

# Quality soybean could bridge the productivity gap

## Showing the potential of improved, tropically-adapted varieties in Africa

At first sight, soybean seems an ideal crop for Africa's smallholders. Growing conditions are favourable in many parts of the continent. Soybean copes well with a range of abiotic and biotic stresses, and requires only limited inputs. It makes an excellent rotation crop for cereals, fixing atmospheric nitrogen to fertilize what are often worn-out soils. In traditional staple crops, many smallholders are struggling with widespread disease, such as Maize Lethal Necrosis in East Africa. Soybeans could help break disease cycles and increase farmers' resilience. They are also potentially a good source of income, because consumption is soaring. Demand comes, in particular, from companies producing animal feed and vegetable oil.

So far, however, smallholders have hardly benefited. Demand is largely met by imports, with only marginal local production. In Kenya, for example, annual supply averages 2,000-5,000 tons, but demand is about 150,000 - 200,000 tons. In much of sub-Saharan Africa, average yields are below 1 t/ha; experts regard up to 2-2.5 t/ha as feasible.

One reason for this shortfall is smallholders' limited agronomic know-how. The major explanation for low productivity nonetheless remains the lack of varieties that perform well under tropical conditions. The Syngenta Foundation has therefore engaged with the USAID-funded Soybean Innovation Lab (<http://soybeaninnovationlab.illinois.edu/>) to introduce tropically-adapted soybean to several regions of sub-Saharan Africa.

## First trials show promise

In initial trials at four sites in Kenya, the partners assessed 23 varieties. These come from public and private breeders in Africa and abroad, including SeedCo, MRI/Syngenta, IITA, EMBRAPA and national agricultural research organisations. The trials revealed a number of potentially early-maturing and high-yielding cultivars; across all four environments ten varieties yielded more than 2.7 tons per hectare. The full results of the trials can be accessed via our website. Scientists are now verifying these results in a second season. The intention is to take successful candidates through national registration trials, helped by the Syngenta Foundation's Seeds2B ([www.seeds2b.org](http://www.seeds2b.org)) platform. Seeds2B will also help establish remunerative collaboration between breeders and local seed producers, thus creating the markets in which farmers can buy superior varieties.

Together with the African Agricultural Technology Foundation ([www.aatf-africa.org](http://www.aatf-africa.org)), activities have expanded to Malawi, Zimbabwe and Mali. Initial results have been similarly promising. The Syngenta Foundation is now looking for further breeders, seed companies and industrial processors interested in collaboration. Programme participants can, for example, submit their varieties for trials, or engage in local registration and seed multiplication initiatives.

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For further information, see a recent interview with James on [www.syngentafoundation.org/db/1/1458.pdf](http://www.syngentafoundation.org/db/1/1458.pdf)

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