Bolsa de Cereales

Constantia · et · Labore
Buenos Aires × 1854
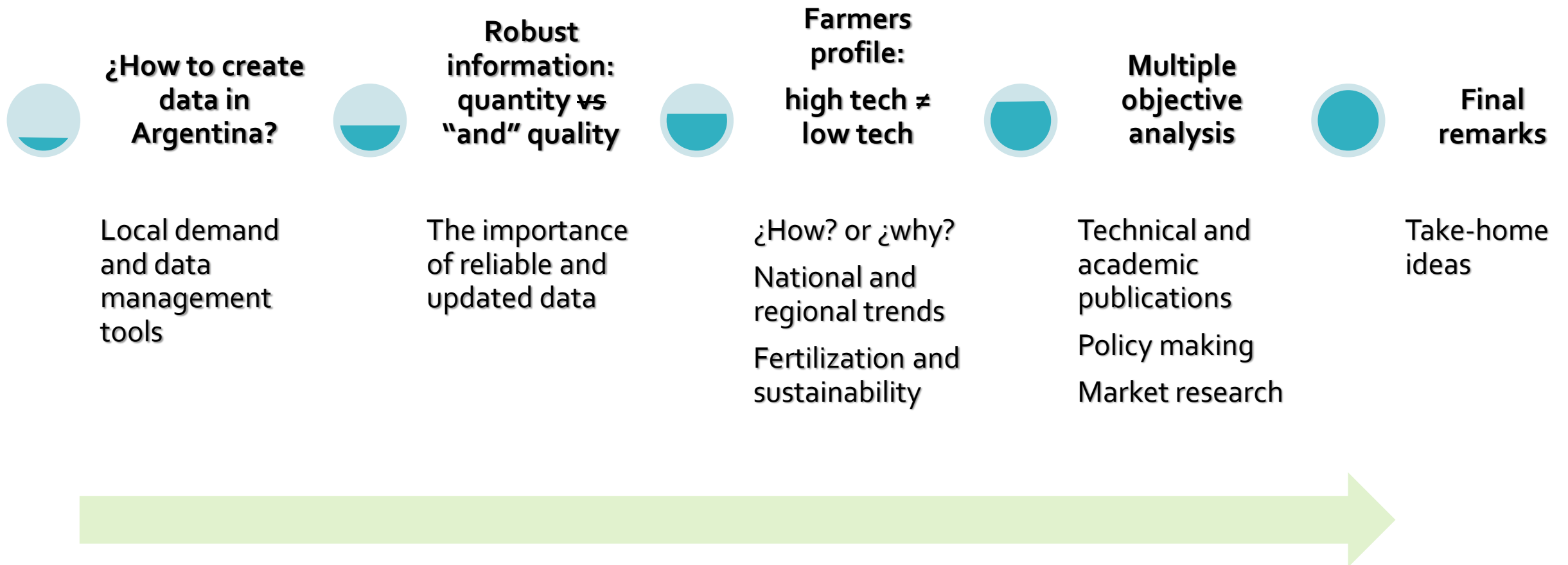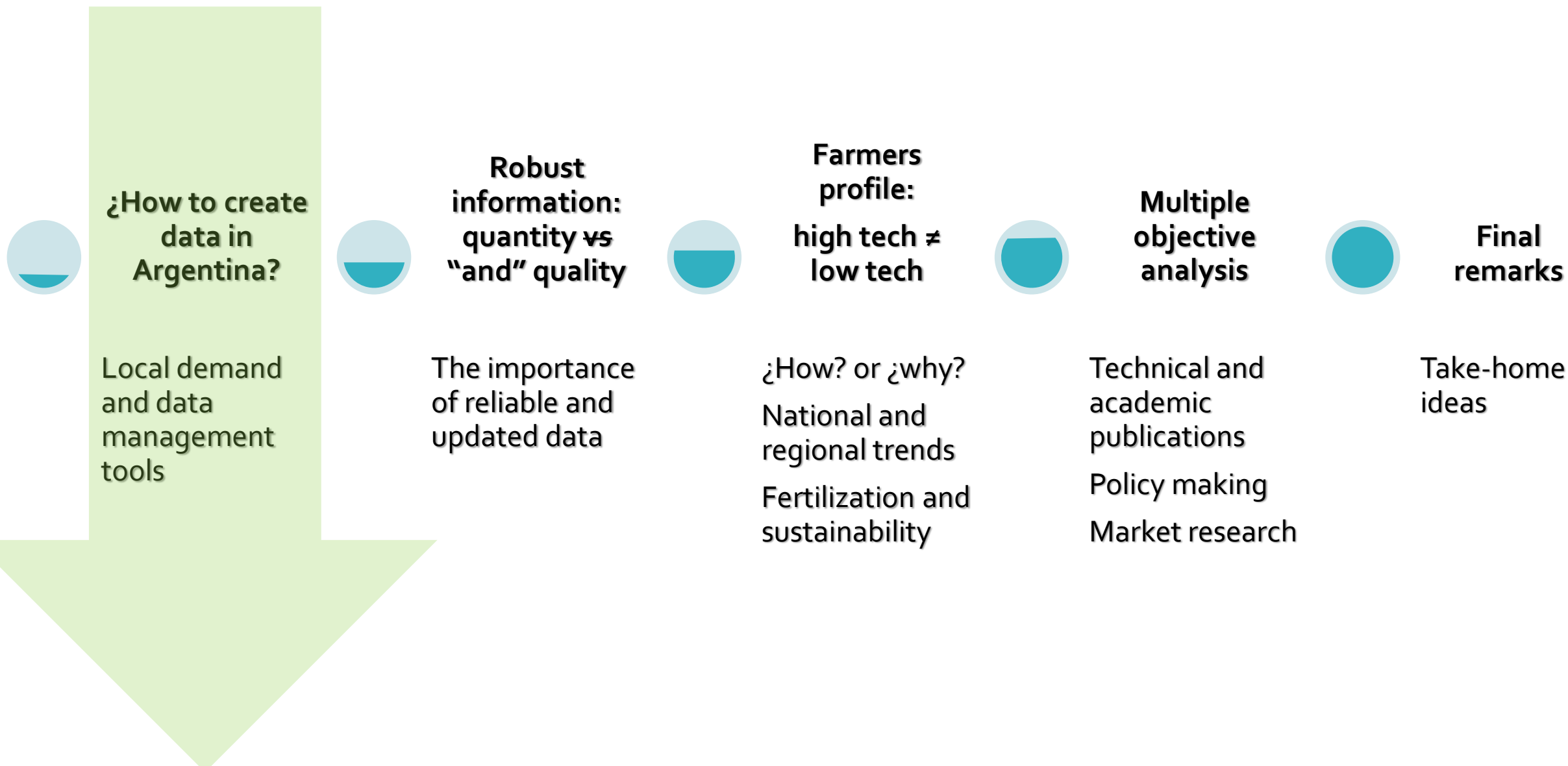
A big data-based study to understand the patterns of fertilizer adoption

Juan Brihet
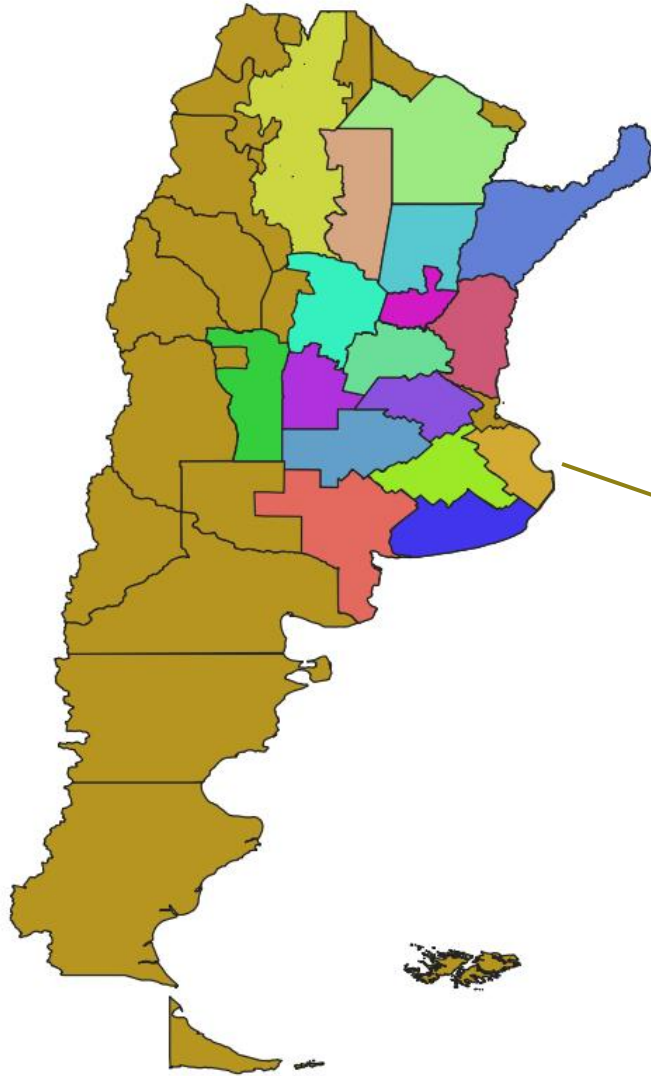Head of Research and Technological Prospective
Buenos Aires Grains Exchange
Argentina

Road map

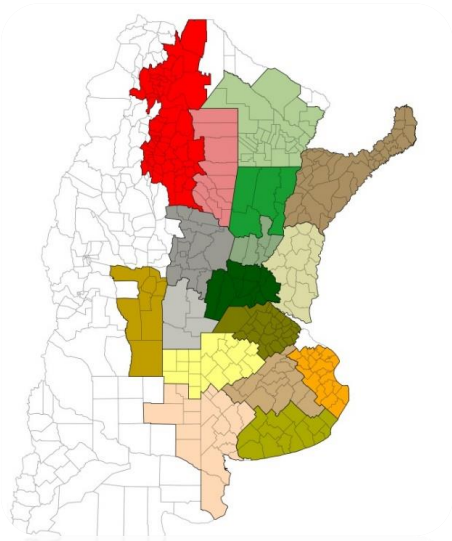**¿How to create data in Argentina?**

Local demand and data management tools

Robust information: quantity ~~vs~~ "and" quality

The importance of reliable and updated data

Farmers profile: high tech ≠ low tech

¿How? or ¿why?

National and regional trends

Fertilization and sustainability

Multiple objective analysis

Technical and academic publications

Policy making

Market research

Final remarks

Take-home ideas

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Argentina´s farming areas

ReTAA

The Agricultural Applied Technology Survey

6 crops

17 agricultural areas

3 Technological Levels

HIGH
MEDIUM
LOW

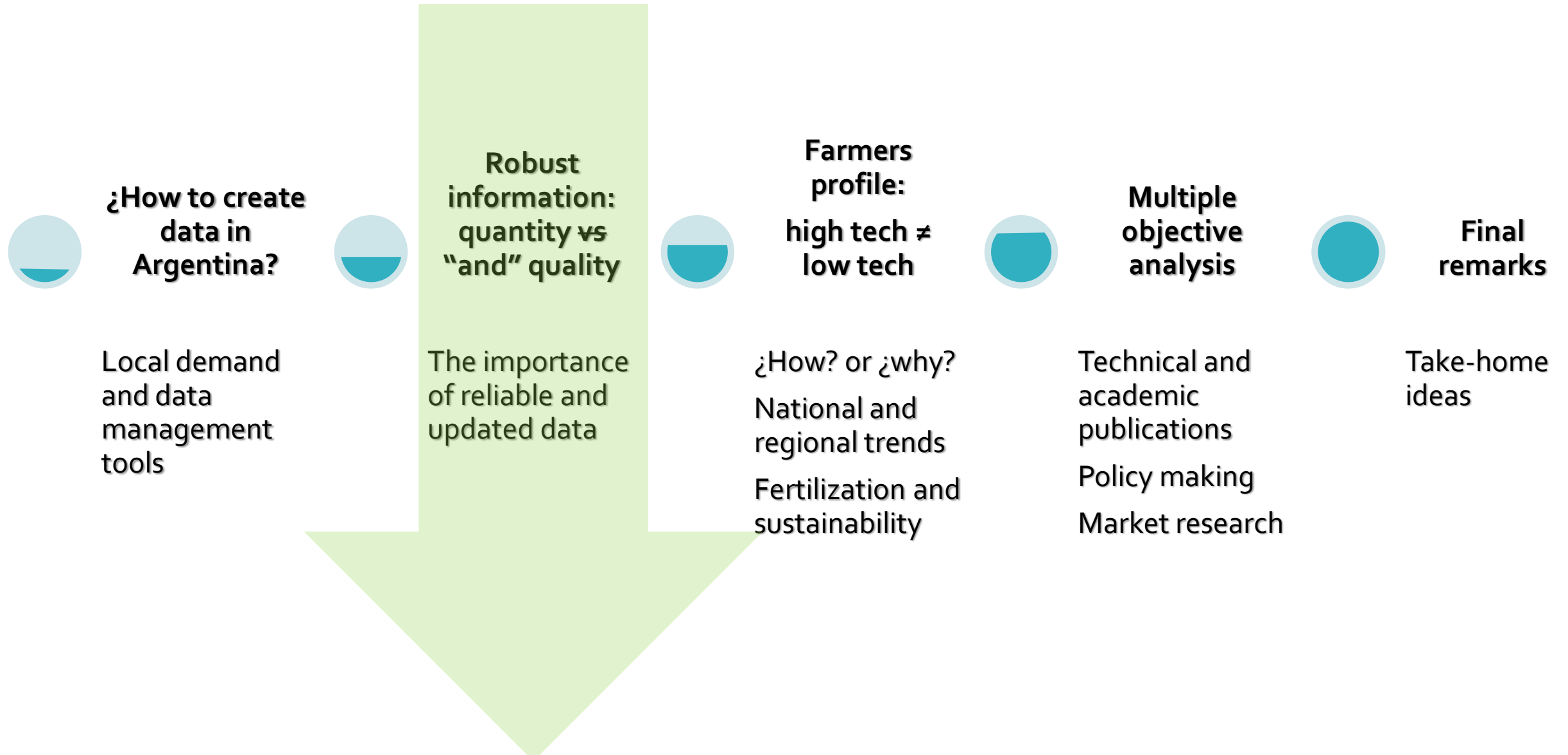**Technological Level (TL)**
=
inputs usage
+
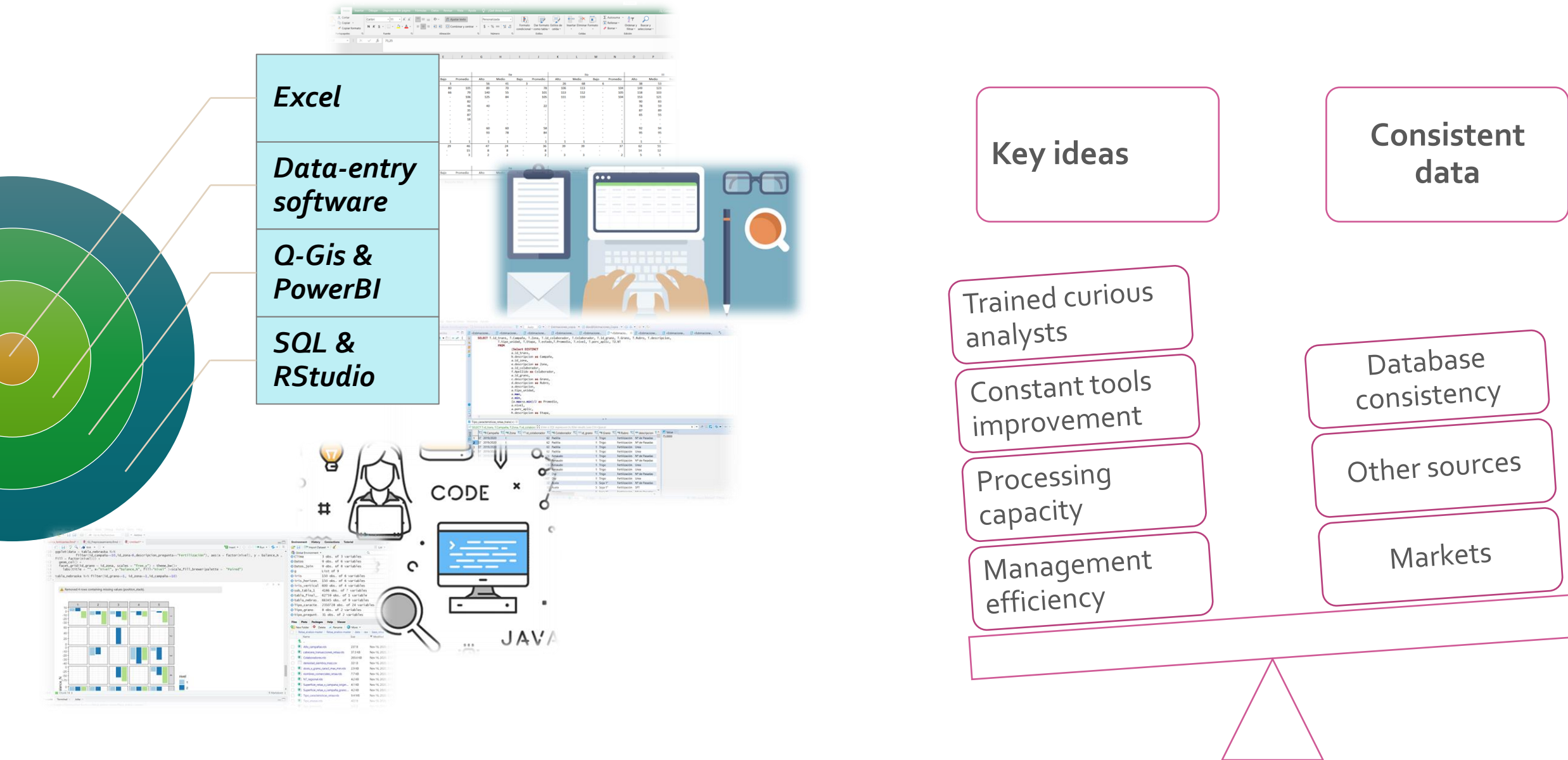crop management
(practices)
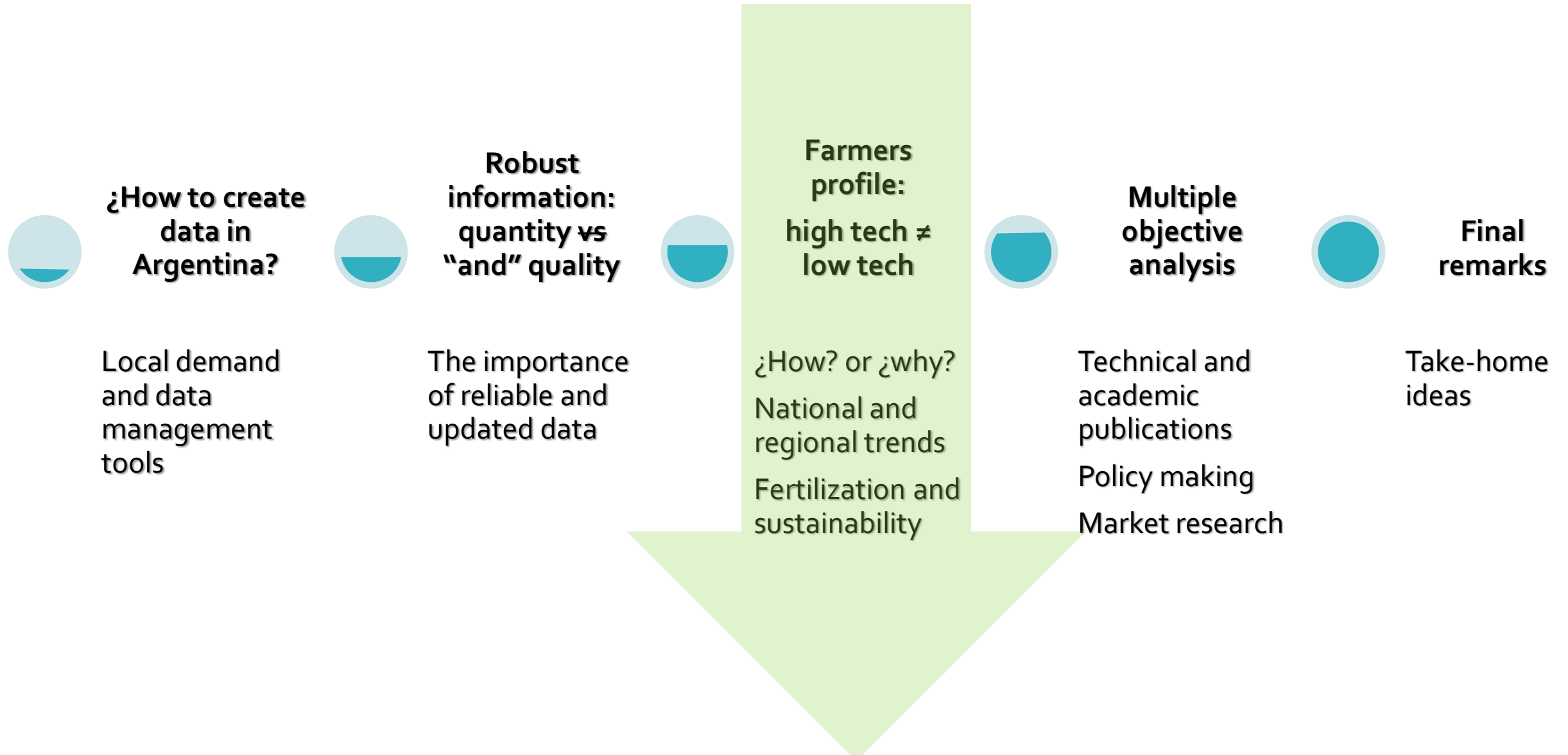
Yearly updated

Telephone surveys

Market consistency

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Robust information: quantity ~~vs~~ "and" quality

Excel

Data-entry software

Q-Gis & PowerBI

SQL & RStudio

Key ideas

Consistent data

Trained curious analysts

Constant tools improvement

Processing capacity

Management efficiency

Database consistency

Other sources

Markets

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Yields by farmer´s Tech Level for different crops

2019/20 season
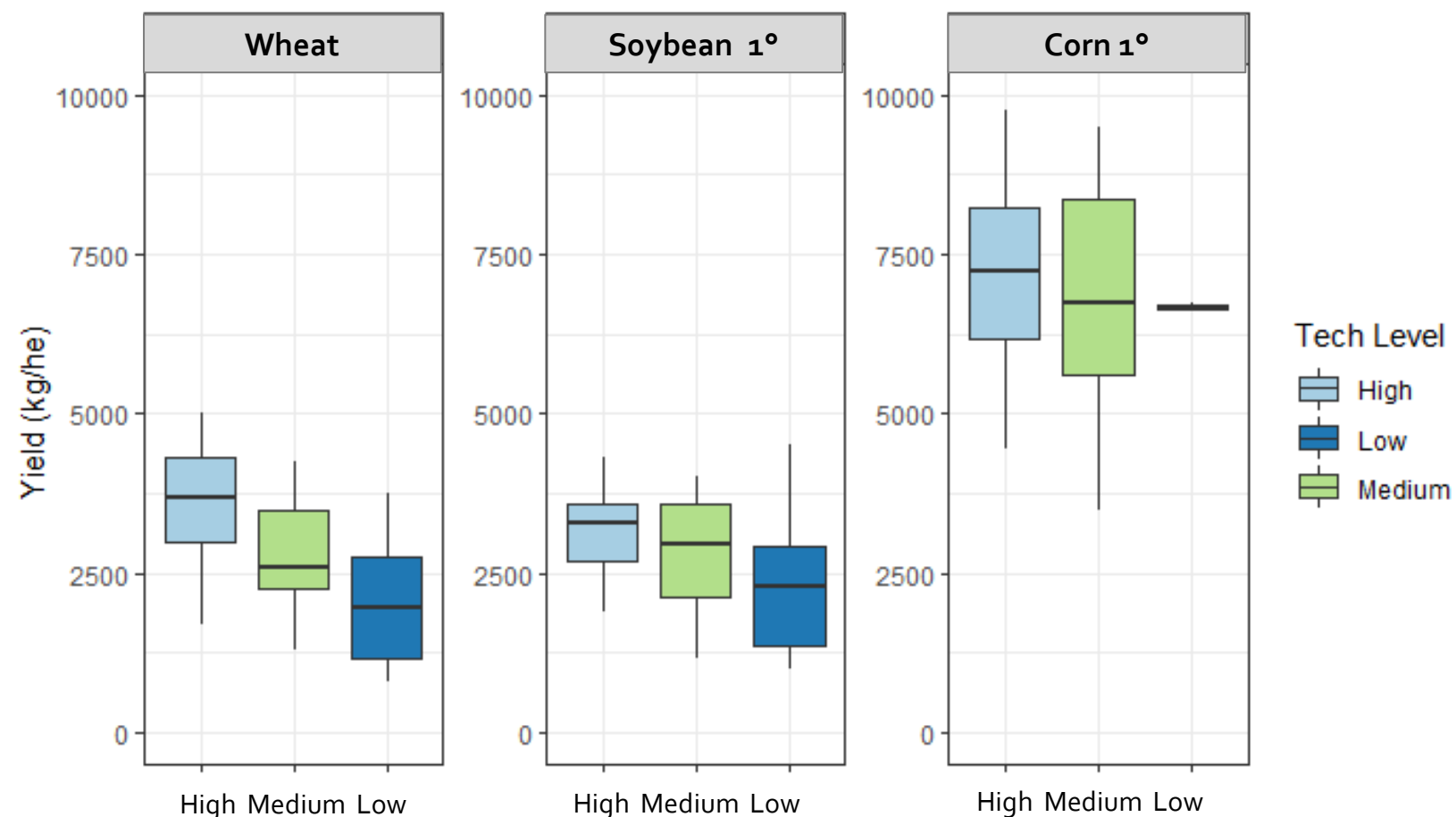
Farmers profile: Fertilization trends
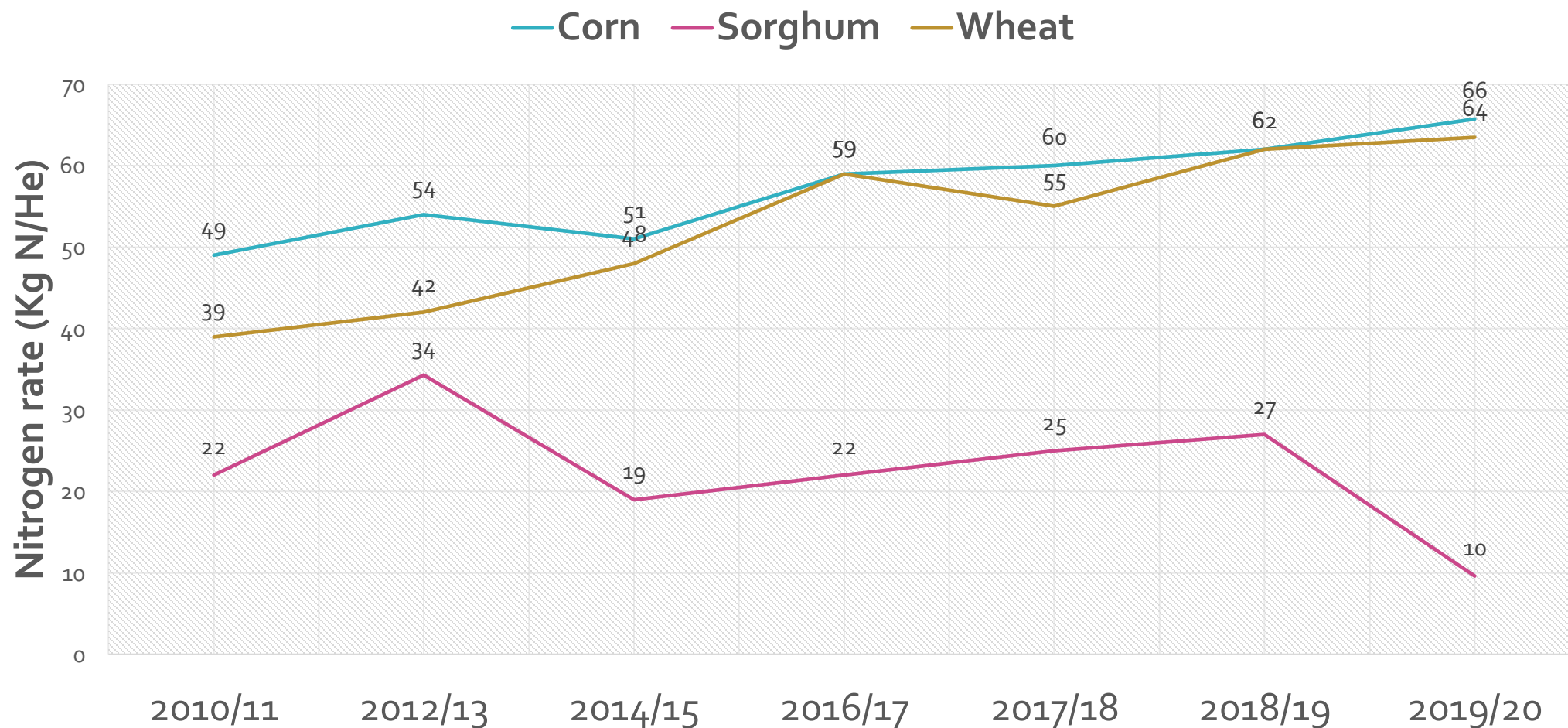
Phosphorus management

Legend: Corn, Wheat, Soybean
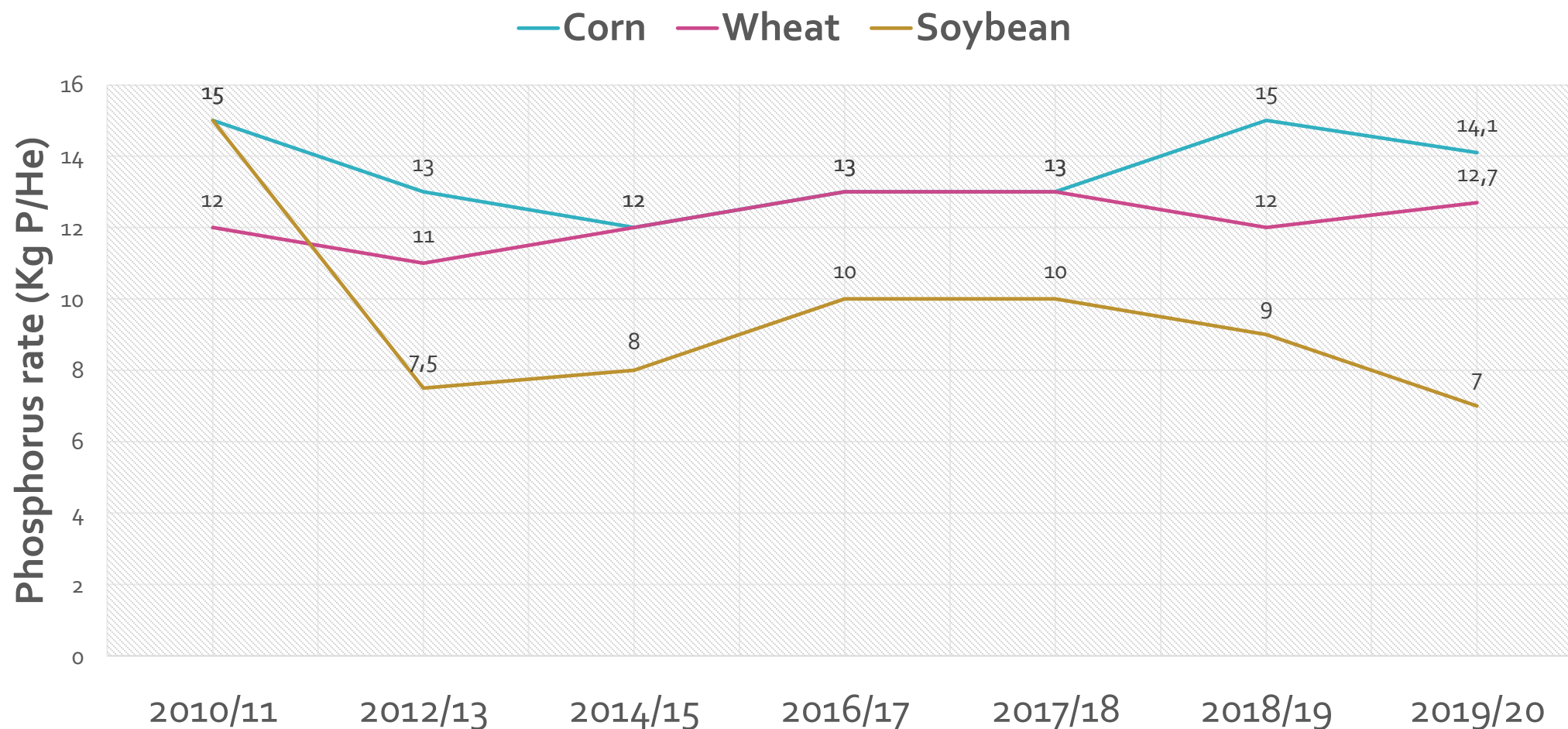
Farmers profile: regional differences

Fertilization with
Urea in **Corn**
(Kg Urea/He)
2019/20 season

Fertilization with
DAP in **Wheat**
(Kg DAP/He)
2019/20 season

Soil sampling by crop

Farmers profile: sustainable practices
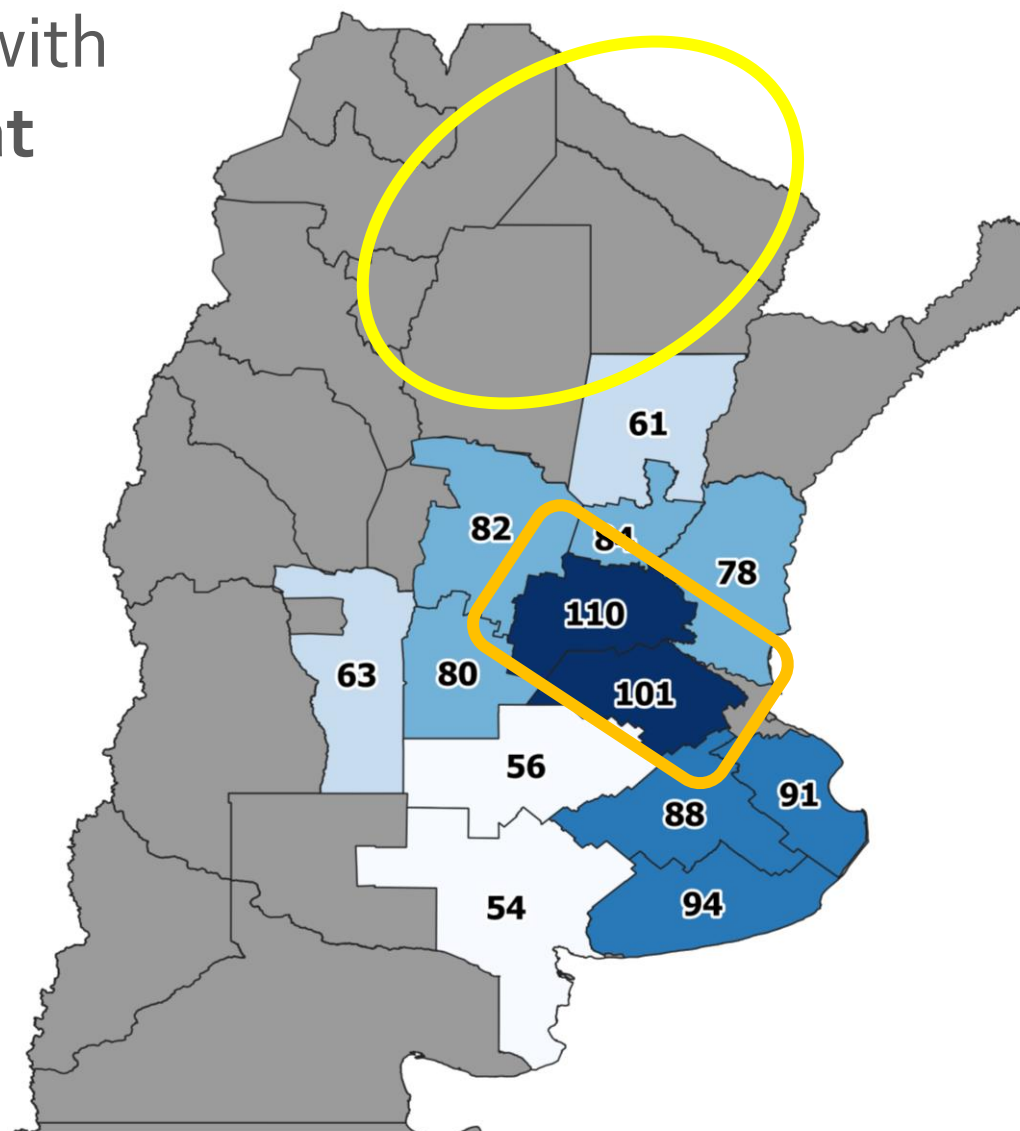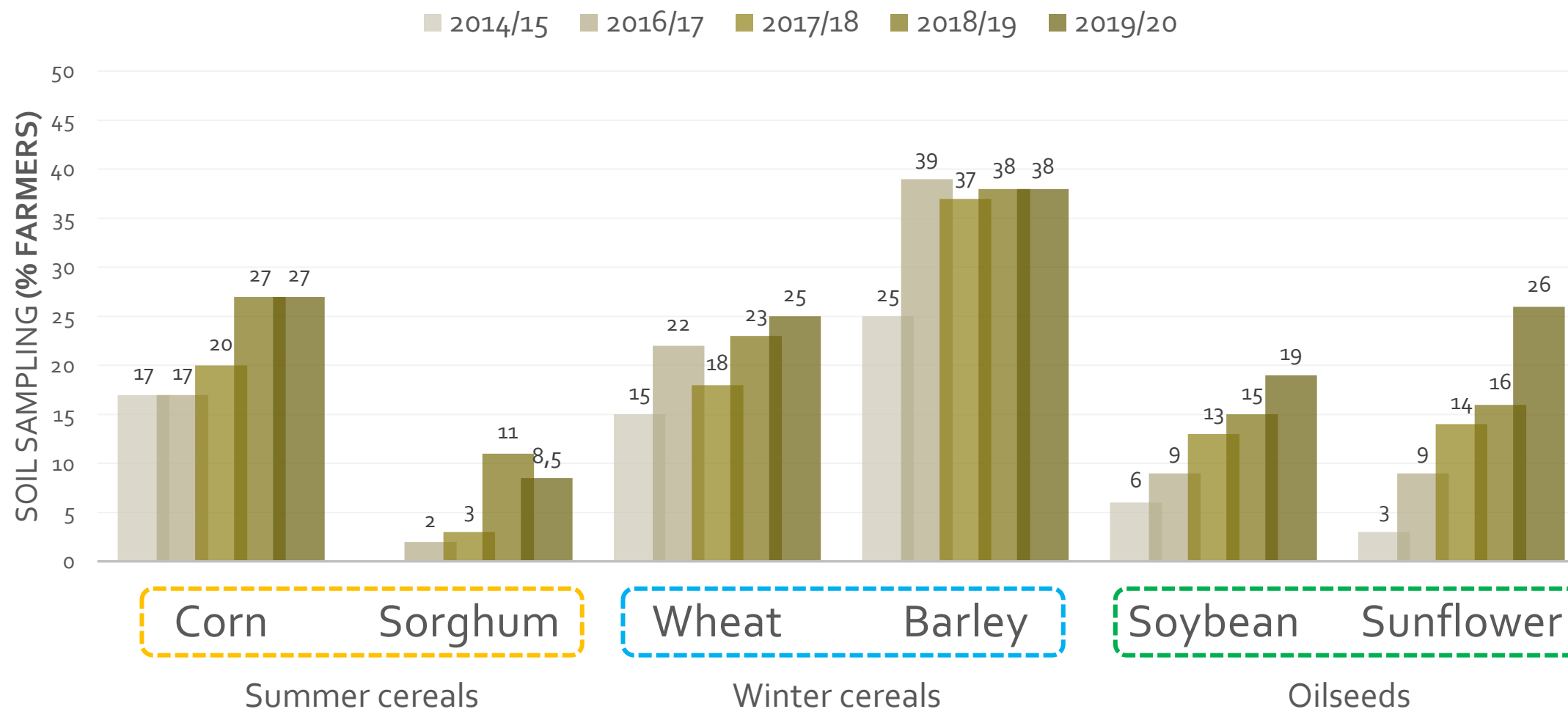
Nutrient balance: reposition % by nutrient
2019/20 season
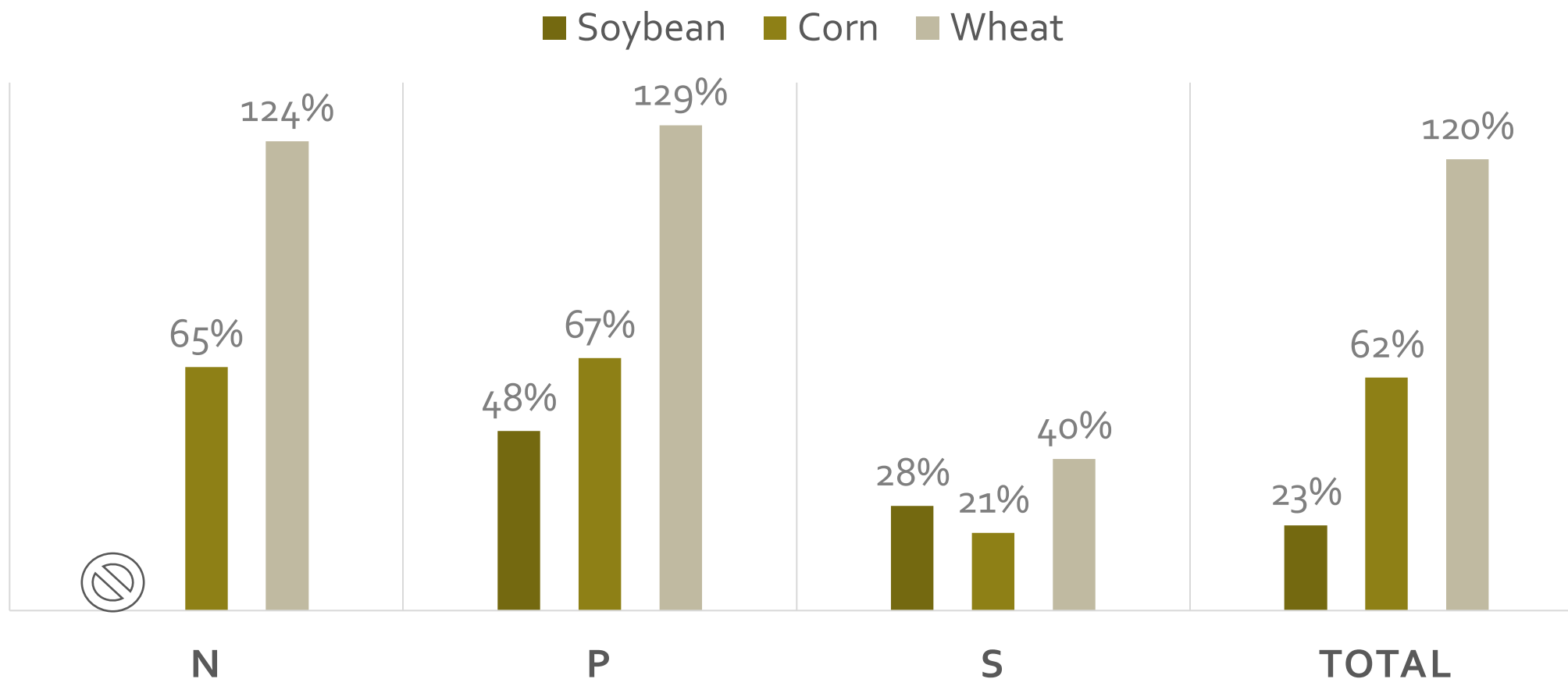
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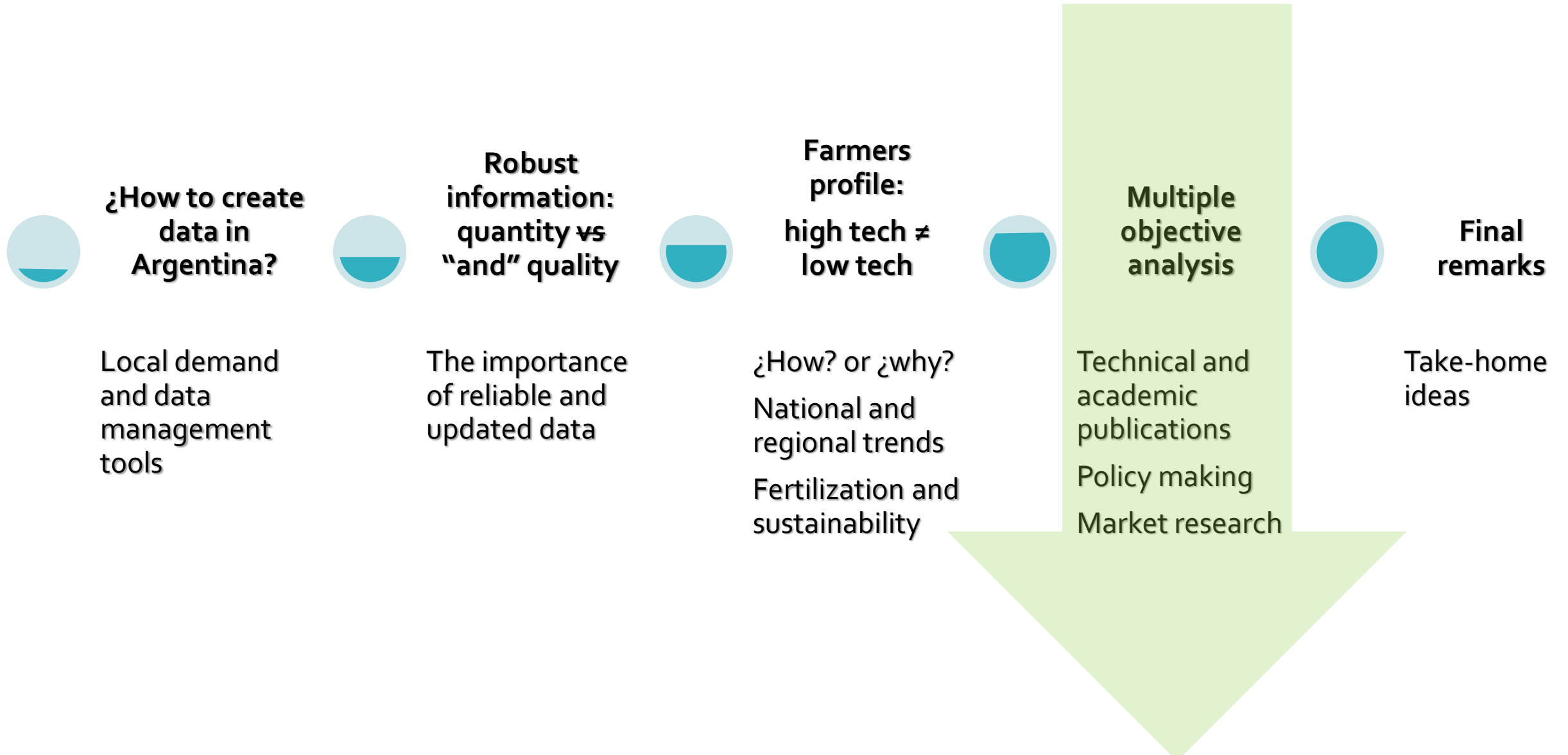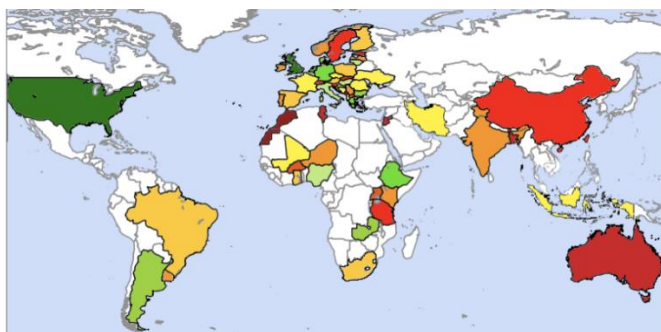
www.yieldgap.org

YIELD GAPS

NUTRIENT GAPS

Regional ennumerators and crop density
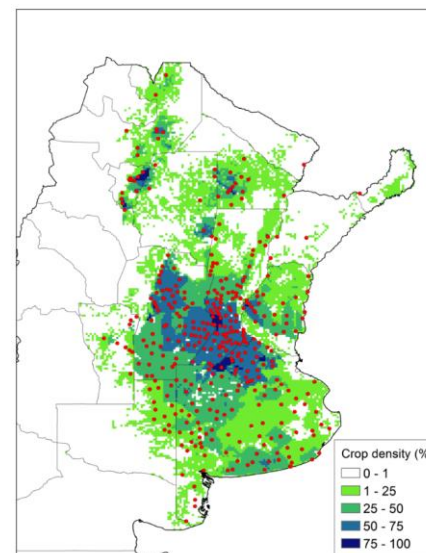
e.g. Wheat N doses (Kg/he)
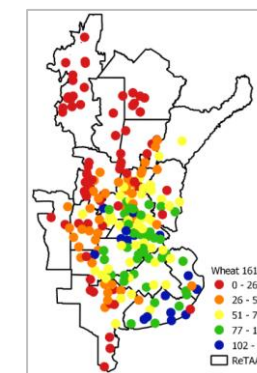
e.g. Wheat N balance
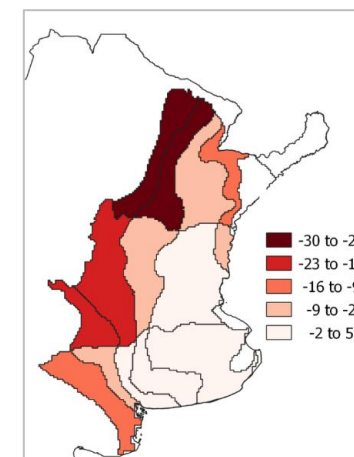
Market research

FERTILIZER MARKET IN ARGENTINA
(Soybean, Corn, Wheat, Sunflower, Sorghum, Barley)
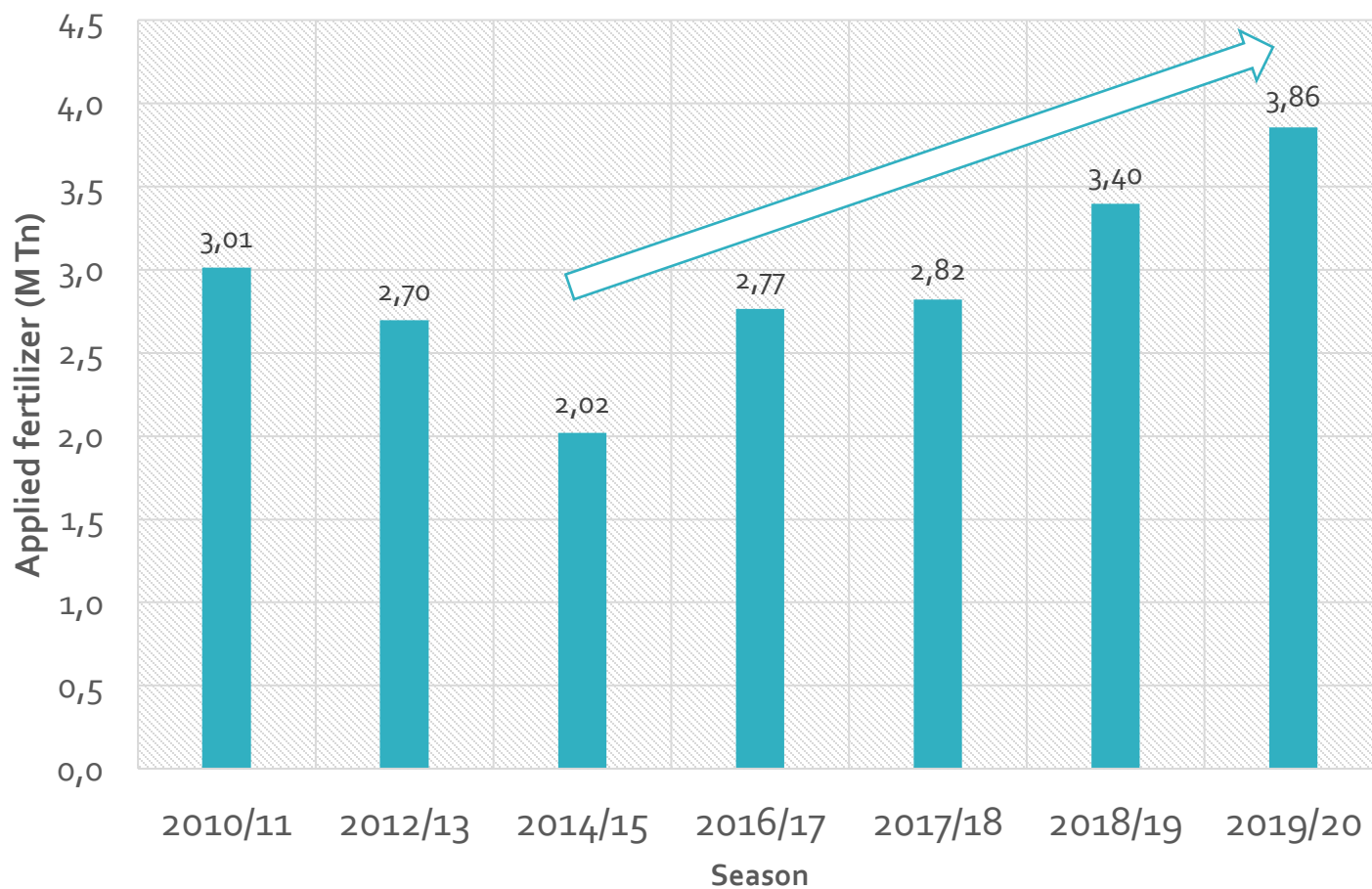
FERTILIZER MARKET 2019/20
SHARE BY CROP

Bar chart — Applied fertilizer (M Tn) by Season:
- 2010/11: 3,01
- 2012/13: 2,70
- 2014/15: 2,02
- 2016/17: 2,77
- 2017/18: 2,82
- 2018/19: 3,40
- 2019/20: 3,86

Pie chart — Share by crop:
- Wheat 35%
- Early Corn 23%
- 1° Soybean 14%
- Late Corn 13%
- Barley 6%
- 2° Soybean 5%
- Sunflower 3%
- Sorghum 1%

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Multiple objectives analysis: different scopes

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Take-home ideas…

Agricultural databases need to be consistent, updated and reliable.

The yield indicator is not enough: understanding crop management practices is the key to **insights on farmer´s decisions**.

There ir a positive trend in fertilizer usage: it is important to also increase **best practices**, such as soil sampling.

Local productive patterns are important to global market: it is essential to identify **regional drivers** by crop.

Fertilizer markets promotes soils nutrition and crop production systems: a today´s "must" to achieve **sustainable production systems** globally.

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¡Muchas gracias!

Juan Brihet

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