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Dairy Guidelines

COOPERATIVE EXTENSION SERVICE, V.P.I., BLACKSBURG, VIRGINIA

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Developing Dairy Herd Replacements

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Raising your own herd replacements is the best guarantee of getting an adequate supply of healthy, growthy replacements on which you have some information of genetic potential for milk production.

Research studies indicate that properly developed heifers, calving at 24 months of age, will produce more total milk by 7 years than heifers calving at 28 months. Therefore, it is more profitable to freshen heifers as early as possible, consistent with normal growth and weight.

To determine whether your young cattle are making the proper rate of growth, their rate of growth should be compared to normal standards for that breed. Several experiment stations have observed growth rate of various breeds; these results were used to establish a standard. This standard uses height at withers and heart girth in inches to determine weight gains and growth rates.

Some feel that height at withers is a more accurate measure of growth rate (change in skeletal size) than is heart girth, which is affected by body condition. Both measures have been combined in Tables 1 and 2 so each dairyman can use the measure most acceptable to him.

These should serve as guidelines to determine if feeding and management practices are adequate to maintain normal growth rates, determine optimum breeding time, and allow for early calving.

Housing

Calves (birth to 35 days)

- A. Minimum space
 - 1. Individual pens 30" x 52" are recommended to prevent sucking
 - 2. Group pens 15 to 20 sq. ft. per head after weaning from milk
- B. Pens should be light, dry, draft free, and well ventilated

Heifers (35 days to 10 months)

- A. Minimum space
 - 1. Group pens or loose housing 20 to 25 sq. ft. per head
 - 2. Pens should be light, dry, draft free, and well ventilated
- B. Summer
 - 1. In summer, calves more than 6 months of age can be put on pasture
 - 2. Provide shade

Heifers (10 months to freshening)

- A. Minimum space (provide feed and water)
 - 1. Small breeds - 30 to 40 sq. ft. per head (varies with size)
 - 2. Large breeds - 40 to 55 sq. ft. per head (varies with size)
- B. Pens should be light, dry, draft free, and well ventilated
- C. In summer, provide shade on pasture

Diseases of calves

Young calves are quite susceptible to many ailments if improperly managed and subjected to stress. It is far easier to follow good management practices and prevent sickness than to cure an ill animal.

Practices for disease prevention

- 1. Provide clean, sanitized maternity pens, or clean paddock for freshening cows.
- 2. Immediately after birth, dip navel of calf in iodine.
- 3. Allow calf to drink mother's colostrum; it is high in disease fighting antibodies, vitamins and protein.
- 4. Don't purchase calves if you can avoid it.
 - a. They may be diseased or come from diseased herds.
 - b. Calves subjected to stress of moving or any form of marketing could be exposed to disease, and they are more susceptible to disease.
- 5. Don't overfeed the calf for first 10 days to 2 weeks. Digestive disturbances will result from overfeeding and weaken the calf.
- 6. Keep feeding utensils clean, they can be a source of infection. Sanitize after each use with extra-hot water, steam, or chemical.
- 7. Feed milk or milk replacer regularly and at same temperature each time to avoid digestive upsets (100° F. is desirable).
- 8. Keep animals in a clean pen and disinfect pens between each use.
- 9. Use shavings or sawdust for bedding.
- 10. Prevent birds from contaminating feed supply.
- 11. Follow veterinarian's advice on vaccinations, etc.
- 12. Provide an adequate supply of fresh, clean, water.

Parasites

- A. Prevention and control
 - 1. Rotate pastures. Do not place calves on pasture until they are 6 months old.
 - 2. Consult Extension Agents and/or veterinarian for current recommendations on fly control. (See Circular 983 "External Parasites of Dairy Cattle")
 - 3. Pens and/or stalls must be sprayed to control lice and flies.

TABLE 1. RECOMMENDED STANDARDS FOR DAIRY HEIFERS

Breed	Size for Breeding				Size for Calving			
	Age (Months)	Heart Height*	Heart Girth**	Weight	Age (Months)	Heart Height*	Heart Girth**	Weight
Jersey	15	45	59	600	24	49	66	830
Guernsey) Ayrshire)	15	46	61	675	24	51	69	950
Holstein) Brown Swiss)	15	49	65	800	24	54	74	1130

*Height measured at point of withers

**Place tape around body just behind front legs

TABLE 2. RECOMMENDED GROWTH RATES FOR REPLACEMENT HEIFERS

(Months)	AYRSHIRE AND GUERNSEY			BROWN SWISS AND HOLSTEIN			JERSEY		
	Heart Girth	Weight	Height at Withers	Heart Girth	Weight	Height at Withers	Heart Girth	Weight	Height at Withers
Birth	--	65	27	29	93	29	--	56	26
1	26	80	30	32	115	31	--	70	27
2	32	120	32	36	160	34	31	110	30
4	40	200	36	44	270	39	38	180	34
6	45	300	39	50	390	42	44	280	38
8	50	400	41	55	510	44	48	360	40
10	55	490	43	59	610	46	52	440	42
12	58	570	45	62	700	48	55.5	510	43
14	60	640	46	64.5	780	49	58	570	44
16	62	700	47	66.5	850	50	59.5	620	45
18	64	760	48	68	910	51	61	670	46
20	66	820	49	70	980	52	63	720	47
22	67	880	50	71.5	1050	53	64	770	48
24	69	950	51	73.5	1130	54	66	830	49

Proper nutrition is a major factor involved in producing healthy, growthy, early freshening heifers. Table 3 will serve as a guideline for adequate and economical feeding of dairy heifers from birth until freshening.

TABLE 3. FEEDING SCHEDULE FOR DAIRY HERD REPLACEMENTS FROM BIRTH TO FRESHENING

Age in Days or Months	Feed	Breed		Starter	Grain	Forage(1) Hay or Silage
		Large	Small			
0- 3 days	Colostrum	8 lbs.	6 lbs.	-	-	-
3- 14 days	Powdered Milk Replacer(2)	1-1.4	.7-1.0	Offer	-	Free Choice
15- 28 days	"	1.3-1.7	1.0-1.4	Free Choice	-	Free Choice
29- 35 days(3)	"	1.1-1.5	.8-1.2	Free Choice	-	Free Choice
36- 42 days	"	.7-1.0	.6- .9	Max. 4#/day	-	Free Choice
42- 50 days(4)	"	-	-	Max. 4#/day	-	Free Choice
56-120 days	"	-	-	-	Max. 5#/day	Free Choice
3 mo.- 6 mo.	"	-	-	-	Max. 4#/day	Free Choice
6 mo.-12 mo.(5)	"	-	-	-	Max. 2#/day	Free Choice
12 mo. to freshening	"	-	-	-	(6)	Free Choice

(1) Feed either high-quality hay or silage (calves will do just as well on good silage).

(2) Pounds of powder per day mixed with 6 parts water at 99 F., or follow manufacturer's directions.

(3) Calves consuming more than 1.5 lbs. of starter per day can be weaned anytime after 28 days.

(4) At 56 days, switch from starter to 16% simple grain mix.

(5) Animals more than 6 mo. of age can be pastured but will need supplemental hay or silage.

(6) If forage is high quality and offered free choice, no grain required except for 6 to 8 weeks prior to freshening. Feed maximum of 5 lbs. grain per day, depending upon condition of the animal.

PROVIDE FRESH, CLEAN WATER AT ALL TIMES.

SUPPLEMENTAL VITAMINS WILL NOT BE NECESSARY FOR ANIMALS THIS AGE.

PROVIDE SALT FREE CHOICE--IF CORN SILAGE IS THE ONLY SOURCE OF FORAGE, USE TRACE MINERAL SALT.