Farm2forest: Evaluating impacts of agricultural policy reform on biodiversity and ecosystem services in mixed farming-forestry landscapes

PIs: Yann Clough, Cecilia Akselsson, Johan Ekroos, Mark Brady, Paul Caplat
EU Common Agricultural Policy

WE ARE FACING A CRISIS IN FARMING AND NATURE!

Today, the European Union’s Common Agricultural Policy (CAP) is...

DESTROYING OUR ENVIRONMENT

PUTTING FARMERS OUT OF BUSINESS

PERPETUATING A MYTH THAT WE NEED TO PRODUCE MORE FOOD IN EUROPE TO FEED THE WORLD

77% OF EUROPEAN CITIZENS WANT MORE ENVIRONMENTAL CONDITIONS ATTACHED TO CAP PAYMENTS

NOW IS THE TIME FOR CHANGE

EU BUDGET

New CAP: Money for nothing, manure for free

CAP post 2021?
EU Common Agricultural Policy

Weekblog

Trump suggests ignoring World Trade Organization in major policy shift

By Damir Poletta and Ana Swanson

Most Read

1. After a series of flip-flops, Trump plans to deliver on a key campaign pledge
2. Intrawest sees the returns on its ski resort after previous strategy's failures
3. The great dairy trade war: what 2019's missing in President Trump's plan
4. Trump officials turn to courts
CAP post 2021?
Risk of abandonment

Fig. 8. Composite indicator of the risk of farmland abandonment for EU-27 (normalization at EU-27 level) calculated from drivers D1 weak land market, D2 low farm income, D7 remoteness and low population density, D3 low farm dynamism/adaptation capacity and D4 ageing farmer population. Regions are classified in quintiles with the first four quintiles summarised in the first class (<0.71, 80% of the observations) and the last quintile subdivided in two classes (80–90% risk index between 0.72 and 0.80, and 90–100% index >0.81). No data for the region of Aland (Finland), all regions in Bulgaria and the cities of Vienna, Brussels, Bremen, Berlin and London.

Terres et al. 2015 Land Use Policy
Consequences of abandonment

(1) the reduction of landscape heterogeneity and promotion of vegetation homogenization (often associated with increased fire risk);
(2) soil erosion and desertification
(3) the reduction of water stocks
(4) biodiversity loss and reduced population of adapted species;
(5) the loss of cultural and aesthetic value

Terres et al. 2015 *Land Use Policy*; Benayas et al. 2007 *CAB Reviews*
Past dynamics (1990-2006)

Change in agricultural area

Indicators of land-use change

Kuemmerle et al. 2016 *Environmental Research Letters*
Past dynamics (1990-2006)

Change in agricultural area

Indicators of land-use change

Kuemmerle et al. 2016
*Environmental Research Letters*
Loss of agricultural land between 2002 and 2010 around 7%

Increases in fallow land and an increasing mismatch of grasslands and livestock (-> passive farming)
Impact of future CAP reform?

1. Maintaining the EU’s farm rules as they currently stand (baseline)
2. No policy, full liberalization
3. Programming with implied shift from area-based payments towards rural development, innovation and risk management tools
4. Build on area-based payments to further leverage economic & environmental benefits in a simplified way, perhaps introducing co-financing for Pillar 1 payments while making greater use of technology to modernize controls towards performance-based outcomes
5. Focus on small-holders, mandatory capping of direct payments, environmentally-friendly farms & local food.

http://capreform.eu/what-can-we-expect-following-the-cap-public-consultation/

Alan Matthews, February 2017
EU Agriculture Policy scenarios after 2020

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Alan Matthews, February 2017
Farm2Forest research questions

(1) How and where projected changes in the Common Agricultural Policy after 2020, in conjunction with the rise of the bio-based economy, will affect the share of farming, forestry and intermediate land-use forms in marginal areas?
(2) Given the predicted changes in land-use, how and where will biodiversity and ecosystem services be affected at the landscape scale?
(3) Which alternatives (e.g. results-based payment, regional prioritization) might efficiently lead to their preservation?
Dänhardt et al. (under review)
Commissioned by Naturvårdsverket
Reference group: Jordbruksverket, Riksantikvarieämbetet, Länsstyrelsen Havs- och vattenmyndigheten...
Farm2forest research programme

1. Scenarios
   - CAP beyond 2020: With/without pillar 1 support, with/without different forms of pillar 2 + Economic incentives as mediated through the bio-based economy

2. Agri-PoliS
   - Farm structure and land use*
     - Active farming
     - Passive farming
     - Afforestation
     - Abandonment

3. GIS landscape Predictions
   - Crop codes
   - Forest types

4. Biodiv. functions
   - Biodiversity
     - Birds
     - Butterflies

5. ES models (e.g. InVEST)
   - Ecosystem services
     - Landscape aesthetics
     - C stocks and sequestration
     - Harvested biomass
     - Others to be defined

6. Interdisciplinary synthesis
   - Postdoc, Cecilia A & Yann C
   - Stakeholder input
     - Postdoc & all
     - Postdoc & Mark B

Postdoc & all

ES bundle analysis
Risk map
Policy recommendations
Thank you!
• Inläsningen på grund av gårdsstödet och passivt brukande är begränsad. Samtidigt visar analyserna att strukturomvaldlingen kan avta i produktiva bygder och att markerna hävdas i mindre produktiva bygder.

• Gårdsstödet har bidragit till högre arrende- och markpriser och därmed till lägre lönsamhet för de jordbrukare som har behov av att arrendera eller köpa till mark.

• Gårdsstödet bör utformas efter vilken typ av markanvändning som behöver prioriteras i olika bygder för att bevara ett öppet och variationsrikt odlingslandskap och behålla ett aktivt jordbruk.
Farm2Forest Work Programme

- Co-production of scenarios with stakeholders (agriculture and forestry)
- Assessing the interactions between sectors
- Farm-agent based modelling
- Empirical ecology
- Biodiversity modelling
- Production models
- Cultural ecosystem services