stimulates a larger milk flow during the latter half of the lactation period. 3. The farmer has more time in winter to spend with the cows and calves. 4. The cows can be turned dry during the late summer when pastures are short. 5. The calves are ready to go to pasture in the spring.

On the other hand, some breeders of dual-purpose cattle prefer to have the cows calve in the spring, because:

1. The spring-freshening cow will make the larger proportion of her milk from grass. She can then be turned dry early in the winter and wintered on much less feed and cheaper feed than if she were milking. This will materially reduce the feed bill.

Table 1. Feed Costs and Returns on the Entire Cattle Herd, per Animal Unit*

	Average of 70 specialized dairy herds	Average of 50 dual-purpose herds
Cost of feed to cow herd, per cow	\$ 53.11	\$ 44.19
Cost of feed to other cattle, per head	25.61	23.11
Cost of feed to entire cattle herd, per animal unit	44.74	38.21
Gross returns from cow herd, per cow	110.00	83.32
Gross returns from other cattle, per head	45.59	43.28
Gross returns from entire cattle herd, per animal unit	93.05	76.83
Return over feed cost for entire herd, per animal unit	48.31	38.62
Return for \$100 worth of feed for entire herd	213.00	208.00
Butterfat per cow	254.0	190.0
Number of cows	13.8	9.8
Number of head of other cattle	15.0	13.9

* Data are taken from the Annual Report of the Southwestern Minnesota Farm Management Service, 1941.

2. On farms where the children help milk, it is preferable that the period of heavy milking come during the summer when the children are out of school.

3. It is somewhat less of a problem to raise spring-born calves than fall-born calves.

Many things happen to throw desired calving dates out of line, and in most herds, regardless of preference for spring or fall freshening, some calves are born almost every month in the year. However, keeping the calf crop bunched together as much as possible is desirable.

Two-time milking should be the rule, and there should be no attempt at unusually high milk records, because such emphasis is certain to direct selection toward specialized dairy type with a consequent loss of the beef-making value of the true dual-purpose type. A yearly herd average of around 250 pounds of butterfat per cow is most conducive to the maintenance of true dual-purpose type. Table 2 gives a summary of the records of all the dual-purpose herds tested in Minnesota cow-testing associations in 1938.

A total of 52 dual-purpose herds averaged 237 pounds of butterfat per cow. The average for all herds in cow-testing associations for 1938 was 323 pounds of butterfat. The feed costs averaged somewhat higher on dual-purpose herds than on special dairy herds in the same production range.

This production should be secured with pasture as the principal feed dur-

ing the period of good grazing and with silage and a legume hay as the principal winter feed. Cows will need some grain for a while after freshening and during the winter if they are in milk. Each cow's grain allowance should be based on her production. Milk and butterfat records should be kept on each cow and used as an aid in culling out cows that produce less than 200 pounds of butterfat for a 10-month lactation.

The Purebred Herd

The aim of the purebred dual-purpose breeder will be to increase the net income per animal by selling young breeding stock at prices above their value for milk or beef. The care of the purebred herd, however, will differ little from the care of the grade herd, except as some breeders may modify the ordinary management plan to take advantage of the show ring to advertise their herds. Some of the cows will need to calve in the winter and some in the fall to provide calves of proper ages to fit the show-ring classification. More liberal feeding of the young calves may be desirable so that they will show to good advantage at the younger ages. Show calves are often fed whole milk for three or four months before changing to skim milk, and all exhibition animals should be fed enough to allow full development of their beef-making inheritance.

Bull calves, especially, must be liberally fed from birth until they are sold. In the management of the purebred herd, official or Dairy Herd Improvement Association production records for the cow herd are especially important.

Table 2. Dual-Purpose Herds in Cow-testing Associations, 1938

Average butterfat per cow	Number herds	Average pounds fat per cow	Average feed cost
pounds 300 and over.....	4	325	\$45.14
250-299	13	267	43.57
200-249	28	226	39.08
Under 200	7	187	38.73

BREEDING DUAL-PURPOSE CATTLE

The principal responsibility for maintaining correct type and producing further improvement in dual-purpose cattle, just as with livestock of

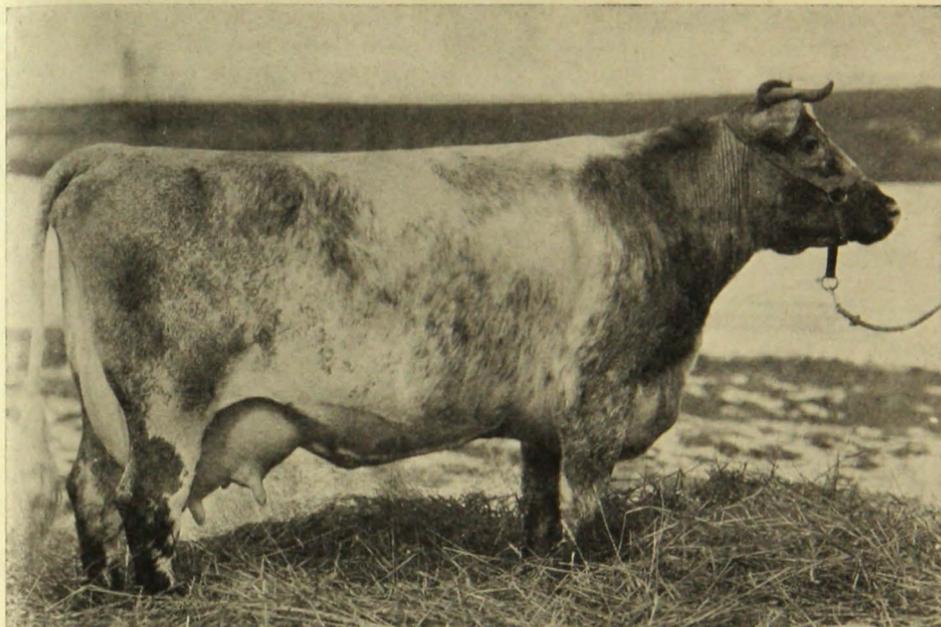


FIG. 2. Milking Shorthorn cow, showing approved dual-purpose type

any kind, rests with owners of purebred herds. The successful breeder of purebred Milking Shorthorn or Red Polled cattle must, first of all, recognize correct dual-purpose type when he sees it and breed carefully toward that type.

The figures show the nearest approach to the ideal in type that has been produced in Milking Shorthorn and in Red Polled cattle. The reader is advised to study the photographs and to take advantage of every opportunity to see and study animals of these breeds in outstanding herds and at leading exhibitions. The following statements may help to create a correct image of dual-purpose type:

1. Dual-purpose cattle should be medium to short in length of leg and should appear deep of body rather than long legged and shallow bodied. Depth of body is generally a good indication of feeding capacity.

2. Dual-purpose cattle should be medium in size rather than extremely large or extremely small. Eighteen hundred pounds for the mature bull in moderate flesh and 1,200 pounds for the mature cow in milk would be ideal weights.

3. Dual-purpose cattle should be medium to short in length of head and in length of neck. They should be medium to wide between the eyes.

4. Dual-purpose cattle should be covered throughout with moderately thick, smooth flesh, and especially should have a moderately thick covering of muscle over the loin and through the rear quarter and thigh.

5. Dual-purpose cattle should show a refined, clean-cut appearance about the head and legs, yet enough substance to give them the appearance of strength rather than weakness in skeleton development.

6. The ideal udder of a dual-purpose cow should have a high and wide rear attachment, carry well forward and be carried close to the body, be well balanced in the four quarters, and show teats of even, moderate size.

Of somewhat greater significance than perfection in form or udder development is the yearly production of milk and butterfat, so production records are essential in dual-purpose cattle breeding.

Two hundred pounds of butterfat produced by a heifer with her first calf and 250 pounds by a mature cow 5 years old or over during a 10-month lactation period should be the lower production limit on which a cow should be retained whether in a breeding herd or a grade herd of dual-purpose cattle.

There is no known method by which a mediocre herd can be transformed into a uniform herd of good cattle overnight, or in one generation. The procedure in improving a herd should be

to buy sires with the utmost care and buy as good ones as can be found. Generosity in the price paid can be justified but extravagance should be avoided. A promising sire must himself conform to correct type; have parents, both sire and dam, known to be of correct type; have a sire out of a cow with a satisfactory butterfat production record for at least one lactation period, and have a dam with a similar record.

Breeders of grade dual-purpose cattle must look to the breeders of purebreds for their sires. In addition to demanding a well-grown young bull of acceptable type, they should demand a bull out of a family of cows whose butterfat production is known to average at least 250 pounds in a 10-month lactation. As soon as buyers of bulls for grade herds begin to make more exacting demands and develop a willingness to pay more attractive prices, just so soon will purebred breeders



FIG. 3. Milking Shorthorn steers, 16 to 20 months old, raised on skimmed milk, fattened on grain as yearlings, and ready to top most beef markets

begin making more serious efforts to try to produce better ones and both will make much more rapid improvement and larger profits. The breeder of grade Milking Shorthorn cattle, especially, should avoid buying a bull that is in reality of beef Shorthorn breeding but in thin flesh and is because of that fact offered as a Milking Shorthorn. Too many such bulls have found their way into Milking Shorthorn herds in the past.

FEEDING THE DUAL-PURPOSE COW FOR MILK PRODUCTION

Feeding milk-and-beef type cows for milk production differs little from feeding specialized dairy cows, but will vary from farm to farm according to the feeds available. In any case, the real feeding problem is to supply each cow with the right kinds and amounts of feed, based on her size and production. The owner of dual-purpose herds cannot hope to and should not strive to compete with the high-producing dairy herds. Indications are that some dual-purpose herds in cow-testing associations are doing this because their feed costs are higher than the dairy herds of the same production. The dual-purpose herd owner should rather strive for low costs. His best method is to get most of his production from roughage and pasture, feeding grain in rather limited amounts only to the higher-producing cows or when good roughage is not at hand. Cows vary widely in their producing ability.

The cow's first demand for feed is to support her body. The nutrients available beyond this amount will be used to produce milk, up to the limit of her inheritance or ability to produce. A low-producing cow may use as much as 50 to 60 per cent of her ration for maintenance. A high-producing cow should be fed a larger total amount of feed so that the share used for body upkeep may be as low as 35 to 40 per

cent. Some cows that are underfed may even draw on their body reserve for a time and produce more milk than the ration fed will support. If underfeeding continues, the cow soon becomes thin and her production falls. On the other hand, cows of low producing ability, when fed liberally, may put on weight instead of increasing their production. A careful feeder must watch the condition of flesh on his cows as a check on his feeding methods.

Winter Feeding

During the winter, dual-purpose cows in milk will generally consume enough roughage to maintain their body weight and produce up to 15 to 18 pounds of milk per day, depending upon the richness of the milk. The most desirable combination of roughages for milk production in winter is some kind of legume hay and corn silage. Alfalfa is the most desirable hay for dairy cows. Cows will consume approximately 1 pound of hay and 3 pounds of silage per day per 100 pounds of body weight. If silage is not available, the hay may be increased. An 1,100-pound cow will consume 11 pounds of alfalfa hay and 33 pounds of corn silage. This amount will be sufficient to maintain the cow and permit her to produce up to 15 to 18 pounds of milk per day.

If timothy hay is used instead of alfalfa, a few pounds of a grain mixture relatively high in protein would be required to equal the production made on alfalfa hay. This is because timothy and other nonlegume hays furnish a much lower amount of protein than alfalfa. In fact, the kind of hay fed determines the kind of grain required. With alfalfa hay, common farm grains such as corn, oats, and barley can be used to balance the ration. With mixed hay, timothy, or prairie hay, high-protein grain mixtures containing bran, soybean meal,

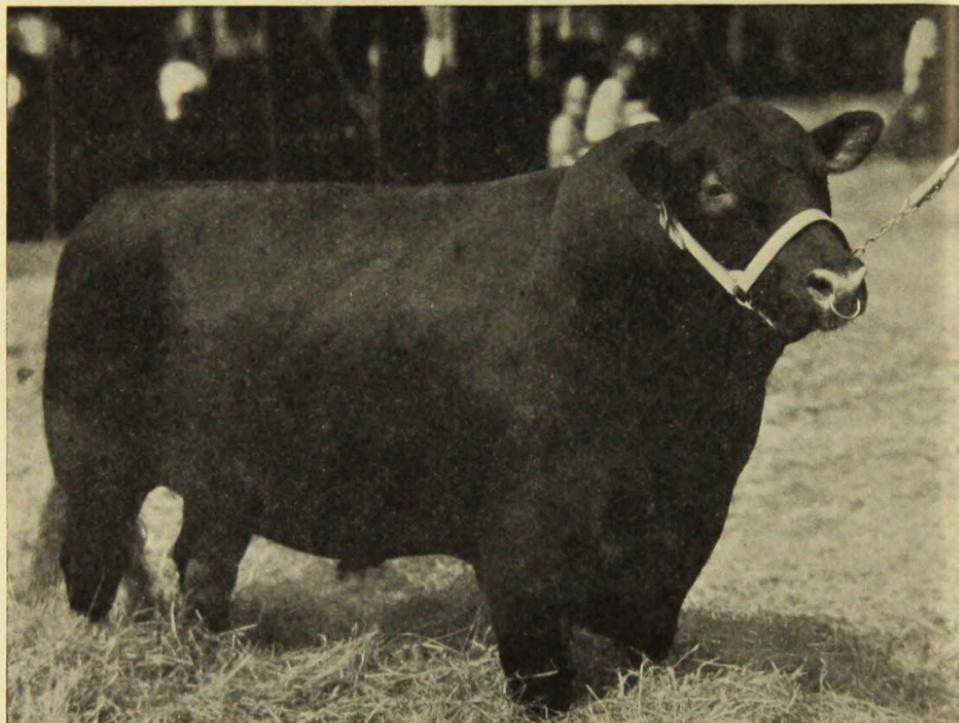


FIG. 4. Red Polled bull, showing approved dual-purpose type

linseed meal, cottonseed meal, or corn gluten meal are required to supplement the hay or hay and silage.

As mentioned before, quality of hay influences the composition and the amount eaten. Good, green, leafy alfalfa hay, for example, is a more valuable feed than coarse stemmy hay, and the cows will eat more of it and thus reduce the grain requirements. In times of high grain prices, dairy farmers have cut their cost of production by reducing the amount of silage and increasing the alfalfa hay. Alfalfa is a cheaper source of nutrients than silage on many farms and is much higher in protein. In fact, a good legume hay is always the basis of a low-cost milk-production ration in Minnesota.

When feeding a good-quality legume roughage such as alfalfa, clover, or soybean hay (with or without silage)

to cows testing around 3.7 per cent butterfat and producing less than 18 pounds of milk daily, no grain will be needed. Cows producing above 18 pounds of milk daily should be fed $\frac{1}{2}$ pound of grain for each pound of milk above this amount. Almost any mixture of corn, oats, and barley will be satisfactory with this roughage. All grains should be ground when fed to dairy cows.

Cows producing over 40 pounds of milk per day should be fed more grain with a slightly higher protein content. One-half to one pound of linseed meal or soybean meal daily in addition to the grain mixture may be satisfactory.

With a low-protein roughage such as timothy hay, corn fodder, or poor-quality legume hay, the following rule may be used as a guide. Cows testing approximately 3.7 per cent butter-

fat, need 1 pound of grain for each 3 to 5 pounds of milk produced daily. Cows producing above 25 pounds of milk daily should receive 1 pound of grain for each 3 pounds of milk. With low-protein roughage, farm-grown grains must be supplemented with high-protein concentrates such as linseed meal to the extent of 25 to 30 per cent of the mixture.

When the roughage consists of mixed hay, half legume and half timothy, or other grass hay with or without silage, home-grown grains should be supplemented with linseed meal to the extent of 15 per cent of the grain mixture. Soybean meal, cottonseed meal, or corn gluten meal may be substituted for linseed meal.

Pastures

Generally speaking, the cheapest milk is produced from pasture. The grazing of cattle on pasture is also the cheapest possible way of feeding them. The wise dairyman, therefore, will take advantage of these two facts and aim to make the largest possible use of pasture through the longest possible grazing season.

A permanent pasture of such grasses as bluegrass, brome, slender wheat grass, or mixtures of these with the legumes makes the earliest possible pasture in Minnesota. Such a pasture, however, is often used up by the middle or end of July and provides little feed for the rest of the season, especially if it is a rather dry season.

The planting of a field of Sudan grass to be pastured during late July, August, and early September is one of the most successful and satisfactory methods of supplementing the permanent pasture and giving it a rest so that it will come back and provide good fall pasturage.

In the absence of any supplementary pasture, a practice that will be inexpensive and help materially to supplement the permanent pasture is the feeding of good legume hay in the summer.

Another very satisfactory practice is to put up more silage than is needed for winter and feed leftover silage in July, August, and early September.

Water, Salt, and Minerals

The water supply for dairy cows is of great importance. A cow requires three pounds of water for each pound of milk produced. The water should be easily available to the cows, clean, and at a temperature in winter that will cause them to drink fully. Milking cows should be watered at least twice daily.

Salt is essential to milk cows. It may be supplied by mixing it in the grain ration, using from one pound to one and one-half pounds of salt with each hundred pounds of grain. In addition, cows should have access to salt in the yards or pastures.

Several other minerals are needed in the rations of dairy cows, but they are already present in sufficient amounts in commonly recommended rations. In a few sections of Minnesota, feed crops are known to be low in phosphorus. In these regions, the cheapest and best source of phosphorus is steamed bone meal. This can be mixed with the salt and added to the grain mixture in the proportion of 2 pounds of steamed bone meal to each 100 pounds of grain. It may be mixed with the salt and made available in the lots or pastures, using one part of salt and two parts of bone meal. If bone meal substitutes are used they should be of low fluorine content (not exceeding 0.3 of one per cent).

Feeding During the Dry Period

Milk cows should be milked 10 months during the year and be dry for from six weeks to two months before freshening. Dry cows should be fed so that they will be in good flesh by calving time. This means that thin

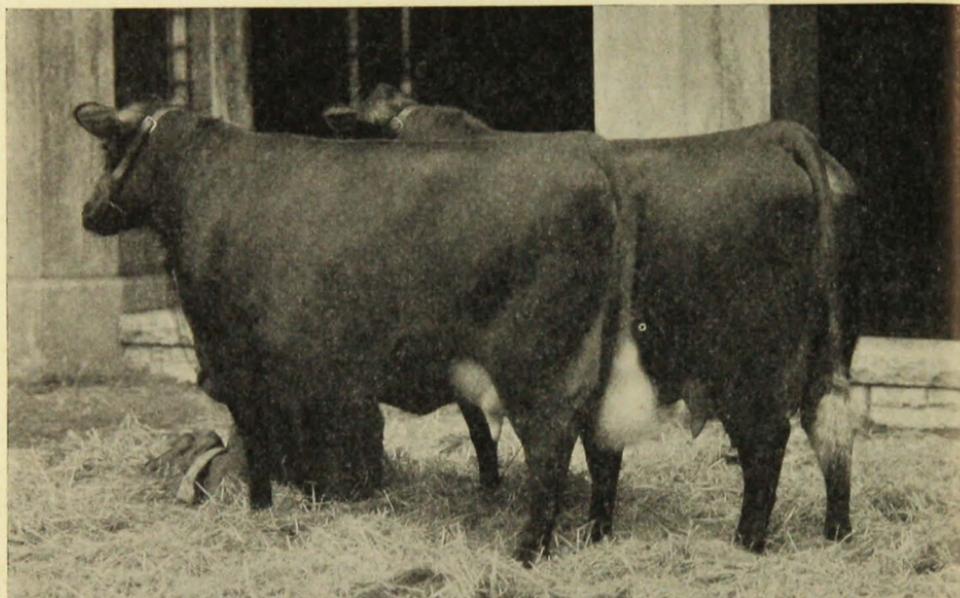


FIG. 5. Red Polled cows, showing desirable udder shape and attachment for the dual-purpose cow

cows may require five to six pounds of grain per day in addition to liberal roughage feeding.

Feeding at Freshening Time

Three or four days before and after freshening, the grain fed should be cut down to two pounds daily. Plenty of good alfalfa hay should be supplied. If the cow calves normally and the udder is not hard or inflamed, grain feeding may be increased on the fifth or sixth day after freshening. The cow should be brought up gradually to reach full feeding about the fourth week after freshening.

RAISING THE DUAL-PURPOSE CALF

Up to weaning age, the dual-purpose calf is raised the same as a dairy calf. It should be fed whole milk for the first two weeks, then shifted to skim milk when it is eating hay and grain

well. Good legume hay and ground corn and oats make an excellent ration with the skim milk.

The calves retained for breeding should not at any time receive over three pounds of grain daily. The calves that are to be fed out as baby beef may be fed more grain than this as they approach the weaning age of six months.

Calves will do much better if kept off pasture, although after four months of age they can be allowed the run of a small pasture where they can get into a shed away from the sun and flies.

FEEDING AND MANAGEMENT OF THE DUAL-PURPOSE STEER

Fattening and Marketing as Baby Beef

Farms having plenty of grain should fatten the steer calves and those heifers which at six months of age do not look promising as prospective cows.

Calves born in the fall will be six to eight months old and ready to be weaned when pasture comes in May. If they have been fed grain and hay along with the skim milk, they should be in good thrifty growing condition and weigh 350 to 400 pounds. In addition to pasture, they should have grain and hay as long as they will eat enough to make it worth while. Any time from August 1 to November 1 would be good to start the dry-lot grain feeding again, depending on the amount and quality of pasture. It is a waste of time to let them continue to run on a poor pasture. When they are put on grain again, they should gradually be worked up to almost a full feed of grain and allowed what hay they will eat and silage if it is available. If the young steers and heifers that are almost a year old are to be marketed as baby beef, they should be kept on a liberal feed of grain and good roughage until ready for market. A wide selection of grain, protein supplement, and roughage feeds is permissible for this fattening period. The following is a highly satisfactory ration.

For southern Minnesota: Corn-and-cob meal, full fed; protein supplement, 1 pound per head per day; legume hay, 1 feed per day; nonlegume roughage, 1 feed per day.

For northern Minnesota: Substitute a mixture of 75 per cent ground barley and 25 per cent ground oats for the corn-and-cob meal.

The calves should have gained from 150 to 200 pounds during the spring and summer grazing period and should now weigh from 500 to 600 pounds. A modest gain for the fattening period is two pounds a day or 400 pounds. These steers and heifers should be ready to go to market as finished fat yearlings any time between February and June, at 16 to 20 months of age and weighing 900 to 1,000 pounds.

The feed bill against them will be about as follows (February 1939 basis):

To six months:	
400 gallons of milk	\$ 8.00
400 lbs. grain and protein supplement	4.00
600 lbs. hay	2.00
Pasture charge	4.00
Fattening charge:	
2,400 lbs. grain and protein supplement	24.00
1,000 lbs. hay	3.00
Total feed cost	<u>\$45.00</u>

The estimated minimum sale value would be a 900-pound steer or heifer at \$8 per hundred pounds, or \$72; under market conditions prevailing in 1939, the maximum to be hoped for would be a 1,000-pound animal at \$10 per hundred pounds, or \$100.

The above estimates are based on prices for February 1, 1939 when conditions were more normal than at present. Prevailing feed costs and cattle prices may be applied to determine total cost and sale value for any given year.

The feeding and management of spring calves so that they may be marketed as fat yearlings will necessarily differ some from the plan outlined above. The feeding of the spring-born calf will be the same as for the fall-born calf up to six months. The spring calf will, however, reach six months of age at the close of the pasture season and at the beginning of the winter feeding period. If this calf is to be marketed as baby beef, it will be preferable to continue with heavy grain feeding after the skim milk has been discontinued and get him ready for market at as young an age as possible. Fed in this way, heifers will be fat and ready for market at 700 to 800 pounds and at 14 to 15 months; steers will be fat at 800 to 900 pounds and at 15 to 16 months. The spring-born calf made ready for market in this way will have eaten a little more grain and will weigh a little less than the fall calf that has had the advantage of one pasture season.

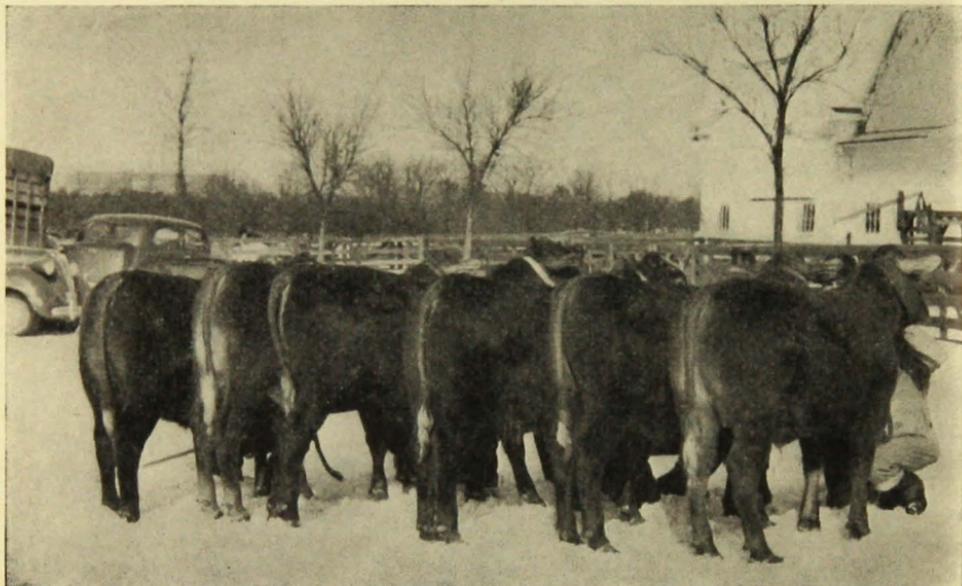


FIG. 6. Red Polled steers, ready for market as baby beef; average age, 13 months; average weight, 836 pounds

Growing and Marketing as Feeders

Another way of handling the spring-born calf is to reduce the amount of grain when the feeding of skim milk is discontinued in the fall. Winter him on hay, or hay and silage largely, plus two to three pounds of grain per day; then turn to pasture in the spring and grow him out as a feeder. This spring calf might then be marketed as a feeder or be put on a fattening ration in the fall of his second year when he would be about 18 months old; or he might be carried through another winter on roughage only and another pasture season and be marketed in the fall of his third year when he would be about 30 months old. Such a plan would be recommended only for farms on which a means of disposing of hay, silage, and grass is desired, or farms short of fattening grain.

The fall-born calf may be grown as a feeder in the same way. The skim milk and grain feeding of the fall calf would be discontinued in the spring

when the pasture season opens, and the calf carried through his first summer on pasture alone. He can then be sold in the fall as a feeder calf or carried longer and be marketed as a feeder, at a heavier weight.

In marketing dual-purpose steers as feeders, it is wise to keep continually in touch with the feeder-cattle market and get such feeder animals on the market at a time when the feeder supplies are light and when they will not come in competition with the heavy fall run of western range feeders. August-September and April-May are often good months for marketing feeder cattle.

EQUIPMENT FOR DUAL-PURPOSE CATTLE PRODUCTION

The equipment provided for the care of a dual-purpose cattle herd is an item of special importance because it is necessary to provide for the housing and care of a group of cows in milk as well as for a group of growing-

fattening young stock. The dual-purpose cattle producer is both a dairyman and a beef-cattle man. Even so, the building equipment need not be extensive or expensive. The calves that are being grown as feeders or fattened will thrive just as well in a simple, inexpensive shed as in an extravagantly constructed barn.

While ample barn space for housing the cows must be provided and provision for sanitary handling of the milk is essential, simplicity and convenience should be the objective in planning the barn and the milkhouse and in the purchase of equipment. Many farms in the United States cannot possibly pay a profit on the investment in them because of the heavy overhead costs in taxes, interest, and depreciation owing to excessive investment in buildings and equipment. Sanitary, comfortable, convenient housing for the cow herd can be provided by a simply constructed barn of moderate cost, and comfortable housing for the growing feeder cattle or fattening cattle can be provided by a plain, cheaply constructed shed.

Some of the most profitable livestock farms are those with small investment in buildings and equipment. Some of the most valuable animals produced have been produced on farms with very modest equipment. If one must make a living from a herd of dual-purpose cattle, success is far more likely with a herd of good cattle in a poor barn than with a herd of inferior cattle in an expensive barn.

THE HEALTH OF THE HERD

Fortunately the diseases and parasites that attack cattle are comparatively few, and most of them can rather easily be brought under con-

trol and eliminated. Mastitis or garget and Bang's disease are two diseases of serious consequence to cattle. Through the persistence of the federal and state governments, tuberculosis has almost been eliminated from cattle. The program for the elimination of Bang's disease has been vigorously pursued and much headway has been accomplished. The best advice that can be given the cattle man concerning Bang's disease is that he join in with the program of his state and carry out to the best of his ability those procedures recommended for the elimination of the disease and prevention of reinfection of his herd.

As a result of recent research, vaccination is now recognized as a valuable adjunct in the control of Bang's disease. Vaccination has thus far proven to be of value only when used with young calves. Calfhood vaccination for the control of Bang's disease is especially recommended for use in problem herds—that is, herds wherein the usual control methods have failed to establish successful control measures.

In the case of mastitis, progress has been made in studying the cause and treatment of the disease but as yet no cure is specific for all types of the disease. Certain types of mastitis due to known streptococci have responded to treatment by certain drugs.

Most parasitic diseases of cattle are confined to the skin coat and can easily be treated and eliminated if the caretaker will be alert and energetic in combating them. There are, of course, many other ailments that affect cattle. The successful caretaker watches for the appearance in his herd of any symptoms of sickness, parasite infestation, or lack of thrift. Profitable production demands healthy animals.

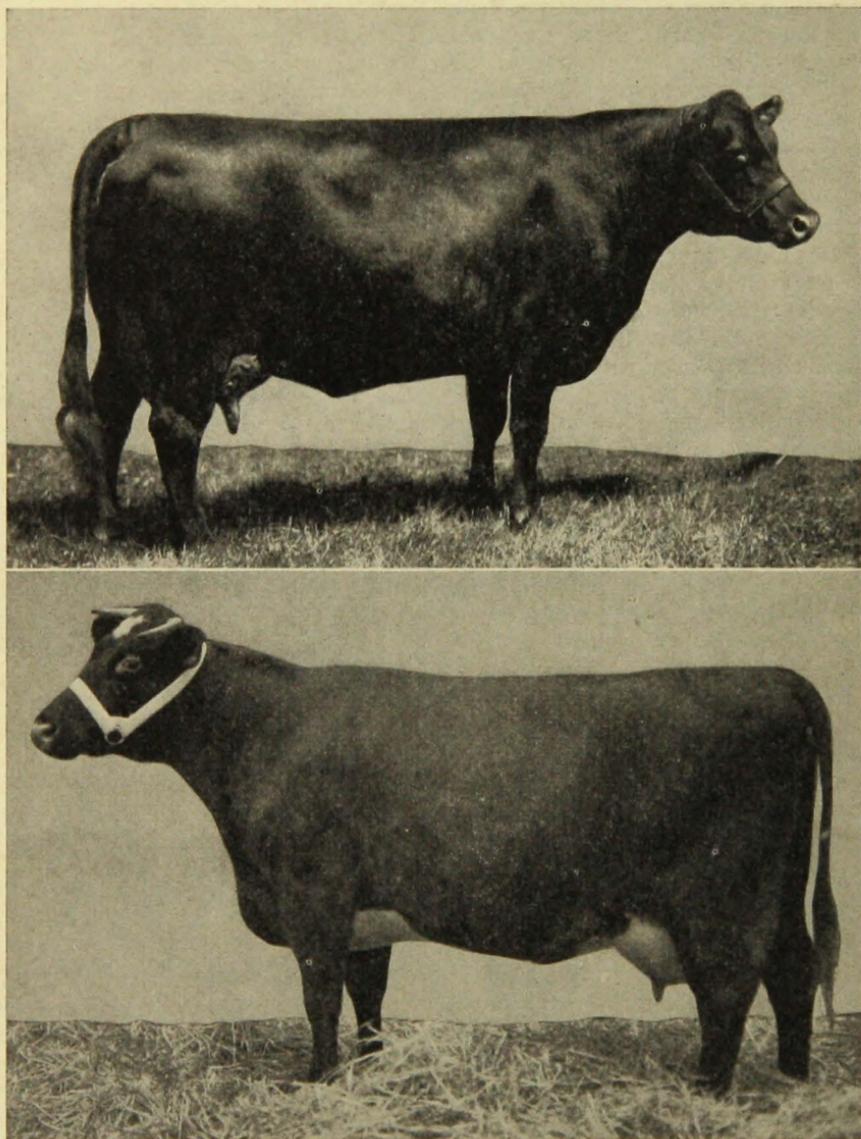


FIG. 7. Above—typical Red Polled cow. Below—typical Milking Shorthorn cow

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