

The use of gewang tree (*Corypha elata robx*) as feed for livestock in the tropics

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ABSTRACT: Promoting the use of alternative feed resources, derived from crops and trees which are more “environmentally friendly”, will lead to more sustainable development and will increase self-reliance in tropical countries. Gewang tree (*Corypha elata robx*) is grown in many countries of the Tropics including Indonesia, Malaysia, Philippines, China, some islands in the Pacific and other Asian countries. This paper will review the use of it as feed for livestock in the Tropics. The practical used of putak produced by gewang tree has been widely used as alternatively feed in the livestock rations. Putak supplemented with *Leucaena leucephala* meal as a substitute for maize in broiler feeding did not produced negatively affect on broiler growth rate. The use of putak as a maize meal substitute diets influenced the egg production of Japanese quail. The inclusion of fermented boiled putak as a substitute for maize in the diets of weanling pigs increased the digestibility of the nutrients and the fermented putak can be included in the pig diets at 10 % level in place of maize with no deleterious on animal performance and it also actually improves the economic viability of the pig fattening enterprise. The use of 40 % putak fermentation in goat diets produced the best response on daily gain, feed consumption, N retention and fiber digestibility. The use of putak as animal food for cattle resulted in the increased of body weight gains. It was concluded that putak produced by gewang tree can be used as alternately feed for livestock in the Tropics. It is locally used as feed for chickens and quail, pigs, goats and cattle in the Province of East Nusa Tenggara, Indonesia.

Key words: gewang tree, feed, livestock

INTRODUCTION

Feeding of livestock is of fundamental important to any farm program throughout the world, because livestock must be healthy to function efficiently and yield maximal benefits to the livestock producers. One of the basic tasks for the livestock producers is to supply their livestock with feed that will satisfy their needs for body maintenance, growth, reproduction, lactation and work. The profits derived from any feeding program must be assessed against the costs, and knowledgeable livestock producers can increase their profit ratio by feeding their livestock nutritionally but nevertheless economically (Bogart and Taylor, 1983). Without doubt, feeding livestock with feeds also used for human consumption is of concern because of the direct competition between feeding livestock and humans. This is well illustrated by the large amount of grain usually incorporated to livestock rations (Ginting-Moenthe, 2000). In temperate regions of the world, cereals exceed what is needed for human consumption.

The surpluses are fed to livestock considerable amounts are exported. In contrast, most tropical countries (Thailand and Vietnam) are the exceptions) import part of their needs of cereal grains for human consumption and many of them (included Indonesia) also import grain for feeding to livestock. In tropical countries, promoting the use of alternative feed resources, derived from crops and trees which are more “environmentally friendly”, will lead to more sustainable development and will increase self-reliance (Sansoucy, 1995). This paper will review the use of gewang tree (*Corypha elata robx*) as feed for livestock in the Tropics.

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DESCRIPTION OF GEWANG TREE

Gewang tree (*Corypha elata robx*) is grown in many countries of the Tropics including Indonesia, Malaysia, Philippines, China, some islands in the Pacific and other Asian countries. This plant (Photo 1) in Indonesia is widely found in East Nusa Tenggara Province, mainly Timor and Roti islands (Ginting-Moenthe, 2000; Hilakore, 2008). The tree is also known as *kuala* or *lontar hutan* with its Latin name is *Corypha elata robx* and its classified as follows. Family: Palmae (Arecaecae); Sub-family: Corytoldea; Genus: Corypha; Sub-genus: Corypha elata robx. The word Corypha comes from Greek “koryphe” means top, where the flower will shoot from top, and “elata” from Latin means high (Ginting-Moenthe, 2000). It grows well in the open coastal area and is rarely found in elevated places which are lower than 400 m above sea level. It also withstands in dry conditions and is able to grow well at pH 6 – 8 and even or poor soils (Ginting-Moenthe, 2000; Hilakore, 2008). The first author further explained that the Province of East Nusa Tenggara which mainly gewang tree grown is a semi arid area, with the rainy season being short, lasting only 3 – 4 months per year. The rain fall received in the region is on average 300 – 400 mm per year. Land topography and soil texture is not suitable for intensive agricultural crop production.



Figure 1. Adults gewang tree (Hilakore, 2008: 6).

Ginting-Moenthe (2000) reviewed available references and also reported that gewang trees grow in single stalks and upright and can reach a height of 30 m. The branches have thorns and at certain age, normally 30 – 40 years, more branches sprout from the top of the stalk. On the centre of the branches, fruits are formed. When the fruits are ripe, they fall down to the ground and the gewang tree dies. One gewang tree can produce approximately 100,000 seeds and some of these germinate and grow as new plants around the dead parent tree (Photo 2). Nulik *et al.* (1988) estimated that average height of gewang tree of 13 m (12.9 ± 3.3) will produced 663 ± 124 kg wet feed or 396 kg dry feed known as “putak” (Photo 3).



Figure 2. A gewang tree (middle) ready to harvest as feed.

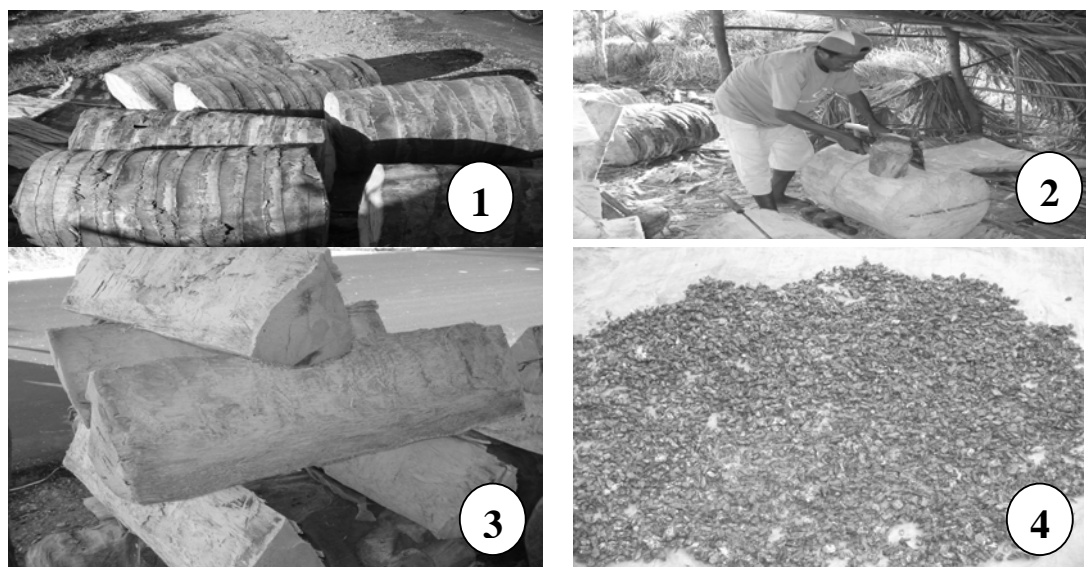


Figure 3. Proseses of gewang tree as feed for livestock known as “putak” (Hilakore, 2008: 25)

Ginting-Moenthe (2000) listed eight factors should be considered to maximize the quantity and quality of putak from gewang tree when used it as feed for livestock. They are: (1) the putak should be cut before flowering; (2) cutting it after flowering leads to putak with contained more water and reduced palatability for livestock; (3) gewang tree about to start flowering have shorter leaves and the top leaves are shorther than the leaves underneath; (4) if the gewang tree contains putak, the following indicators can be used to detect: few brances extend at an angle of $\leq 90^\circ$ from the main stalk. More of the branches will either be horizontal or pointing downwards. This is evident as putak is grown on a flat area. The base of leaves from the steam will be whitish-grey. This conditions only occurs on stony and sandy-soils; (5) all the branches and shoots should be cut after felling to avoid the bitter taste of putak; (6) the felled gewang stalk which contained is length between 1.5 m from the top and about 3 m from the botton; and (8) the talk is divided into some parts of about 0.5 – 1 m in length and the bark removed and then divided into longitudinally cut clean logs. The pieces are then sliced into small pieces about 0.5 cm (Figure 3) and/or blended into powder and given directly to the animals with its chemical analysis compared to maize is shown in Table 1.

Table 1. Proximate constituent composition (%) of putak compared to maize meal (Ginting- Moenthe, 2000: 7)

Chemical constituent	Putak	Maize
Moisture	8.93	10.35
Crude protein	2.27	10.12
Crude fibre	12.04	2.27
Crude fat	2.64	0.35
Ash	1.23	3.09
Energy, kcal/g	4210	5314

In general, gewang tree plays important roles in the daily lives of people in the Tropics, especially in the Province of East Nusa Tenggara Timur, Indonesia. Its leaves which are round, wide and stiff, can be used as roofing materials of houses and for handicrafts such as hand-fan, baskets and as part of traditional music instruments known as “Sasando”. The sap from the flower can be used as food for humans and animals. The branches from the young three can be used to build walls of houses, while the branches of the old tree can be used to make pens on the farm animals. The stalk is used for putak production of feed in the livestock rations (Bangun, 1989).

PRACTICAL USE OF PUTAK IN LIVESTOCK RATIONS

Poultry

Hermanus *et al.* (1982) used putak as source of energy in broiler diets and found that putak supplemented with *Leucaena leucephala* meal as a substitute for maize in broiler feeding did not produced negatively affect on broiler growth rate. Working with Japanese quail, Destiani (1992) found that the use of putak as a maize meal substitute diets influenced the production of eggs. A 75% maize meal substitution was able to give optimum egg production of Japanese quail.

Pigs

Mustafa (1985) reported that the use of putak to substitute for maize meal in growing pig diets significantly decreased diet digestibility and pig growth performance. Ginting-Moenthe (2000) conducted two experiments using fermented putak in fattening diets and found the following results: (a) inclusion of fermented boiled putak as a substitute for maize in the diets of weanling pigs increased the digestibility of the nutrients. At 10 % level of substitution for maize by fermented boiled putak, the highest TDN content was achieved; and (b) fermented putak can be included in the pig diets at 10 % level in place of maize with no deleterious on animal performance and it actually improves the economic viability of the pig fattening enterprise.

Goats

There are a numbers of experiments has been conducted to upgrade the nutritive value of putak and fed to goat diets and found it resulted in improved body weight gains (Nulik *et al.*, 1988 and Kana Hau *et al.*, 1993). Hilakore (2008) conducted a series of three experiments used improving putak nutritive quality as ruminant feed to goats and reported the following results: (a) the best content of crude protein and true protein was at three days incubation and the inoculum level in goat diets; (b) crude protein and true protein was higher and crude fiber was lower than monoculture of goat diets; and (c) using 40 % putak fermentation in goat diets produced the best response on daily gain, feed consumption, N retention and fiber digestibility.

Cattle

Nulik *et al.* (1988), Bamualim and Momuat (1989) and Bamualim *et al.* (1993) used putak as animal food for cattle and found that it resulted in increased body weight gains.

CONCLUSIONS

Putak is a local feed for livestock in the Tropics. Putak is locally used as feed for chickens`and quail, pigs, goats and cattle in the Province of East Nusa Tenggara, Indonesia.

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