# Reporting tool for annual change studies by using survey data

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**Abstract**

The economic results of Finnish agricultural holdings are published in Economy Doctor online system. The objective of this project was to develop Economy Doctor online service towards more versatile reporting system. A new feature was added with automated calculation routine to report year-to-year differences by classes selected by user, maintaining data confidentially, to promote further utilization and to produce more concrete help for researchers, decision makers and the public audience.
*Keywords*: FADN, change, reporting

## 1 Background and objectives

The Farm Accountancy Data Network (FADN) is an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. FADN data is collected every year from a sample of the agricultural holdings in the European Union. Natural Resources Institute Finland (Luke) is responsible of organizing the delivery of survey results to the EU from Finland.

Economy Doctor is a reporting service (www.luke.fi/economydoctor) for publishing time series of business activities and income of Finnish agricultural holdings. Due to data confidentially decrees the results are published at average level by region, economic size and type of holding. Every year microeconomic data is collected from approximately 900 voluntary agricultural holdings. The observations in sample are suitably weighted by using weight factors calculated individually for each farm and, further, the data are used to describe the situation of all Finnish farms.

Year-to-year changes are often of interest when studying economic performance and comparing the previous results present situation. To calculate the changes it may be needed to gather information from various sources and then subtract the results.

We developed a new feature in Economy Doctor internet reporting service, which runs analyses to estimate for example how each kind of income or cost affect the observed

profitability and financial statement. A routine programmed in Economy Doctor calculates for any economic report the differences between selected years of interest.

The objective of this project was to implement automated calculation routines for more effective utilization of sample survey results without compromising data privacy. The overall target is to develop Economy Doctor reporting service to produce more concrete help for researchers, decision makers and the public audience.

# 2 Reporting tool and results

Agriculture and horticulture service in Economy Doctor is founded on flexible reporting system and user interface, which allow extensive possibilities to examine the economic results of Finnish agricultural holdings. The results are based on profitability bookkeeping farm system administrated by Statistical services in Luke.

In online service it is not possible to get results of individual farms. All results are average figures from at least five farms. The results are shown as rounded figures, which is part of data confidentially policy.

The reporting routine collects from database the holdings matching the selected criteria and calculates a report of interest. The routine includes a weighting procedure, utilizing Farm Structure Survey (FSS), such that the results are representative by type of holding and economic size of those taken into examination. Weight factors are calculated individually for each farm based on the fact how much there are on each area different farms in regards of type of holding and economic size. The reports show the number of bookkeeping farms by classes and the rounded number of all farms.

A new feature to calculate the differences in Economy Doctor Agriculture and horticulture services was programmed. User can get reports between any selected years by classes of interest. The system produces automatically the differences reported in table format. Before the result table presented to user the system calculates first weighted annual averages and further differences between years. It is not obligatory to study consecutive years, but any period of change can be reported. The results are calculated in real time by automated calculation routine.

Example printout is given in Table 1 indicating the year-to-year changes for the period 2010–2015. In addition to years and type of holding, it is possible to optionally select two other classification variables.

Table 1: Differences for the dairy farms' production costs in 2010–2015. Partial printout from Economy Doctor Agriculture and horticulture service.

| Production Costs | Dairy Farms | | | | |
|---|---|---|---|---|---|
| | 2011_2010 | 2012_2011 | 2013_2012 | 2014_2013 | 2015_2014 |
| **Farms represented** | 9 520 | 8 950 | 8 430 | 8 040 | 7 680 |
| **Farms in sample** | 330<n<340 | 320<n<330 | 310<n<320 | 300<n<310 | 280<n<290 |
| **Arable land** | 3,1 | 4,5 | 0,5 | 3,6 | 3,8 |
| **Livestock Units** | 1,6 | 4,2 | 1 | 3,2 | 3,1 |
| **PRODUCTION COSTS** | **18 056** | **39 255** | **8 036** | **14 275** | **6 868** |
| **Material costs** | **8 175** | **9 668** | **4 246** | **1 893** | **1 813** |
| Fertilizer. Lime | 504 | 1 627 | 162 | 1 006 | -486 |
| Other crop production costs | 776 | 914 | 226 | 583 | 528 |
| Fuel and lubricants | 1 465 | 1 784 | 70 | -286 | -170 |
| Electricity | 710 | 481 | 66 | -13 | 381 |
| Forage costs | 4 721 | 4 862 | 3 723 | 603 | 1 560 |
| **Farm use** | **5 052** | **9 153** | **1 131** | **-107** | **1 559** |
| **Livestock costs** | **388** | **2 328** | **78** | **1 113** | **809** |
| Livestock purchasing | -313 | 603 | -329 | -154 | 32 |
| Other livestock costs | 701 | 1 725 | 407 | 1 267 | 777 |
| **Machinery cost** | **3 287** | **3 924** | **2 332** | **3 893** | **411** |
| Depreciation of machines | 1 169 | 1 235 | 674 | 919 | 934 |
| Other machinery costs | 2 118 | 2 688 | 1 658 | 2 975 | -523 |
| **Buildings costs** | **594** | **1 603** | **898** | **2 018** | **-423** |
| Depreciation of Buildings | 287 | 1 373 | 1 042 | 746 | 595 |
| Other buildings costs | 308 | 230 | -145 | 1 272 | -1 018 |

The aim is to develop Economy Doctor online portal even more user-friendly and to offer more versatile possibilities to study key indicators and economic results based on the need of users. Future work is to add visual reporting environment.

# References


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