The percentage rest crop explained

By Steven Hoek and Stan Los (July 2022)

Introduction

In the following we explain how we have arrived at the indicator designated as "percentage rest crop". It is a score that is calculated on the basis of agricultural data pertaining to one particular agricultural field. The purpose of this, is to have an indicator for evaluating the choices a farmer is making as far as the type of crops is concerned which he grows on his field.

Background

The planting of so-called "rest crops" is one of the cropping practices proposed for so-called eco-schemes. The proposal should be seen against the background of the changing involvement of the Dutch government and of the European Union (EU) in agriculture. For many years, the Common Agricultural Policy (CAP) - as implemented by the EU in cooperation with the Dutch government – used to reward individual farmers with subsidies purely for the amount of agricultural product they produced. With the growing realisation in Dutch society in the past 10-15 years or so, that farmers are also guardians of nature, the landscape and the environment at large, it is generally felt that new ways are needed for rewarding individual farmers. The idea is therefore that the CAP should be modified and that rewards should be integrated into it for the services they provide to society – i.e. ecosystem services such as soil and water conservation and biodiversity-friendly farming.

Many Dutch farmers are already familiar with the concept "rest crop". The idea behind this concept is that such a crop gives the soil some rest:

- contrary to root crops, the crops which are counted as "rest crop", do neither require deep soil tilling nor disturbance of the soil during harvesting
- rest crops are assumed to have lower demand for nutrients than crops which are not counted as "rest crop"
- rest crops are assumed to contribute to the organic matter of the soil, because it's assumed that the largest part of the produced biomass is left in place to break down.

There is a special crop group called leguminous crops which in principle have a low requirement for nitrogen, because those crops are able to establish a symbiotic relationship with Rhizobium bacteria provided the right conditions are present or created. Those bacteria are able to fix nitrogen from air, which they exchange with the plants in exchange for carbohydrates. The crops belonging to the leguminous crops are often considered to be in a class of their own. This is our approach too, meaning that besides a "percentage rest crop" we also distinguish a "percentage leguminous crop".

Our aim was to develop an indicator which shows which part of his / her total cultivated area a farmer is cultivating with the mentioned rest crops. It should be possible to derive the indicator from undisputed data. The data we had in mind in particular are those which every farmer declares himself / herself every year to the government service RVO – part of the Dutch Ministry of Economic Affairs.

This declaration is called "Combined Declaration" and includes main crop type during the calendar year for every parcel in use by the farmer. Data from the "Combined Declaration" are made available in a strictly anonymised form to researchers, i.e. per land parcel.

Starting points

It was considered that the following would be a suitable crop categorisation:

- rest crops
- leguminous crops
- root crops
- permanent crops

To make it complete, we felt that we had to also distinguish "black fallow" as well as other crops. Thus we arrived at the following table:

Letter	**Description**
R	rest crop
W	root crop
P	permanent crop
Z	black fallow
E	leguminous crop
O	other crops

In order to make the above distinction applicable to the data from the RVO declaration, we classified every crop in the RVO crop list according to the above table. We tried to be consistent with the following list, which has apparently been taken from a policy document pertaining to the CAP. On many occasions reference was made to the following list:

code	crop
235	Winter barley
236	Summer barley
1921	Grass seed
238	Oats
944	Fiber hemp
3512	Italian ryegrass
246	Caraway seed
3506	English ryegrass
1922	Winter rapeseed
1923	Summer rapeseed
666	Linseed
258	Lucerne
664	Rapeseed
3807	Tall fescue
237	Rye
3519	Sorghum
233	Winter wheat
234	Summer wheat
381	Teff
314	Triticale
3523	Kentucky bluegrass
3736	Fiber flax
1036	Root parsley
1037	Parsley
247	Poppy seed
799	Red clover
3524	White clover
516	Miscanthus
382	Spelt
1022	Quinoa
2652	Miscellaneous cereals
331	Grassland, temporarily with herbs
332	Grassland, temporarily with herbs / clovers
266	Grassland, temporary