

## **Herbicide tolerant machine-harvestable chickpea, faba bean and lentil varieties**

### *Development of FIGS sets for various biotic and abiotic stresses*

All total seven subsets (each around 200 genotypes) have been selected from the genebank at ICARDA by using FIGS for biotic (Ascochyta blight (AB), Fusarium wilt (FW), viruses and botrytis Gray Mold (BGM)) and abiotic stresses (drought, cold and salt tolerance).

### *Screening of FIGS sets for biotic and abiotic stresses*

The results of the screening for:

- 1) **Ascochyta blight subset** in four locations (Lebanon, Tunis, Turkey and Morocco) did not indicate any new resources comparing to the control (Genesis 90).
- 2) **Fusarium wilt subset** in three locations (Tunis, Lebanon and Ethiopia) indicated four genotypes (IG70283, IG8914, IG9630 and IG9430) showed infection less than 15%.
- 3) **Viruses subset** indicated 0% infection for six genotypes (IG6049, IG6057, IG10295, IG69664, IG69694 and IG70428) against BWYV; one genotype (IG70783) against CpCSV; one genotype (IG9719) against AMV.
- 4) **BGM subset** (still in progress) using ICRISAT facilities.
- 5) **Drought subset** indicated ten genotypes (IG73390, IG131985, IG70401, IG70384, IG70393, IG117697, IG70408, IG70434, IG70789 and IG75029) tolerant to drought in two locations (Egypt and Lebanon).
- 6) **Cold subset** indicated no superior tolerant genotypes, however the best genotype (IG 132879) was scored 5.5 as average of the results in two locations (Turkey and Lebanon).
- 7) **Salinity subset** indicated two genotypes (IG70275 and IG70249) were tolerant to salinity stress (100 mM NaCl). These two genotypes were selected based on the field evaluation (in Egypt) and the green house (hydroponic system).

### *Development of pre-breeding lines for use in main breeding program*

Thirty-three crosses were conducted using new genetic resources that were identified from the evaluation data collected in 2014-2015 for biotic and abiotic stresses, aiming to transfer these new resources to an intermediate set of materials that could be later further used in producing new varieties for farmers.