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FEEDING DAIRY CATTLE

by

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Dairy Department

Oregon State Agricultural College

Federal Cooperative Extension Service
Oregon State College
Corvallis

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FEEDING DAIRY CATTLE

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Feeding Milk Cows

1. Grain mixtures from at least four plant sources are generally recommended for variety of proteins and minerals and greater palatability.

2. The maximum amount of ingredients from a single plant source should not be over 50 per cent.

3. Since the growing of roughages on the farm is almost indispensable to a dairy enterprise, it is recommended that the growing of legume hays be stressed.

4. The feeding of succulents is recommended, the best results being obtained from feeding about 3 pounds per 100 pounds of live weight. Silage, roots, kale or soiling crops all serve the purpose, the one to grow depending on the yield and cost.

5. One to two per cent of steamed bone flour or other satisfactory source of calcium and phosphorus is recommended for all grain mixtures. Heavy milking cows should have access to steamed bone flour at will as a separate feed regardless of the remainder of the ration. Free access to salt is important. An iodine supplement is needed if goitre in calves has been observed.

6. Grain feeding should be unnecessary when a cow is getting all the good roughage she will consume and producing less than 15 pounds of 5.0% milk or 20 pounds of 3.5% milk daily. This holds true when the roughage consists of alfalfa hay alone, or a good hay and a succulent feed, or good pasture.

7. The following schedule of concentrate feeding is suggested:

<u>Milk per Day</u>	<u>Concentrate Mixture Daily</u>	
	<u>Holstein or Ayrshire</u> <u>3.5% to 4% butterfat</u>	<u>Guernsey or Jersey</u> <u>5.0% to 5.5% butterfat</u>
<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>
15	None	None
20	None	2.5
25	2.0	5.0
30	4.0	7.5
35	6.0	10.0
40	8.0	12.5
45	10.0	15.0
50	12.0	17.5*
55	14.0	20.0*
60	16.0*	--

*In no case should more concentrates be fed than the cow will readily consume. With heavy concentrate feeding a light, bulky mixture is very desirable.

8. Concentrate mixtures recommended for milk cows with roughages indicated. (Linseed oil meal, cottonseed meal, soybean meal, and peanut meal, depending on the market price, can be used interchangeably in any of the following concentrate mixtures. Likewise the amount of barley, oats, wheat or corn can be varied as the price or availability on the farm varies.)

Group A. Alfalfa hay alone or good irrigated pasture.

- | | |
|----------------------------------|------------|
| (1) Wheat bran or mill run - - - | 560 pounds |
| Ground barley - - - - - | 200 " |
| Ground oats - - - - - | 200 " |
| Salt - - - - - | 20 " |
| Bone flour - - - - - | 20 " |
| (2) Ground barley - - - - - | 250 pounds |
| Ground oats - - - - - | 250 " |
| Ground wheat - - - - - | 250 " |
| Wheat bran or mill run - - - | 210 " |
| Salt - - - - - | 20 " |
| Bone flour - - - - - | 20 " |
| (3) Ground barley - - - - - | 360 pounds |
| Ground oats - - - - - | 500 " |
| Linseed oil meal - - - - - | 100 " |
| Salt - - - - - | 20 " |
| Bone flour - - - - - | 20 " |

Group B. A legume hay, such as alfalfa or red clover and a succulent feed such as silage, roots or kale, or with average pasture.

- | | |
|------------------------------|------------|
| (1) Ground barley - - - - - | 200 pounds |
| Ground oats - - - - - | 200 " |
| Wheat bran or mill run - - - | 410 " |
| Cottonseed meal - - - - - | 150 " |
| Salt - - - - - | 20 " |
| Bone flour - - - - - | 20 " |
| (2) Ground oats - - - - - | 400 pounds |
| Wheat bran or mill run - - - | 210 " |
| Ground wheat - - - - - | 200 " |
| Soybean meal - - - - - | 150 " |
| Salt - - - - - | 20 " |
| Bone flour - - - - - | 20 " |
| (3) Ground oats - - - - - | 410 pounds |
| Ground barley - - - - - | 400 " |
| Linseed oil meal - - - - - | 150 " |
| Salt - - - - - | 20 " |
| Bone flour - - - - - | 20 " |

Group C. A mixed legume and non-legume hay such as oats and vetch, or clover and grass, and a succulent feed.

- | | | | | |
|-----|------------------------|-----------|-----|--------|
| (1) | Ground barley | - - - - - | 200 | pounds |
| | Wheat bran or mill run | - - - | 310 | " |
| | Ground oats | - - - - - | 200 | " |
| | Peanut meal | - - - - - | 150 | " |
| | Linseed oil meal | - - - - - | 100 | " |
| | Salt | - - - - - | 20 | " |
| | Bone flour | - - - - - | 20 | " |
| (2) | Wheat bran or mill run | - - - | 410 | pounds |
| | Ground barley | - - - - - | 200 | " |
| | Ground oats | - - - - - | 100 | " |
| | Soybean meal | - - - - - | 150 | " |
| | Coconut meal | - - - - - | 100 | " |
| | Salt | - - - - - | 20 | " |
| | Bone flour | - - - - - | 20 | " |
| (3) | Ground wheat or barley | - - - | 200 | pounds |
| | Ground oats | - - - - - | 200 | " |
| | Wheat bran or mill run | - - - | 260 | " |
| | Cottonseed meal | - - - - - | 150 | " |
| | Ground field peas | - - - - - | 150 | " |
| | Salt | - - - - - | 20 | " |
| | Bone flour | - - - - - | 20 | " |

Group D. A grass or cereal hay, such as ryegrass or oat hay, and a succulent feed.

- | | | | | |
|-----|------------------------|-----------|-----|--------|
| (1) | Ground barley | - - - - - | 200 | pounds |
| | Ground oats | - - - - - | 200 | " |
| | Wheat bran or mill run | - - - | 210 | " |
| | Linseed oil meal | - - - - - | 150 | " |
| | Cottonseed meal | - - - - - | 200 | " |
| | Salt | - - - - - | 20 | " |
| | Bone flour | - - - - - | 20 | " |
| (2) | Wheat bran or mill run | - - - | 310 | pounds |
| | Ground barley | - - - - - | 200 | " |
| | Ground oats | - - - - - | 100 | " |
| | Cottonseed meal | - - - - - | 100 | " |
| | Peanut meal | - - - - - | 100 | " |
| | Coconut meal | - - - - - | 150 | " |
| | Salt | - - - - - | 20 | " |
| | Bone flour | - - - - - | 20 | " |
| (3) | Ground wheat or barley | - - - | 200 | pounds |
| | Ground oats | - - - - - | 300 | " |
| | Wheat bran or mill run | - - - | 160 | " |
| | Soybean meal | - - - - - | 200 | " |
| | Fish meal (65%) | - - - - - | 100 | " |
| | Salt | - - - - - | 20 | " |
| | Bone flour | - - - - - | 20 | " |

Feeding Young Animals

1. The young calf should be removed from its mother on the second or third day after birth and taught to drink from a pail.
2. Whole milk should be fed the young calf for the first three to five weeks and, if available, skim milk until six months.
3. Powdered skim milk, powdered buttermilk and semi-solid buttermilk are good substitutes for liquid skim milk, if they can be purchased at a reasonable price.
4. The following calf meal has given very good results at the Oregon Agricultural Experiment Station:

35% ground oats
25% ground yellow corn
12% wheat bran
10% linseed oil meal
10% dried skim milk powder
5% blood meal
2% sterilized bone meal
1% salt

This meal is fed dry. The young calf is fed six to eight pounds (3 to 4 quarts) of whole milk daily for about four weeks (in case of an unthrifty animal milk should be fed six to eight weeks), the calf being offered the dry calf meal and good quality hay after the first week. Two pounds of the calf meal per day should be the average consumption at seven to eight weeks of age. After 12 weeks of age the amount of calf meal should be limited to three to four pounds daily, depending on the size of the calf and the quality of the roughage. Fresh water in unlimited quantities should be available at all times.

5. Legume or mixed legume and non-legume hays of good quality are recommended for young animals in as large amounts as they will consume. Calves will also do well when fed oat hay along with a small additional amount of linseed oil meal.
6. Calves can be fed limited quantities of silage after four months of age and can utilize pasture to a limited extent at about that age.
7. Mineral supplements of steamed bone meal or spent bone black are recommended for calves when skim milk feeding is discontinued, either fed with the calf meal or grain mixture or placed in a box with the salt.