EXPLORING NATURAL BEAN HYBRIDS FOR BREEDING TRAITS

Common, or green, bean (*Phaseolus vulgaris* L.) is the most important food legume in the human diet. As with most major crops, cultivated common bean lacks genetic diversity. Wild relatives, and other species, can be used to introduce diversity for traits of interest, and have already been used successfully to provide some sources of resistance to pests and diseases in beans.

Introducing traits from wild material into breeding programmes can be time consuming and requires considerable effort. However, where farmers grow cultivated beans adjacent to wild populations, particularly in Central and South America where wild *Phaseolus* is native, natural hybrid populations arise which could be more readily used for breeding.

focus on NIAB research

Several of these naturally occurring cultivated-wild hybrid populations have been collected, since 1951, from sites throughout Central and South America and are stored in the International Center for Tropical Agriculture's (CIAT) genebank in Colombia.

NIAB is working with CIAT to characterise plants from twenty hybrid populations for priority breeding traits linked to pest and disease resistance (white mold, anthracnose and web blight) and heat and drought tolerance.

NIAB and CIAT will also explore their genetic diversity and provide all of this information to the research and breeding community. By reducing the barriers to inclusion of wild material into breeding programmes, breeders can produce better beans in a shorter time, and have a positive impact on global food security.

The year-bean

***Phaseolus dumosus* Macfadyen**

Putative hybrid

Phaseolus dumosus x coccineus

The scarlet runner

***Phaseolus coccineus* Linnaeus**

P. coccineus

P. dumosus

***P. vulgaris* cultivated Andean**

***P. vulgaris* cultivated Nuna Pava**

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