

**The Value of a Milk Fat Substitute—Skimmilk
Combination for Raising Bull Calves for Veal and
Heifer Calves for Replacements**

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MUST VEAL CALVES BE FED WHOLE MILK?

It has always been maintained that calves must be fed liberal quantities of whole milk in order to make good veals at 7 or 8 weeks of age. Many times the value of whole milk is so great that this procedure is unprofitable. It would be desirable to be able to raise good veal calves on a system of feeding that was less expensive than the whole milk method. With this in mind, trials were made with a commercial product,¹ made largely from beef fat, which when mixed with skimmilk was supposed to simulate whole milk.

It was planned to raise Holstein male calves to 50 days of age on whole milk and small amounts of grain and hay, or to feed about 75 pounds of whole milk during the first 10 days and then skimmilk to which was added 5 per cent of the milk fat substitute. Because of a siege of scouring followed by pneumonia, suitable records were obtained on only 32 of 38 whole milk calves and 30 of 49 calves in the milk substitute group.

The difference in health histories of the two groups may be of significance. During the first 6 months of the experiment, 12 whole milk calves were finished with perfect health histories. During the same period 5 out of 11 calves in the milk substitute group developed pneumonia. Examination of the livers of the calves from both groups showed considerable storage of vitamin A in the whole milk calves and practically none in the milk substitute calves.

During the next 6 months a cod-liver oil concentrate was given to some of the whole milk substitute calves. Six out of thirteen calves receiving the whole milk substitute developed pneumonia; only one of these six had received the concentrate. Three of fifteen calves fed whole milk developed pneumonia during the same period.

During the third 6-month period the same cod-liver oil concentrate was fed to some of the milk substitute calves; some received the milk fat substitute fortified with vitamins A and D; some received the plain milk fat substitute.

During this period 6 out of 25 developed pneumonia. Three of these cases were light; three were fatal. Two of the three deaths occurred in the group receiving the unfortified substitute; the third occurred in the group getting the cod-liver oil concentrate but could not be associated with diet, since the onset of pneumonia occurred shortly after birth. There were no cases of pneumonia in eight calves receiving the fortified milk fat substitute. Two out of eleven calves in the whole milk group developed pneumonia during this same period. One case was fatal; the other became chronic.

When only those calves with satisfactory health histories are considered, the milk fat substitute appears to have made a creditable showing so far as its ability to promote growth is concerned. The whole milk calves put on a little more weight and dressed a little better than did the milk substitute calves.

¹Nutri-Fat, manufactured by Armour and Company, Chicago, Illinois.

Whole milk versus a whole milk substitute for veal calves

	Number of calves	Initial weight	Final weight	Gain in weight	Dressed weight	Dressing percentage	Age at slaughter
		<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Pct.</i>	<i>Days</i>
Whole milk	32	100	156	56	89	56.9	50
Substitute	30	101	145	44	81	55.6	50

Observations were made on each carcass after slaughtering. No particular advantage could be attributed to the whole milk calves so far as quality of the carcass was concerned.

When the cost of raising the calves to weaning age is considered, the use of the milk fat substitute was decidedly advantageous, costing only half as much as the whole milk. A cost comparison here is based largely on what disposition would normally be made of the whole milk. If surplus milk price is applied, the difference in cost would be practically negligible.

If the greater incidence of disease in the calves fed the milk substitute was due to low vitamin A intake, this deficiency would readily be overcome by supplying additional amounts of this factor. A system of feeding such as that used in this trial offers promising possibilities for raising veal calves on a limited amount of whole milk.

RAISING HEIFER CALVES ON A LIMITED AMOUNT OF WHOLE MILK

Many attempts have been made to reduce the amount of whole milk fed to heifer calves. The most drastic system involves eliminating milk at 3 weeks. As a rule calves raised on such a "dry feed system" are stunted for a short time after milk is withdrawn, and for 2 or 3 months their appearance is very rough. In an attempt to overcome this undesirable transition period, a milk fat substitute² - skimmilk combination was introduced when the calves were 12 days of age and continued for 7 weeks. At the end of that time skimmilk alone was fed until the calves were 4 months old. Calves so treated were compared with others fed whole milk for 21 days and then skimmilk until 4 months of age. Alfalfa hay of varying quality was fed throughout, along with a simple grain mixture of ground corn 100, ground oats 100, wheat bran 100, and linseed oil meal 50.

Three out of fifteen Holstein calves in the milk fat substitute - skimmilk group developed pneumonia. Two of these cases developed while the calves were still on whole milk. In the whole milk - skimmilk group 3 out of 14 Holstein calves died from pneumonia.

At the end of 6 months the milk fat substitute - skimmilk group had gained 1.49 pounds daily and the whole milk - skimmilk calves had gained 1.40 pounds daily. These gains are about average for the breed. In both groups the rough appearance of "dry-fed calves" was avoided but the gains were no greater than those obtained previously with the dry-feed system.

²Nutri-Fat.

Note: Whole milk, skimmilk, and the Nutri-Fat - skimmilk combination were fed through Coyner nipple pails manufactured by Armour and Company.