FEEDING PRICKLY PEAR TO DAIRY CATTLE IN NORTHERN MEXICO

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Introduction

The utilization of prickly pear as a livestock feed has been a common practice for a long time in Northern Mexico. The widespread utilization of prickly pear has mainly been due to both its availability during the critical seasons of the year (winter and spring), and to its chemical composition (Table 1). As a result of these attributes prickly pear is valued as an emergency feed in these arid areas.

Table 1. Chemical composition of different prickly pear species.

		%						
Specie	Reference	DM	OM	CP	EE	CF	Ash	NFE
Opuntia spp.	3	17.0	---	5.1	1.9	13.2	20.5	59.2
O. rastrera	2	14.4	59.9	2.8	0.8	16.2	40.1	40.2
O. robusta	2	10.4	81.4	4.4	1.7	17.6	18.6	57.6
O. engelmanii	2	15.1	68.4	3.3	1.2	3.6	31.6	60.3
O. lindheimeri	2	11.6	74.5	4.1	1.0	3.0	25.5	66.3
O. ficus-indica	2	11.3	89.9	3.8	1.4	7.6	13.1	77.1

DM = Dry matter
OM = Organic matter
CP = Crude protein
EE = Ether extract
CF = Crude fiber
NFE = Nitrogen free extract

Traditionally, the way of using prickly pear as feed for livestock, has been by burning either the standing whole plant or individual pads of the prickly pear followed by chopping of the burned portions into small pieces with hand tools. Another way of using prickly pear as feed for livestock, is to cut the edges of the pads standing in the field to make it look more succulent to grazing livestock. However, new processing methods have been developed during the recent years, such as fermenting the pads to soften the spines, in a process similar to making silage, and mechanical processing with a modified forage chopper, which saves labor costs (Table 2).

Table 2. Prickly pear processing methods for feeding purposes.

Burn the standing whole plant (fire wood or gas burner)
Burn plant in pieces (fire wood or gas burner)
Cut edges
Fermenting to soften spines
Mechanical cutting (mobile or stationary)

The purpose of this study is to present feeding practices related to the feeding of prickly pear to dairy cattle in Northern Mexico.

Methods

This study was conducted in three dairies located in the states of Coahuila (Aurora) and Nuevo Leon (Mina I and II) in Northern Mexico. The information obtained in this study included:

Location of dairy
Number of animals in the dairy
Amount of prickly pear offered per day (kg)
Form of prickly pear feeding (processing)
Other feeds offered and amount (kg)
Seasons (months) of prickly pear feeding
Milk production level (kg)

Results

The results of this study are shown in Table 3. It can be observed that dairies at Mina I (160) and II (130) were larger than that in Aurora (30). The dairy at Mina I offered more prickly pear (40 kg) per day, as compared to the dairies at Mina II (25 kg) and Aurora (20 kg). The dairy at Mina II (16 kg) had higher levels of milk production than those observed at Mina I (10-12 kg), or Aurora (8-12 kg). Both dairies at Mina were using mechanical processing, while the one at Aurora was burning and chopping the prickly pear. The dairy at Aurora used prickly pear for shorter time (January to May) as compared to the dairies at Mina (January to June). Cows at Mina I received 5 kg alfalfa hay, 3 kg commercial feed and 2 kg corn grain. Cows at Mina II receives 1 kg sorghum milo, 4 kg corn grain 0.5 kg wheat and 5 kg alfalfa. Cows at Aurora received 2 kg wheat, 2 kg commercial feed, 2 kg corn grain and 5 kg corn silage.

Table 3. Results of the feeding practices and production of dairy cattle in Northern Mexico.

Location	Mina I	Mina II	Aurora
No. animals	160	130	30
Prickly pear (kg/day)	40	25	20
Milk production (kg/day)	10-12	16	8-12
Form of feeding	mechanically	mechanically	burn & cut
Season of feeding	Jan - June	Jan - June	Jan - May
Supplement (kg/day)			
commercial feed	3	4	2
corn grain	2	0	2
sorghum milo	0	1	0
wheat	0	0.5	2
corn silage	0	0	5
alfalfa	5	5	0

Conclusions

* Prickly pear is fed during the critical months of the year (dry months)

* Higher production levels were observed in the larger dairy which indicates improved feeding and management practices.

* Mechanical processing of prickly pear makes more efficient utilization and save labor costs.

* Dairy farmers in the state of Coahuila are more traditional in the processing of prickly pear than those in the state of Nuevo Leon.

* Efforts have been directed to the most efficient utilization of prickly pear for feeding livestock.

Literature cited

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