

By personal supervision, the farmer can reduce this cost. Rent of irrigated land is not included, being the same for all crops. With proper cultivation the yield will vary from 10 tons of rich beets to 30 tons of larger beets. The average price per ton this season is \$3.50 in Nebraska, \$4 in California, and \$4.50 in Utah. The value varies with the sugar content as follows:—

MARKET RATES OF SUGAR-BEETS AT GRAND ISLAND, NEBRASKA.			
Per Cent. of Sugar.	1891 (Ton).	1892 (Ton).	Proceeds per Acre of 15 Tons.
	\$ c.	\$ c.	\$ c.
12	3 00	3 00	45 00
13	3 25	3 50	52 50
14	3 50	4 00	60 00
15	3 75	4 50	67 50
16	3 00	5 00	75 00
17	4 25	5 50	82 50
18	4 50	6 00	90 00
19	4 75	6 50	97 50
20	5 00	7 00	105 00

EXHIBIT 12.—BEET-PULP AS A CATTLE-FOOD AT GRANDE RONDE VALLEY, OREGON

There is one side of the beet-sugar industry which observation and inquiry show is not receiving the attention which it deserves in the Grande Ronde Valley. I refer to the feeding of beet-pulp to cattle and sheep. Located as the valley is in the midst of the best stock regions of the Pacific Coast, in a region where such excellent crops of alfalfa can be grown, there seems to be no reasonable excuse for neglecting this side of the industry, both for fattening stock and the manufacture of dairy-products. The fullest fruits of the industry will never be realized till attention is given to this phase of the subject. Nothing has been more conclusively demonstrated than that beet-pulp is a most excellent cattle, sheep, and hog food when properly balanced with nitrogenous material, as alfalfa, clover, or grain. While the leaves and tops are good food, pulp is much better. A chemical analysis of the pulp produced at La Grande shows the following composition:—

Water	89.01	Dry matter	10.99
		Fat	0.58
		Fibre	2.40
		Protein	0.88
		Ash	0.70
		Carbohydrates	6.43
		Total	10.99

No analysis was made of the siloed pulp, but there is not a very great change in the chemical composition, as will be shown by the following analysis given in the "Revue Universelle des Progres de la Fabrication du Sucre," i, 428

	Maercker.		Kuhn.	
	Before Ensilage.	After Ensilage.	Before Ensilage.	After Ensilage.
Water	89.77	88.52	88.9	87.5
Dry matter	10.23	11.48	11.1	12.5
Ash	0.58	1.09	0.9	0.9
Fat	0.05	0.11	0.1	0.1
Crude fibre	2.39	2.80	2.5	3.0
Crude protein	0.89	1.07	0.9	1.2
Nitrogen-free extract	6.32	6.41	6.7	7.3

Beet-pulp is not a balanced ration, and the best results cannot be expected from feeding it alone, though it is a healthful and nutritious food. Its chief components are the carbohydrates and proteids. It is essentially a fattening food. Experience has shown that it is relished by dairy cattle, and produces an excellent flow of milk when balanced with nitrogenous foods. The pulp is valuable not only as cattle-food, but also as food for hogs and sheep. In Utah it is largely used as hog-food.

It is one of the cheapest foods that farmers can use, for it can be purchased at a very nominal figure. Each team as it delivers its load of beets should take home a load of beet-pulp. This pulp should be placed in a silo, where it is much more easily kept than any other silage material. It is very heavy, and sinks down to a very solid, cheesy mass. When properly preserved it does not tend to ferment, and can be kept a very long time. Mr. Allen, of the Standard Cattle Company, is authority for the statement that even in very cold weather a large pile can be left out of doors, and, while a crust of eight or ten inches will freeze on the outside, the inside will remain in good condition.