

Forage peanut (*Arachis pintoi*): a high yielding and high quality tropical legume for sustainable cattle production systems in the western Brazilian Amazon

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Introduction

The State of Acre had 1.45 M ha of pastures and a cattle herd of 1.95 M head in 2003. Since 1998, the increasing area affected by the death of Marandu grass (*Brachiaria brizantha*) led farmers in Acre to search for alternatives to maintain productivity and profitability of their production systems. However, the traditional strategy of converting primary forest areas into pastures has been severely restricted by strong enforcement of environmental legislation by state and federal agencies. This forced farmers to search for alternative technologies to reclaim degraded pastures and to intensify their production systems. Tropical kudzu (*Pueraria phaseoloides*), the major forage legume used in mixed pastures in Acre (480 000 ha), showed poor compatibility with some of the new grass species being established by farmers, such as African stargrass (*Cynodon nlemfuensis*), and also failed to persist when managed under rotational stocking at stocking rates above 1.5 animal units per hectare.

Technology-adoption process

In the beginning of 2000, farmers that traditionally collaborated with Embrapa Acre for on-farm validation of technologies demanded new legumes adapted for use in more intensive cattle production systems, which included rotational stocking management. At that time, *Arachis pintoi* (forage peanut) was in pre-recommendation phase for the environmental conditions of Acre. This had arisen from research initiated in 1990, that had led to the release of the cultivar Belmonte in 1999 in Bahia, Brazil. In March 2000, one farmer started to establish *A. pintoi* cv. Belmonte in association with African stargrass in the process of reclaiming degraded pastures on soils of low permeability, where Marandu grass had died. Both the legume and the grass were manually planted using vegetative material (stolons). The initial success of this experience soon caught the attention of other farmers facing similar problems. In April 2001, about 20 farmers had established this legume in association with African stargrass, Marandu grass (both in well drained and low-permeability soils), *B. decumbens* cv. Basilisk and *B. humidicola*. In December 2001, *A. pintoi* cv. Belmonte was officially recommended by Embrapa Acre for diversification of pasture ecosystems and also as a cover crop for soil protection in Acre. The news of the success of this legume in the reclamation of degraded pastures, and in the improvement of other still productive grass pastures, rapidly spread among farmers. By March 2004, close to 1000 small, medium and large farmers of Acre had already introduced forage

peanut into their pastures, some in almost 100% of their farms, with areas of up to 2000 ha. It is estimated that forage peanut has been planted in association with grasses in approximately 65 000 ha in Acre. On some farms, these pastures have been successfully managed with 2.5 animal units/ha, producing Nelore × Angus crossbred steers ready for slaughter (255 kg carcass weight) within 24 months and with primiparous calving at 22–24 months of age. Recent features on national television networks and in newspapers and rural magazines reporting the successful use of forage peanut in the western Amazon (Acre) and in the south (Rio Grande do Sul) and north-east (Bahia) regions of Brazil have led to a strong demand for information and vegetative material of this legume by farmers from most parts of the country. In Acre, it was noted that many initially reluctant farmers became interested in planting this legume soon after the news on TV.

Key factors for success (in order of importance)

1. Availability of appropriate technology.
 2. Socio-economic situation of farmers and farming systems were conducive to technological changes due to the death of *B. brizantha* cv. Marandu and the increasing environmental restrictions on pasture expansion into new forest areas.
 3. Long-term commitment of researchers of Embrapa Acre, who were champions in promoting adoption of grass-legume pastures.
 4. Farmer-centred research and extension, market access and strong financial and environmental benefits of the technology.
 5. Strategic partnership among stakeholders and capacity of local institutions to support the program.
- The use of farmers who were early adopters as instructors and their farms as demonstration sites of successful use of grass-forage peanut pastures was important in obtaining credibility and increasing adoption of this technology.

Conclusion

The prospects for the use of grass-forage peanut pastures in tropical regions are very encouraging, especially in humid climates. In the coastal region of Bahia, Brazil, there are reports of *B. humidicola*-forage peanut pastures more than 10 years old. In Acre, there are mixed pastures of Massai grass (*Panicum maximum* × *P. infestum* cv. Massai) and forage peanut which are still productive nine years after planting, and African stargrass-forage peanut pastures established in 2000 present no evidence of legume decline.