

Nordic public-private-partnership in pre-breeding for disease resistance in barley

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Members of Nordic Barley Pre-Breeding consortium:

Nordic Seed, Denmark
 Lantmännen Lantbruk, Sweden (only in 1. Phase)
 Graminor, Norway
 Boreal Plant Breeding, Finland
 Sejet Plant Breeding, Denmark
 University of Copenhagen, Denmark (only in 1. Phase)
 Swedish University of Agricultural Sciences, Sweden
 Agricultural University of Iceland, Iceland
 Natural Resources Institute (LUKE), Finland
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In total 180 barley lines were collected from the participating breeding companies in Denmark (Sejet Plant breeding and Nordic Seed) Finland (Boreal) Iceland (LBHI), Norway (Graminor) and Sweden (Lantmännen) (30 lines were provided from each participant). These 180 lines were genotyped using the *9K iSELECT SNP* chip 42 Simple Sequence Repeats (SSRs) markers. Meanwhile, these 180 lines were under the participants' observation phenotyping 7 major barley diseases and 12 agronomical traits underlying different climatic conditions. Barley diseases were studied under 28 different environments and the agronomical traits were studied under 92 different environments during 2012 and 2013 spring barley growing seasons. Association mapping was conducted using 7000 SNPs and disease resistance as well agronomic traits. A handful of linked markers were identified in this material. Usefulness of these linked markers have been validated at each companies. During the presentation, the population structure of the material as well as the results of association mapping will be presented. In addition, MAGIC populations are being developed for different disease resistance including eight parents for each crosses. In total four populations will be established.