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Farm Level Data - Applicability And Challenges

Marius Berger, NIBIO

Signe Kårstad, NIBIO

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Agenda

- Applicability of FBS data in projects
- Type of FBS data used in projects
- Advantages and challenges
- Applicability and challenges of using farm level data - two examples from Norway (Signe Kårstad)

Applicability of FBS data

- Big amount of data
- Different need for data
- Examples of economic analysis used in projects
  - Profitability analysis
  - What if analysis
  - Life Cycle analysis
  - Investment analysis (NPV)

Type of data

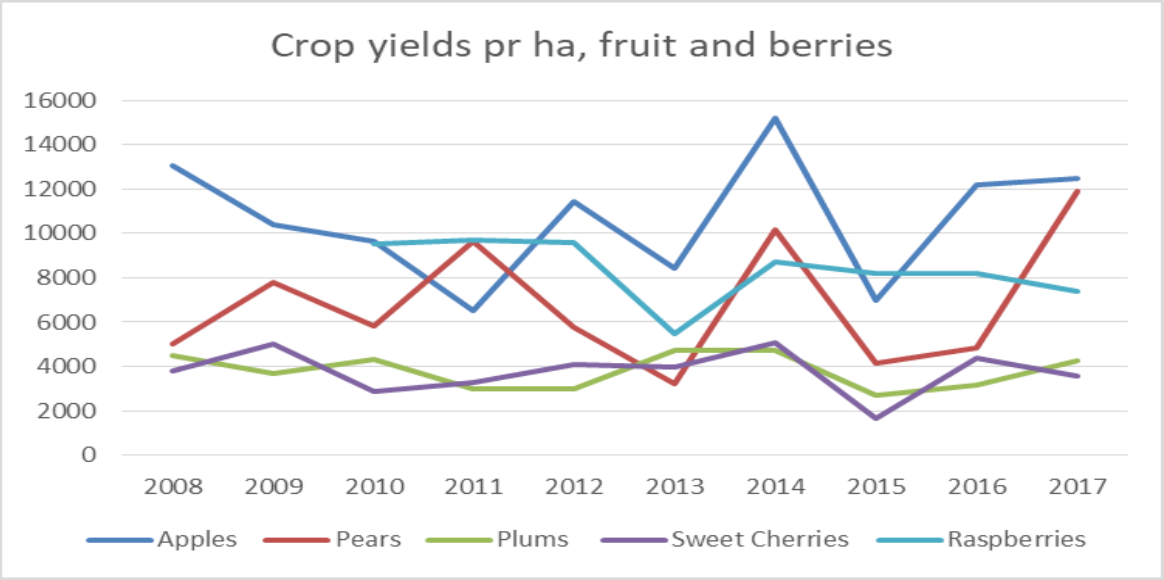
- FBS provides good data on
  - Prices on different livestock and crop products

Prices, EUR per kg	2013	2014	2015	2016	2017
Apples kl I, EUR pr kg	1,06	1,01	1,05	1,06	1,08
Pears kl I, EUR per kg	1,17	1,19	1,16	1,13	0,94
Plums kl I, EUR kr per kg	2,36	2,34	2,30	2,30	2,53
Sweet cherries kl I, EUR per kg	4,67	4,71	5,37	5,05	5,23
Raspberries, EUR per kg	3,61	3,67	3,67	3,55	3,63

  - Numbers on kg meat produced and sold, litres of milk produced per cow, etc.
  - Labour hours
    - Family
    - Paid and unpaid labour

Type of data

– Crop yields: Coarse fodder, cereal, fruit and berries.



Berger, M., Haukås, T. and H. Knutsen. 2019. *Økonomien I jorbruket på Vestlandet 2017, Trendar og utvikling 2008-2017.* Norwegian Institute for Bioeconomy Research. NIBIO report. Vol. 5 No. 23, 2019

Type of data

- Costs and investments
  - Good estimation for variable and fixed costs
    - Variable costs: Seeds, fertilizers
    - Fixed costs: Fuel, maintenance.
  - Investment level
    - Type of investment: Machinery, outbuildings, tractors
    - Debt level

Advantages and challenges

- High degree of differentiation
  - Farm size: Numbers of ha, cows, sheep
  - Type of production: Milk, cereal, fruit
  - Location
- Data from FBS are useful for comparison
  - Average
  - Variation

Advantages and challenges

- Aggregate data
- Lack of information on different costs, amount used and type of fertilizer, seeds, fuel etc.
- Diversified farms (Fruit production with plums, apple, pears and sweet cherries). Difficult to allocate costs and labour hours to a specific crop

How to overcome these challenges?

- Make assumptions
- Cost allocation methods
- Administrative data
- Get more detailed information
  - Agricultural advisory service
  - Farmers give information about working hours, use of fertilizer and pesticides, which are linked to a specific crop or part of the production.

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Modelling cost of transportation in agriculture

Signe Kårstad, NIBIO

Modelling costs of transportation at farm level

Case-study (two rural areas in Norway):
A comparison of transporting fodder and manure in two rural areas in Norway

Drivers of costs

- Farm size
- Machinery equipment
- The number of and distance to fields/plots
- Etc.

LANDFRAG

- 1/4/2017-31/3/2020 (ongoing)
- Ruralis, **NIBIO**, Nordlandsforskning, NMBU, etc.
- Funded by the Research and Development Fund for Agriculture and the Food Industry, with Tine SA and the county governors as co-funders
- https://landfrag.no

Results from previous work (case-study)

Costs of transporting fodder and manure, in NOK per km and ton

Example		A.	B.
Tractor	Capacity	100 kW (136 hp)	90 kW (122 hp)
	Fuel	19 l/h	17 l/h
	Speed	30 km/h	30 km/h
Maunure	Capacity	12 m^3	7 m^3
Transport of manure, costs per km and ton		2,48	3,55
Fodder	Capacity (only round bales)	10 à 800 kg	8 à 800 kg
Transport of fodder, costs per km and ton		2,29	3,38

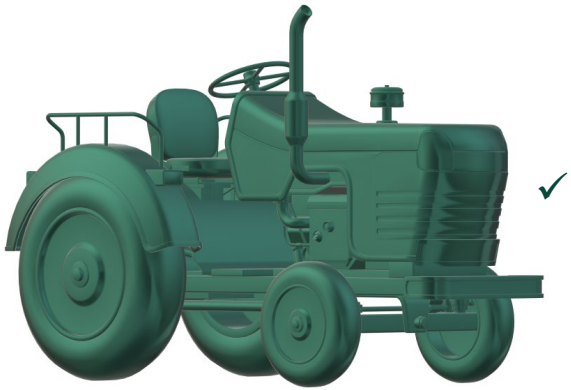
Kårstad, S., Haukås, T. and A. Hegrenes. 2015. *Analyse av kjørekostnader i mjølkeproduksjonen. Ei samanlikning av kjøring langs vegen ved grovfôrhausting og spreiing av husdyrgjødsel i to bygder*. Norwegian Institute for Bioeconomy Research. NIBIO report. Vol. 1 No. 9, 2015.

LANDFRAG (ongoing research project)

- Farm size: https://gardskart.nibio.no/ (WP1 NIBIO)
- Number of plots and distance to plots: GIS (WP1 NIBIO)

- Modelling costs of transportation at farm level by using farm accountancy data (WP2 NIBIO):
  - ✓ 3 year mean for:
    - i. Crops (fodder and grain)
    - ii. Machinery equipment: tractor value, harvester etc.

    * The results will be compared with other sources
  - ✓ Challenges:
    - i. Maintenance costs
    - ii. Machine leasing
    - iii. Machine rental
    - iv. The use of unconventional machines (e.g. trucks)



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