

OatFrontiers- Adapting Oats to The Final Frontiers

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Northern Periphery and Arctic



Workshop 1 – get inspired by oats!

- 9:30 **Introduction** to project theme, goals and project management (Juho Hautsalo, Natural Resources Institute Finland, Luke)
- 10:00 - 10:25 Healthy Oats project (Fiona Doohan, UCD)
- 10:25-10:50: Lessons from Northern Cereals project (Hilde Halland and Sigríður Dalmannsdóttir, NIBIO)

10:50-11:15 The story of the Icelandic oat farmer Sandóll farm (Örn Karlsson)

11:15 -11:40 Oats in Wales (Catherine Howarth, Aberyswyth university)

11:40 Open discussion about increasing oat cultivation in Iceland and in other Northern periphery areas. Gathering needs and good practices.

LUNCH

FIELD TOUR



Code of conduct in this meeting

- Please keep your microphones muted when you are not representing slides, questions or opinions
- At the end of each presentation there will be time reserved for 1-2 questions. When wish to speak just raise your hand and if we do not see it raise your voice.



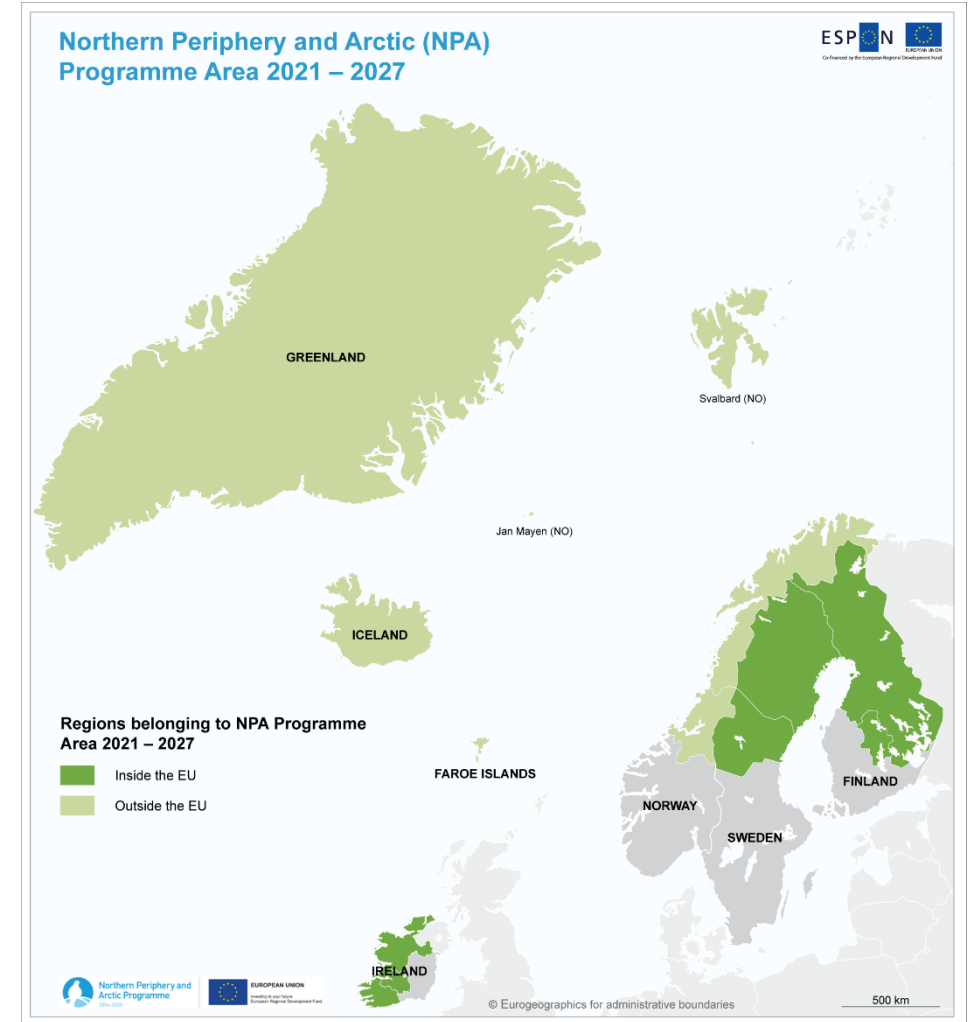
Outline of this presentation

- What is Northern periphery area (NPA)
- Why do we want to increase oat production in NPA
- Who are behind OatFrontiers
- What are our aims
- Project activities



The Northern Periphery and Arctic Program

- The NPA (green areas in the map) are sparsely populated areas with huge distances, harsh environmental conditions, limited job opportunities and low critical mass for innovation
- Transnational co-operation is required to bring sustainable solutions for local communities



Northern periphery areas are the Final frontiers for oat cultivation in Europe

- **Climate change is driving Europe to adapt its agricultural production** and extensively managed northern fields may become more relevant
- **Spring oat is already an export product** for some of the Nordic countries
- **Oat is a resilient crop**, a healthy crop and a great break crop and an excellent feed crop
- **The problem is that periphery areas lack suitable cultivars infrastructure and know-how for oat production**
 - No oat breeder directly aims to develop oat cultivars for Ireland or for Iceland or Northern scandinavia due to small market size and the fact that many of these areas have very harsh climatic conditions



Photo borrowed from Kinnusen Mylly's website 11.12.2023
<https://65oats.fi/fi/etusivu/>

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Thoughts of the farmers from NPA

(preparatory feasibility study from spring 2023)

- **”It must be profitable enough to grow oats. There should be a fixed price difference between food and fodder, not based on agreement as today. The focus must be on oats for food.”**
- **“If quality becomes a parameter in relation to price, of course the quality characteristics of the variety become important.”**
- **“In our area, dryers and combine harvesters are also poorly available, which makes the desire to sow grain uncertain, when one cannot be sure whether the crop can be threshed and dried in time.”**

CONCLUSION 1: Oat farmers need to have the opportunity to learn to focus on producing high quality oats and to find ways to work together to be able to negotiate a better price or invest on infrastructure

- **”Oats will become more relevant with increased rain, but need varieties that mature early enough.”**
- **“Oats are underestimated as a cereal and more research is needed.”**

CONCLUSION 2: Research for adaptation traits is needed to breed suitable cultivars!

What is expected from an oat cultivar in NPA?

How to cope with long day lengths, cool climate, heavy rainfalls?

- Strong straw and early maturation
- Good yield with high quality
 - Grain size and hectoliter weight!
 - Enough protein and starch
 - Disease resistance



Lodging in Central Finland: Ari Hautsalo

Our solution is a mix of prebreeding, research and extension

WP1. Seeks tools that help plant breeders breed better oat cultivars

(unique oat material, genotyping, GWAS, science)

WP2. Pilot **adaptation**, **quality** and **cultivars** across several NPA trials sites

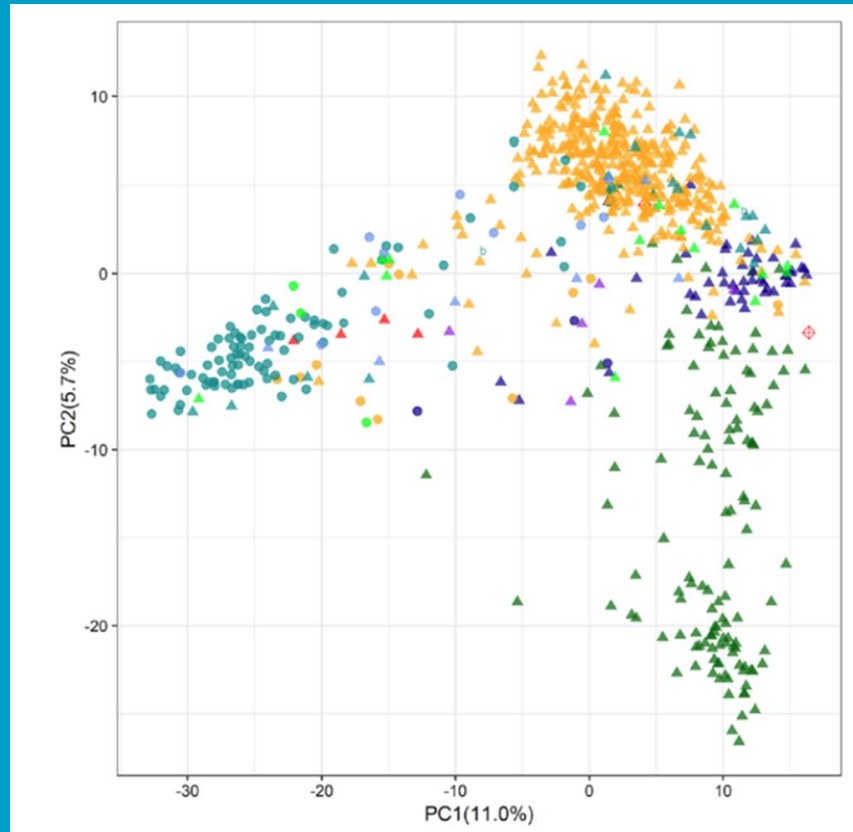
(field trials, quality analyses)

WP3. Spread information and organize gatherings

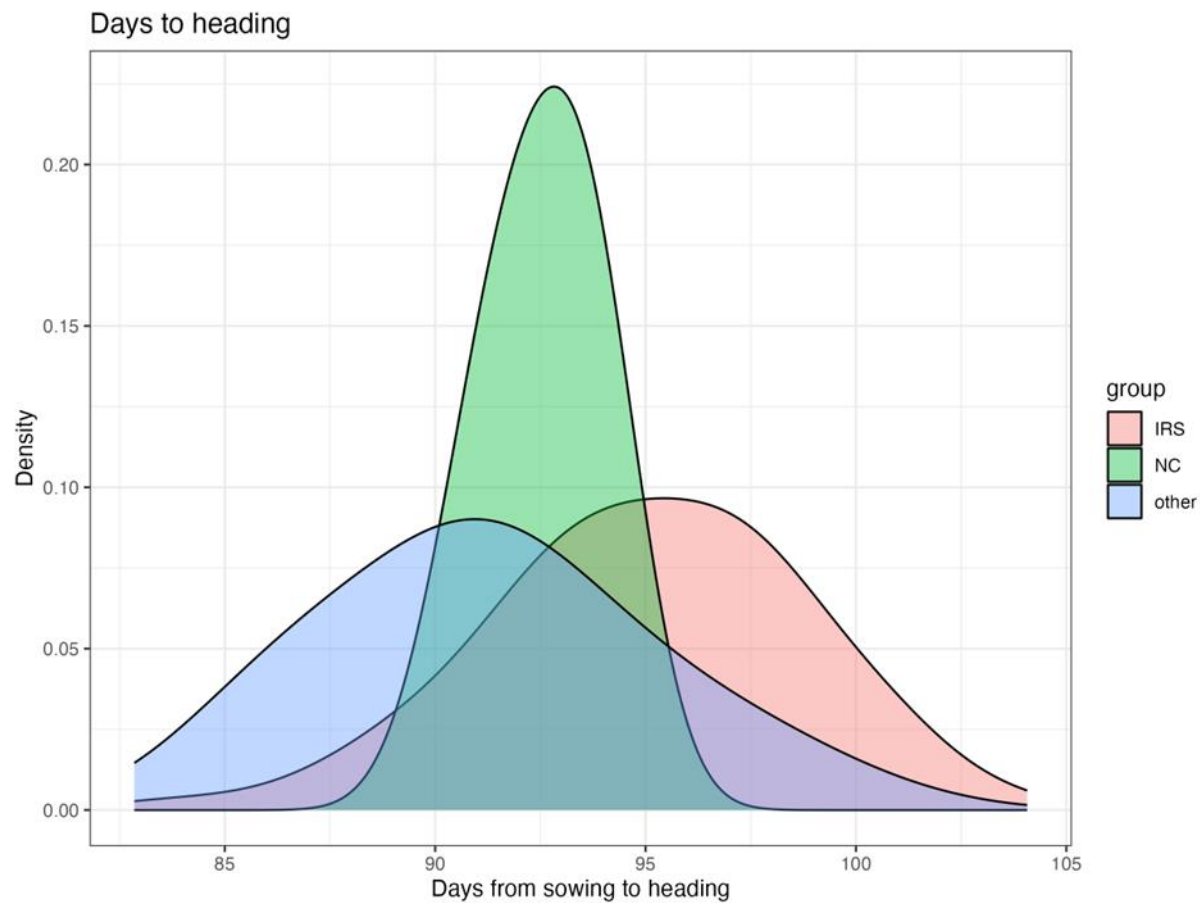
(field days, study tour, workshops, letters, etc.)

As a result NPA gets oat cultivars or breeding programs aiming for suitable cultivars and a lot of information on the utilization of these cultivars

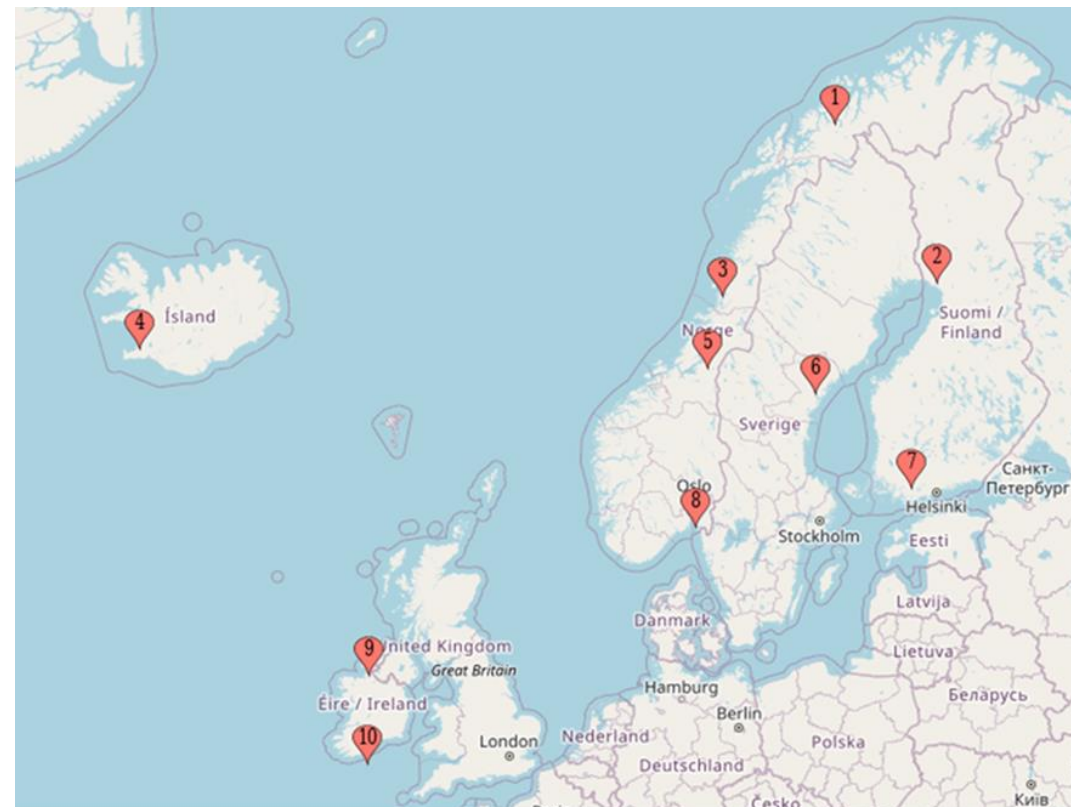
Traits can be improved by increasing variation if there is something to pick from



Lodging in Central Finland: Ari Hautsalo



The variation in days to heading in different prebreeding materials (Hrannar Hilmarsson)



OatFrontiers trial locations 2024 (Madison not shown)

Development of a toolbox for plant breeders

- Characterize the unique oat collection (Iowa Recurrent Selection lines, Nordic gene bank material, Irish heritage oats) for beneficial traits
- Develop genetic markers
- Study impacts of selection
- Try to understand GxE



Oat hill plot in Loue, Lapland (Johanna Leppälä, Luke)

Piloting of oat cultivars, adaptation and quality

- **Adaptation pilot**

400 different oat genotypes are piloted in hill plot and small yield plot experiments. Tests how to make oats succeed in cultivation in NPA areas, so that breeders could breed better oats

- **Quality pilot**

The same 400 different oats in harvestable small yield plot experiments in few locations. Aims to find ways to improve the quality of the oat crop, so that the oat products become even better and more competitive.

- **Cultivar pilot**

Up to 40 different oat varieties are being piloted in cultivar trials. The third pilot produces and distributes information about varieties that already exist in local conditions to farmers.



Photo: Johanna Leppälä

WP3. Knowledge-sharing and networking

- Show how cultivars work and bring together oat stakeholders, identify bottle necks and innovate solutions, remind about oat cultivation
- Background in needs of NPA (innovation capacity) and in the fact that much that once was is forgotten...



Photo: Cathal McCabe

So who are we?



Picture by
Fluture Novakazi
at Arctic Oats
preparatory
project's
workshop in
Central Finland
last spring.



Norwegian University
of Life Sciences



Country	Partner	Representatives	Associated Partners
Finland	Natural Resources Institute Finland, Luke	Juho Hautsalo, Lidija Bitz, Johanna Leppälä, Oliver Bitz	Finnish Cereal Committee Lapland University of applied Sciences
	Boreal Plant Breeding Ltd	Hanna Haikka, Outi Manninen	Kinnusen mylly (oat mill close to Arctic circle)
Sweden	Lantmännen, plant breeding department	Pernilla Vallenback, Johanna Holmblad	
	Lund university	Sofia Marmon, Johan Bentzer	Nordgen, Nordic genebank
Norway	Norwegian University of Life Sciences, NMBU	Morten Lillemo, Min Lin, Kai Ilves	Lucia Gutierrez, University of Wisconsin
	Norwegian Institute for Bioeconomy Research, NIBIO	Hilde Halland, Sigridur Dagmarsdottir, Therese Birkeland Fossoy	Norsk Landbruksrådgiving Nord Norge, NLR (The local advisory organisation in Northern Norway)
	Graminor AS	Espen Sorensen, Muath Alsheikh	
Iceland	Icelandic Agricultural University LHBI	Hrannar Smari Hilmarsson, Beatrice Bylen	Sandhóll farm
Ireland	University College Dublin, UCD	Fiona Doohan, Cathal McCabe	Beobio Teoranta, Errigall Brewing Company, and Cill Ulta
	Teagasc	Atikur Rahman	Goldcrop Ltd.

Read our newsletters and follow us in X

- Newsletters twice per year
- Local language or project level in english
- Results from cultivar trials
- Research findings
- Interesting events or other projects, job opportunities, media links etc...

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OatFrontiers –
Tilpasning av havre
forbi nordlige skanser

NYHETSBREV 1/2024

Introduksjon av OatFrontiers

OatFrontiers har som mål å styrke havre-dyrkingen i nord

Prosjektet OatFrontiers er et tre-årig prosjekt som startet opp vinteren 2024. Prosjektet er et samarbeid mellom forskere, rådgivere og andre aktører i Norge, Sverige, Island, Irland, og ledes fra forskningsinstituttet LUKE i Finland. Gjennom OatFrontiers-prosjektet vil vi være med på å øke eksisterende havredyrking, men også å introdusere havre til nye Nord-Atlantiske områder. Havredyrkingen har et utnyttet potensial i nord, og gjennom prosjektet vil vi blant annet teste ulike Nord-Atlantiske sorter av havre, være med på å utvikle nye og mer tilpassede sorter, samt å styrke bruk av havre lokalt i regionen. For å teste ut nye og spennende sorter og diversitetstyper er det anlagt 11 feltforsøk på ulike steder som representerer en stor variasjon i ulike vekstforhold. Resultat fra feltforsøkene vil hjelpe forskerne med å finne gode modeller for å forstå viktige egenskaper som følsomhet for daglegde, tidlighet, sykdomsresistens og stråstyrke. Dette er egenskaper som er viktige for å utvide dyrkingspotensialet for havre til mer marginale områder, forbedre kvaliteten samt for å øke havresorters robusthet i forhold til utfordringer som klimaendringer gir. I feltforsøkene tester vi både ut eksisterende havresorter samt hundrevis av kultivarer med potensiale til å styrke den genetiske variasjonen for ønskede egenskaper i havreforedlingsprogram for nordlige strøk. I prosjektet har vi også som mål å samle havreforedlere og havreforskere fra de ulike landene, og organisere marknader, seminarer og en studietur for bønder og gründere for å spre og dele kunnskap om god dyrkingspraksis, og for å stimulere til nettverk for økt samarbeid både lokalt og over landegrensene.

Følg våre nyhetsbrev - og bli med på våre arrangement, lokalt eller online

Sommeren 2024 arrangerer OatFrontiers-prosjektet åtte marknader i forskjellige land. I Norge vil det arrangeres tre marknader hvor en kan lære mer om havresortene og om havredyrking, ved NIBIO sine stasjoner på Steinkjer (22.08), Tjøtta (dato kommer) og i Tromsø (14.09). Et annen interessant arrangement er en workshop som arrangeres på Island 8.10.2024, her er det mulig å delta digitalt.

Gloss beskjed hvis du er interessert i å motta våre nyhetsbrev eller motta mer informasjon om våre arrangementer: <https://forms.office.com/e/y6j5JMBVe>

Mer info om prosjektet og arrangementer finnes også her:

www.interreg-npa.eu/projects/oatfrontiers/

twitter.com/OatFrontiers



Some activities I wish to point out

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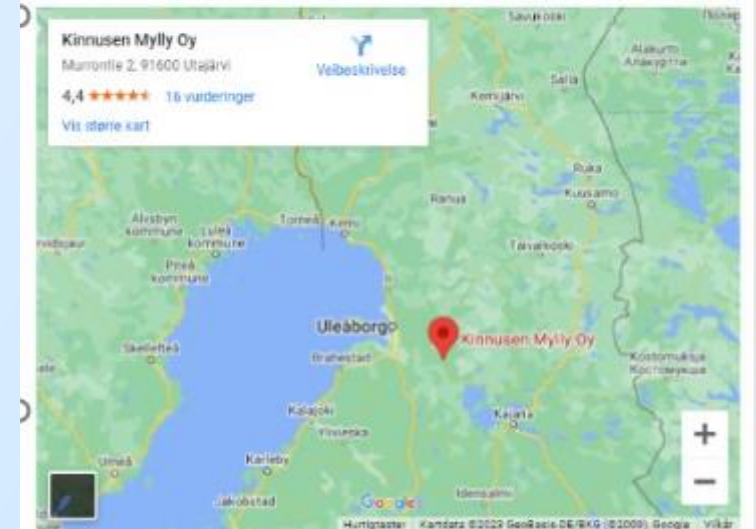
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OatFrontiers Study Tour 2025

- Visit at Kinnusen mylly Ltd in Finland and have a tour at the Northernmost mill in scandinavia that develops and exports oat products from locally grown cereals
- Local oat producers are also visited
- Visitors from all countries welcomed
- Further information to come in Newsletter 3!



Local Field days 2024 & 2025

- Meet us in Lännas, Loue, Steinkjer, Tjøtta, Tromsø, Ås, Cork, Carlow, Donegal and in Iceland
- We aim to demonstrate the performance of available cultivars and related good practices of cultivation and tell about our research
- The events are open for all who are interested and we encourage you to bring topics for discussion



Photo: Cathal McCabe

This Workshop

- Aim is to inspire to try new oat cultivars and share existing information and lessons. We have four magnificent presentations
- At the end of the presentations we shall collect your ideas
- Afternoon is spent outside where we have close to 40 different oat cultivars growing in a field in Iceland



Local madcaps and sharing of best working cultivars



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Photo: Johanna Leppälä

Future workshops 2025, 2026

- Possible topics: oat pricing, oat quality standards, oat cooperatives, future oat project needs....
- Please suggest good topics!



Thank you!

