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CRI14: Increase in efficiency of energy use in agriculture and food processing in RDP supported projects

Eric Markus(Sweden)

Background

FA5B + FA5C are combined in Sweden's RDP for targets and budget.

Measures related to R14:

- **M04 Investments in physical assets**
  - By end of 2018: 68 completed investments. To date: 182 supported investments.
- M16 Cooperation
  - To date: 2 projects, not included in calculation of R14

Secondary effects for R14:

- FA2A M04 Investments in physical assets for enhanced competitiveness

Types of investments

Investments in **FA5B M04** are on-farm investments in more energy efficient housing, or (fixed) machinery and equipment.

What types of investments are supported? FA5B M04 by investment type	Share of investments	Share of RDP funds
Heating or cooling	30 %	41 %
Lighting	22 %	13 %
Insulation	20 %	20 %
Ventilation	14 %	12 %
Others (feeding, milking, manure management etc.)	14 %	14 %

In FA2A M04 (secondary effects): on-farm investments, typically in new or modernised housing, fixed equipment and machinery

Calculation of R14

Method: a before-and-after calculation, no netting out of effects

Data sources for both primary and secondary contributions:

- Operations database (beneficiary applications)
  - Beneficiaries are in their application asked to give details of energy use and production before and after the investment.
- Eurostat Standard Output values (regional level data)
- National energy authority energy conversion tables
- IACS data used for validation of production values when required

Calculation of R14

For the investments in FA5B and FA2A:

- Identify **before and after values** for **energy use** and **production**
- Using national energy agency conversion tables, **convert energy values** to a uniform unit (kWh)
- Using regionalised Eurostat Standard Output (SO) values, **convert production data** to uniform units (SO units)
- For R14: convert kWh to TOE
- Sum up values (TOE per SO unit), before and after the investment
- R14 as the change (before –> after) in energy use per production value, reported as:
  - 26.33 % increase in energy efficiency (0,00001613532 TOE/SO) for <u>primary</u> contributions
  - 16.04 % increase in energy efficiency (0,00000948098 TOE/SO) for <u>secondary</u> contributions

Challenges and solutions for the calculation of CRI 14

⚠️ Energy data from applicants sometimes **different units** (e.g. wood chips in volume or weight)

💡 Use **conversion tables** to convert and estimate energy content of fuel

⚠️ **Data from applicants** seemingly **incorrect**, even by order(s) of magnitude

💡 Investigate what is reasonable given the type of production or investment, e.g. using **industry standards, comparing to similar investments** etc.

💡 Obtain and use additional information from other sources, e.g**. IACS, application dossier** etc.

⚠️ **Conversion values** (energy or SO) do not exist for a type of fuel or production

💡 Use **nearest existing approximate value**, or calculate an equivalent value if possible

⚠️ **Manual handling of data** is very time-consuming

💡 **Automate** as much as possible using macros, standardized values etc.

💡 Do a **trial run** with a smaller amount of cases/data beforehand – helps to estimate size of task

Main conclusions and lessons learned

Conclusions	Lessons learned
A simple before-and-after calculation was done	Gives a "good enough" estimate of the result (rather than effect) of the investments
Sweden has a good availability of data but it needs some validation and checking	Task is rather time-consuming, even when data available
Some conversion factors (energy, SO) were not available, suitable proxies used instead	The calculation of the CRI gives rough estimates of changes in energy efficiency

Recommendations / suggested improvements for ex post and future CAP

When preparing for the ex post:

- Obtain data from applicants early, already in application if possible
- Be prepared to handle a lot of different energy and/or production units that need converting
- Explore the use of FADN for production values and data

For the future CAP:

- Avoid an equivalent CRI-indicator on energy efficiency as it is time-consuming and complex to calculate – explore simpler ways of reporting energy in CAP
- Estimate changes in energy efficiency through evaluation efforts instead

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Thank you

Eric Markus

Swedish Board of Agriculture

eric.markus@Jordbruksverket.se