



Northern Periphery and
Arctic Programme

2014–2020



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NIBIO

NORWEGIAN INSTITUTE OF
BIOECONOMY RESEARCH



Northern
Cereals

Norway – Barley cultivation progress above the Arctic Circle

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Northern Norway

Size: 113.000 km²

35% of Norwegian
mainland

ca. 3% agricultural
land

Counties: Finnmark

Troms

Nordland

Population: 483.000

Northernmost agriculture
in the world



Barley cultivation in N-Norway – historical view

Barley grown
since stone age

Old landraces

Dønnes

Fløya

Nordlys

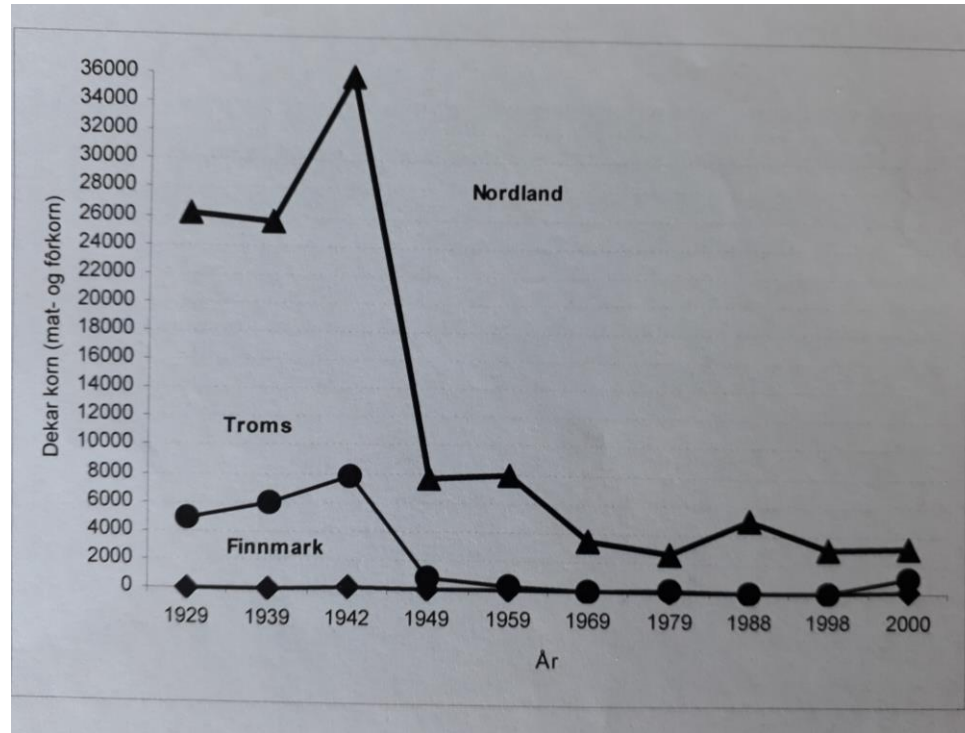


Barley cultivation in N-Norway – historical view

Area cereal production (da) in N-Norway

Drop in production after the second world war:

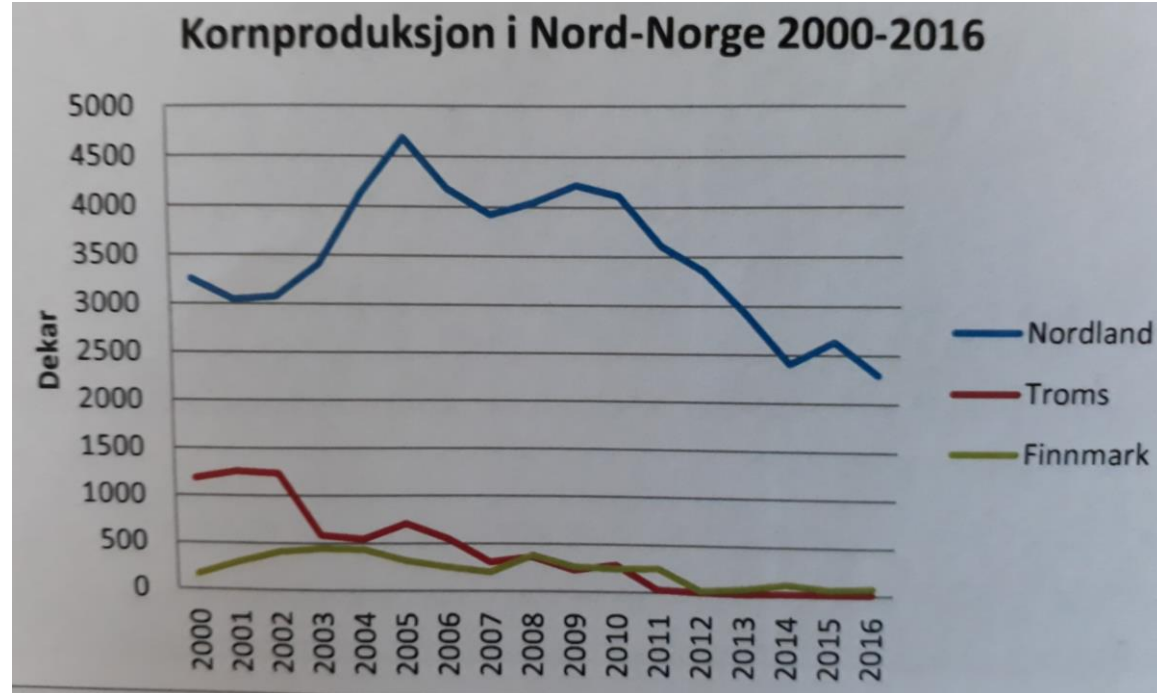
- Harvest combine
- canalized production politics
- breeding program stopped in the 1980.





Barley cultivation in N-Norway – status latest years

- 300 ha barley
- 617 tonn barley/year
- 3.8 t/ha
- 23 farmers cultivate barley



Norwegian government wants to increase cereal production

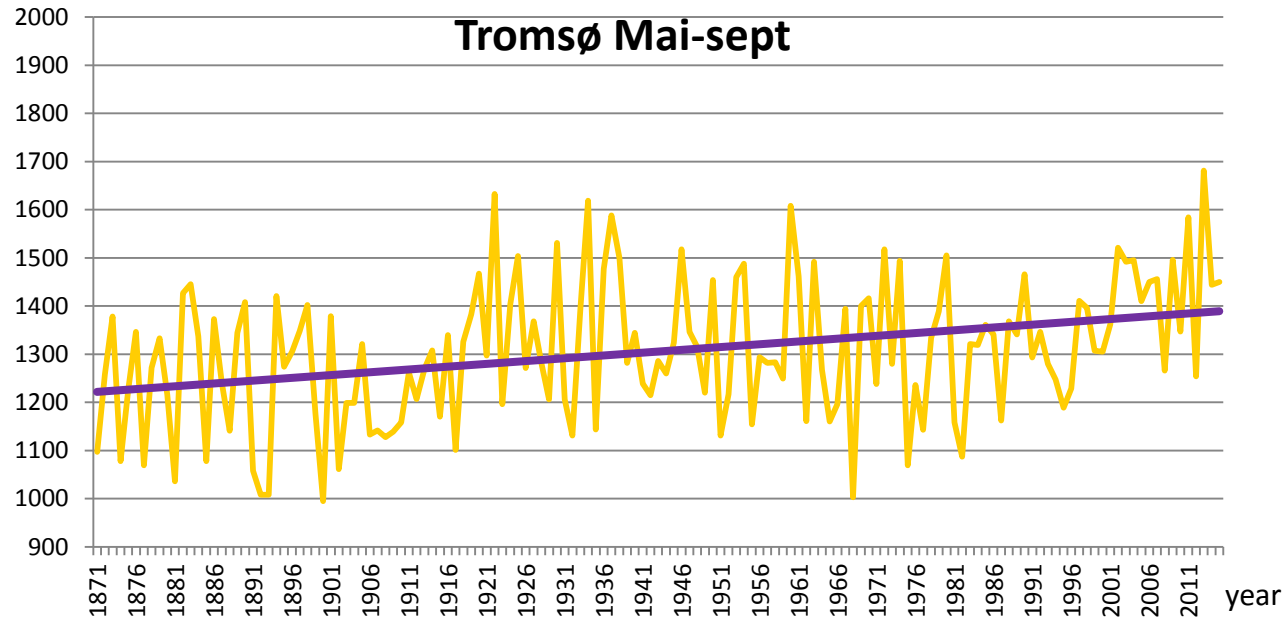


20% the next 20 years from 2013

Changing climate

- Day degrees during growing season are increasing
- High yearly variations, but more years with potentially mature barley

Degree days (0°C)



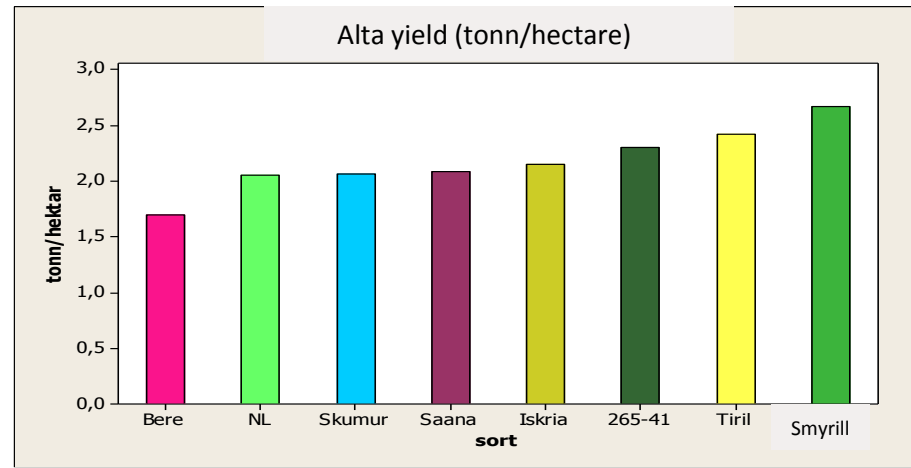
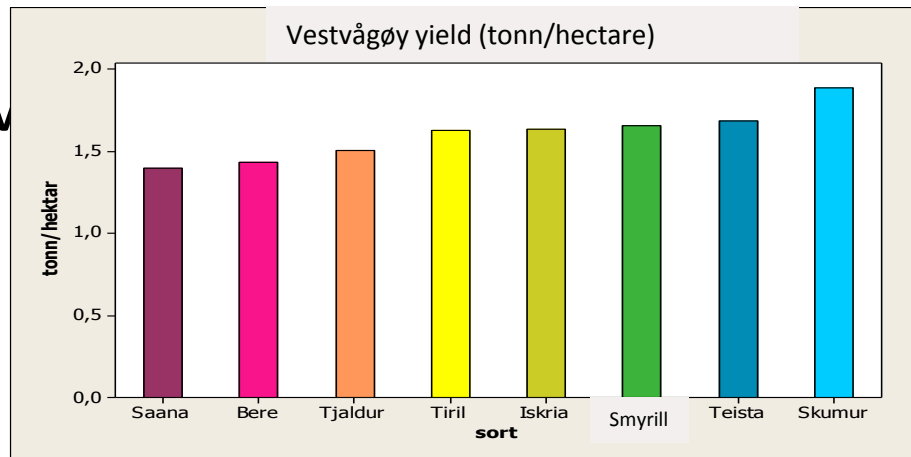
Northern cereals – cultivars experiments

Holt, Tromsø
2015
Sowing time:
16. mai

Small plots
Norwegian and
icelandic
varieties

Harvested with
scissors!





Northern cereals – cultivar experiments



Holt, Tromsø 2016

Sowing time: 10. mai

Northern cereals – cultivar experiments



Alta 2017

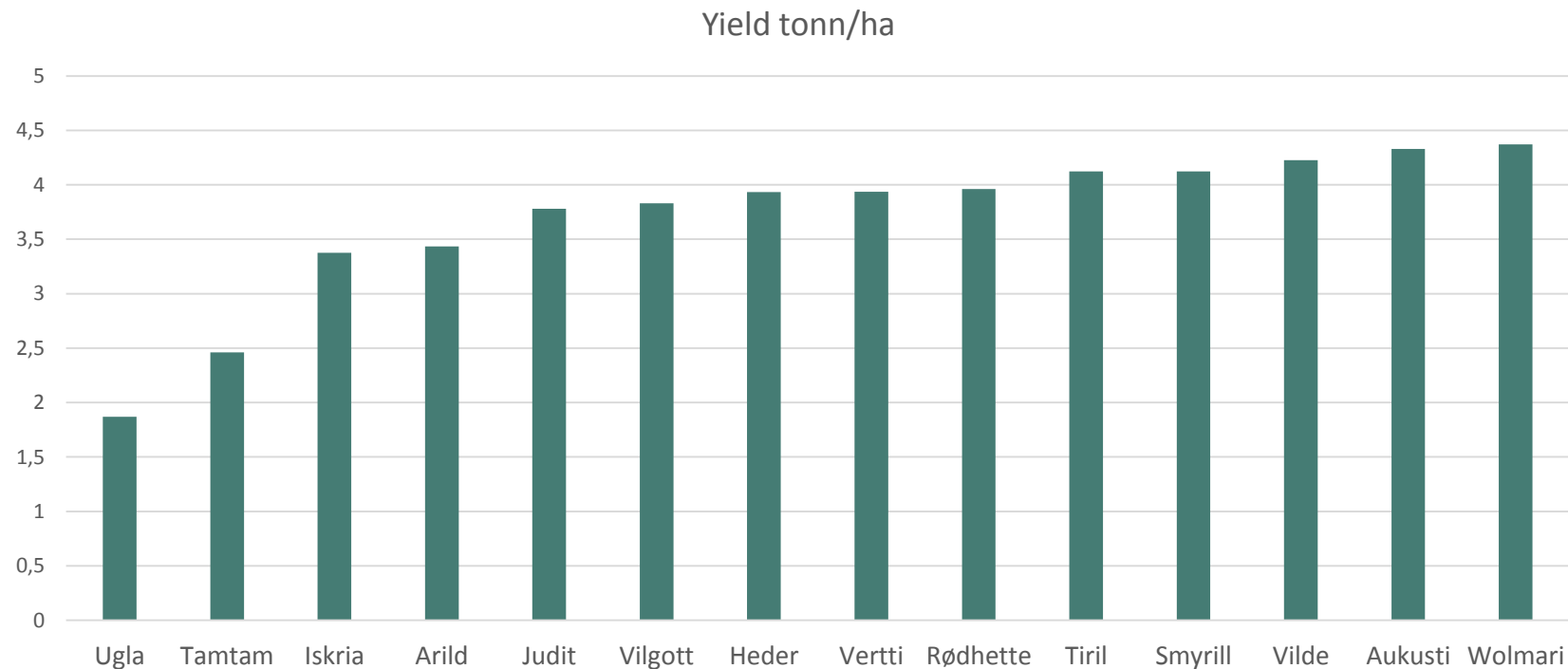
Maturity (Zadok):

Iskria
Smyrill
Aukusti
Teista
Tiril
Heder

Cultivar	% germination	Protein %	1000 grain weight
Teista	80	13,2	39
Heder	75	10,7	40
Tiril	71	10,6	37
Tyra	37	10,7	32
Smyrill	76	10,0	36
Arild	58	11,0	35
Iskria	58	12,7	39
Ugla	32	12,9	39
Augusti	58	10,4	41
Wolmari	53	10,6	34
Vertti	81	10,3	42



Yield Holt 2017



After sowing



Holt Tromsø 31. May 2017

1. June 2017



Experimental equipment



Experimental equipment: Harvest combine



Holt
Tjøtta

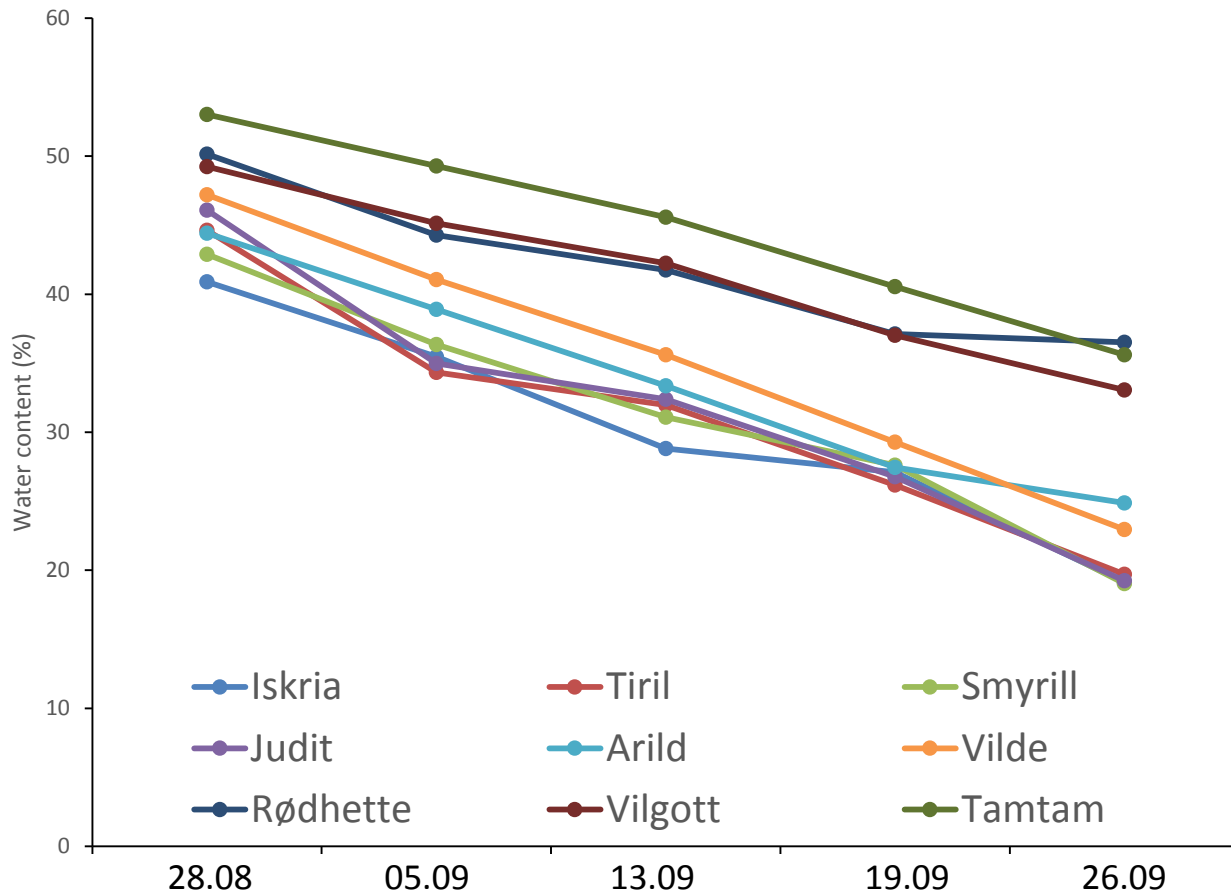
Experimental equipment: minibat



Portable sample harvester

Harvest samples to measure
water content/maturity

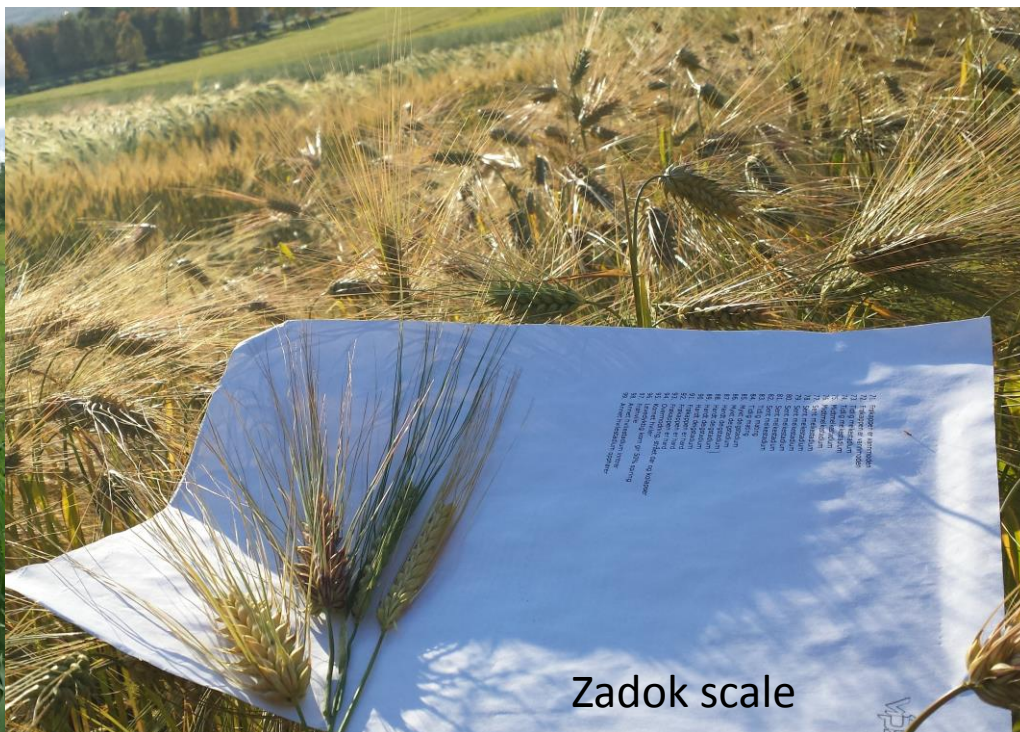
Water content measured at Tjøtta 2017



From levina Sturite

Wetgrain – 2017-2018 phenological measurements

Tjøtta, Holt, Umeå



Barley for malting at Helgeland

Domen grown
at Mardalen
gård and malted
at Nordgården
gårdsbryggeri

Photo from
Ivina Sturite



Drying in Lyngen 2017 – “Fløya” old landrace



Photo from Colin Carver

Drying on a plate



Photos from Colin Carver

Drying

Two farmers in Sømna have their own warm air dryer

Other farmers in Sømna transport the wet grain with containers to Namdalen in Trøndelag



Photo from Gunnar Mardahl

Meetings in N-Norway

- Sømna
- Tromsø seminar
- Tromsø farmers day
- Bodø
- Alta
- Ibestad



Old mill at Ibestad



Bodø



Alta







Northern cereals - discussions



NIBIO has seven short information guides for cereal cultivation in Norway:

1. Planning the growth season
2. How to prepare the soil
3. From straw growth to flag leaf formation
4. From flag leaf to flowering
5. From flowering to harvesting
6. When cereal is in the house
7. Winter cereal





University of the
Highlands and Islands
Orkney College

REALISING YOUR POTENTIAL

Thank you!