

# Turning the tide on pulses production in Ethiopia

*From imports to exports*



## Lentil

Ethiopia is a major lentil producer in the sub-Saharan Africa region. However, its lentil cultivation area and production was declining for several reasons: use of low-yielding landraces, diseases, insect pests, frost, water-logging and poor cultural practices like late planting. With the legume research program of the ongoing long-term research partnership of ICARDA and the Ethiopian Institute of Agricultural Research (EIAR), over the past decade the yields have shot up and lentil production is steadily growing, as is the cultivated area.

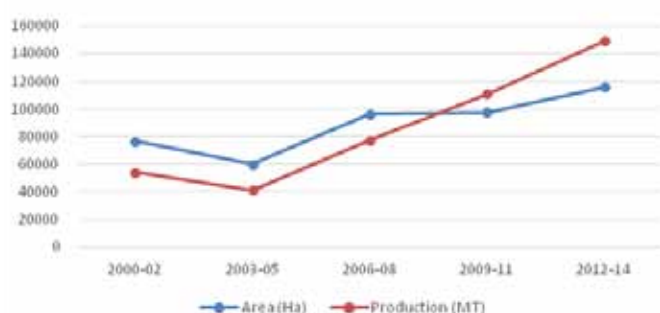


Under the research partnership focused on food legumes (pulses), ICARDA has been providing improved germplasm and varieties of lentil, chickpea and faba bean to EIAR for testing on farmers' fields for adaptability to the local environment and for crossbreeding with local varieties. So far, about a dozen high-yielding, disease-resistant lentil varieties have been released with wide and specific adaptations, ten of which were selected from ICARDA's elite germplasm by Debre Zeit Agricultural Research Center (DZARC), located in the Oromia region. In conjunction with improved varieties, research has also focused on developing improved agronomic practices, such as optimal seed rate and weeding; and early planting (August) using ridge and furrow, and broad-bed and furrow systems to tackle excess water problem with vertisols (soil with a high content of clay).

A key factor in the scale of research impact (watch video) on lentil production in Ethiopia has been the aggressive dissemination strategy for improved varieties. Farmers participating in the popularization program produced seed under DZARC's supervision which were then distributed from farmer to farmer and promoted through field days. Some farmers even went on to become the nucleus of Farmer Research Groups in different districts, further scaling up the benefits. Also several district extension experts and farmers were trained on seed production and processing to avoid shortfall in improved seeds. Many farmers have now joined contract-based village seed production schemes, generating extra incomes.



Lentil area and production in Ethiopia during 2000-2014



The technology 'package' has doubled the lentil production from 54,227 million tons (MT) in 2000-02 to 110,913 MT in 2012-14, stemming mainly from an increase in average yield – from 707 kg/ha in 2000-02 to 1286 kg/ha in 2012-14.

The popular variety 'Alemaya' has been central to the success of the technology package. A cost-benefit study estimated the returns from research investment in developing 'Alemaya' at a net benefit of about \$17 million and an internal rate of return of 44%. ICARDA's Genebank with globally the largest holding of lentil seeds, along with chickpea, faba bean, and grasspea—most of which are landraces and their wild relatives—played a pivotal role in developing these improved varieties.

The improved lentil varieties are not only higher yielding but also bred for higher content of iron and zinc than local varieties to alleviate micronutrient deficiency – a severe and common malady in developing countries.