

**Development of Interspecific hybrids between three American Yam bean species  
(*Pachyrhizus* spp.)**

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**Abstract**

American yam bean (*Pachyrhizus* Richard ex DC.), a neotropical legume, is cultivated in Latin America and Asia for its edible and crunchy storage roots. Because of their low dry matter content and 'fruity' nature, roots are usually consumed raw. In order to increase root dry matter content and promote a wider use of American yam beans for food and starch processing interspecific crosses were made between *P. tuberosus* (Chuin) germplasm originating from the Peruvian Amazon and two other domesticated yam bean species: *P. ahipa* native to the Andean highlands and *P. erosus* originating from Central America. While the 'Chuin' type is characterized by high storage root dry matter content, *P. erosus* is high yielding and drought tolerant and *P. ahipa* performs well in high altitudes. The breeding experiment was designed as a completely diallelic cross between three *P. ahipa* and three *P. tuberosus* accessions and between three *P. erosus* und three *P. tuberosus* accessions. Nine *P. ahipa* x *P. tuberosus* (Chuin) F1 cross populations as well as 9 *P. erosus* x *P. tuberosus* (Chuin) F1 cross populations were developed. Hybridity of interspecific progenies was confirmed by morphological and agronomical evaluation and multivariate statistical analysis. Hybrid plants were generally fertile and vigorous. The resulting 18 F1 interspecific and 12 F1 intraspecific cross populations are used to generate a large number of F2 lines that serve to select genotypes with high dry matter and high starch content as well as good adaptation to a broad range of environmental conditions.

**Key words:** *Pachyrhizus* spp., American yam bean, interspecific hybridisation, legume root crop, pre-breeding