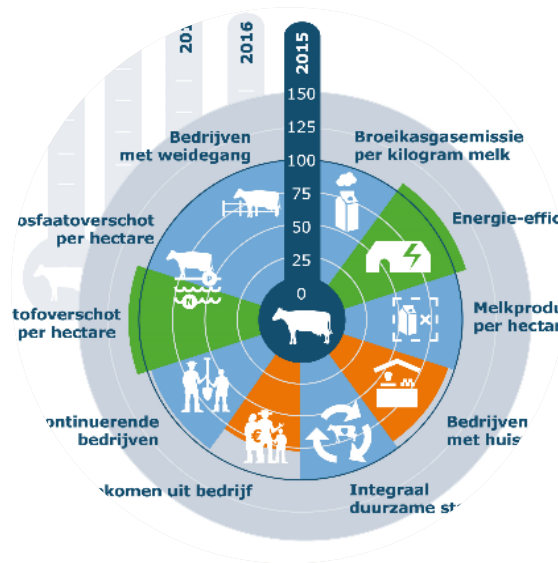# Tailor-made benchmarking of sustainability performance with FADN
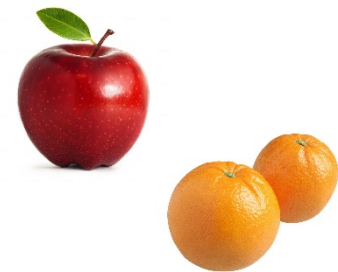
The case of aggregation results of specialized dairy farms
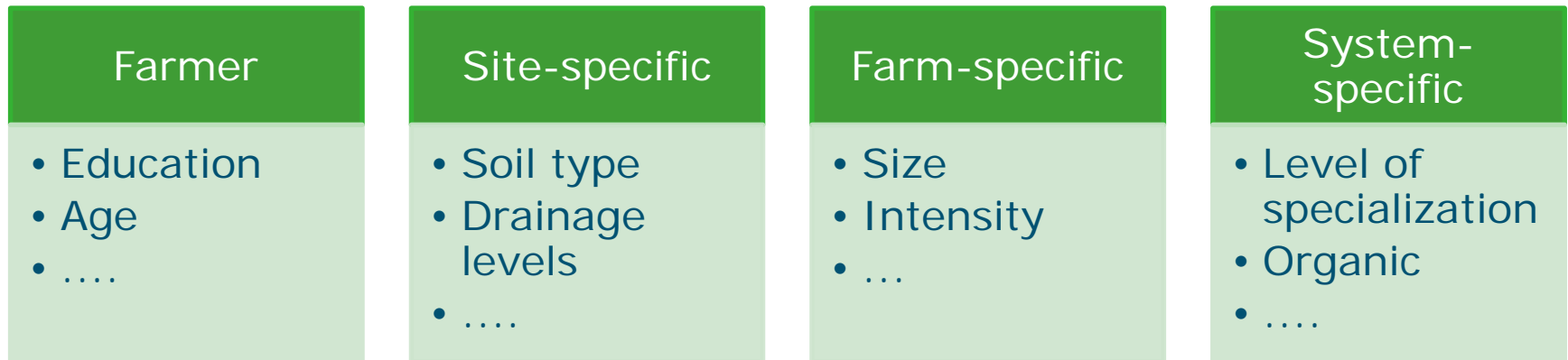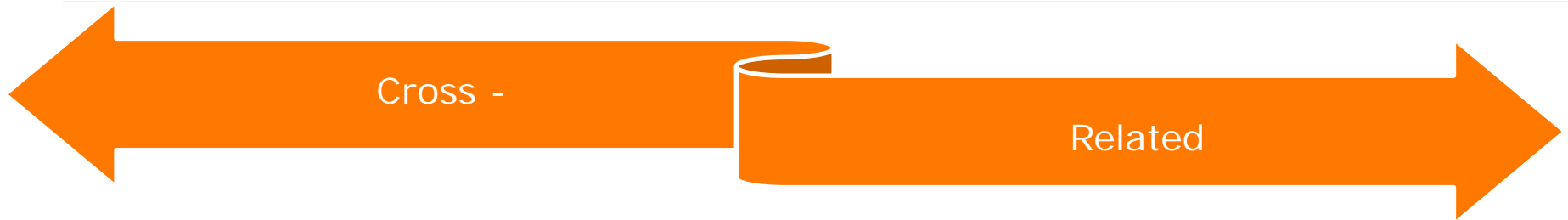
Pacioli 2017, Mark Dolman

FADN farms more frequently used for sustainability performance measurement
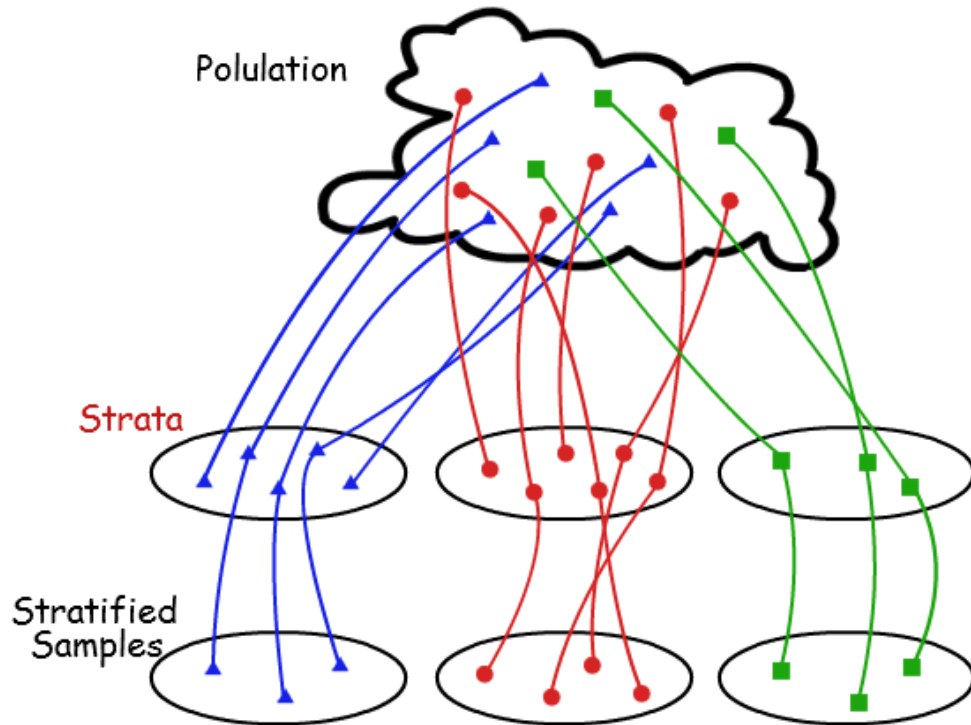
- Sample data are used in studies with different scopes and objectives:

  - Sectoral studies

  - Regional studies

  - National studies

- Different methods are applied to aggregate farms results to a group average:

  - What is a fair benchmark?

  - What is the best method?

  - How to be consistent?

(Sustainability) is influenced by various parameters

Cross - Related

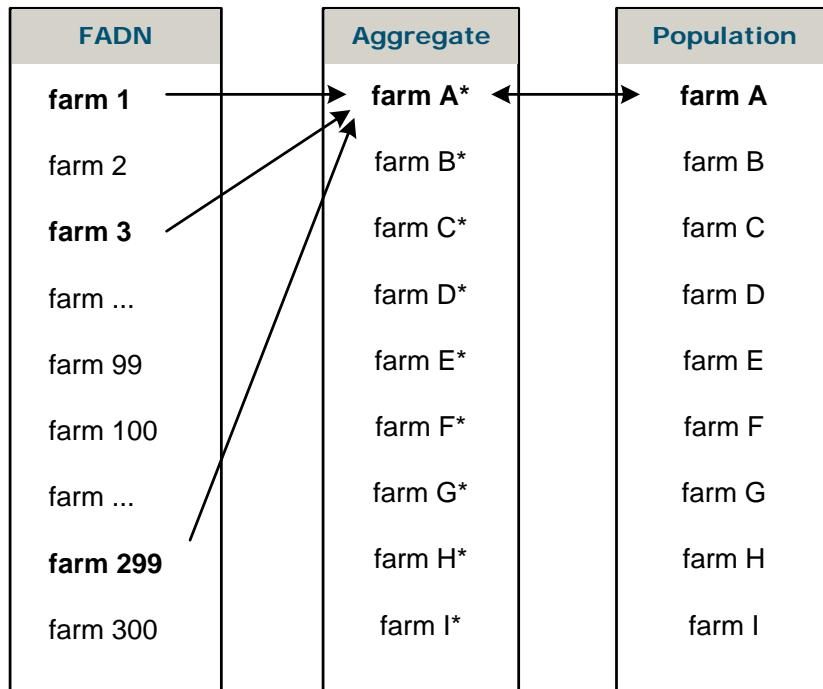| Farmer	Site-specific	Farm-specific	System-specific
• Education • Age • ….	• Soil type • Drainage levels • ….	• Size • Intensity • …	• Level of specialization • Organic • ….

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For national studies a stratified weighing scheme is applied

- Selection plan:
  - Farm size
  - Farm type

- Sample farms for dairy:
 - 270 (conventional)
  - 30 (organic)

For other studies various methods are used

FADN	Aggregate	Population
farm 1	farm A*	farm A
farm 2	farm B*	farm B
farm 3	farm C*	farm C
farm ...	farm D*	farm D
farm 99	farm E*	farm E
farm 100	farm F*	farm F
farm ...	farm G*	farm G
farm 299	farm H*	farm H
farm 300	farm I*	farm I

- Equal weighing

- Post stratification

- Statistical Matching

- Additional random sampling for regional studies in combination with methods above

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For regional studies a custom weighing scheme is applied (Statistical Matching)

- Sample farms: All randomly selected farms

- Search for group of best matching sample farms for each population farm (Euclidian distances):

  - Farm size (SO)

  - Farm type

  - X en Y coordinate (best match)

  - Soil type (share of peat, sand and clay)

  - Intensity: SO/ha

  - Share of grassland
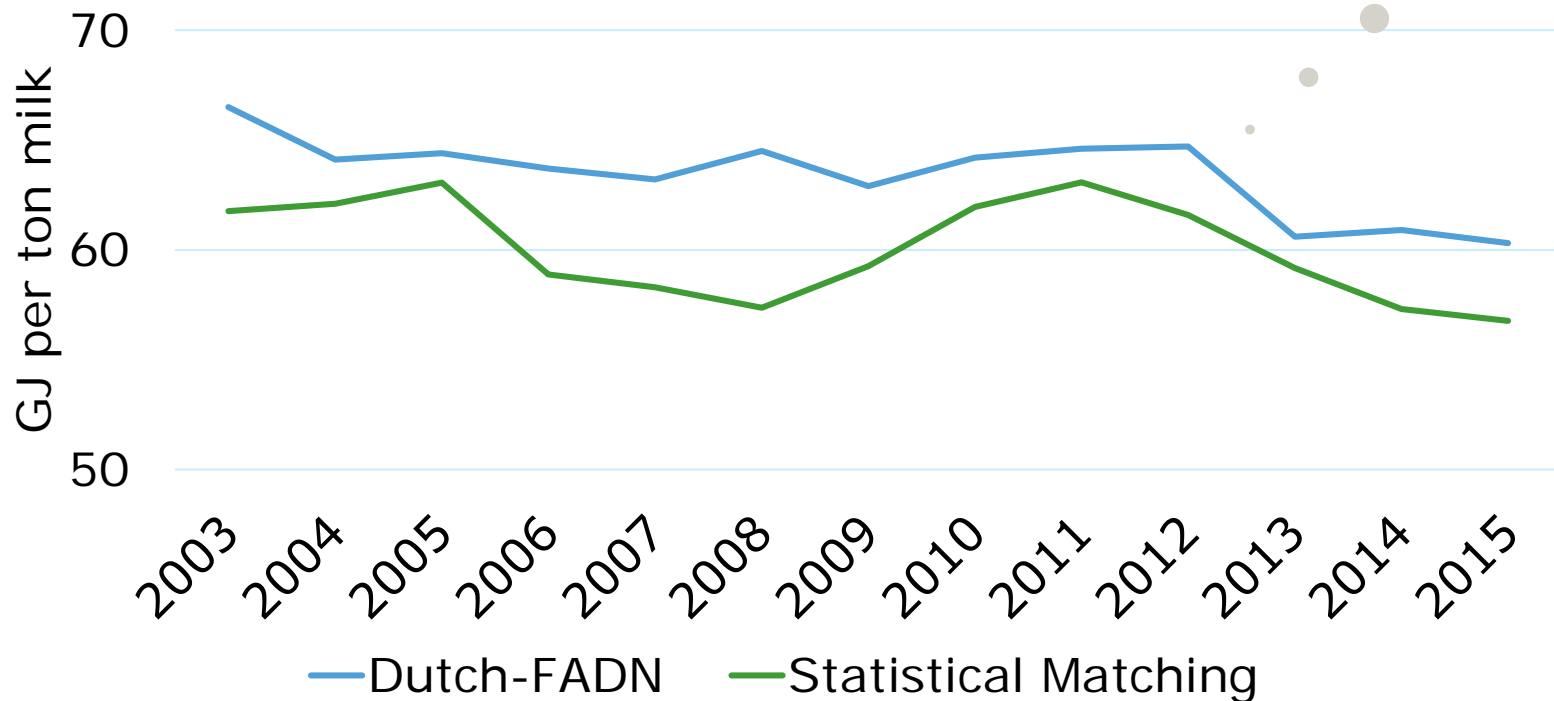
- One model run → multiple studies
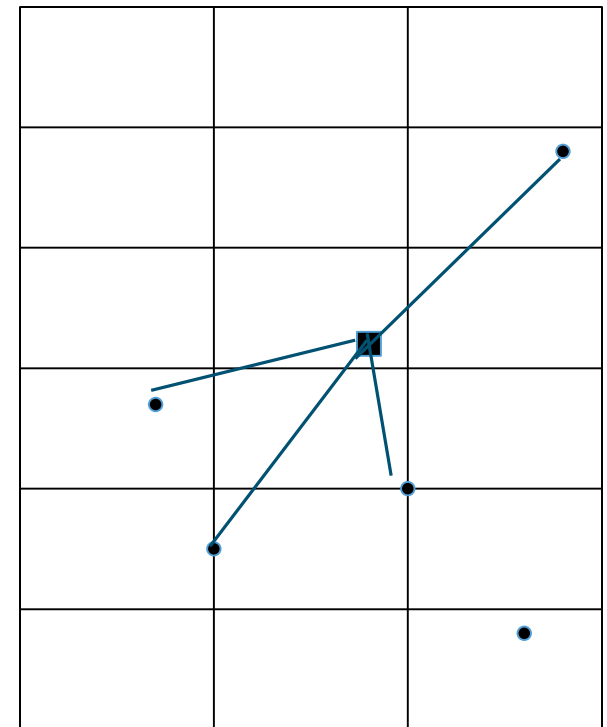
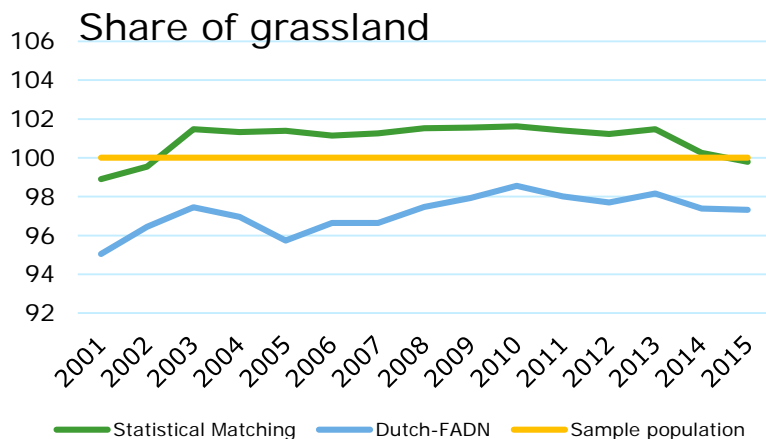# Which benchmark should be used for a regional study?

Comparison 1: Farm income per awu on dairy farms

-5kEuro ⇔ +2kEuro difference
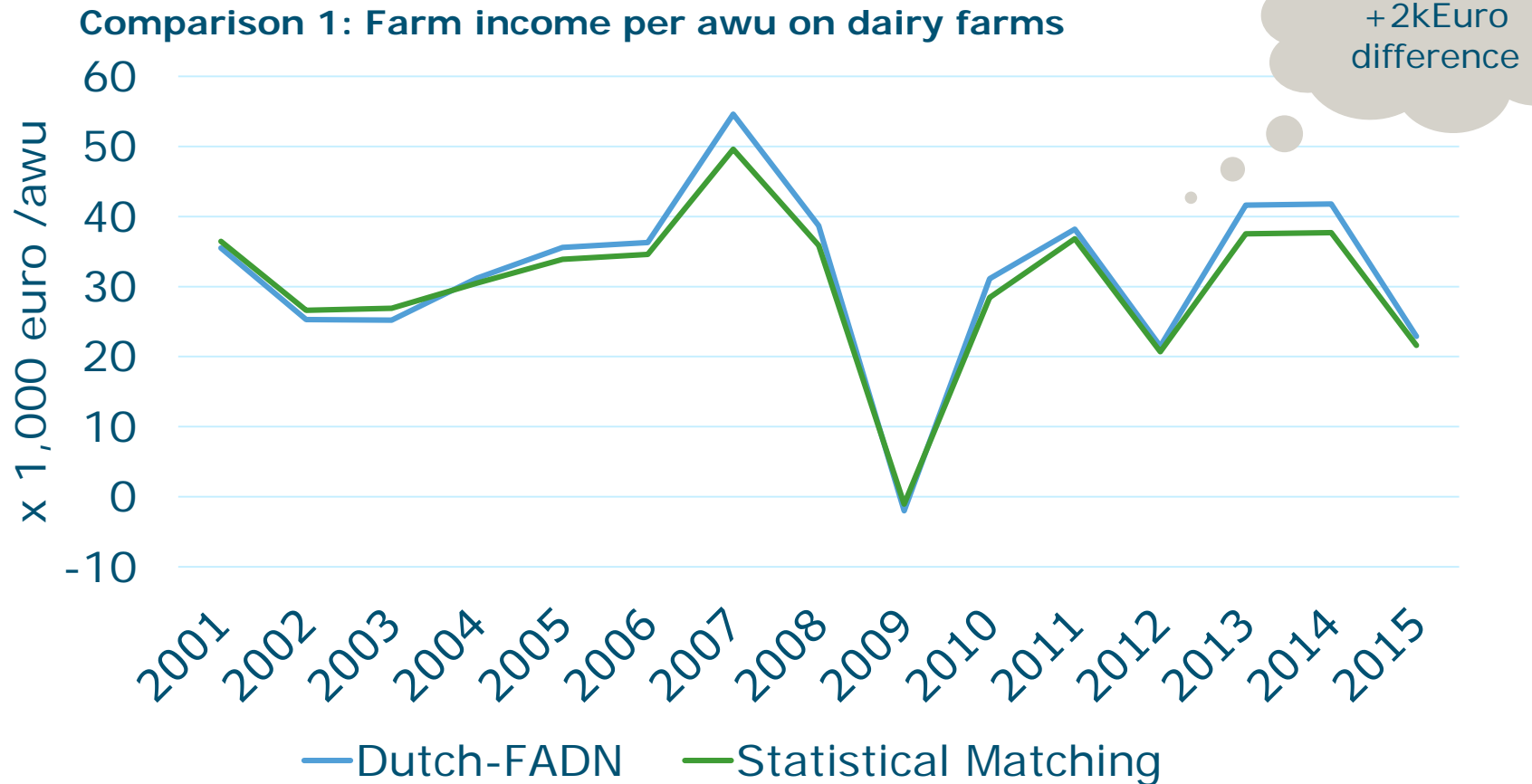
Which benchmark should be used for a regional study?

Comparison 2: Energy use per kg milk on dairy farms

-2% ⇔ -11% difference

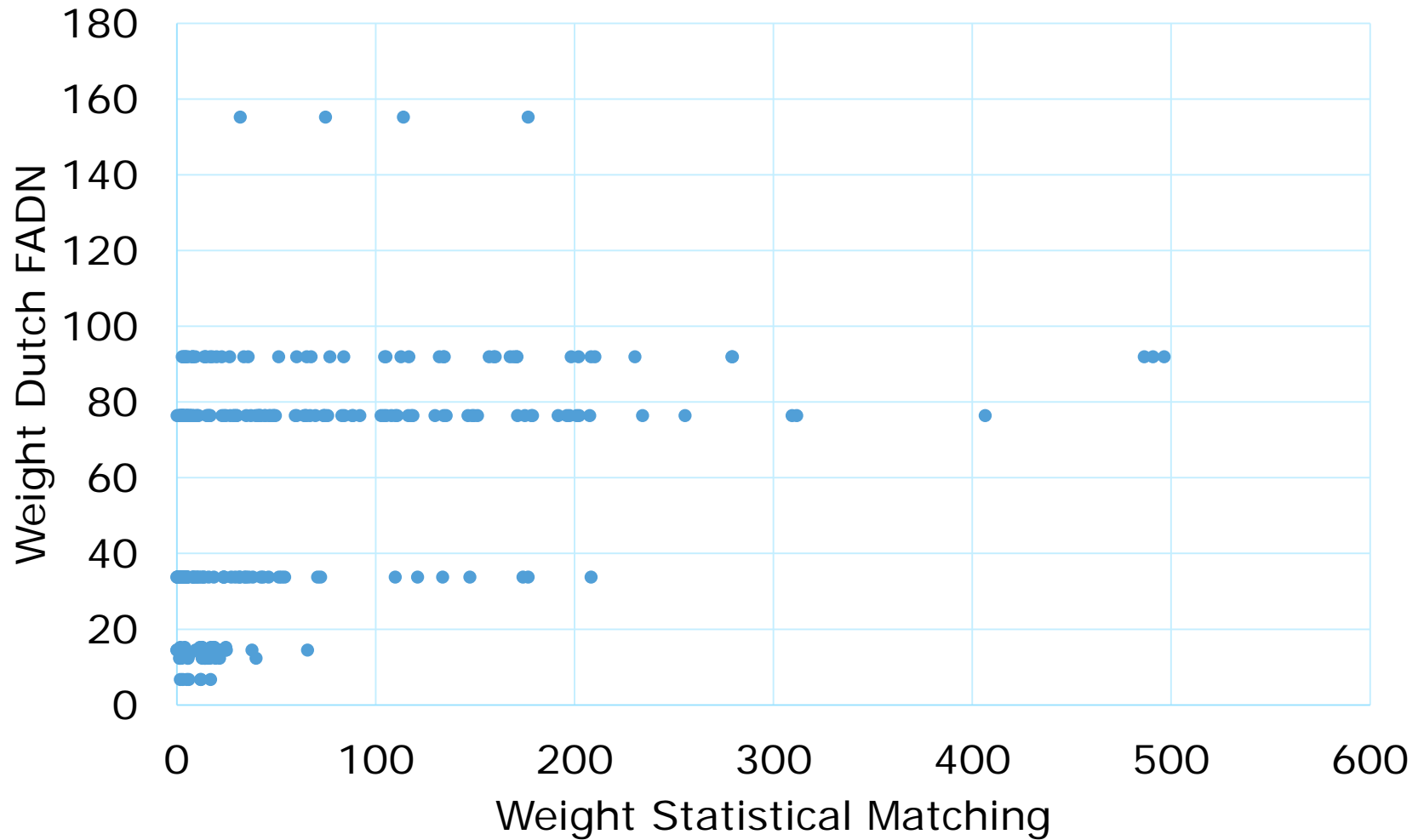# Which benchmark should be used for a regional study?

Share of grassland

WF Statistical Matching	Year=2015
Mean	59
St. dev.	79
max/mean	8

SO

SO/HA
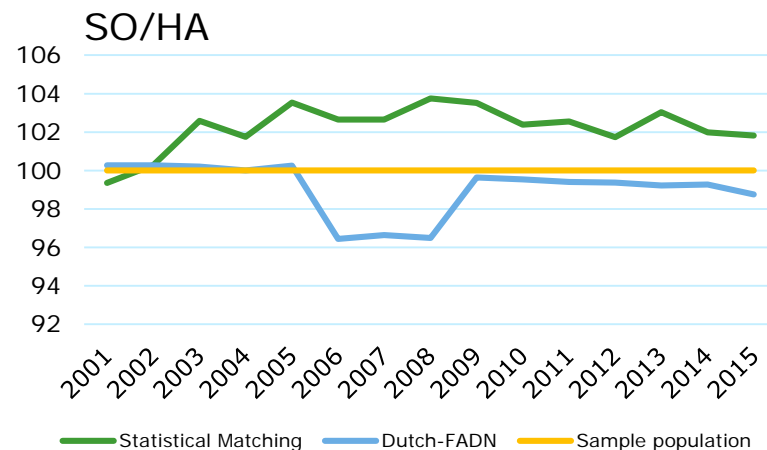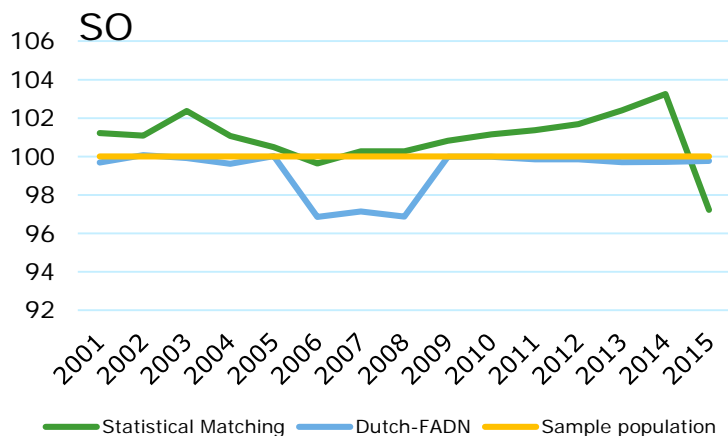
Compare weights per farm

Thank you

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