Breeding Pipeline: Bambara Nut 2007-2017

**Improved livelihoods**

(2014) A study evaluated the impact of the Bambara nut project on profitability for participants in Mzimba and Ntchisi districts (n=60 intervention, n=70 control) show that supported households were earning approximately $30 more in gross profit and had a return to labor of $0.18/hour versus $0.05 for unsupported farmers.

**Farmer managed seed production and dissemination**

2013: 144 farmers in Malawi, 75 in Mozambique and 400 in Tanzania for the 2011/12 season received seed to create greater interest in the crop. In Malawi and Tanzania all farmers paid back twice the seed received to be passed on to other farmers. 2014-2015: 5,000 kg breeder seed produced, farmer groups multiply 2-3,000 kg of new varieties and preferred local varieties 2016/17: 11,000 kg of Bambara produced.

2013: 5 of the local lines selected over three seasons in multi-location trials and preferred by farmers for high yield, drought tolerance and ease of earthing up will be proposed as the first Bambara varieties ever to be formally released in Tanzania. Line were tested over 3 years in multiple sites, on and off station, and selected using Participatory Varietal Selection (PVS). Pod yield ranged from 700 to 2800 kg/ha on-farm in Tanzania.

**More appropriate variety testing under targeted conditions**

2017: 4 varieties released in Tanzania and 3 more will be released in Malawi, that have different characteristics like seed size and color, nutritional properties, and precocity.

2017: PVS trials were conducted with farmers in 7 villages in Tanzania using 6 Bambara groundnut genotypes. The farmers identified local evaluative criteria for their preference which included maturity, flavor, grain colour, yield, disease tolerance and cooking quality. There were differences in nut yield between sites but Nalbam 9 was the highest yielding genotype overall (882 kg/ha) followed by TZM 22 with mean seed yield of 871 kg/ha, compared with the lowest mean yield of 642/kg/ha in a local variety. The varieties Nalbam 9 and TZM 22 will now be submitted for release, and seed multiplication.

**More diverse options for various contexts**

2014: Bambara groundnut landrace accessions were collected from Tanzania (16), Mozambique (4), and West Africa Bambara Project (11). They were characterized for a range of traits on-station and on-farm to identify farmer and market evaluative criteria and to validate performance.

**Understanding context**

- Bambara nut, a grain legume that is often grown by women in the region, is underutilized and under-researched.
- The average yield of local landraces was 400 kg/ha.
- 80% goes to home consumption, but it is only consumed on average 1.5/week during the 4 months it is available (consumption frequency of common bean is 2.6 and groundnut 4.5) and only in 1 preparation (a stew.)
- Market studies reveal there is unmet demand but farmers report they have difficulty selling their surpluses. The project hypothesizes that if there is more production it will attract traders and a stronger value chain will develop.

**Characterizing agrobiodiversity**

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