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Safeguarding the past legacy – for future barley breeding endeavors

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For more than 40 years, cross-breeding for barley has been carried out in Iceland. First at the Agricultural Research Institute (RALA), which in 2005 merged into the Agricultural University of Iceland (AUI). In the breeding programme, more than 800 crosses have been made. The result up to date is five Icelandic barley cultivars, with another two set to be released shortly. Most of the breeding lines have been discarded through the years, which is a necessity in any breeding program. However, lines have also been kept for various reasons. These include that they later were used as crossing parents in crosses resulting in a cultivar, that they were resistant to pathogens, that they were earlier than normal, etc.

In 2010, 25 of the breeding lines were incorporated into the Nordic Genetic Resource Center (NordGen) along with the then four released cultivars. Thus, these are safeguarded for the future.

However, since the retirement of long standing barley breeder Jónatan Hermansson in 2016, several cardboard boxes with seed bags are being stored in the basement of AUI. These boxes contain numerous breeding lines from Jónatan Hermansson, as well as from his predecessors Þórsteinn Tómasson and Árni Bragason. The value of these breeding lines is varying, in large depending on the information available for each of the lines. Many, however, have been used repeatedly in the breeding programme and are thus per se interesting to study further.

The storage conditions of the seeds at AUI are far from optimal and the seeds have been aging thereby losing their viability.

In 2018, regeneration of 39 breeding lines took place in growth chambers to ensure a high quality of the seed.

In 2019 a freezer was purchased and the selected breeding lines are now stored in dry and frozen conditions, with an estimated viability time of 30 years. The work is by nature continuous and new lines will be added to the storage when appropriate.