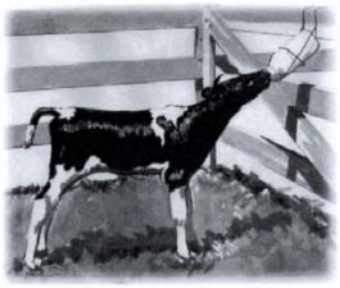
FrontLine®
TECHNICAL INFORMATION FOR TODAY'S FEED PROFESSIONAL



Vitamin E in Calf Milk Replacers

The "fertility vitamin" plays a role in disease prevention

Vitamin E is able to influence the immune status of an individual.

Immunity is the acquired condition of protection of an organism against specific causes of disease and is characterized by the presence of specific antibodies, in particular the immunoglobulins, and protection from defined infections. The immunoglobulins are a special group of proteins having antibody activity and occurring in both blood plasma and in other secretions and body fluids.

For the development of immunity the organism has an immune system which is distributed throughout it and in which the lymphocytes occupy a central position in the immune response. The lymphocytes primarily responsible for antibody synthesis are those which are formed in the thymus (T lymphocytes) and occupy the secondary lymph organs (B lymphocytes). Work by numerous researchers with elevated levels of vitamin E has shown a stimulating effect on antibody formation (levels in excess of requirements established to prevent signs of clinical deficiency). Research in most species of animals indicates that vitamins E and C function as *in vivo* antioxidants. These vitamins play an important role in allowing good health by preventing disease due to reduced immune funtion.

To supply these needs, manufacturers of milk replacers have for many years supplemented products with levels of vitamin E adequate to meet published requirements. Two recent research trials indicate both health and growth benefits by providing higher levels of supplemental vitamin E in the daily milk replacer fed to calves.

TRIAL 1 – Evaluation of vitamin E levels in milk replacer fed calves

	Daily Vitamin E (IU per calf per day)	
	20 IU	100 IU
Number of calves	72	72
Ave. Daily Gain, lbs.	.99[b]	1.07[a]
Calf Wgt. Gain, lbs.	27.8[b]	30.0[a]
Calf Milk Replacer Consumption (lbs.)	47.0	47.3
Scour Score	1.26	1.23
Scour Days	6.1	5.5

TRIAL 2 – Evaluation of vitamin E levels in milk replacer fed calves

	Daily Vitamin E (IU per calf per day)	
	20 IU	100 IU
Number of calves	72	72
Ave. Daily Gain, lbs.	.87[b]	.98[a]
Calf Wgt. Gain, lbs.	24.3[b]	27.6[a]
Calf Milk Replacer Consumption (lbs.)	45.9	46.9
Scour Score	1.30[a]	1.23[a]
Scour Days	6.4	4.7

[a,b] ($P<.05$)

All calves received 22-20 calf milk replacer for 28 days.

Based on these data and other research supporting the health benefits to calves by supplementing vitamin E beyond traditional levels, many companies are choosing to increase their vitamin E specifications, despite the increased cost.

Sources:
BASF Publication: Vitamin E in animal nutrition.
K.A. Cummins 1992. Ascorbate in Cattle: A Review. The Professional Animal Scientist 8:22:29
K.A. Cummins et al. 1992. Effect of dietary ascorbic, alpha-tocopherol, and colostrum on immune function in calves of either sex. 1992 ADSA Annual Meeting Abstract
R. DeGregono, 1993 Vitamin E levels in milk replacer fed calves. 1993 ADSA Annual Meeting Abstract.

Milk Products Inc.
The Milk Replacer Source™