



## Local Feeds for Goats

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Some goat producers utilize commercial goat feeds to supplement daily diet of their goats. Amount varies to half-pound to a pound per adult head per day. A 50 lb. bag costs \$21.00 or 42 cents a pound.

A grant funded from Western Sustainable Agriculture and Research Education (WSARE) evaluated several local feed materials such as breadfruit, taro, tangan-tangan and coconut for goat feed. These feed resources were processed by drying and grinding. The processed feed resources were stored in plastic containers and mixed as needed for feeding.

Samples of feed formulations were analyzed for nutrient content such as crude protein (c.p.), fat, fiber, ash, and NFE (nitrogen free-extract).

Feed	C.P.	Fiber	Ash	Fat	NFE
Feed 1	10.5	27.0	5.3	4.3	45.8
Feed 2	10.3	30.8	9.2	4.5	38.8
Feed 3	14.1	5.5	8.9	5.9	56.1
Feed 4	13.5	28.7	4.7	5.6	39.6
Feed 5	16.8	3.9	6.0	7.1	55.5

The composition of the different mixtures of local feed ingredients and commercial goat feed are as follows:

Feed 1 = 1/3 lb. each of breadfruit, grated dried coconut, and tangan-tangan

Feed 2 = 1/3 lb. each of taro, grated dried coconut, and tangan-tangan

Feed 3 = ½ lb. each of breadfruit and commercial goat feed

Feed 4 = ½ lb. each of grated dried coconut and commercial goat feed

Feed 5 = commercial goat feed



Fig. 1. Goat ration of commercial goat feed, breadfruit, grated dried coconut and tangan-tangan.

### Feeding Trials

Rations formulated of mixed commercial goats and local feeds were fed to goats to one farm in Inarajan and at the Department of Agriculture Breeding Station in Dededo.

Inarajan Farm. Prior to the feeding trial, the 25 goats were given daily ration of commercial goat feeds. The daily cost would be approximately \$12.50.

The feeding trial started from March 1-30, 2011. The formulation of the ration was 50% commercial goat feed, 25% breadfruit, and 25% grated dried coconut. Feed was gradually introduced to avoid stress related



Fig. 2. Goats consuming the mixed commercial goat feed and local feedstuffs at the Inarajan farm.

to feed changes on the goats. On the fourth week of the feeding trial, the commercial feed percentage was 25%. There was no effect on consumption of the feed.

### Observations and Results

Since the flock is made up of goats ranging from doe-lings to does and bucks, the focus of observations were on palatability and acceptance of the mixed feed and signs of digestive disorders. Comparison of growth rates of the growing goats was not possible because of absence of facilities to conduct such activity in the farm.

No untoward signs of digestive disorders were recorded and observed during the entire period of feeding trial. The goats readily consumed the feeds all the time.



Fig. 3. Does consumed the mixed local feeds without no signs of digestive problems.

### Guam Department of Agriculture Breeding Station

Goat producers loaned out their goats for the feeding trials. Goats ranged from two to four months old of mixed breed. The formulation of the ration was 50% commercial goat feed, 25% breadfruit, and 25% grated dried coconut.

Trials lasted from 1-4 months for every batch and each batch is made up of two to three goats at a time. These goats were not given commercial feeds prior to these feeding trials. All of the goats used in the trial were thin, rough hair coat, and visibly unhealthy. Goats were dewormed prior to feeding trials. Goats were fed  $\frac{1}{4}$  lbs. of the mixed ration in the morning and forages for the rest of the day. Goats were also tagged for identification.

### Observations and Results

The focus of the observations made was on the palatability and acceptance of the mixed feeds. A control and experimental group was not feasible since there were not enough number of goats from the same farm to be used at any time during the trial period. Signs or incidence of any digestive disorders were also part of the observations.

The goats readily consumed the ration. The haircoats were the first ones to be noticeably changing as the feeding trial progresses for each batch. It was gradually changing from a rough to shiny hair coat. Goats became more active and visibly healthier at the end of every feeding trial.

Owners of the goats visited the site and were much impressed with what they saw in terms of the changes (physical appearance and health) in the goats compared to the goats they have in their farms.



Fig. 4. Initial batch of the feeding trial were two month old goats.

### Recommendations

1. A grain ration made up of 100% local feeds is appropriate for feeding to 7 months and older goats.
2. Newly-weaned and growing goats may have to be fed with commercial goat feed.
3. Feeding high quality and quantity of forage to goats could refrain producers from utilizing grains and processed local feeds.
4. Genetic upgrading and grain feeding must go hand in hand to see impact of improved goat performance in the region.
5. Regular parasite control and treatment must be implemented at all times.
6. Since most of these local feed materials have high water content, a standard “drying out” processing should be established for each material to avoid spoilage or “burnt” aroma / taste in the ration.



Fig. 5. Three doelings for the feeding trial of local feeds conducted at the Guam Department of Agriculture, Dededo.

### Terms used in the table of analysis and their definitions

- A. Crude protein – is an estimate of the level of protein in the feed based on the amount of nitrogen present.
- B. Ash – is a measure of the total mineral content of the feed, but it does not tell us how much of each mineral is present.
- C. Fiber – is the poorly digested component of the feed.
- D. Fat – is the amount of fat and fat-soluble components of a feed.
- E. Nitrogen Free-Extract (NFE) – made up primarily of readily available carbohydrates, such as sugars and starches.

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