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Improving efficiency of the sample design and reducing survey costs in the Finnish horticultural survey

Anna-Kaisa Jaakkonen, Natural Resources Institute Finland, Finland, anna-kaisa.jaakkonen@luke.fi
Johanna Laiho-Kauranne, Natural Resources Institute Finland, Finland, johanna.laiho-kauranne@luke.fi
Mika Kuoppa-aho, Natural Resources Institute Finland, Finland, mika.kuoppa-aho@luke.fi

SubID: 20467622206

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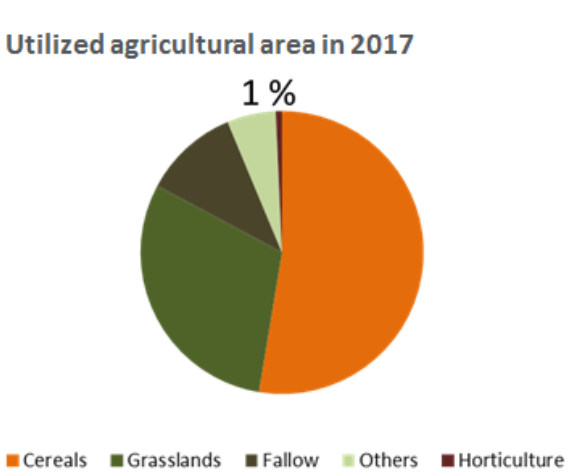
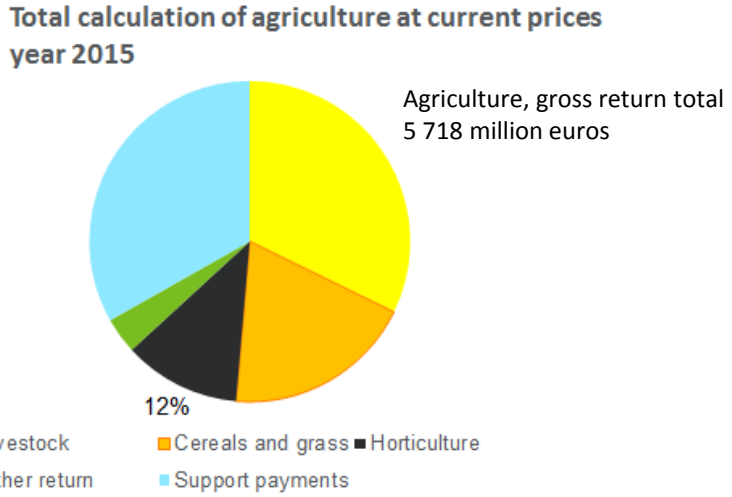
Horticultural statistics in Finland

- Total annual sample survey - census of horticultural enterprises since 1984 & every 3 years additional component of energy use in horticultural farms
- Level of detail required by the EU and the heterogeneity of the enterprises is high (permanent crops by density & age categories, location, large & small enterprises)
- Mixed mode of advance letter & web survey + telephone intervies
- Total response rate is close to 98% of horticultural farms
- Coverage of almost 100 % of the land in horticultural production
- Using thresholds to reduction of sample size maintains annual survey is a balanced solution to gain savings and reduction of burden





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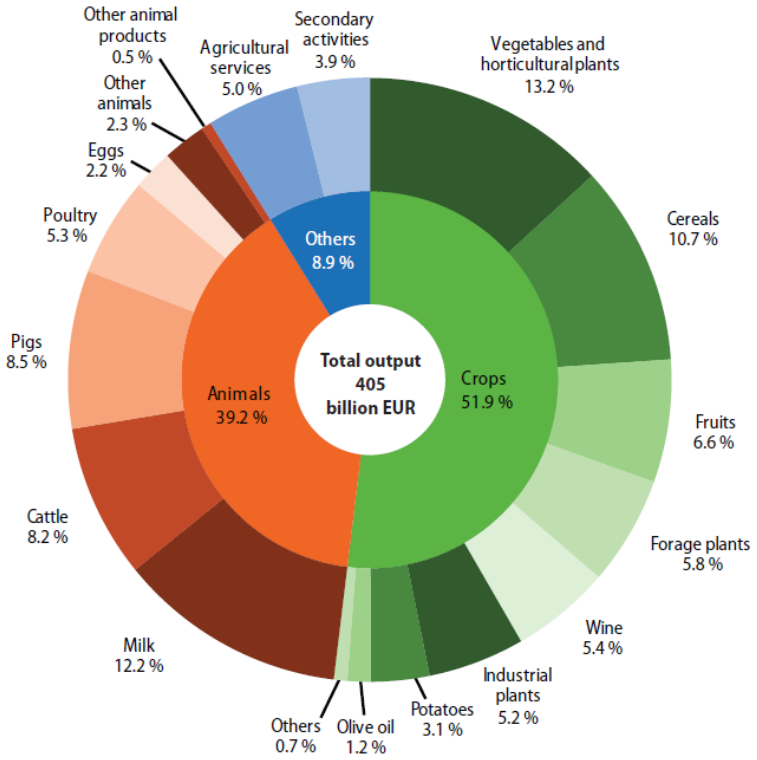
The need to modernise & improve the efficiency

Figure 3.1.1: Output of the agricultural industry, EU-28, 2016
(% of total output)



Note: values at basic prices.

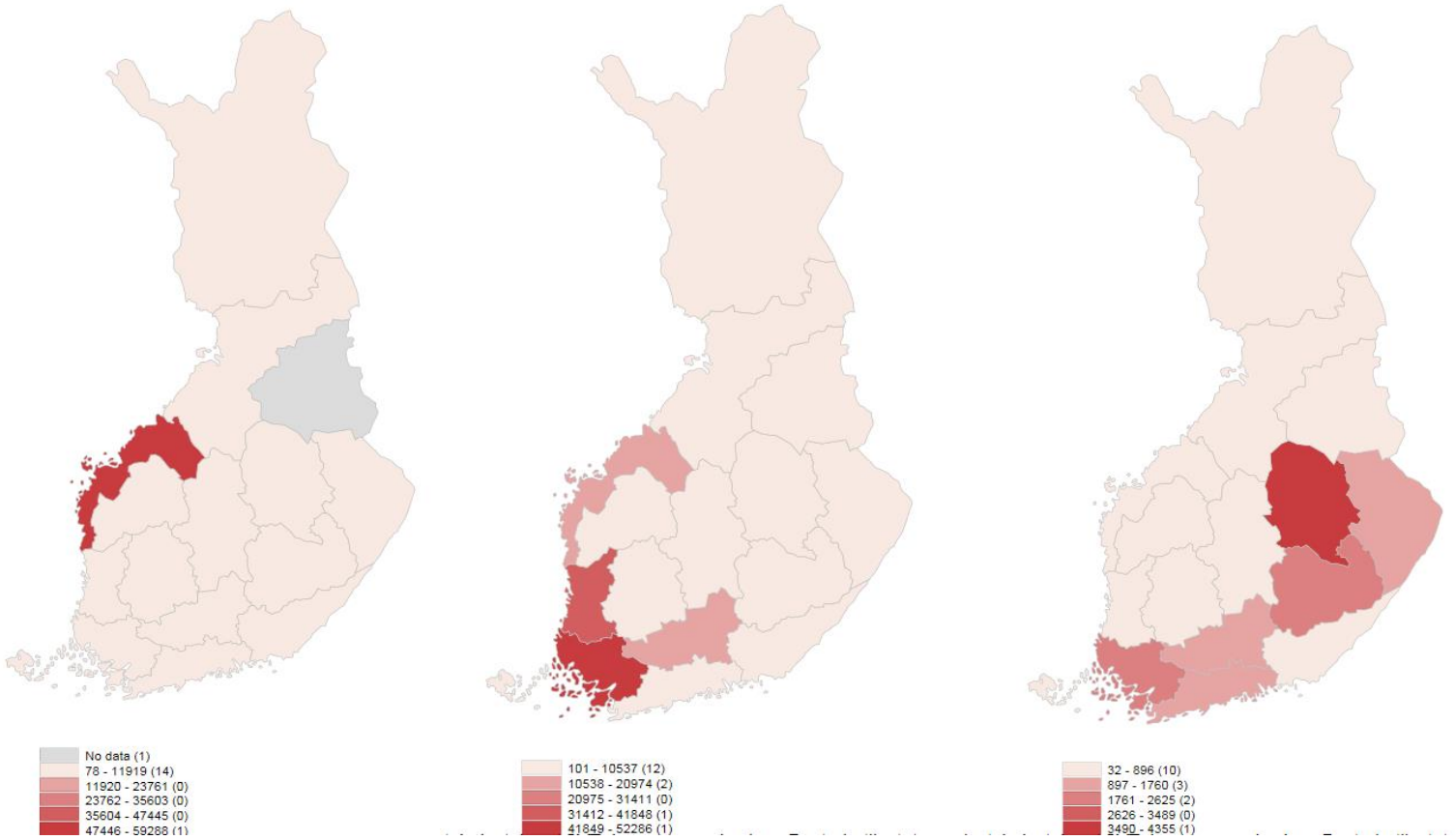
Source: Eurostat (online data code: aact_eaa01)

- Taking into concern the national information needs & EU needs
- Preconditions for modernization:
  - To reduce the response burden of the enterprises
  - To reduce the survey costs without sacrificing the accuracy and quality of the survey information
- The importance of the economic value has risen in connection with the monitoring the volumes of production

Pre-conditions & constraints:

- The key variables to be estimated are totals & distribution by geographic classification
- The units and the areas of production are known from register

Regional variation and concentration of horticultural farms by yield



Greenhouse vegetables **Outdoor vegetables** **Berries**

Horticulture, gross return total 656 million euros, of which:

greenhouse vegetables 37%, outdoor vegetables 28% and berries 14%.

Standard Output to be used as cut-off threshold

- SO i.e. Standard Output is the average economic yield for farm products per hectar or per production animal excluding agricultural benefits for production.
- The inrease of the threshold from 2 000 euros to **10 000** euros cuts off 34 % of berry farms, 6% of production land BUT only 2% of the total crop.
- With special production such as with blueberry farming the cut off of the farming land is 35-38% and in crops 28 %
- In areas where the size of the farms are larger the impact of the cut-off is smaller.

Crop production	SO eur/ha	hectares per SO			
		2 000	10 000	15 000	20 000
Vegetables in greenhouse	797 180	0,003	0,013	0,019	0,025
Ornamentals in greenhouse	622 090	0,003	0,016	0,024	0,032
Open field vegetables and strawberry	12 400	0,2	0,8	1,2	1,6
Open field berries	6 750	0,3	1,5	2,2	3,0
Potatoes	3 570	3,9	19,6	29,4	39,2
Oats	510	0,6	2,8	4,2	5,6

The impact of increasing the cut-off threshold on estimated production volumes and coverage of farms and utilised agricultural area

Crop production	Difference: SO 2 000 eur / 10 000 eur			% Difference: 2 000 eur / 10 000 eur		
	# Farms	ha	1 000 kg	# Farms	ha	1 000 kg
Strawberries	-267	-86	-161	-24	-3	-1
Highbush blueberry	-53	-25	-33	-36	-35	-28
All berries	-543	-352	-320	-34	-6	-2
Carrots	-52	-7	-110	-14	0	0
Garlic	-23	-5	-5	-34	-26	-10
All open land vegetables	-251	-84	-307	-18	-1	0
Tomatoes	-2	0	-1	-1	0	0
Butter-head lettuce	0	0	0	0	0	0
All greenhouse vegetables	-3	0	-1	-1	0	0
Bedding plants (# 1 000)	-2	0	-2	0	-	0

Conclusions:

➔ We have shown that the survey costs can be reduced in unefficient sample designs of horticultural survey by increasing the survey threshold.
➔ By increasing the cut-off threshold from 2 000 euros of Standard Output upto 10 000 euros, we have been able to reduce the number of farms in the sample by 26% while the coverage of the agricultural area for horticultural production was reduced only by 2%.
➔ The reduction was highest amongst open field horticultural farms in which the economic value per hectare is lower than in greenhouses.
➔ We estimate that the direct survey costs have been reduced in total by some 15 000 euros per survey.
➔ The outcome of the savings in survey costs we have gained, are higher as we originally anticipated.

Thank you for your attention! For further information please contact:

Anna-Kaisa Jaakkonen or Johanna Laiho-Kauranne

forename.surname@luke.fi

Luke Statistical WebServices on Agricultral, Forestry , Fishery and Bioeconomy statistics:

http://stat.luke.fi/en/