

Addressing the global challenges for barley improvement through CGIAR Research
Program on Dryland Cereals

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ABSTRACT

The International Center for Agricultural Research in Dry Areas (ICARDA) has a global mandate for barley improvement, specifically for dry areas across the globe. ICARDA has reorganized the spring and winter barley research under the CGIAR Research Program on Dryland Cereals to address the requirements of North and East Africa, Central, West and South Asia regions. The program targets germplasm improvement for optimal and stressed environments to address the feed, forage, food and malt uses in spring barley from its new base at Rabat, Morocco and winter barley program from Ankara, Turkey. The partnership with focal country in each region is the new strategy, which utilizes the complementing capabilities with national programs. Each year, >15,000 advanced lines are evaluated for various agronomic, biotic and abiotic stress tolerances, and quality parameters at ICARDA. The focal countries help in evaluation of the elite germplasm for target region(s). In 2014-2015 cropping season, 339 sets of international trials & nurseries were distributed to more than 60 collaborators in 35 countries. The process has helped the partner countries to release more than 250 barley varieties across globe during 1977-2014, as direct introduction. More than 14 varieties have been released in last three years only. Improvement for malting barley and nutritional qualities (Zn, Fe, and β -Glucan) are new initiatives. Since the demand for industrial uses of barley is on sharp rise in East Africa and South Asia, contract farming and seed production through private-public partnership have big potentials to raise the benefits to the small holder farmers. Another aspects for such partnership includes application of advanced molecular research and technologies including the doubled haploid. Genomics are also supported under CRP Dryland Cereals. Post-harvest and value addition aspects still need the collaboration with advanced research institutes and industry to make research development real.

SECTION:

Success stories in barley breeding and genetics