Information on Palm Species

Abstracts

Nutritional evaluation of the *Jessenia bataua* palm: source of high quality protein and oil from tropical America. Balick, MJ and Gershoff, SN. 1981. *Economic Botany*. 1981, 35: 3, 261-271.

Samples of fresh fruit, oil and dried outer pulp (mesocarp and epicarp) were collected in the Amazon Valley in 1976, 1977 and 1978 and analysed. The composition of the oil was similar to olive oil, and the mesocarp pulp protein was similar in quality to good animal protein and better than most grain and legumes. Rats fed diets with mesocarp oil and pulp showed weight gains comparable with those fed on diets of corn oil and casein. The tree occurs in forests up to an alt. of 1000 m in N. South America, including Panama and Trinidad, and the fruit is used by indigenous peoples as a source of oil and a milk-like beverage.

Subsistence benefits from the babassu palm (*Orbignya martiana*). May, PH, Anderson, AB, Balick, MJ and Frazao, JMF. 1985. *Economic Botany*. 1985, 39: 2, 113-129.

Stands of babassu occupy an area of Brazil estimated at 200,000 km^2 concentrated in the States of Maranhao, Piaui and Goias. The babassu's cryptogeal germination, establishing the apical meristem of the plant below ground for its early growth and development, enables it to survive human disturbance. The fruit kernels are used as food, the husks for charcoal production and the mesocarp for animal feed. Other uses and those of the leaves (including medicinal uses) and stems are listed.

Understanding how the babassu is used by rural families will help to make current efforts at domestication and whole-fruit processing more responsive to human needs.

Pejibaye palm (*Bactris gasipaes*, Arecaceae): multi-use potential for the lowland humid tropics. Clement, CR and Mora-Urpi, JE. 1987. *Economic Botany*. 1987, 41: 2, 302-311; 30 ref.

Pejibaye palm can be used for: whole fruit for direct human consumption; palmito; fruit for flour and meal production; use as animal ration; and fruit for oil production. It is concluded that *B. gasipaes* has high potential for regaining its importance as a crop in the humid neotropics.

In the short term, perhaps the greatest potential of the pejibaye is for use as animal ration. The high starch levels, along with existing protein, oil, and carotene, are an excellent base for this use, and the ration can be enriched with soybean or lsh meal to augment protein levels as required. All the other uses of pejibaye, too, will provide residues that can be processed as animal ration.

In Costa Rica, flour and meal production programs are intimately related to the production of animal ration. There are already some privately owned plantations that put their first-quality fruits onto the internal market and prepare animal ration from second-rate fruits. One advantage of use as ration is that the skin and seed can be ground with the mesocarp. Chickens readily accept this mixed ration after it has been cooked.

Processing for oil production also will leave a high-quality byproduct. Since up to 40-60% of the dry weight of the mesocarp in oily cultivars will be oil, there will be a corresponding increase in levels of protein, starch, and fiber after extraction. High levels of protein are obviously desirable, but those of fiber may not be, especially if the kernel has been ground with the mesocarp (Arkcoll and Aguiar 1984).

In well-maintained plantations with adequate fertilization, and with cultivars selected for meal production, it should be possible to produce 15-25 tons/ha/yr of dry matter suitable for animal ration. Residues from oil production should vary between 2-5 tons/ha/yr. Both these figures are far above what is possible with maize in the humid tropics, although maize is the principal animal ration at present.

The potential significance of these production figures is well illustrated by the city of Manaus, in Amazonas, Brazil, which imported approximately US $1,000,000 worth of cereals for animal ration in 1982, while its own region's production of maize, rice, and soybeans did not begin to supply its human needs. Although Costa Rican production of these cereals is good, grains are still imported for animal feed. In both regions, chicken and pork for domestic use are more expensive than they would be if each area produced its own animal rations.

Attalea colenda **(Arecaceae), a potential lauric oil resource. Blicher- Mathiesen, U and Balslev, H. 1990.** ***Economic Botany*****. 1990, 44: 3, 360-368.**

Attalea colenda, a palm tree native to the coastal plain of western Ecuador, produces from 1 to 4 infructescences per tree every year, each with an av. of 5065 fruits. The oil content of the seeds is 56.9% dry weight. Kernel oil production per infructescence is 7-16 kg. A hectare with 50 trees could produce 0.35-3.2 tons of oil per year. The kernel oil is chemically similar to coconut oil and kernel oil from the African oil palm, with a high concentration of lauric acid. The increasing demand for lauric oil crops makes *A. colenda* a potential oil source.

Phytelephas aequatorialis **(Arecaceae) in human and animal nutrition. Koziol, MJ and Pedersen, HB. 1993.** ***Economic Botany*****. 1993, 47: 4, 401-407.**

Field observations revealed the consumption of several parts of the vegetable ivory (tagua) palm not previously reported to be eaten by man or animals. The whole male inflorescence provides cattle with a fodder nutritionally similar to ryegrass, while the flower clusters provide man with 102 kcal/100 g of energy, about 4 times the energy density of cauliflower or broccoli. The central mesocarp is similar in composition and energy density to other fruits and is a comparatively rich source of calcium (116 mg/100 g), potassium (841 mg/100 g), and zinc (1.3 mg/100 g). The interior mesocarp, with 22% fat, is a high energy density (288 kcal/100 g) fodder for chickens and is rich in linoleic acid (21%). The immature endosperm, eaten as a snack, is of negligible importance in human nutrition.