

SUN-DRIED POTATOES for FATTENING STEERS

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SUN-DRIED POTATOES for FATTENING STEERS

R. F. Johnson¹, E. F. Rinehart², and C. W. Hickman³

Many tons of low grade potatoes are available for livestock feeding each year in southern Idaho. Potatoes are a succulent, low-nutrient feed. The moisture content averages approximately 78 percent and the total digestible nutrients 18 percent. They are quite palatable to ruminants. The disadvantages of feeding cull potatoes are that they may cause choking, indigestion, or bloat and may be reduced in value as a feed by freezing. The storage space for storing large quantities of low-value cull potatoes may be unavailable and prohibitive in cost. The expense of removing sprouts that may cause "solanin" poison after the potatoes have been in storage over winter is prohibitive. A simple method of "sun drying" cull potatoes described in this bulletin eliminates these hazards of feeding cull whole potatoes.

Method

Cleaned, washed No. 2 potatoes were sun dried on the deactivated airfield at Mountain Home, Idaho, by the J. R. Simplot Company during the summer months of July and August, 1948. The potatoes were windrowed on the landing strips, crushed with a roller, and agitated with road patrol equipment until dried. It required approximately 3 pounds of whole potatoes to produce 1 pound of sun-dried potatoes. This method produced a clean, uniform product. These were stored in bulk in a shed near the feed lots.

Fifty-nine uniform Hereford steer calves were purchased and divided into five groups on the basis of weight, with eleven steer calves in Lots 1, 2 and 3 and thirteen steer calves in Lots 4 and 5. The concentrate mixtures fed to the five groups are given in Table 1. The check ration used in this study was chopped alfalfa hay and ground barley. Since molasses dried beet pulp is a feed of similar physical and chemical composition, it was used in the comparison of the feeding value of the sun-dried potatoes. The concentrate mixture was fed at the rate of about 1 pound to every 100 pounds of live weight per day, with all the chopped alfalfa hay they would consume without excessive waste. Each ration of chopped alfalfa hay, ground barley, and molasses dried beet pulp or dried potatoes was mixed together at the time of feeding. The steer calves were fed twice daily. Water and salt were available at all times.

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Table 2. Average weights, gains, number of animals and feed mixtures of groups of steers fed two levels of dried molasses beet pulp and dried potatoes.

Lot No. No. Steers	1 10-11*	2 11	3 11	4 13	5 13
Ration:	Alfalfa Barley 100	Alfalfa Barley 75 Dried beef pulp 25	Alfalfa Barley 50 Dried beef pulp 50	Alfalfa Barley 75 Dried potatoes 25	Alfalfa Barley 50 Dried potatoes 50
Initial wt., lb.	553	548	557	558	555
Final wt., lb.	1019	1013	1008	1032	1018
Gain, lb.	467	464	451	474	463
Daily gain, lb.	2.15	2.14	2.08	2.18	2.13
Daily rations:					
Chopped alfalfa hay, lb.	11.33	13.84	12.08	13.68	12.58
Ground barley, lb.	7.90	6.22	4.09	6.22	4.26
Dried molasses beet pulp, lb.		2.09	4.08		
Sun-dried potatoes, lb.				2.15	4.26
Feed for 100 lb. gain:					
Chopped alfalfa hay, lb.	527	647	581	626	589
Ground barley, lb.	368	291	196	285	199
Dried molasses beet pulp, lb.		98	196		
Sun-dried potatoes, lb.				99	199
Salt	2.6	2.6	2.6	2.6	2.6
Dressing percent	58.99	57.59	58.23	60.64	60.38
Market grades:					
Prime			1		
Choice	3	5	5	7	10
Good	7	6	5	6	3

*One steer died of bloat.

An average of 3-day individual weights were used for the initial and final weights. Individual weights were taken every 28 days throughout the experiment.

Table 1. Concentrate Mixtures (Percent)

	LOTS				
	1	2	3	4	5
Barley	100	75	50	75	50
Dried molasses beet pulp		25	50		
Dried potatoes				25	50

Results

A summary of the results are shown in Table 2. The steer calves were fed from December 14, 1948, to July 19, 1949, a period of 217 days. All steers assigned to each lot completed the test except one in the group fed barley and alfalfa hay. This calf died of bloat. The initial weights of the five groups averaged between 548 and 558 pounds. The final weights averaged from 1008 to 1032 pounds. The average total daily feed consumption of the five groups was similar. The highest average daily gain of 2.18 pounds was made by (Lot 4), those calves receiving concentrate mixture of 75 parts barley and 25 parts dried potatoes. The lowest gain, an average of 2.08 pounds per day, was made by the group of steer calves receiving a concentrate mixture of equal parts ground barley and molasses dried beet pulp. The difference in the average daily gains of these two groups was only 4.8 percent. A difference of only 4.8 percent or less in the average daily gains among the groups is not enough to be due to a difference in the nutritive value of the rations. Therefore, insofar as gains are concerned, the five rations studied in these tests are of equal value. These results indicate that 1 pound of sun-dried potatoes are equal to 1 pound of ground barley or 1 pound of dried molasses beet pulp when fed as 1/4 or 1/2 of the concentrate mixture with chopped alfalfa hay as the roughage.

Both groups of the steers fed sun-dried potatoes had a higher dressing percentage than the groups of steers fed dried molasses beet pulp or barley. The carcasses of the sun-dried, potato-fed steers were excellent. More of the carcasses of the sun-dried, potato-fed groups graded choice than the carcasses of the other three groups.

Conclusions

The results of these tests have demonstrated that the nutritive value of 1 pound of sun-dried potatoes is equal to 1 pound of ground barley or 1 pound of dried molasses beet pulp as measured by rate of gain and carcass quality when fed as 25 or 50 percent of the concentrate mixture for fattening calves.

It requires approximately three pounds of whole potatoes to make 1 pound of sun-dried potatoes.