## **General**

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## Title

Automated break down analysis of time series for developments in Dutch agriculture

## Applicant

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## Strategic relevance

The FADN (Farm Accountancy Data Network) is a European instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. The farms included in the Dutch FADN are a sample of agricultural and horticultural companies from the Agricultural Census. A wide variety of data is collected within the framework of the FADN. A lot of manual analyses are performed every year. Such an approach is time consuming, subjective to the bias of the analyst and prone to man-made errors, and only first-level causes are identified. An automated break down analysis of time series should therefore entail the following advantages:

* less man hours are needed to perform the analyses because the manual work is now automatically executed;
* more objective because the same automated method will always be used;
* deeper analyses can be more easily performed because causes at a deeper level can automatically be identified.

A good development would therefore be to automate analyses that can be done with the data from the FADN. These kind of analyses can be beneficial for farmers since the breakdown analyses can be provide more extensive analyses and insights. After consulting various sector experts within Wageningen Economic Research, French-fries potatoes (in Dutch: frietaardappelen) were initially selected for the development of an automated analysis. The example of French-fries potatoes can be utilized for other products from various sectors.

## Objective

The aim of this project is to develop an automated cost price calculation method for French-fries potatoes that can be extended towards products from both the same sector and other sectors. This automated cost price calculation method should be established in such a way that it can also be used for other products; not only for arable products including French-fries products, but also for products from other sectors.

## Project description

The project starts with a breakdown analysis of the most important cost items for the production of French-fries potatoes. Distinction will be made between fixed and variable costs. For reasons of convenience, the existing classification of costs as used in the Dutch FADN will be aligned as much as possible. Once all cost items are identified, costs have to be assigned to the production of the French-fries potatoes. Assigning fixed costs is assumed to be the most challenging part in the calculation process of the cost price. The breakdown analysis can automatically analyse the developments of the various elements of the breakdown analysis overtime. After the development of the automated breakdown analysis for French-fries potatoes, a plan will be developed on how the automated method can be further developed, both for other products resulting from arable farming but also for products from other sectors included in the FADN.

## Expected project output

* An automated cost pricing calculation method for French-fries potatoes consisting of analysis software (algorithms and scripts to have the data from the FADN interpretable and usable for research). The calculation method is amenable for generalisation towards other products from both arable farming and other sectors.
* Follow-up plan on how the automated method can be further developed.