

# Prosopis beans - a new source of food in dryland Africa

*This policy brief is a call to companies in the food and animal feed industries, government departments, aid agencies, and research and development organisations to take on board knowledge about this source of 'free' food that will improve rural livelihoods and food security in famine-prone dry areas.*

Nutritious and delicious, prosopis beans were a source of human food for millennia in their native Americas. Their value is unquestionable. Production is widespread across dryland Africa, but almost no-one in Africa is aware that they are edible when processed - as a result they remain a wasted resource. The beans will become a food for the future, but the quicker the message gets across, the fewer people will have to go hungry.

Prosopis (mesquite or algarroba) are now probably the most common trees in the hot arid and semi-arid zones of the world, and at least one in ten people dependent on wood for fuel may rely on prosopis as their main source. In the future, at least one in ten people in the world's desert regions could also use prosopis beans to improve their food security.



Prosopis beans are a very rich source of protein and sugars

## A rich source of protein and carbohydrate

Prosopis beans are made up of hard seeds each in their own fibrous 'shell', surrounded by a sweet flesh. They are commonly 15 cm long, but up to 30 cm in some species. Nutritional values vary between species and even between individual trees, but ground beans generally contain 10-20% crude protein and 30-60% carbohydrate, including up to 40% sugars. They have acceptable levels of minerals and amino acid. This makes the beans comparable or superior to most cereals, with no anti-nutritional factors detected.

## Once a staple food in the Americas, still eaten today

In their native Americas, prosopis beans used to be a staple food before the arrival of cereal crops, especially in desert areas. In Argentina, Chile, Peru, Mexico and the south-western USA, indigenous peoples depended on prosopis for food especially during the dry season. They were also an essential source of fuel, fodder, medicines, poles and timber,

and so important that trees or groves were sometimes treated as sacred. In Peru, the name for prosopis in one local language is simply 'the tree'. In Mexico, evidence shows that the beans were being eaten at least 5000 years ago, and old Amerindians in the USA still remember how their mothers would make mesquite meal.

Beans were traditionally ground into flour using stone mills, and mixed with maize or other flours to make bread, cakes or a rich gruel. They can also be boiled into a molasses-like syrup for making sweet drinks, and home-made products are still sold in local markets and big cities today.

## So why are prosopis beans not eaten in Africa?

A similar situation occurred in Europe with the potato, which took almost a century to be adopted as a food plant after first being brought from South America. At first people ate the potato fruits and unripe tubers, becoming sick and so thinking the whole plant was poisonous. Animals left to eat only whole unprocessed prosopis beans also get sick, leading people to think that they too are poisonous. But like what happened with the potato, we just need to learn what to eat and how to prepare it.

## The spread of prosopis trees

Prosopis was widely introduced to Africa, Asia and Oceania for fuel wood, fodder and shade, first by the colonial powers and later by international organisations. However, they were largely left unmanaged and spread to become an invasive scourge rather than the intended saviour. Today there are at least ten millions hectares 'invaded' by prosopis in Africa, probably a similar area in Asia, and some two million hectares in Australia. Local people and ecologists call for its eradication; prosopis species are listed amongst the world's worst 100 invasive species affecting biodiversity.



Prosopis trees have spread across large areas of Africa

## What is a weed to one person is a food to another

These drought-resistant, fast growing nitrogen fixing trees can provide a much needed food and income for poor and malnourished people, as well as a valuable resource for business, local, national or international. So those who know the true value of prosopis argue against those who want to eradicate it, saying that 'control by utilisation' offers a win-win solution. Collecting beans and thinning dense stands limits the spread while also improving food security.



Women earn valuable extra income by collecting beans



Pods can be milled into flour using small village mills

### Next steps

Introducing new sources of food to rural communities takes time, especially when they start with a negative opinion of the plant and the food it produces. But there are success stories to share. However, as well as informing farmers and small-scale processors, it is also vital to raise awareness among national and international policy makers. The potential will become a reality by adapting and incorporating relevant aspects into current and future initiatives across a broad range of activities.

### The answer: Collect – Dry – Mill – Mix

- (1) Collect when golden-yellow, leaving old or discoloured beans. Families in dense prosopis areas can collect 25-35 sacks a week (about one tonne) during the fruiting season.
- (2) Dry freshly collected beans in the sun on plastic sheets, tin roofs or concrete floors and store in sacks or in piles.
- (3) Mill using village cereal mills or pestles and mortars, using only very dry beans or the sugary pulp gums up machines.
- (4) Mix up to 20% prosopis flour with maize, wheat or any other flour for human food (flatbreads, biscuits, cakes, etc.) and up to 50% in livestock rations.



Pods are first dried in the sun before milling for food



Prosopis bean flour is sold internationally as a health food

Prosopis trees are widely distributed in arid and semi-arid lands, they fruit even in drought years, and the beans are nutritious and can be processed with simple equipment. Expanding the use of prosopis beans should be of interest to government departments responsible for health, nutrition, food security, forestry, rural development and the environment. Research and development organisations, and humanitarian agencies working in the many famine-prone areas where prosopis grows in abundance also need to maximise the use of this local 'free' food.

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