

Wheat for Milk Cows

Prepared by H. P. EWALT, *Extension Dairy Specialist*, and I. R. JONES, *Professor of Dairy Science*,
Oregon State University, Corvallis

Oregon's dairy industry has been developed on the basis of cheap roughage, particularly hay and pasture. The general practice has been to provide dairy cattle with all the hay, silage, or grass they will consume. Any deficiencies in requirements for maintenance and production are supplied by feeding concentrates. As cows have increased in average production, the level of concentrate feeding has increased.

With good quality roughage—hay, silage, green feeds, or pasture—a cow will eat enough to maintain her weight and produce from 15 to 25 pounds of milk daily, depending on the amount of fat in the milk. The increase in requirements for higher production must be met by feeding concentrates mixed from farm-grown grains, milling by-products, high protein concentrates, and mineral supplements. The purchase of mixtures delivered in bulk in pelleted form to the dairy is becoming more and more frequent as milking is done in milking parlors.

It is important to supply enough protein in amount and quality to meet the requirements of higher milk production. Under normal price conditions, high protein concentrates are included in mixtures to bring the percentage of protein to the necessary level. Unless high protein concentrates are cheap enough to feed on the basis of their total digestible nutrient value, they should be used only to provide variety and sufficient protein to meet the animals' requirements.

There have been questions concerning the amount of wheat that can be fed profitably to cows in milk. Feeding trials at the Oregon Agricultural Experiment Station show that coarsely ground wheat can be used (up to 50% of the concentrate mixture) with no ill effects on the animals and no loss in palatability. This mixture was fed in amounts up to 12 pounds per cow daily. One group of cows was fed a mixture containing 75% wheat, without ill effects, but with some loss of palatability. If the wheat is pelleted, more than 50% can be included in the concentrate mixture without a loss in palatability.

Table 1 shows the comparative value of a number of feeds calculated from the total digestible nutrients furnished and based on alfalfa hay at varying prices. For example, if good alfalfa hay is worth \$32.00 per ton, a dairyman could afford to pay \$53.15 for a ton of ground wheat and expect to get the same total digestible nutrient value for the money spent. In other words, at the prices indicated, the cost per pound of total digestible nutrients in alfalfa hay and wheat would be the same. If wheat can be purchased for less than \$53.30, it is a better buy than alfalfa hay at \$32.00. However, because of the bulky nature and lower digestibility of hay, the cow must be fed the more digestible concentrates for high milk yield. In such cases, the comparison should be made between the high-energy concentrates to determine which is the best buy at different prices.

Table 1. COMPARATIVE VALUE OF FEEDS IN DOLLARS PER TON BASED ON TOTAL DIGESTIBLE NUTRIENTS FURNISHED

Hay, alfalfa	Barley, ground	Wheat, ground	Milo, ground	Corn, ground	Oats, ground	Mill run	Molasses beet pulp, dried
\$20.00	\$31.30	\$33.20	\$31.85	\$32.40	\$28.40	\$27.70	\$29.50
24.00	37.60	39.85	38.20	38.90	34.05	33.25	35.45
28.00	43.90	46.50	44.60	45.40	39.70	38.80	41.40
32.00*	50.20	53.15	50.95	51.90	45.35	44.35	47.35
36.00	56.50	59.80	57.35	58.40	51.00	49.90	53.30
40.00	62.80	66.45	63.07	64.90	56.65	55.45	59.25

* Example: If alfalfa hay is selling for \$32.00 per ton, one could afford to pay \$50.20 per ton for ground barley, \$53.15 per ton for ground wheat, \$50.95 per ton for ground milo, \$51.90 per ton for ground corn, \$45.35 per ton for ground oats, \$44.35 per ton for mill run, or \$47.35 per ton for dried molasses beet pulp.



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Table 2 gives some concentrate mixtures utilizing considerable amounts of wheat that can be fed with different kinds of roughages. Minerals should be fed as

recommended in Oregon Experiment Station Bulletin 503.

Table 2. CONCENTRATE MIXTURES UTILIZING LARGE AMOUNTS OF WHEAT

Group A: Low protein, for feeding with high quality legume hay, grass-legume silage, or luxuriant pasture.

(1)		(2)	
	<i>Pounds</i>		<i>Pounds</i>
Ground wheat	500	Ground wheat	500
Ground oats	250	Ground barley	200
Mill run	250	Dried beet pulp	300
	<i>Percent</i>		<i>Percent</i>
Crude protein	11.2	Crude protein	9.8
Digestible protein	9.4	Digestible protein	7.6
Total digestible nutrients	77.1	Total digestible nutrients	79.9

Group B: For feeding with average legume hay, grass silage, or with good pasture.

(3)		(4)	
	<i>Pounds</i>		<i>Pounds</i>
Ground wheat	500	Ground wheat	500
Ground oats	200	Ground barley	100
Mill run	200	Dried beet pulp	275
Soybean meal	100	Soybean meal	125
	<i>Percent</i>		<i>Percent</i>
Crude protein	14.4	Crude protein	14.2
Digestible protein	12.1	Digestible protein	11.4
Total digestible nutrients	78.2	Total digestible nutrients	80.4

Group C: For feeding with mixed legume and nonlegume hay and corn silage, or with average pasture.

(5)		(6)	
	<i>Pounds</i>		<i>Pounds</i>
Ground wheat	500	Ground wheat	500
Ground oats	125	Ground barley	100
Mill run	200	Dried beet pulp	200
Soybean meal	175	Soybean meal	200
	<i>Percent</i>		<i>Percent</i>
Crude protein	17.0	Crude protein	16.7
Digestible protein	14.4	Digestible protein	13.8
Total digestible nutrients	79.0	Total digestible nutrients	81.0

Group D: High protein. For feeding with nonlegume hay and corn silage.

(7)		(8)	
	<i>Pounds</i>		<i>Pounds</i>
Ground wheat	400	Ground wheat	400
Ground oats	150	Ground barley	100
Mill run	200	Dried beet pulp	200
Soybean meal	250	Soybean meal	300
	<i>Percent</i>		<i>Percent</i>
Crude protein	19.6	Crude protein	20.2
Digestible protein	16.5	Digestible protein	16.7
Total digestible nutrients	78.2	Total digestible nutrients	80.8

Soybean meal is the only high protein concentrate suggested in the mixtures, but if the cost of cottonseed meal or other high protein feeds is lower, they may be used.