

One-third for quantity of milk ;
 One-third for quality of milk ; and
 One-third for appearance and quality of the
 animal as a general purpose cow.

CATTLE FOR THE GENERAL FARMER

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What kind of cattle shall the general farmer raise? The general farmer is the man that follows diversified farming, corn, wheat, barley, hay, oats and horses, cattle, sheep and hogs. He neither devotes all of his land to raising one kind of grain, nor feeds all of his crops to one kind of stock. He does not depend upon one thing entirely for his income, as does the specialist. Stock are kept in order to feed the crops raised on the farm to the greatest advantage and to preserve as much of the fertilizer constituents of the crops raised as possible. But they are obstacles to specialized farming that at present seem insurmountable. Cattle are kept on these farms for two purposes, to furnish milk and butter and to produce meat. The milk and butter produced are primarily for the use of the farmer's family, and the surplus is usually sold in the open market. The calves are raised by hand on skim milk, and the steers are kept until they are two or three years old and then sold to local butchers or to shippers. The heifers are kept to replace their mothers, or else are sold as milch cows. It is very evident that the special dairy cow is not suited to this class of farmers, although she would admirably fill the requirements for milk and butter, yet her calves would be worthless for feeding purposes. On the other hand the special beef cow cannot fill the bill, because she cannot yield enough milk to supply the family wants and raised her calf. Neither can the farmer afford to keep both classes, one to supply milk and butter and the other to supply feeding cattle.

But the kind of cattle demanded must be a combination of both the beef and dairy animal, or as Prof. Shaw has christened them, the dual purpose cattle. They must produce a good quantity of fairly rich milk and their calves must make good feeding cattle. The cow herself must be of good size and capable of being fattened easily, so that when her days of usefulness are passed as a milch cow she may be easily fattened for beef. Although the dual purpose cattle stand midway between dairy and beef cattle they do not result

from the first cross, any more than the hackney results from a cross between a heavy draft horse and a trotting horse. But they form distinct breeds and the breeding of dual purpose cattle requires as much and if any difference, more skill than the breeding of special purpose cattle. The dairy quality must not be developed at the expense of the beef quality, nor the beef at the expense of the dairy. Both qualities must be advanced together, and it takes skill and experience in breeding to do it.

Probably no one breed is ideal as dual purpose cattle, but the Shorthorn, the Red Polled and the Devon approach most nearly to it. It is from these breeds that the general farmer must look for his supply of dual purpose cattle. The breeders of these should recognize the importance of developing both the beef and dairy qualities, and all tendency to breed for single or special purpose should be eliminated.

Manures.

BUYING CHEMICAL MANURES.

Chemical manures are, so far as they are of use to agriculture, only so much Nitrogen, Potash and Phosphoric Acid. For example, a ton of Nitrate of Soda contains 320 pounds of Nitrogen, the remaining 1680 pounds are mere dead weight and useless to the farmer, but they are a part of the framework which holds the Nitrogen together and cannot be dispensed with. Muriate of Potash contains 1000 pounds of actual Potash per ton, with only 1000 pounds of dead weight. When a farmer buys a ton of Muriate for say \$50.00, he gets 1000 pounds of actual Potash for the \$50.00; that is, he pays 5 cents per pound. A ton of Kainit at \$15.00 would cost per pound of actual Potash just 6 cents, so that it is very evident the Muriate is far the cheapest Potash. This indicates how important it is to watch the quality of fertilizer materials offered for sale.

Another point of almost equal importance is, the quality of the fertilizer. Some forms of Nitrogenous fertilizer materials give up their Nitrogen to plants very slowly, and the same is true with regard to certain forms of Potash and Phosphate materials. As a general rule, fertilizers must be soluble in water before plants can mak