

AN IMPROVED CROSSING TECHNIQUE OFFERING BETTER OPPORTUNITIES TO LENTIL BREEDING

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Lentil breeding has been till now mainly limited to selection of lines derived from local populations coming from different cultivation areas.

During the last years, our lentil germplasm analysis and breeding have identified several lines showing characters of potential high value for semi-arid or good temperate areas: high earliness or lateness, small or large plant and seed size, different seed colour, resistance to warm or cold areas etc.

However, lentil breeding suffers of two major difficulties: the very small flower size, making rather difficult the success of manual crossing and the production of only 1-2 seeds for each crossed flower. Facing this problem, one of us (C.D.) has developed a crossing method leading to about 80% of cross success.

This technology provided the opportunity of performing high number of crosses, in the attempt to accumulate several selected characters in relation to specific cultivation needs.

This contribution deals with the surprising high variability showed by the F₂ plants and the F₃ seeds for the seeds shape and size, cotyledon and esosperm colour, number of seeds per pod etc. coming from different parents. In the next generations we intend to obtain lentil selections with accumulated characters favouring the crop adaptation to cultivation in semi arid conditions, typical of large Mediterranean and Middle East areas, or to more fertile and humid temperate areas typical of Central Europe, North America, Australia.