

# EVALUATION PRACTICES ON P4 4B Improving water management, including fertiliser and pesticide management

Livi Rooma




Maaelu Arengu Euroopa  
Põllumajandusfond:  
Euroopa investeringud  
maapirkondadesse



# Common result indicators 4B

- Surplus of nitrogen on the agricultural land (kg/ha/year)
- Surplus of phosphorous on the agricultural land (kg/ha/year)
- Changes in the content of nitrate in surface water (% of monitoring sites)
- Changes in the hydrochemical condition in rivers (BHT<sub>5</sub>) (% of monitoring sites)
- % of agricultural land under management contracts to improve water management
- Number of supported household



# Additional result indicators

## 4B

- Changes in farm gate N-balance (kg/ha/year)
- Changes in farm gate P-balance (kg/ha/year)
- Changes in the area of organic farming (ha)
- Changes in the area of winter plant coverage (ha)
- Changes in the area of winter fallow (ha)
- Changes in the area of permanent grassland (ha)
- Changes in the area of semi-natural community (ha)

# Implementation of common indicators for target areas

Focus area	Result indicator	Target value (2023)	Current value (2016)	Implementation
4A	% of agricultural land under management contracts to improve biodiversity	70,3%	61,1%	86,9%
4B	% of agricultural land under management contracts to improve water management	63,9%	60,0%	93,9%
4C	% of agricultural land under management contracts to improve soil management	71,0 %	60,0%	84,6%



# STUDIES CARRIED OUT RELATED TO THE WATER

- Plant nutrient concentration in drainage water and leaching of plant nutrients (follow-up study)
- Farm gate nutrient balance
- Pesticide use



## Plant nutrient concentration in drainage water and leaching of plant nutrients

- Volume of drainage water measured and sampled once a week.
- Concentration of P, K,  $\text{SO}_4^{2-}$ ,  $\text{NH}_4^+$ ,  $\text{NO}_3^-$  were determined from water samples.
- Annual plant nutrient leaching was calculated on the basis of volume of infiltrated water, plant nutrient concentration and drainage area.
- On the basis of field survey data, the field NPK total balance was calculated for monitoring fields according to the OECD methodology.
- The study was carried out in seven test fields including EFM, SAPS and OF monitoring fields.



# Farm gate nutrient balance (I)

- Balances are compiled using the Farm Gate Balance methodology.
- The main elements in the farm gate nutrient balance calculation:
  - Input: feed, straw, mineral and organic fertilizer, seeds, livestock, nitrogen fixation by leguminous crops and atmospheric deposition of nitrogen.
  - Output: plant and livestock production, animals, organic fertilizer (manure), feed and straw.
- Company's bought in and sold-out production is converted by coefficients to NPK, and afterwards the elements are summed. The balance equals bought or brought NPK minus sold or removed NPK.



## Farm gate nutrient balance (II)

- During the period 2004-2015 survey data was collected every year from about 120 farms. Preferably the same farms were selected throughout these years. Data from farmer's field book and bookkeeping records was collected by trained interviewers. The balance equals bought or brought NPK kg/ha subtracted by the sold or removed NPK kg/ha.
- Since 2016, the farm gate balance has been calculated on the basis of FADN data in which the sample includes 660 enterprises.





# Pesticide use

- Pesticide use study has been carried out since 2007. Since 2016 120 farms included in the study. The data from farmer's field books and bookkeeping records was collected by trained interviewers. Pesticide's usage is calculated per every farm separately:
  - The area treated with pesticide's proportion in relation to the utilised agricultural area (%).
  - The amount of pesticide's active substance in relation to the area of utilised agricultural area (kg/ha).
  - The amount of pesticide's active substance in relation to the treated area (kg/ha).