

Prosopis juliflora

Andrew Speedy

(Editor)

Extract from FAO Tropical Feeds Database

Useful reference: 563

A tree up to 10-15 m high, typical of arid and semi-arid regions, with a green-brown, twisted stem; flexible branches with long, strong thorns, bipinnate leaves; pale-yellow flowers arranged in spikes; flattened fruit, nondehiscent with hardened epicarp, multi-seeded and curved (approx. 4 mm thick, 1 cm wide and up to 15 cm long). The fleshy mesocarp is rich in saccharose (20-25%) and 10-20% reduced sugars. The root system includes a tap root that grows deeply downwards in search of water tables.

P. juliflora is native to Peru, Chile and Argentina and has spread to Mexico, the southern USA, NE Brazil, Bolivia, Colombia, El Salvador, Nicaragua, Uruguay, Venezuela, the West Indies and the Bahamas. It is also now found in Iran, India, S Africa and Australia.

Pod harvest is an easy but costly, manual operation. Pods are stored in wood-lined or brick-built houses or in layers of sand ('colca'). Pods may be stored for several years but are very prone to insect attack, requiring fumigation of the storage houses with bisulphide or phosgene.

Pods have long been used as feed for cattle, horses, sheep and goats. Stock poisonings recorded from pods eaten after exposure to rain. Only ripe pods should be fed, as the green pods are bitter and have little feed value. The foliage is good-quality fodder but its use is not widespread; direct browsing of the foliage has been used but may limit tree development and it is not particularly palatable.

In Peru, Chile, Argentina and Uruguay, the pods are used in concentrate rations for dairy cows at a ratio of 40-60%. They are also included in rations for beef cattle, mules, pigs, sheep and fowls. In Hawaii, it is also much valued for cows, but also for fowls and

pigs.

The following experimental studies are all cited in reference 563. Studies in Brazil showed that *P. juliflora* pod flour could replace up to 60% of wheat flour in rations for lactating cows and that DM intake, weight gain and milk production increased with increasing proportion of pod flour. Total replacement of wheat flour by ground pods was also favourable for beef cattle.

In Mexico, trials with sheep showed that replacement of sorghum flour with PJ pod flour increased LW gain up to 45% but not at 60%. In Brazil, replacement of sugarcane molasses with PJ pods at 0, 15, 30, 45 and 60% was most effective in terms of LW gain at the 30 and 45% levels. In another trial, it was found that intake by sheep was not influenced by grinding or heating but ground pods fed with elephant grass (*Pennisetum prupureum*) were eaten in greater volume than the whole pods.

References to pig feeding are scant but, in Peru, pigs have been fed 1-3 kg pods. Pigs fed on rations containing 70% sun-dried H seeds in Hawaii gained 595 g per day. Kiln-dried seeds gave lower gains. PJ flour was used to replace up to 100% of wheat bran in rations for chickens with no effect on intake, FCR or egg weight (564).

As % of dry matter

	DM	CP	CF	Ash	EE	NFE	Ca	P	Ref
Seeds, Brazil	88.4	35.8	6.1	3.7	4.5	38.3			563
Pod flour, Brazil	89.2	59.0	1.7	4.9	8.9	15.0			"
Fresh flowers, Sudan	30.0	21.0	15.5	10.0	3.2	50.3	1.31	0.40	64
Fresh leaves, Sudan	41.2	19.0	21.6	8.5	2.9	48.0	2.08	0.22	"
Pods, South Africa	93.7	13.9	27.7	4.8	3.0	50.6			193
Fruit pulp		7.7	12.0	2.3	0.6	77.4			234
Seeds, Sudan		65.2	2.8	5.2	7.8	19.0			"
Pod husks		4.3	54.3	3.4	0.6	37.4			"

Digestibility (%)

	Animal	DM	CP	CF	EE	NFE	ME	Ref
Pod meal, Peru		82.6	80.1	70.9	91.0	83.2		563

Amino acid composition as % of crude protein

Pod flour Ref 563

Arg	Cys	Gly	Hys	Iso	Leu	Lys	Met	Phe	Thr	Try	Tyr	Val
13.3	1.2	4.4	2.7	2.7	6.6	4.0	1.0	3.5	2.4	1.1	2.3	3.5

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