

# Benefits of Feeding Silage and Hay during the Dry Season in Commercial Dual-Purpose Cattle Production Systems in Honduras and Costa Rica

A.D. Schoonhoven, F. Holmann, P. Argel, E. Pérez, J.C. Ordoñez, and J. Chaves  
Corresponding author: f.holmann@cgiar.org

## The Problem

Dual-purpose cattle production systems in much of Central America experience a shortage of forage during the dry season. As a result, milk production and animal weight gain decrease. Producing hay or silage and feeding them to animals can offer a solution.

## Objective

To estimate and compare a series of variables between and within Honduras and Costa Rica:

- The increase in milk and beef production, attributable to the feeding of silage or hay during the dry season in commercial dual-purpose cattle production systems.
- The production costs of making silage or hay.
- The benefits of feeding silage or hay.

## Materials and Methods

In Honduras, farmers in Yoro and neighboring areas, were interviewed as follows:

- Seven farmers producing silage.
- Six farmers producing hay.

In Costa Rica, farmers in the Esparza-Puntarenas region and in the Nicoya Peninsula were interviewed as follows:

- Seven farmers producing silage.
- Two farmers producing hay.
- Asociación de Productores Agroindustriales de Bagaces (APAIB), a farmers' association that produces hay under irrigated conditions.

All regions, both in Honduras and Costa Rica, were characterized by a prolonged dry season.



## Results

### Costs and benefits of feeding silage and hay

Variable	Costa Rica		Honduras	
	Honduras	Costa Rica	Honduras	Costa Rica
	<b>Silage</b>		<b>Hay</b>	
Adoption rate (%)	16.3 <sup>(7)</sup>	6.3 <sup>(7)</sup>	2 <sup>(6)</sup>	20 <sup>(2)</sup>
Total production costs (\$/mt)	16.48 <sup>(7)</sup>	45.63 <sup>(7)</sup>	20.34 <sup>(6)</sup>	38.94 <sup>(2)</sup>
Labour costs (\$/mt)	6.32 <sup>(7)</sup>	23.57 <sup>(7)</sup>	13.67 <sup>(1)</sup>	NA
Machinery costs (\$/mt)	3.73 <sup>(7)</sup>	7.82 <sup>(7)</sup>	13.05 <sup>(6)</sup>	34.60 <sup>(2)</sup>
Other costs (\$/mt)	6.43 <sup>(7)</sup>	14.24 <sup>(7)</sup>	5.01 <sup>(6)</sup>	4.37 <sup>(2)</sup>
Costs of feeding (\$/cow per day)	0.21 <sup>(7)</sup>	0.33 <sup>(7)</sup>	0.19 <sup>(3)</sup>	0.19 <sup>(2)</sup>
Costs of feeding (\$/calf per day)			0.03 <sup>(3)</sup>	
Increase in milk production (lt/cow per day)	3.2 <sup>(7)</sup>	2.1 <sup>(5)</sup>	4.0 <sup>(3)</sup>	1.5 <sup>(1)</sup>
Weight gain (kg/head per day)		0.8 <sup>(2)</sup>	0.2 <sup>(3)</sup>	0.5 <sup>(1)</sup>
Net benefit due to increased milk production (\$/cow per day)	0.72 <sup>(7)</sup>	0.20 <sup>(5)</sup>	0.97 <sup>(3)</sup>	0.17 <sup>(1)</sup>
Net benefit due to weight gain (\$/head per day)		0.45 <sup>(2)</sup>	0.25 <sup>(3)</sup>	0.24 <sup>(1)</sup>
Sale price (\$/mt)			46.55 <sup>(5)</sup>	93.96 <sup>(2)</sup>

(x): Sample size

NA: Not available. Labour costs are included in the rental costs of machinery



## Discussion and Conclusions

- The adoption rate of silage in Honduras was higher than that of hay, in contrast with Costa Rica, where the adoption rate of hay was higher.
- Milk production during the dry season increased in cattle production systems in both Honduras and Costa Rica when animals were fed either silage or hay. Beef cows or young livestock supplemented with hay or silage did not lose weight.
- The cost of feeding hay was lower in both countries, although farmers fed animals a larger amount of hay (kg DM/cow per day) than silage.
- Feeding silage or hay to milking and beef cows or young livestock proved profitable in both Honduras and Costa Rica.
- Farmers in Honduras had a much higher net benefit due to the feeding of silage and hay than farmers in Costa Rica.
- No silage market existed in Honduras and Costa Rica. The hay market in Honduras was very small. This market was developing in Costa Rica, where hay was sold at auctions at different prices, reflecting its quality.

