



Current dominant crop sequences across EU: A typology based on LUCAS dataset

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A need to describe current cropping systems, as a baseline to assess benefits of crop diversification, but...

...information limited to land use in datasets available at European scale

...local/national datasets are **not homogeneous** regarding information about **crop sequences** and management

Aim of the study → combining datasets to describe current crop sequences across EU



Land Use Cover Area statistical frame Survey



LUCAS	2008	2009	2010	2011	2012	2013	2014	2015
A grid of 45 000 points across EU	Land use	NA	NA	NA	Land use	NA	NA	Land use

“Pratiques culturales” survey



PK	2010	2011	2012	2013	2014
A sample of 20 000 fields across France	Land use	Land use	Land use	Land use	Land use

➔ Combining both datasets toward a proxy of crop sequences at EU scale



PK	2010	2011	2012	2013	2014
A sample of 20 000 fields across France	Land use	Land use	Land use	Land use	Land use

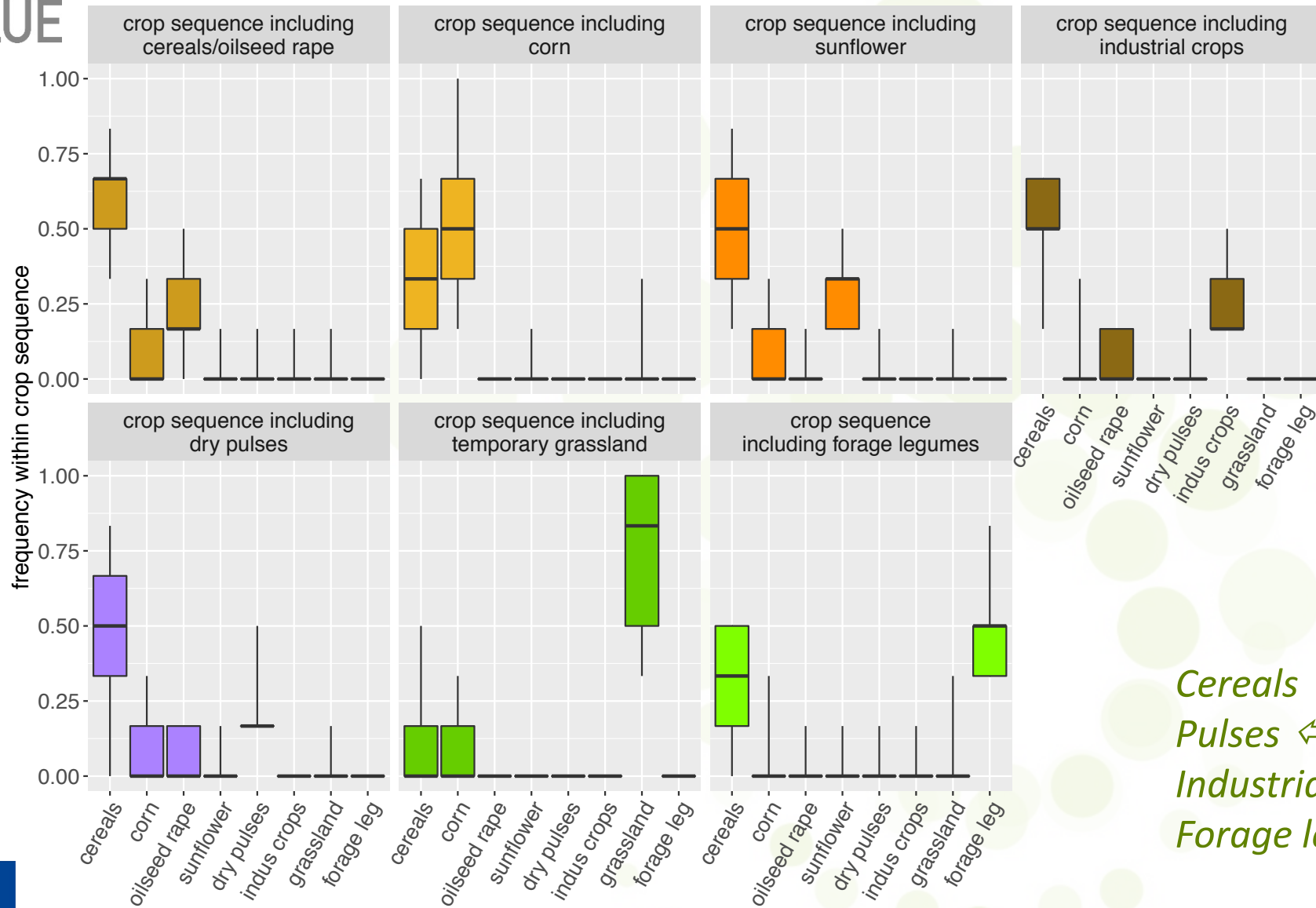
Principle component analysis
+ hierarchical clustering

	Cereals	Oilseed rape	Sunflower	Dry pulses	Corn	Industrial crops	Temporary grassland	Forage legumes
7 crop sequences groups	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.



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7 crop sequence groups distinguished for France



Cereals ⇔ wheat, barley...
Pulses ⇔ peas, fababean, soybean
Industrial crops ⇔ beet, potatoes
Forage legumes ⇔ alfalfa, clover



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LUCAS	2008	2009	2010	2011	2012	2013	2014	2015	CS group
A grid of 45 000 points across EU	Land use	NA	NA	NA	Land use	NA	NA	Land use	

Decision rules
validated for
France

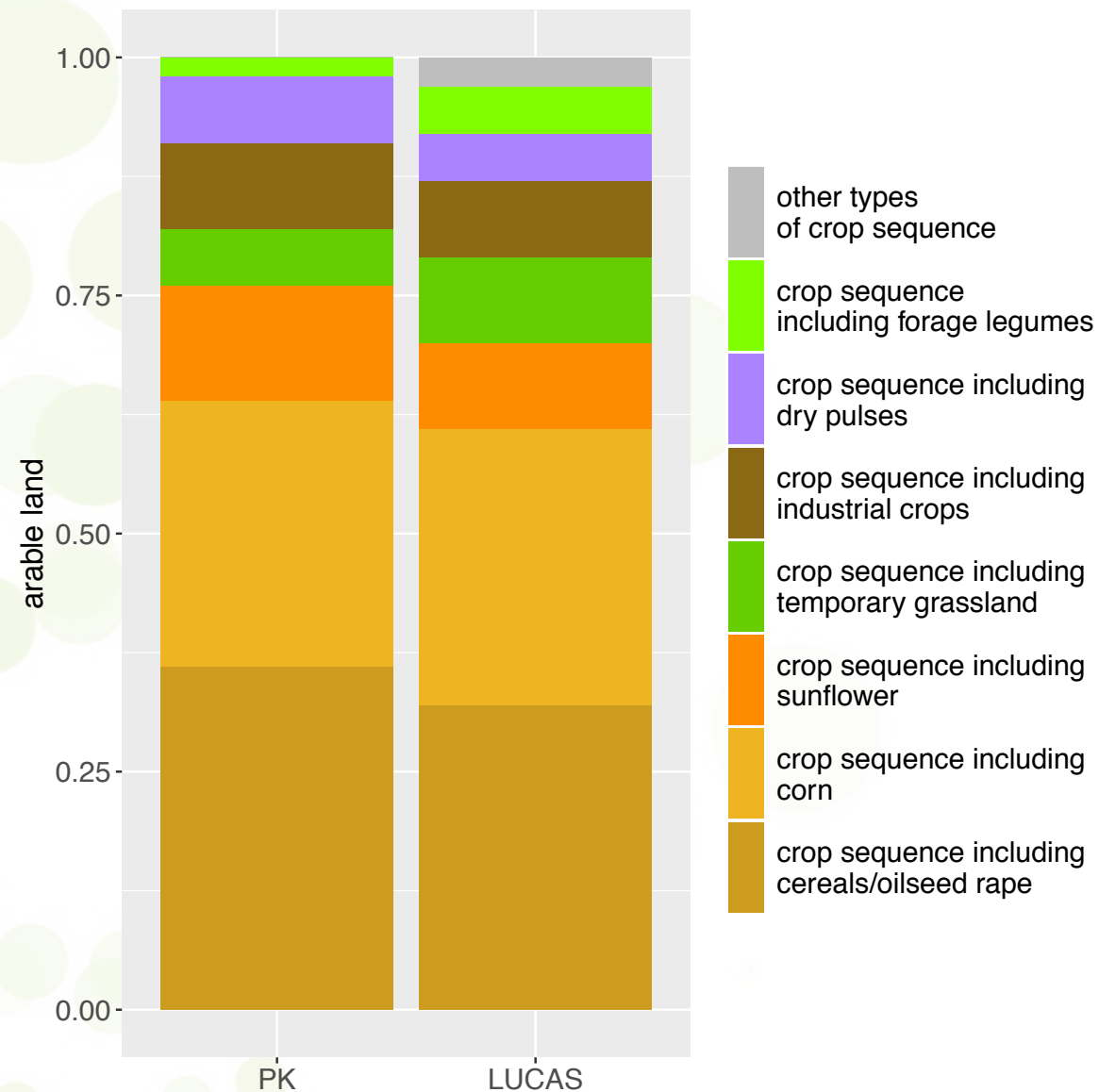


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Consistent distributions obtained with both datasets for France

➔ Decision rules to assign each LUCAS points to one crop sequence group

IF temp. grassland freq. > 0, crop seq. incl. temp. grassland,
ELSE, IF forage legumes freq. > 0, crop seq. incl. forage legumes,
ELSE, IF dry pulses freq. > 0, crop seq. incl. dry pulses,
ELSE, IF indus. crops freq. > 0, crop seq. incl. indus. crops,
ELSE, IF sunflower freq. > 0, crop seq. incl. sunflower,
ELSE, IF corn freq. > 0, crop seq. incl. corn,
ELSE, IF cereals freq. > 0, crop seq. incl. cereals,
ELSE, other types of crop seq.



3rd step – Assigning LUCAS points for other EU countries

PK	2010	2011	2012	2013	2014
A sample of 20 000 fields across France	Land use	Land use	Land use	Land use	Land use

Principle component analysis
+ hierarchical clustering

	Cereals	Oilseed rape	Sunflower	Dry pulses	Corn	Industrial crops	Temporary grassland	Forage legumes
7 crop sequences groups	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.

LUCAS	2008	2009	2010	2011	2012	2013	2014	2015	CS group
A grid of 45 000 points across EU	Land use	NA	NA	NA	Land use	NA	NA	Land use	

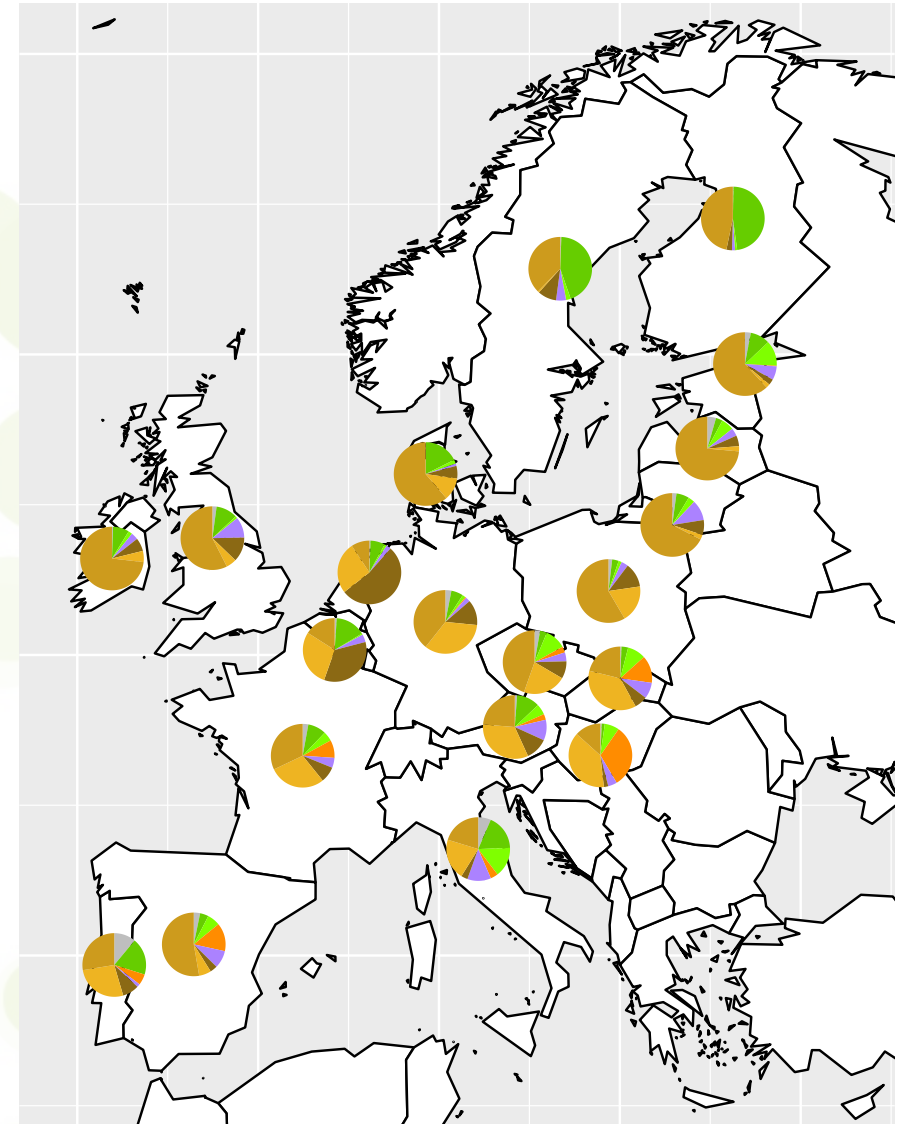
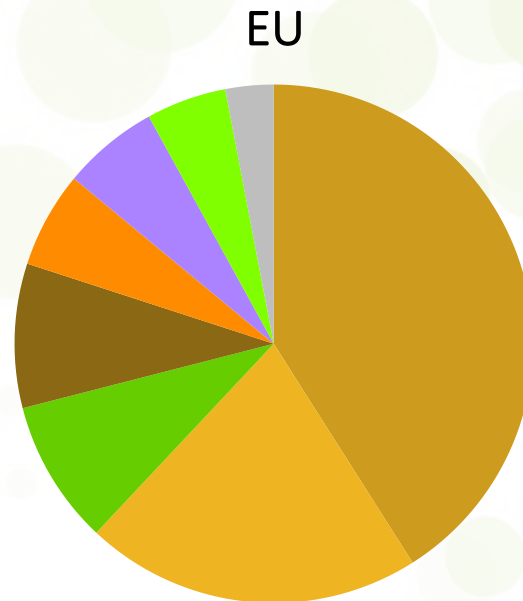
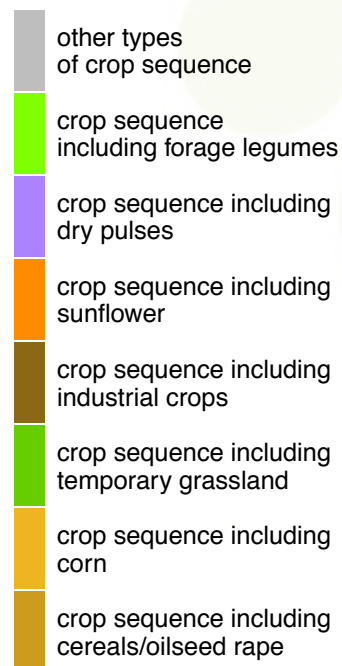
Decision rules
validated for
France



→ Crop sequences based on cereals, oilseed rape and corn dominate arable land

→ Local specificities highlighted

(e.g. crop seq. with beet/potatoe in BE/NL, with sunflower in HU/SK, with grassland in FI/SE)



- ➔ Further developments in the method validation, requiring other crop sequences datasets, from other countries
- ➔ Adding crop management information toward a description of current cropping systems
- ➔ A baseline to assess impacts of scenarios for scaling-out legume-based cropping systems



Thank you for your attention

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