FOOD FOR VICTORY

When, How Much, and What
TO FEED MILK COWS

SCHEDULE OF CONCENTRATE FEEDING TO COWS RECEIVING EXCELLENT, GOOD, OR FAIR QUALITY ROUGHAGE, EITHER PASTURE OR HAY, WITH OR WITHOUT SUCCULENT FEEDS

Pounds Milk Produced Daily				Amount of Concentrate to Feed Daily		
3.0 *Per cent*	4.0 *Per cent*	5.0 *Per cent*	6.0 *Per cent*	With *Excellent* Roughage	With *Good* Roughage	With *Fair* Roughage
16.5	14.0	12.0	10.5	None	None	2
19.0	16.0	14.0	12.0	None	1	3
22.0	18.5	16.0	14.0	None	2	4
24.5	21.0	18.0	16.0	1	3	5
27.0	23.0	20.0	17.5	2	4	6
30.0	25.5	22.0	19.5	3	5	7
32.5	27.5	24.0	21.0	4	6	8
35.5	30.0	26.0	23.0	5	7	9
38.0	32.5	28.0	24.5	6	8	10
41.0	34.5	30.0	26.5	7	9	11
43.5	37.0	32.0	28.0	8	10	12
46.0	39.0	34.0	30.0	9	11	13
49.0	41.5	36.0	32.0	10	12	14
52.0	44.0	38.0	33.5	11	13	15
54.5	46.0	40.0	35.5	12	14	16*
57.0	48.5	42.0	37.5	13	15	17*
60.0	50.5	44.0	39.0	14	16*	18*
62.5	53.0	46.0	41.0	15	17*	19*
65.5	55.0	48.0	42.5	16*	18*	20*

* No more concentrates should be fed than the cow can eat and digest without going off feed regardless of the amount required to maintain production.

Examples of use of Table: A cow fed excellent quality alfalfa hay and corn silage and producing 30 pounds of 5 per cent milk daily would receive 7 pounds of concentrates daily. If the roughage fed were low quality oats and vetch hay for this same cow, 11 pounds of concentrates should be fed.

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TO FEED MILK COWS

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America needs more milk to help maintain the health, vigor, and efficiency of the armed forces and civilian population, not only of the United States but also of our allies. Each individual dairyman can do his part in the all-out war against dictatorships by increasing production. When based on sound feeding practices such production is profitable with present feed and butterfat prices.

Limit of production on roughage alone

The production expected on roughage alone will depend to a great degree upon the quality of this roughage, whether it be pasture, hay, or hay and succulent feeds. If the roughage is *excellent*, such as luxuriant pasture available in adequate amounts, or fine-stemmed leafy alfalfa hay, a high-testing cow may produce about 18 pounds of milk and a low-testing cow about 22 pounds of milk daily on the roughage alone. With roughage of *good* quality, such as good pasture or average alfalfa, clover or vetch hay with or without silage or root crops, a high-testing cow may produce about 14 pounds and a low-testing cow about 17 pounds of milk daily on the roughage alone. If the roughage is only *fair*, such as average pasture or a stemmy oats and vetch hay, the production on roughage alone would probably be limited to 9 or 10 pounds of high-test milk and 12 or 13 pounds of low-test milk.

Consumption of *poor* quality roughage can be increased by sprinkling it with molasses diluted with water. In case the available hay is of poor quality the possibility of purchasing good hay for milking cows should be considered. On a digestible nutrient basis, alfalfa hay at $24 a ton is as economical as barley at $40 a ton.

Schedule of concentrate feeding

The schedule on the front of this bulletin gives the amount of concentrates that should be fed with *excellent*, *good*, and *fair* roughage varying with the amount and butterfat test of the milk produced. The term "concentrates" in this publication means any feed low in fiber and high in energy value and includes the grains, milling by-products, and high protein feeds. The basis of the concentrate schedule is the daily consumption, per 100 pounds body weight, of 3 pounds of hay or its equivalent with *excellent* roughage, 2½ pounds of

hay or its equivalent with *good* roughage, and 2 pounds of hay or its equivalent with *fair* roughage.

The dairyman should determine from the approximate amount of roughage that his cows will consume which of the three schedules of feeding is applicable. The variation in the amount of concentrates necessary is due to the difference in palatability and resulting consumption of the roughage.

Economy of concentrate feeding

Good cows fed concentrates according to the schedule can be expected to respond by increasing production in the early part of the lactation and by maintaining production at a high level as the milking period advances.

It will be noted that 1 pound of concentrates is fed for each 2 pounds of 5 per cent milk produced or 100 pounds of concentrates for each 10 pounds of butterfat. If the concentrate mixture costs $40 a ton and the butterfat is worth 40 cents a pound, the outlay for the 100 pounds of concentrates would be $2 and the selling price of the butterfat $4. It seems, therefore, that the liberal feeding of concentrates at present levels of feed and butterfat prices is profitable.

Concentrate mixtures recommended

There are listed on the next page various mixtures that will meet the protein requirements for average production, when fed with roughages of high or low protein content. Other concentrates may be substituted on the basis of their protein content and with consideration of their bulkiness, palatability, and laxativeness. Ordinarily, the maximum amount of ingredients from a single plant source in the concentrate mixture should not be more than 50 per cent, and it is desirable that the complete ration of the cow be derived from at least four plant sources in order to insure a variety of proteins, minerals, and vitamins. Sterilized bone flour to supply calcium and phosphorus may be included as 1 or 2 per cent of the concentrate mixture or may be placed in boxes, like salt, where cows have free access to it.

Linseed, cottonseed, soybean, and peanut meals can be used interchangeably in any of the suggested mixtures depending on the market price. Likewise the amount of barley, wheat, oats, and corn can be varied with the price or availability.

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CONCENTRATE MIXTURES FOR FEEDING WITH VARIOUS ROUGHAGES

Group A: With leafy alfalfa hay, or luxuriant pasture.

(1)	Pounds	(2)	Pounds
Ground barley	200	Ground barley	400
Ground oats	250	Ground oats	400
Ground wheat	250	Mill run	150
Wheat bran	300	Linseed oil meal	50
	Per cent		*Per cent*
Crude protein	11.1	Crude protein	11.6
Digestible protein	9.1	Digestible protein	9.4
Total digestible nutrients	75.0	Total digestible nutrients	74.3

Group B: With average alfalfa or clover hay, or good pasture.

(3)	Pounds	(4)	Pounds
Ground oats	350	Ground barley	300
Ground wheat	250	Ground oats	200
Wheat bran	300	Mill run	300
Cottonseed meal	50	Coconut meal	200
Soybean meal	50		
	Per cent		*Per cent*
Crude protein	14.3	Crude protein	13.6
Digestible protein	11.8	Digestible protein	11.4
Total digestible nutrients	74.1	Total digestible nutrients	75.0

Group C: With legume hay and silage or roots, or average pasture.

(5)	Pounds	(6)	Pounds
Ground barley	200	Ground oats	100
Ground oats	200	Ground corn	100
Ground wheat	200	Ground barley	100
Wheat bran	250	Ground wheat	100
Cottonseed meal	50	Mill run	350
Soybean meal	50	Cottonseed meal	100
Peanut meal	50	Soybean meal	50
		Molasses beet pulp	100
	Per cent		*Per cent*
Crude protein	15.7	Crude protein	16.4
Digestible protein	13.1	Digestible protein	13.1
Total digestible nutrients	75.7	Total digestible nutrients	73.3

Group D: With oats and vetch, or grass and clover hay and a succulent feed.

(7)	Pounds	(8)	Pounds
Ground oats	100	Ground oats	200
Ground wheat	200	Ground barley	200
Mill run	250	Mill run	300
Linseed oil meal	100	Orange meal	100
Cottonseed meal	100	Linseed oil meal	50
Coconut meal	250	Cottonseed meal	100
		Fish meal (67 per cent)	50
	Per cent		*Per cent*
Crude protein	19.4	Crude protein	19.7
Digestible protein	16.7	Digestible protein	16.2
Total digestible nutrients	76.5	Total digestible nutrients	74.2

Group E: With grass or cereal hay, with or without succulent feeds.

(9)	Pounds	(10)	Pounds
Ground barley	150	Ground oats	200
Ground oats	100	Ground wheat	100
Mill run	300	Wheat bran	300
Cottonseed meal	100	Cottonseed meal	100
Soybean meal	100	Soybean meal	150
Peanut meal	50	Coconut meal	150
Molasses beet pulp	100		
Ground field peas	100		
	Per cent		*Per cent*
Crude protein	21.6	Crude protein	21.2
Digestible protein	17.7	Digestible protein	17.9
Total digestible nutrients	73.1	Total digestible nutrients	75.0