

in that line when he studies his customers. He caters for his customers, and he has found by experience that he can only command markets when he can put upon them standardised products. It is a mistake to suppose that co-operative methods have been superimposed upon the Danish farmer, he adopted co-operative methods because he found that unless he did things on the big scale, with uniformity in quality, he could not command a market for his goods. The Danish farmer, Mr. Meakin tells us, has applied the co-operative principle to every activity—to production, distribution, purchasing, stock improvement, insurance, finance, and banking. The State did not pass Acts of Parliament making it easy for the small farmers of Denmark to co-operate; the small farmers of Denmark themselves began to produce and distribute on co-operative lines, and “the help of the State is limited to generous aid for education and research, grants to stock-breeding societies, and the use of the State railways for service rather than for profit.”

Mr. Meakin describes in successive chapters how one finds a prosperous farming community in Denmark in spite of the fact that the cost of living there in 1923 was 104 per cent. above pre-war standard. The people are heavily taxed, yet they are able to bear their burdens without losing their cheerfulness. Wages of agricultural workers are from 30s to 35s per week, but there are comparatively few whole-time agricultural workers. There are relatively few very rich people in the country; wealth, like education, is widely diffused. In spite of post-war conditions and trade depression one-fifth of the total State income is spent on schools, universities, agricultural education, and research, and grants to agricultural institutions other than those of an educational character. This expenditure on the part of the State is in addition to expenditure by local authorities on education. In Great Britain every penny spent on education is grudged, and about eight times the amount is spent on alcoholic liquor that is spent on education. We can learn a good deal from Denmark.

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### **Some Hints on Milking.**

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In the operation of milking, relations between the cow and the milker must be harmonious if the best results are to be obtained.

The nervous system of the dairy cow is very closely related to her mammary system, and just as the secretion and extraction of milk are closely allied, the nervous and mammary systems are inseparable. It is generally conceded that a considerable amount of milk that a cow gives is actually secreted during the process of milking, and that being so, the greatest quantity of milk the cow is capable of giving cannot be obtained if she is annoyed or irritated; or if the udder is hurt by faulty manipulation on the part of the milker. By careless and improper methods of milking the lactation period may be seriously shortened, the animal drying off long before her normal period. The aim of the milker, therefore, should be to extract the greatest volume of milk without irritating the cow or doing injury to the udder. The rough treatment often meted out to the cow, such as scolding, kicking, or striking her if she is a little obstreperous when being put into the pail, generally affects the flow of milk and the amount of butter-fat it contains. Pure-bred animals are more susceptible in this respect than grade cows, as their nervous system is more highly developed. It must also be borne in mind that temper, like the milking faculty, is hereditary, and the aim should be, by considerate treatment, to have contentment and a gentle disposition developed in the herd.

The operation of milking should be performed quietly, quickly and deftly, with the full hand, not merely the finger and thumb. Any rough manipulation of the udder will interfere with the work of the lacteal glands. Clean stripping is very necessary, for it is generally known that the last milk drawn from the udder is much richer in fat than the first, and apart from this there is the danger of curtailing the lactation period, for the cow soon becomes accustomed to such treatment, decreasing the flow until it ultimately ceases. At the same time the process of stripping should not be too prolonged in case the animal should develop a tendency to "Strippiness," a thing all milkers detest.

As the cow is a creature of habit and routine, it is advisable for the same milker to milk the same lot of cows on each occasion. It has been proved by experience that the usual milker will get the milk more readily than a strange one, no matter how skilful the stranger may be. In the case of machine-milked cows, they are not milked right out, and it is necessary for a "stripper" to follow the machines. It is largely through this break in the continuity of milking, that machine-milked cows dry off a little earlier than hand-milked ones. The interval between morning and evening milking should be as even as possible. The evening's milk is usually richer in fat than the morning's. The greater the interval, the greater the

variation in the test. The importance of well-regulated milking hours is therefore obvious. At the same time it should be stated that many experiments have demonstrated that there is a natural variation between the night and morning milk. Even when the intervals between milkings are even, the evening milk is generally richer in fat. The reason for this difference is somewhat obscure. It is thought by some that the more active metabolism in the animal body during the day may cause this variation, or that the increase of fat in the evening's milk is a provision of nature to supply the calf with more energy during the night, when it is required more than during the day.

Many discussions have taken place over the question of wet *versus* dry milking. Wet milking has been condemned because of the neglect of some milkers to take ordinary precautions against contamination. As under this method the teat is usually moistened by dipping the fingers into the pail of milk, it is easy to understand the contamination that follows. This dirty practice cannot be too vigorously condemned. With dry milking, unless the udder is previously washed, dust and scales are liable to fall into the milk and cause as much damage as would take place with wet milking. If the udder is washed prior to milking and the hands of the milker also, the teats will be sufficiently moistened without the need of resorting to the dirty practices before mentioned. To summarize:—

1. Don't frighten or ill-treat the cow about to be milked, or her nervous system will be upset. This will mean less and inferior quality milk.
2. The milking should be done quietly, quickly and deftly with as much full hand milking as possible.
3. Strip thoroughly or else the lactation period will be shortened. The strippings are the richest part of the milk.
4. As far as possible, the same milker ought to milk the same cows at each milking.
5. Arrange that the interval between milking be as even as possible to avoid any great variation in fat content (this is more important in the case of milk vendors).
6. Avoid wet milking; it is a dirty method, and will adversely affect the grade of cream.

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