



Smart Farming Innovasjon i landbruket

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Bilde: Norsk Landbruk

**Sør Vestlandet i Norge har verdens beste
forutsetning for å lykkes!**

"Feeding the planet is a global concern and should be a priority for the EU. Smart machines can help to tackle this challenge. The EU should promote further research in precision agriculture and support farmers' ability to invest in advanced equipment."

WORLD'S POPULATION

1950 - 2010 & PROJECTIONS
(MEDIUM SCENARIO)

2.5
BILLION



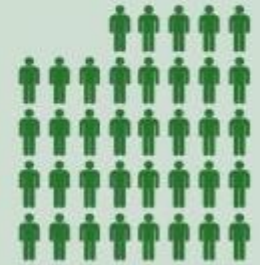
1950

7.0
BILLION



2010

9.6
BILLION



2050

IMPACT

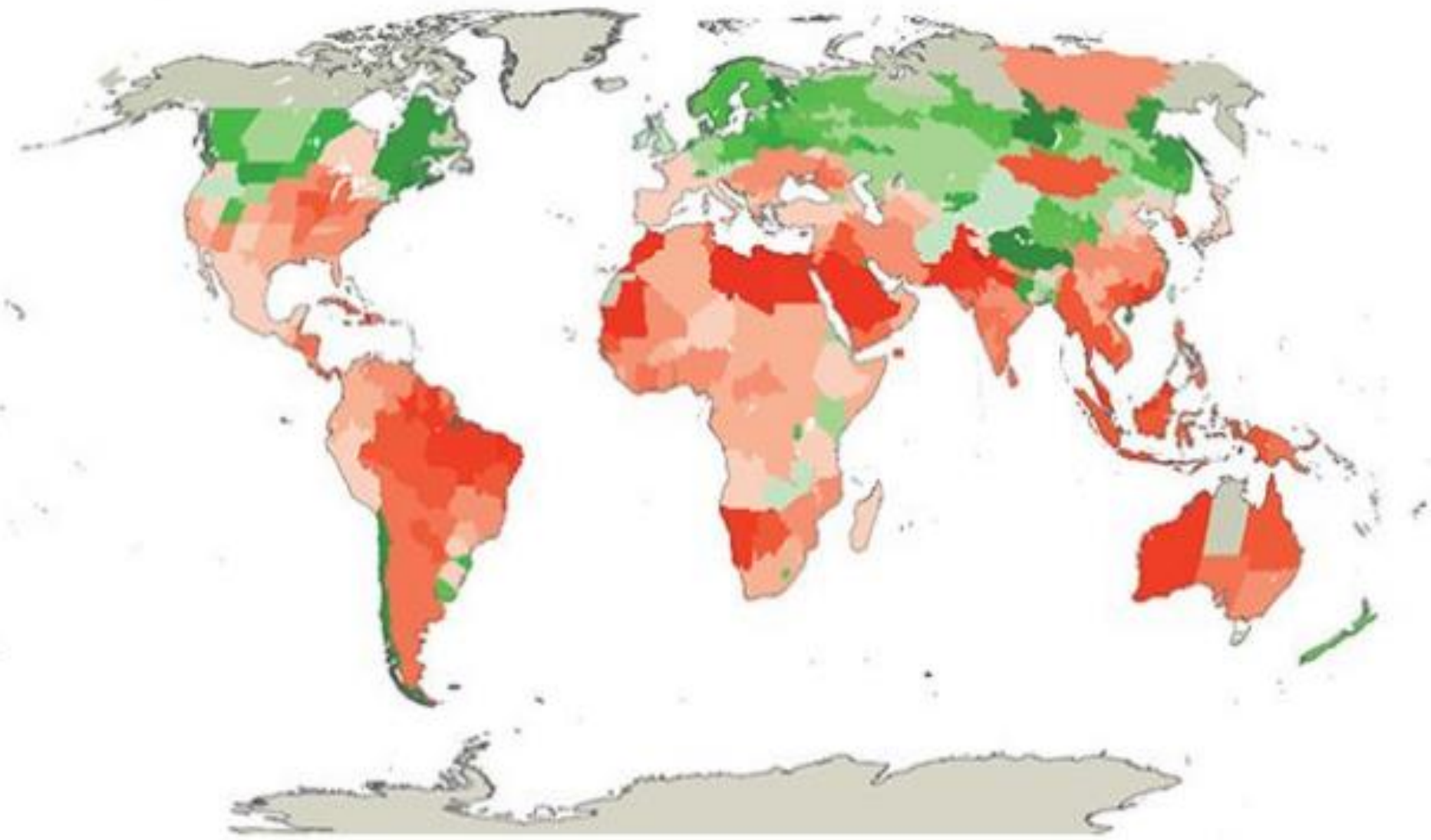
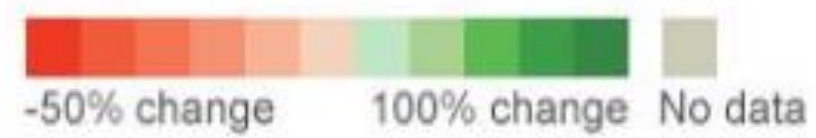
To meet these ever-growing food demands in a sustainable way, we need to produce more with less. To do so, we need to embrace smarter farming technologies and build more sustainable food production systems.

THE CHALLENGE

Each second, the world's population grows by nearly 3 more people, that is 240,000 people a day. By 2025, the global population will reach 8 billion people and 9.6 billion by 2050. This means there will be an extra billion mouths to feed within the next 11 years. And within one generation, there will be more people additionally on the planet than there were at the beginning of the 20th century.

Feeding the growing world population poses a formidable challenge. By 2050, it is estimated that food production needs to increase by 50-70% to keep pace. Even in the best of circumstances, sustainably satisfying this hugely increased demand for crops and livestock will be an enormous task.

Estimated impact of +3 degrees C change on crop yields by 2050



Source: World resources institute

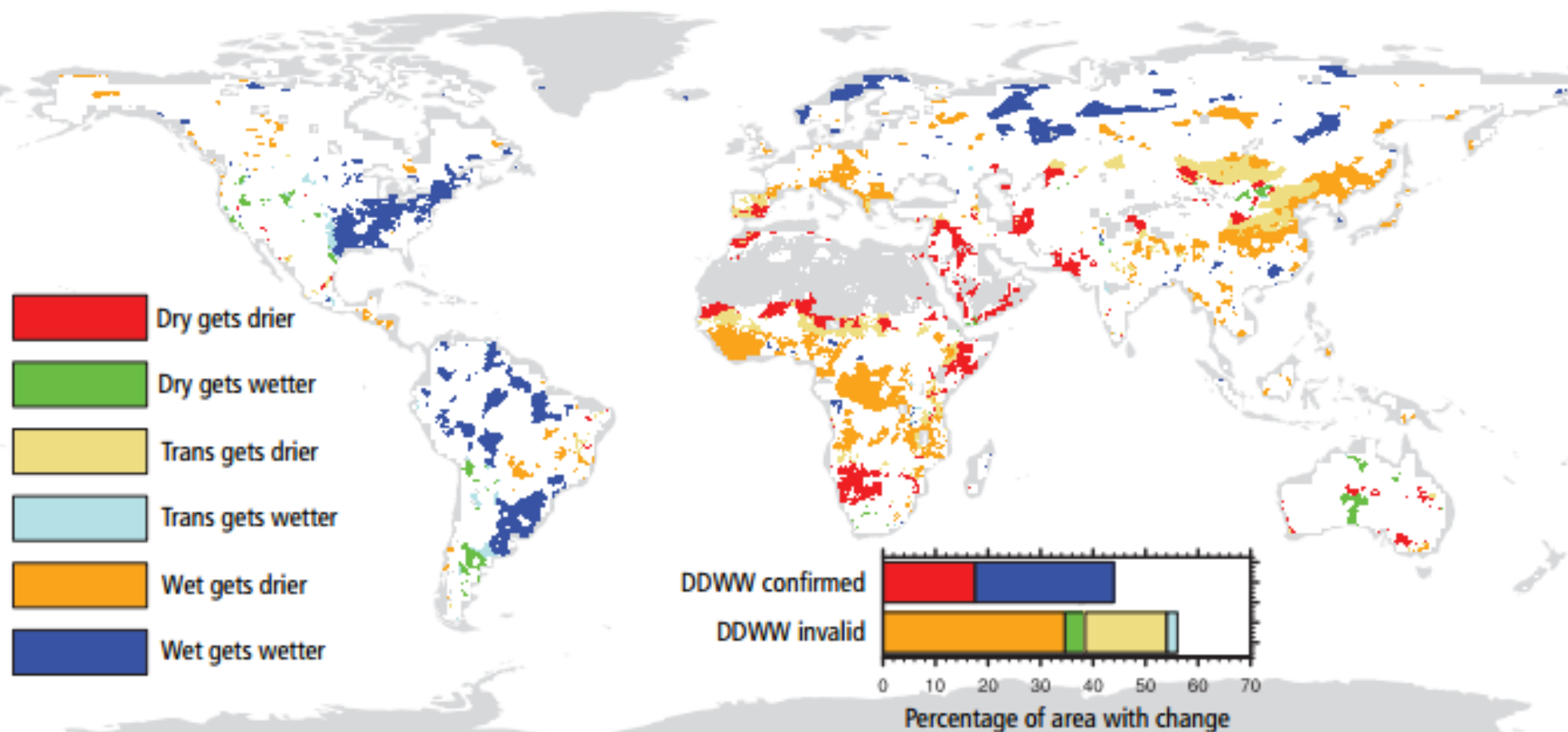


Figure 2. Assessment of robust historical dryness trends (1985-2005 vs. 1948-1968) based on a range of observation-based data sets. This analysis does not confirm the commonly held "dry gets drier, wet gets wetter" paradigm over land. Some wet regions (e.g., tropical Africa) have become drier and the Mediterranean region is a transitional rather than dry land region. Adapted from Greve *et al.*, 2014.

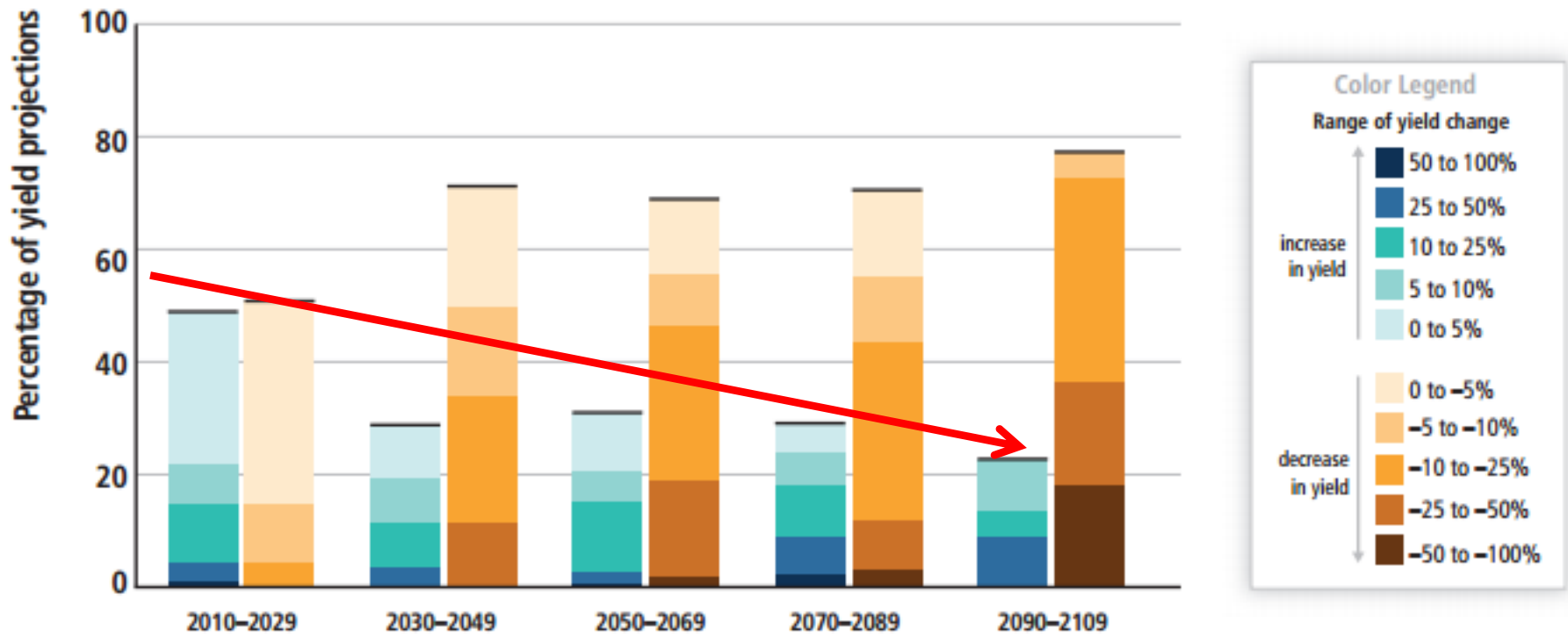


Figure 1. Summary of projected changes in crop yields, due to climate change over the 21st century. The figure includes projections for different emission scenarios, for tropical and temperate regions, and for adaptation and no-adaptation cases combined. Relatively few studies have considered impacts on cropping systems for scenarios where global mean temperatures increase by 4°C or more. For five timeframes in the near term and long term, data (n=1090) are plotted in the 20-year period on the horizontal axis that includes the midpoint of each future projection period. Changes in crop yields are relative to late-20th-century levels. Data for each timeframe sum to 100%. For the latter part of the century positive projections only occur in temperate sites. From Porter *et al.*, 2014.

Klima endringer

Climate Change

Caravan A Regional Assessment of Vulnerability and Adaptive Capacity for the Nordic Countries **i**

User Help

Theme

Agriculture **i**

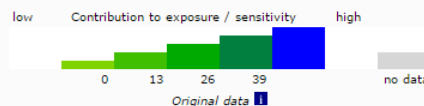
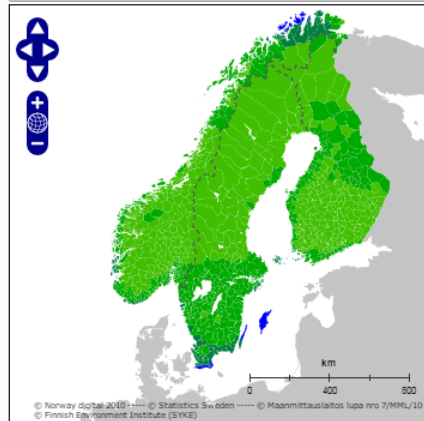
Elderly **i**

Clear all maps and menu selections

Exposure[E] / Sensitivity[S] **i**

Scenario

Press here to choose indicators



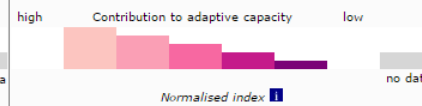
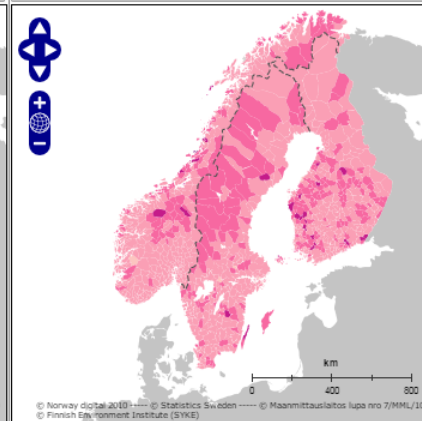
i Change in the length of the growing season (days)

Set the direction of effect to default

Adaptive capacity[A] **i**

Scenario

Press here to choose indicators



i Primary sector employment 67 %

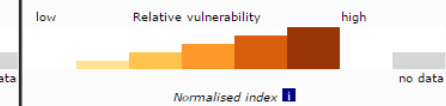
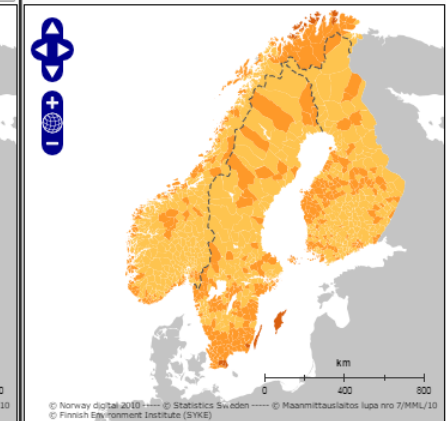
i Dependency ratio 33 %

Set the directions of effect to defaults

Vulnerability[V] = f(E, S, A) **i**

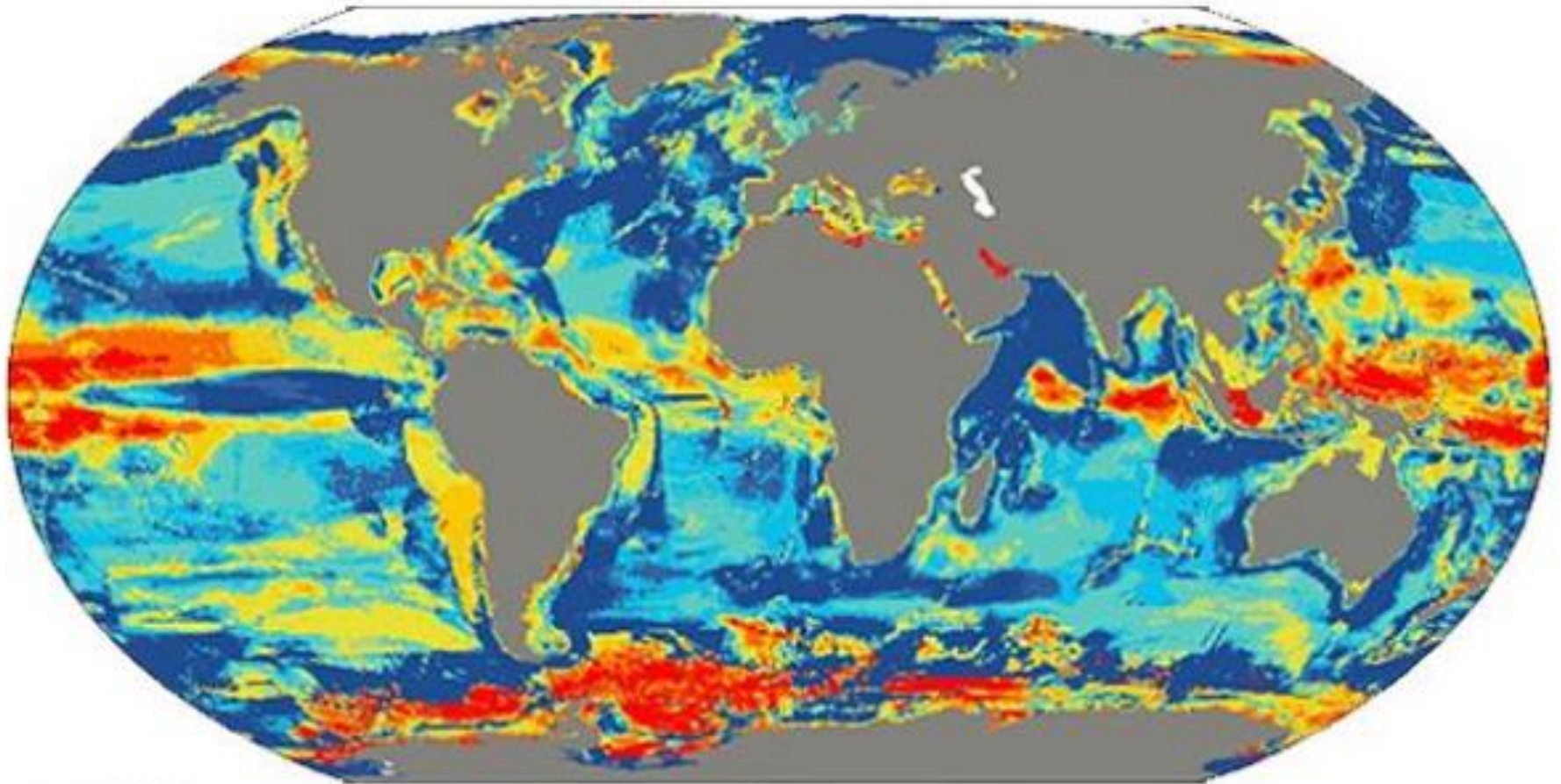
of agricultural livelihoods

Press here to choose indicators



Estimated change in maximum fish catch by 2060

Compares 10 yr average 2001-2010 to projection of 2051-60



Utfordringer i 2017, Europa

Nordmenn betaler seg ut av grønnsakskrisen som herjer i mange europeiske land

Aftenposten, 21.02.2017

Den verste grønnsakskrisen på 25 år har ført til rasjoneringer og tomme butikkhyller i mange land.

Mangelen på grønnsaker skyldes et eksepsjonelt dårlig vær i Sør-Europa, med kulde – regn og så frost, snø og oversvømmelser.

Mangler spinat, bladpersille og dill

– Hvorfor er det ikke tomme butikkhyller i Norge, som i Sverige, Danmark og Storbritannia?

– Norge er en knøttliten aktør, vi skal ha et mye mindre volum enn det de store folkerike landene i Europa skal ha. Dessuten har vi meget gode relasjoner til leverandørene i disse landene. Det å ha lojale venner har hjulpet oss mye nå.

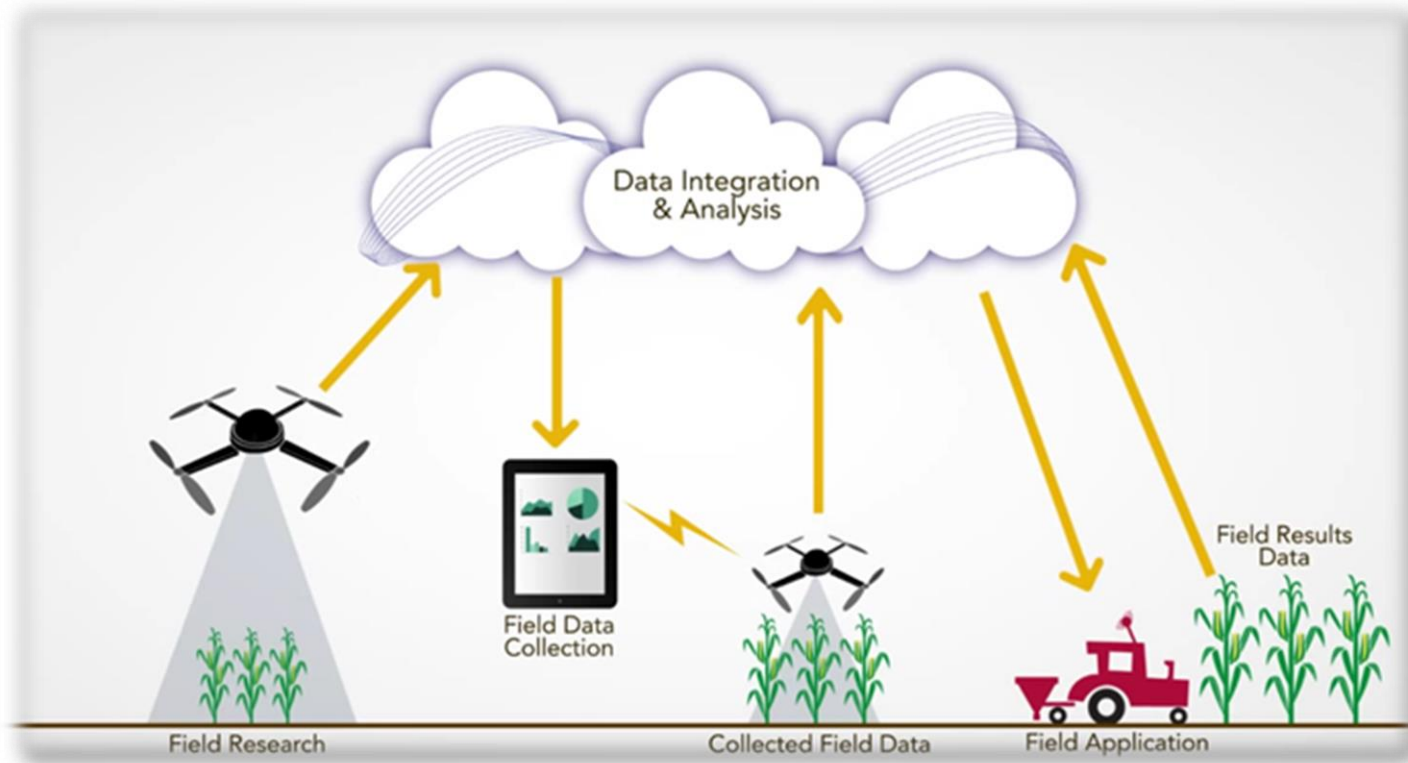
I tillegg spiller det inn at vi nordmenn er villige til å betale mer, mener Stoltenberg.

Aftenposten, 21.02.2017

Mulige løsninger for produksjon i Norge

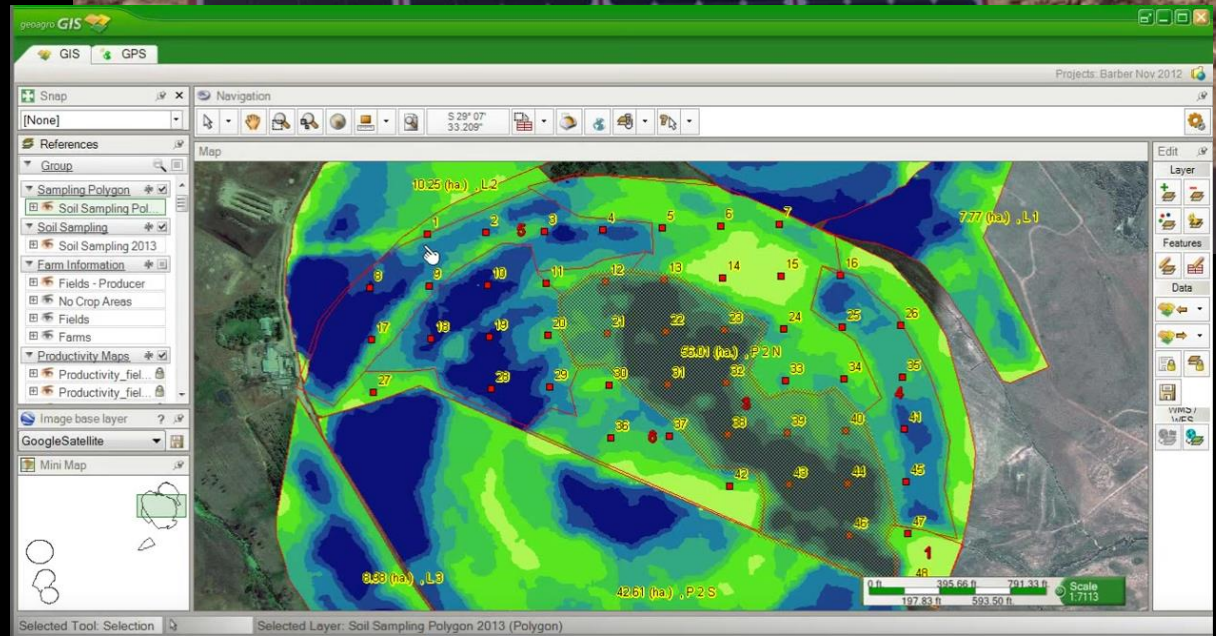
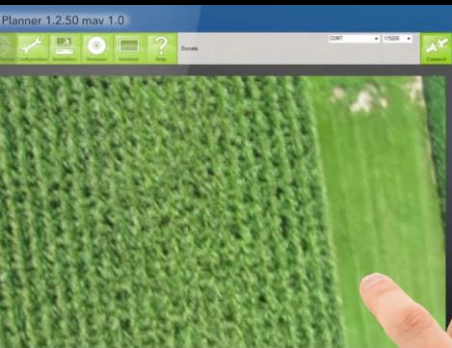
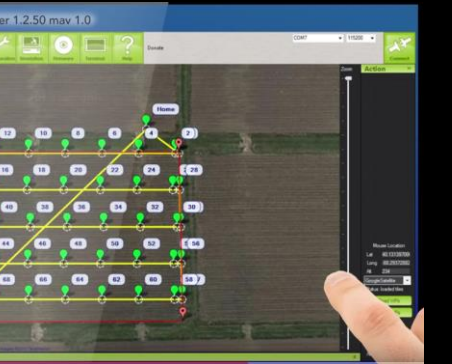
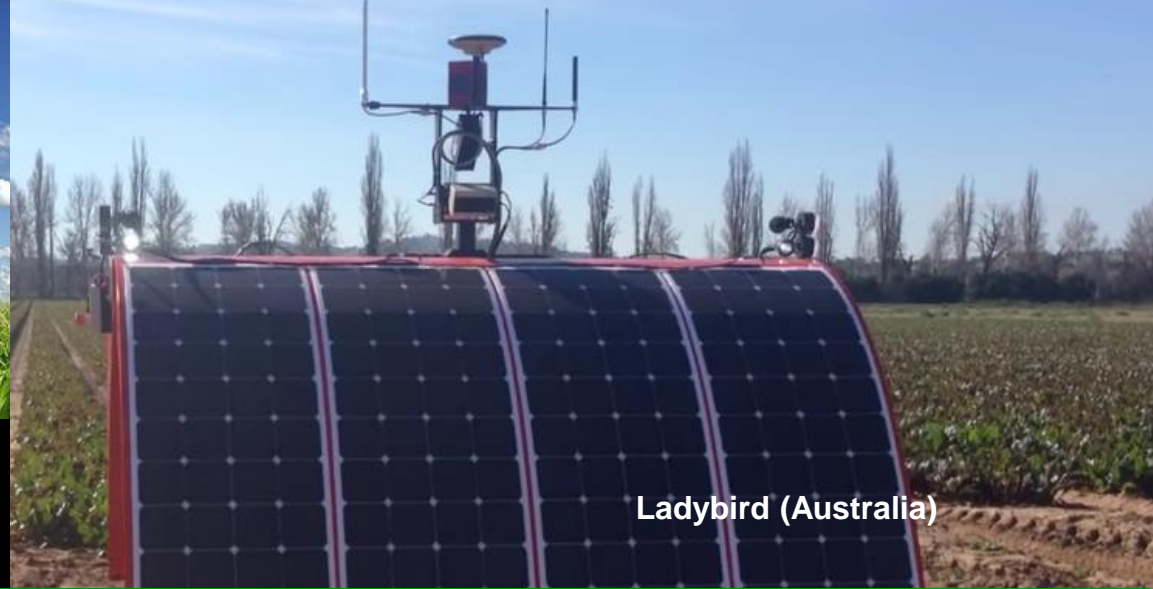
Smart Farming

- (Precision agriculture)



Thorvald, NMBU





Source: Precision Agriculture, Riverside Research

Source: geogro GIS

Satellite

With Geo location

Satellite

NDVI

