BUILDING UP A DAIRY HERD IN KANSAS.

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Introduction.

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Of Sires.

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BUILDING UP A DAIRY HERD IN KANSAS.

When we review the dairy interests of Kansas, noting the improved methods of the cheese factory, the skimming station and the creamery, and the increasing demand for milk in our cities, we turn naturally to the source of the raw material and inquire as to its permanence and whether it is equal to the demands made upon it.

We all know that the cow, as a source of milk supply to the human race, is something of an abnormal creature, made possible only by a long and careful process of feeding, breeding, selection and milking, and that without due precautions she will gradually drift back to the natural conditions of giving only milk enough to supply the needs of her offspring. The possibility of not only maintaining the present high standard, but of further, and more rapid and wide spread improvement is clearly shown when we consider what has already been done under conditions less favorable than now exist. The Holstein-Friesian, Jersey, Guernsey and a Syrshire herds have become famous as milk producers, though many of the breeders of these cattle know little or nothing of the foundation principles of breeding, feeding and variation. They lacked the stimulous that has been given by the Babcock test and the invention of modern dairy machinery and methods. Knowledge was not so easily obtained as at present. There was no improved stock with which the early breeders could cross their common stock, for all cattle were wild originally. The dawn of the twentieth century certainly offers great encouragement to those who wish to continue the work so well begun.

If we look about us we see that the greater part of our dairy

products are from common and grade cows and that the pure blooded animals are too few and too high priced to be largely used as milk producers. We conclude that the best use to which they can be put is that of grading up the common stock.

Among the more common milch cows, of no particular breed or grade, there is a vast difference as to the quantity and quality of milk and the duration of the period of lactation. The first step, then, in building up a dairy herd is to select such of these, as will at least, pay for their food and care, pay a fair rate of interest on this first cost and leave a net profit large enough to pay off the principal by the time they are past usefulness. This foundatinn stock will necessarily be chosen from such indications of merit as can be found upon a somewhat hast examination. A thorough knowledge of dairy form and temperament will be of advantage here as well as in the selection to be made later.

The best time to judge a dairy cow is at the time she is giving her greatest flow of milk. This time will suit our purposes very well for the cow will not then be pregnant by an undesirable sire and will have her next calf from the sire selected for the purpose of improving the dairy qualities. Some of the objections to choosing the cow at this time of life are that the succeeding offsprings may be influenced in an undesirable direction by the previous impregnation, and the previous care, feed and milking of the cow may not have been such as to develop her dairy qualities to the best ade vantage. Since it is known that acquired habits and conditions of life are often transmitted to later generations, the latter objection affects not only the profits from the milk of the dam, but may be detrimental to her offspring. These objections can be overcome only by beginning with young heifers, and this is equally objection-

able unless the ancestry of the heifers is known for it is almost impossible to foretell dairy qualities in them. The fresh cows can at once be put to a rigorous test and any unprofitable ones disposed of at the end of ten or twelve months, thus saving time.

The age, constitution, and breeding of the foundation stock should be carefully considered. The breed, if it is anything but a complex mixture, and the form should be the same or at least should harmonize well with that of the sires that are to be used in affecting the improvement of the herd.

The selection of females subsequent to those of the foundation stock and the length of time the latter should be kept must be based upon accurate records of the amount of milk and butter fat produced as compared with the cost of feed and care. Constitution, fecundity and prepotency will also guide the careful breeder in his weeding out process. It frequently happens that a common or grade cow, while she is a good milker, transmits little or none of this quality to her progeny. On the other hand a better bred cow may be only a fair milker but may give to her calf the excellent milking qualities of the breed. In building up a herd of profitable cows the latter would certainly be preferable. When two animals are about equal with regard to economical production of butter fat and milk one of them may be retained or rejected upon some less important consideration, as the ease of milking, nervous temperament, proportion of male to female calves, disposition or tendency to ill health.

Most farms are limited as to the number of cows that can be kept and if the full number is secured at the start a high degree of excellence will be reached in a shorter time than if the farm is only partly stocked at first, for there will be a greater number

to select from and it will be necessary t o dispose of a large number each year. The least profitable ones, of course, will go and as the excellence of the herd advances many fairly good cows will be disposed of, that might be kept if there were room for them.

While selection must go on in connection with the inrtoduction of improved blood it does not cease or become less effective as that percentage of that blood increases. After six crosses with a pure bred sire, less than two percent of alien blood remains, but even in the pure bred animals there is room for improvement by taking advantage of the inherent variation in a favorable direction and rejecting those animals that vary in the wrong direction. This process of selection is not generally followed with registered animals because of the false value often placed on them regardless of individual merit. Since animals can not now be registered unless both parents were registered there will be no such false value set up in high grade animals, they must stand or fall wholly on their merits. The owner will not feel it so much of a loss to slaughter or otherwise dispose of a deficient animal and for this reason it may be possible during the life of a single breeder to build up a herd superior to the best pure bloods now in existence.

The choice of sires to be used is a matter of great importance. They should certainlt be pure bred animals of one of the strictly dairy breeds, for, while the wise breeder can do much to modify both plants and animals in a way advantageous to himself, the end is much easier and more quickly gained by beginning with races that have a fixed tendency in the desired direction. The sire, having long been bred pure, will have a greater power of imparting his desirable qualities to his offspring than will the dam of imparting her less desirable qualities. This prepotency

of the sire also varies with age and vigor. Either too old or too young a sire, or one of ~~the~~ a weak constitution may beget weak calves, fail to get a reasonable number or fail to impart the good qualities sought.

An important point in a good herd is uniformity or a fixed type. This applies not only to color, size, and shape but to quantity and quality of milk, grazing ability, and disposition, and can best be secured by the use of sires of the same breed and general conformation. The careful breeder might go still farther and use line bred sires. That is sires from a single family or strain and more or less closely related. The practice of in and in breeding is a short cut to uniformity of type but there could be no object in this, in improving the common cows, until the foreign blood is reduced to a very small percent and a high standard of excellence has been reached, and it would then be necessary to exercise great care in order to avoid the well known evils of breeding closely related parents. The danger of going to the other extreme, that is of changing breeds every few years, is one often made by inexperienced or careless breeders and is almost certain to defeat the effort to secure large production, though it is a safeguard against the loss of vigor. In this system of breeding we not only lose uniformity in the herd but we open the way for attavic variation, a thing to be carefully avoided, because the improved dairy animal is of comparatively recent date and any reversion is apt to be to an ancestor of less rather than greater merit than the immediate parents.

The use of grade sires is open to the same objection, that is the balance of power in the direction sought is broken up and the calf will have a tendency to revert to earlier types of either the

sire or dam. The grade sire also introduces the better blood more slowly than does the pure bred animal. It is true that some favorable variations may result from permiscuous crossing but these are so few in number and so hard to reduce to a fixed type that will be inherited, that the process would be very slow and unprofitable.

A matter of great importance is the selection of a breed and an individual that is accustomed to the climate, food, and care that he and his offsprings will be subjected to. Some of the western ranges have been found so detrimental to improved stock that it will not be profitable to raise such stock there till food and shelter conditions aan be improved. In western Kansas, where prairie and wheat pastures are largely relied upon for food, and where there is no natural shelter, and buildings are expensive and usually poor, the hardy Ayrshire cattle from Canada will probably give the best results. In sections where pasture is scarce and expensive, and where the stack, the silo and grain bin furnish a large part of the food, Holsteins, Guernseys and Jerseys will give large returns if well housed in winter.

In order that she may develop to the greatest advantage, the dairy cow must begin her work as a milker early and keep it up as constantly as consistent with a strong constitution. The consencus of opinion seems to be that she should bear her first calf at two years of age and should bear one each year there after.

We have spoken of the advantage to be gained from selection and from breeding but they will not be fully realized unless they are followed up by proper methods of feeding and care. Of all the means that have been employed to improve domestic animals, nnone have been so productive of good results as the supplying of food

during the entire year in such a way that the animals can secure enough to give the maximum of products without taking more exercise than is necessary to good health. Food must not only be supplied constantly and in sufficient amount but must be of good quality must be palatable and must consist of proper proportions of the digestible nutrients. Due regard should be paid to variety, succulence, and the effect on the movement of the bowels.

Feeding to develop dairy qualities should begin as soon as the calf is able to eat and continue through life. Skimmed milk and Corn or Kafir-corn have been found entirely satisfactory, if fed with care, for the first six months of the calf's life. From this time till the first period of lactation abundant supplies of pasture grass, alfalfa hay, or fodder and ensilage will keep the heifers in a thrifty growing condition without creating a tendency to put on fat, and will develop an ample digestive system that will be able to utilize large quantities of food. The ultimate object of raising cattle is that they may convert the coarse food raised on the farm into a palatable form for man with a minimum tax upon the fertility of the land. The more food that can be so changed by a single animal the nearer that animal comes to fulfilling its mission. This is clearly shown when ever accurate records are kept, the largest consumers, other things being equal, are almost without exception the most profitable animals. A portion of the cows food goes to maintain the body temperature, to produce motion and to carry on the other life processes, any food that can be diegested in excess of this may be stored in the form of flesh or may be secreted as milk. The work of the dairyman then is to supply liberal amounts of feed, reduce the amount of exercise to a minimum required for good health, and supply shelter that will regulate the temperature—

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of the body with the smallest outlay of energy. In addition to this he must keep the cow steadily at the work for which she is intended. Regularity and thoroughness in milking will in the course of a few generations form a fixed habit of large and continuous production of milk. The immense variation of animals under domestication as compared with those in a wild state teaches us that the only limit to the improvement of domestic animals is the limit to man's power of supplying and controlling the conditions under which those animals live.