



Milk Replacer Research
Optimum growth and
conventional milk replacers

Akey has developed an extensively researched milk replacer (MR) program to support the optimum growth of neonatal calves*. Twelve controlled research trials have been dedicated to design the new MR called *Akey Pinnacle*. Calves fed *Akey Pinnacle* MR are easy to manage, similar to calves fed a traditional MR fed at 1 lb daily.

Below we summarize a collection of 3 trials comparing *Akey Pinnacle*, *Akey White Gold*, and a commercial 20-20 all milk protein MR. In the trials, all calves had access to a constant supply of fresh water and calf starter. Calves were fed *Akey Pinnacle* milk replacer (MR) twice daily at the rate of 1.5 lb of MR diluted into 1.2 gallon of warm water per calf daily. Calves were fed *Akey White Gold* and the commercial MR at the rate of 1 lb of MR diluted into 1 gallon of warm water per calf daily. All milk replacers were provided 22.7 mg of Deccox® per 100 lb body weight. The calves averaged 91 lb of body weight, 2.1 body condition score (1-5 system with 1 being thin and 5 being obese), and 7.1 inch hip widths at the beginning of the trials. The calves were weaned at 6 weeks of age.

Performance data (0 - 7 weeks) are tabulated below. Economic data are tabulated on the reverse side of this page. Compared to the commercial 20-20 MR, calves fed *Akey Pinnacle* MR gained 52% faster amounting to over \$16 or \$18 more value per calf (depending on whether medical treatments were included). There were no indications that *Akey Pinnacle* MR would depress starter intake, which was observed to occur when feeding elevated levels of 20-20 and most other formulations of MR.

Performance of calves fed 3 different milk replacers (0-7 weeks of age)

Milk Replacer	Daily Gain, lb	Daily Starter Intake, lb	Feed Efficiency, MR+Starter/ Gain	Total Medical Treatments Per Calf	Change in Body Condition Score	Change in Hip Width, in
<i>Akey Pinnacle</i>	1.37	1.69	2.10	6.0	1.20	1.14
<i>Akey White Gold</i>	1.02	1.76	2.54	6.1	.65	.91
Commercial 20-20	.90	1.61	2.72	6.9	.45	.51

*References: Prof. Anim. Sci. 22:252-260; Prof. Anim. Sci. 23:374-381; Prof. Anim. Sci 23:649-655; Prof. Anim. Sci. 23:656-664.

**Summary of Akey Optimum Growth Calf Research
(0 to 7 weeks of age)**

	Akey Pinnacle	Akey White Gold	Commercial 20-20
Start Weight, lb	91	91	91
7 Week Weight, lb	158	141	135
Average Daily Gain, lb	1.37	1.02	0.90
Total Starter Intake, lb	83	86	79
Total MR Intake, lb	58	41	41
Feed/Gain	2.10	2.54	2.72
Starter Cost, \$/lb	\$ 0.14	\$ 0.14	\$ 0.14
MR Cost, \$/lb	\$ 0.83	\$ 0.75	\$ 0.75
Starter Cost Per Calf, \$	\$ 11.62	\$ 12.04	\$ 11.06
MR Cost Per Calf, \$	\$ 47.91	\$ 30.75	\$ 30.75
Total Feed Cost Per Calf, \$	\$ 59.53	\$ 42.79	\$ 41.81
Feed Cost Per lb of Gain, \$/lb	\$ 0.89	\$ 0.86	\$ 0.95
Value of Calf Gain, \$/lb	\$ 1.50	\$ 1.50	\$ 1.50
Value of Gain Over Feed Costs, \$/Calf	\$ 40.97	\$ 32.21	\$ 24.19
Difference vs. Commercial 20-20 MR	\$ 16.78	\$ 8.02	--
Average Fecal Score	1.62	1.59	1.73
Change in Body Condition Score	1.20	0.65	0.45
Change in Hip Width, inches	1.14	0.91	0.51
Medical Treatments Per Calf	6.0	6.1	6.9
Cost of Medical Treatments, \$/trt	\$2.00	\$ 2.00	\$2.00
Value of Gain Over Feed & Med, \$/Calf	\$ 28.97	\$ 20.01	\$ 10.39
Difference vs. Commercial 20-20 MR	\$ 18.58	\$ 9.62	--

Alternative estimations to the value of the Pinnacle program:

Estimation 1:

Average cost to raise dairy heifers = \$.86 per lb of gain*

20 lb extra gain from Pinnacle program X \$.86 / lb gain = \$17.20 savings per calf

Estimation 2:

Average cost to raise dairy heifers = \$1.60 per day*

20 lb extra gain from Pinnacle program divided by 1.75 lb gain / day = 11 days

11 days gained with Pinnacle program X \$1.60 / day = \$17.60 savings per calf

*Source: Tozer et al. "Heifer Economics", Penn State University Bulletin DAS 99-14