

Observations on Wild and Weedy Forms of Common Bean in Oaxaca, Mexico.

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During a fortuitous visit in Oaxaca, Mexico, on 18 December 1993, we observed a population of wild common bean, *Phaseolus vulgaris* L. (JAG # 9303). The population was located in milpas surrounding the church of Santo Domingo de Albarradas, county of Tlacolula de Matamoros, state of Oaxaca, Mexico (96 16 longitude West; 17 04 latitude North; 1,460 - 1,500 masl).

The wild status of that material was established based on the following traits: 2 - 3 m long indeterminate vines climbing on thickets, very strongly dehiscent pods, small seeds (100-seed weight: 3.4 - 6.2 g), and shiny solid black color or brown speckled pattern with tiny black stripes and/or spots, a pattern common in wild common beans (Delgado Salinas et al., 1988; Toro et al., 1990).

Taking into account existing germplasm collections, the population of Santo Domingo Albarradas might be a novel addition to present ex situ holdings. While regions of northern (i.e., the state of Durango) and western Mexico (i.e. the states of Jalisco, Michoacán, Guerrero) are relatively well represented in germplasm collections, the eastern range of the wild common bean in Mexico (i.e. the states of Oaxaca and Chiapas) is presently poorly sampled (Toro et al., 1990).

This population was found growing among thickets (with *Agave* sp., *Verbesina* sp. and other Compositae, *Ricinus communis* L.), in abandoned fields, waste lands, and on stone walls separating maize plots, generally on a SW-NE slope. This open, sunny, disturbed habitat is frequently one where wild common bean population thrive in Mesoamerica (Delgado Salinas et al., 1988; Gentry, 1969). It even grows within cultivated fields called 'milpas' in association with maize (*Zea mays* L.), cultivated common bean, and squashes (*Cucurbita argyrosperma* Huber). In these fields, it occurred particularly on the margins where weeding is limited.

This wild bean is known by local inhabitants as 'frijol del gato' and 'frijol del monte'. It is occasionally harvested and eaten as green or dry beans, confirming earlier observations (Delgado Salinas et al., 1988; Miranda Colín, 1967). The cultivated type of common bean is called 'frijol de milpa', a solid black-seeded (100-seed weight, 21 g), pole type probably belonging to the Middle American gene pool (Gepts 1993), and climbing on maize (race

'Bolita': see Wellhausen et al., 1952).

While collecting wild beans in the 'milpas', we found three different groups of seeds of intermediate size (range 100-seed weight 9-11 g) between the cultivated common bean 'frijol de milpa' and the wild common bean; seed color and pattern were either solid black or speckled with grey, beige or tan background. These intermediate types were found growing in mixture with the true wild common beans, particularly within the milpas, but also at lower frequency in the thickets in nearby, disturbed habitats.

The existence of beans that are morphologically intermediate between the fully cultivated and the true wild types suggests the occurrence of introgression between the two groups of materials. Although we still need to formally establish the presence of a gene flow between cultivated and wild common beans in Oaxaca, the fact that outcrossing may exist in both kinds of materials (e.g. Wells et al. 1988 and Vanderborcht 1983, respectively) indicates that this hypothesis is plausible.

Such intermediate beans - and thus the possibility of a 'wild-weed- crop complex' - have already been observed in other parts of the range of wild common beans, where they come into contact with primitive cultivated varieties. Similar observations have been made in El Progreso, Guatemala; in San José, Costa Rica; in Azuay, Ecuador; in Junín, Apurímac, and Cuzco, Peru; and in Tarija, Bolivia (Toro et al., 1990).

The importance of such a gene flow between the crop and its wild ancestral form still needs to be established, as well as its possible contribution to the genetic diversity of landrace cultivars, but should perhaps be addressed in priority when considering *in situ* conservation for this species.

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