



# On Flanders (Belgium) expertise of researchers and farmers interaction regarding actions to minimize the nutrient leakage towards surface water

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9 february 2016, Leeuwarden

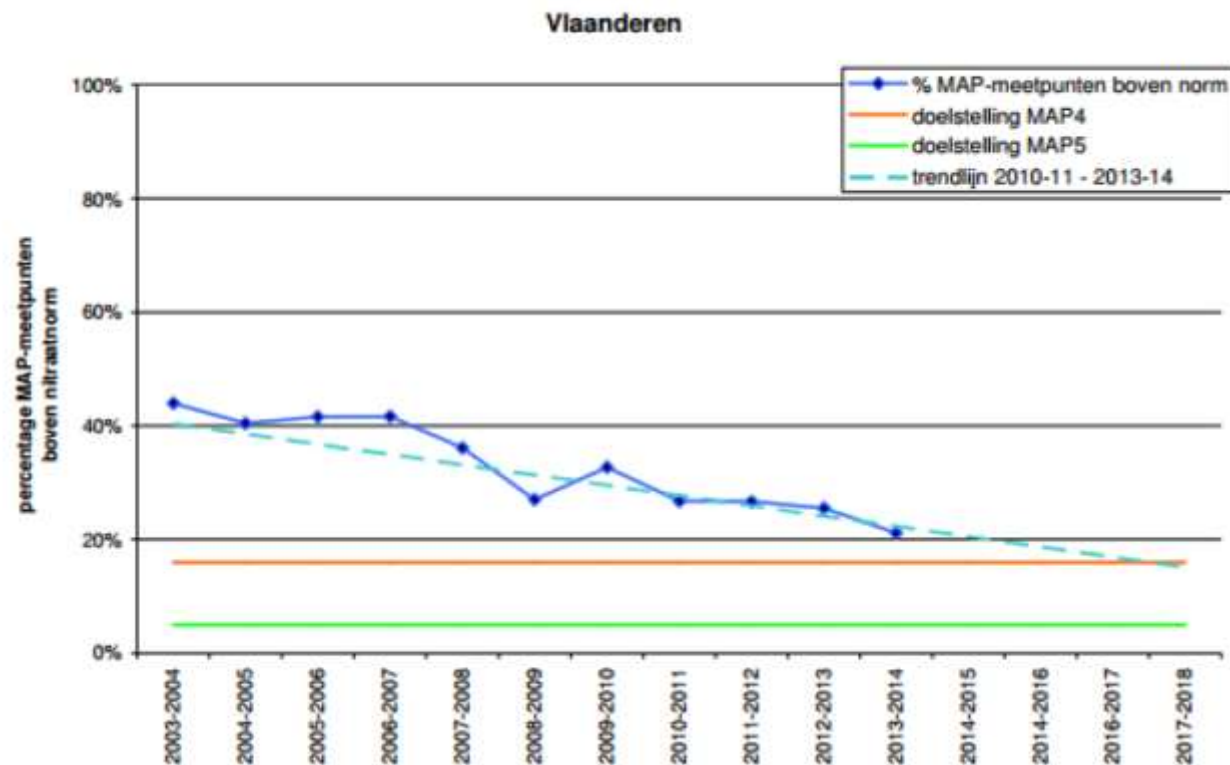
# Situation

- ▶ Dense network of monitoring water quality specific related to agriculture in Flanders
- Surface water (755 monitoring points, 55/1000km<sup>2</sup>)
- Groundwater ( 2200 monitoring wells, 162/1000km<sup>2</sup>)

# Objectives for water quality

## Nitrate in surface water

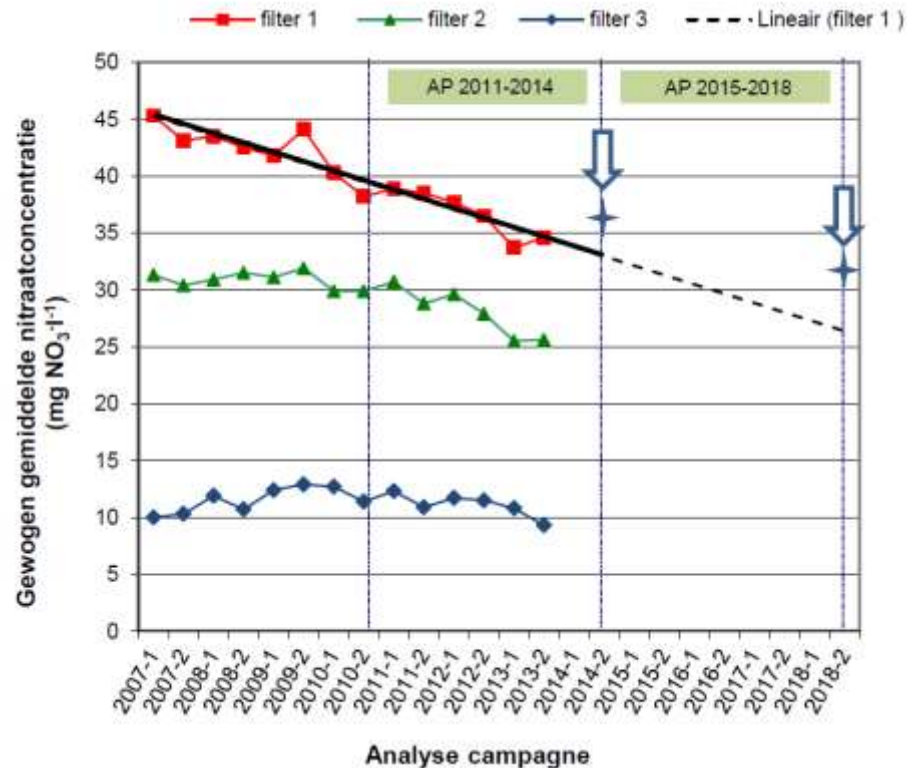
- ▶ Action program 2015-2018 max 5% points exceeds 50 mg Nitrate/L



# Objectives for water quality

## Nitrate in groundwater

- ▶ Action program 2015-2018 weighted average < 32 mg NO<sub>3</sub>-/L



- ▶ On average good result
- ▶ regions with intensive agriculture higher concentrations nitrate



# Surface water quality en focus area 2015



Green stars: all measurements <50mg nitrate/L

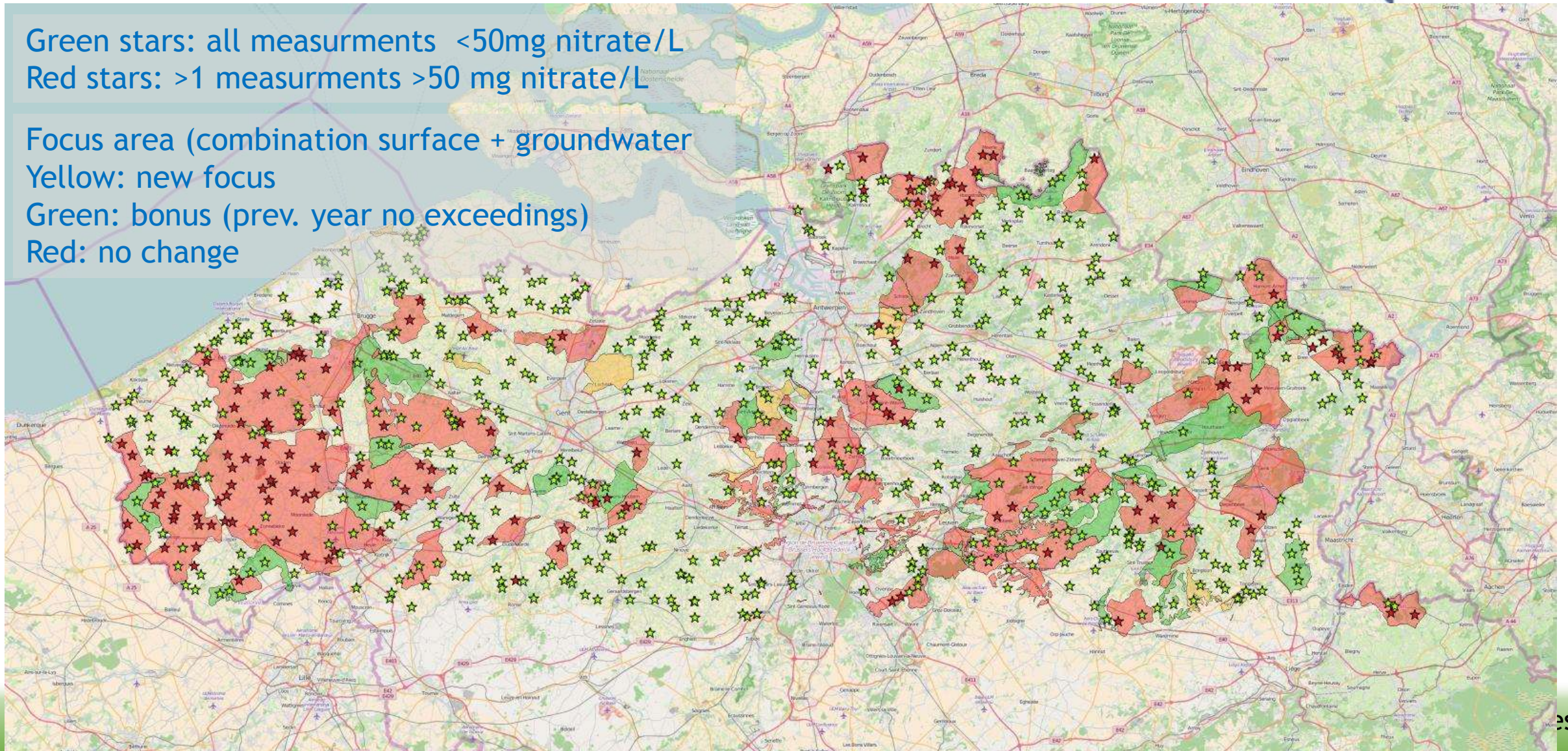
Red stars: >1 measurements >50 mg nitrate/L

Focus area (combination surface + groundwater)

Yellow: new focus

Green: bonus (prev. year no exceedings)

Red: no change





# Organisation CVBB



- ▶ 4<sup>th</sup> Action Program: application rate N ↓ legislation, rules ↑
- ▶ Flanking policy: establishing organisation that support farmers and helps to improve waterquality.
- ▶ Start in 2011, prolonged in 2015 till 2018
- ▶ CVBB is union of 9 research stations
- ▶ 22 full-time units (more than 40 persons involved)
- ▶ Budget € 2,2 milion/year
- ▶ Main tasks:
  - ▶ Establish Water Quality Groups. Measuring nitrate in catchement; awarness leaching out N towards farmers
  - ▶ Offering guidance and information about fertilisation for farmers with problems of nitrate residu in soil.

# CVBB Water Quality Groups



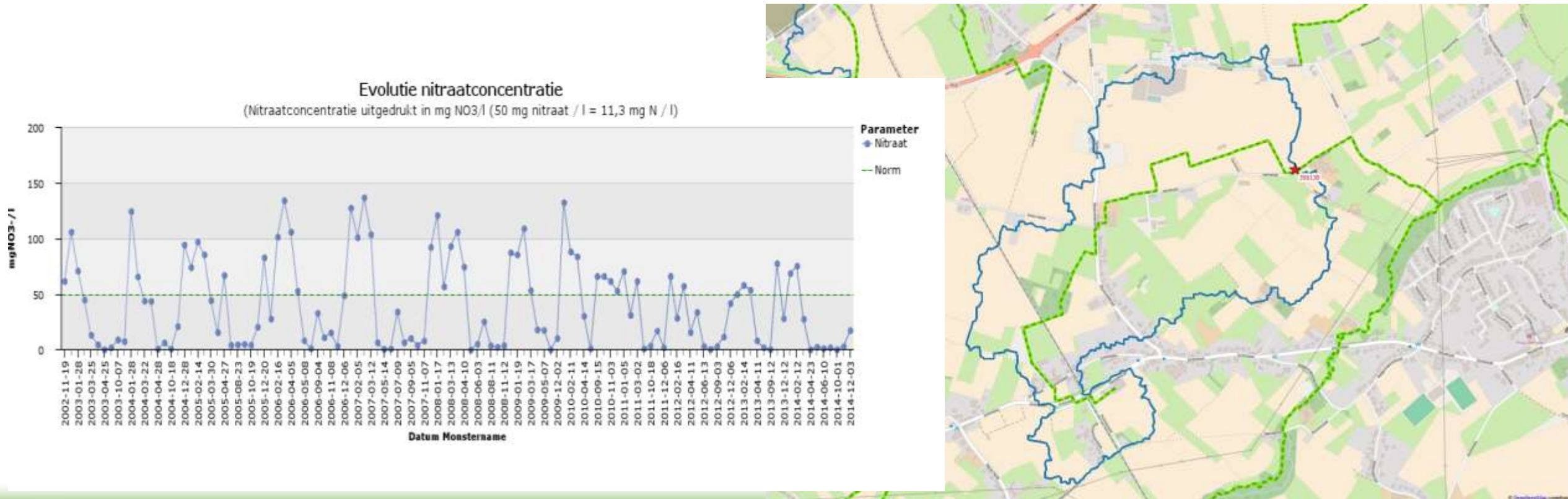
- ▶ Measuring nitrate in catchments
  - ▶ Starting from official measuring point
  - ▶ Upstream from point, in catchment, drainpipes fields
  - ▶ Quick, indicative measurements (test strips Reflectometer)
  - ▶ Follow up every month





# CVBB Water Quality Groups

- ▶ Example: Site in mechelen start CVBB since 2012
- ▶ Catchment area: 129 ha dominated by vegetables/maize
- ▶ Strong communication results to farmers





	Datum	Meting (mg NO <sub>3</sub> /L)
CVBB	02/03/2015	50
VMM	10/03/2015	62



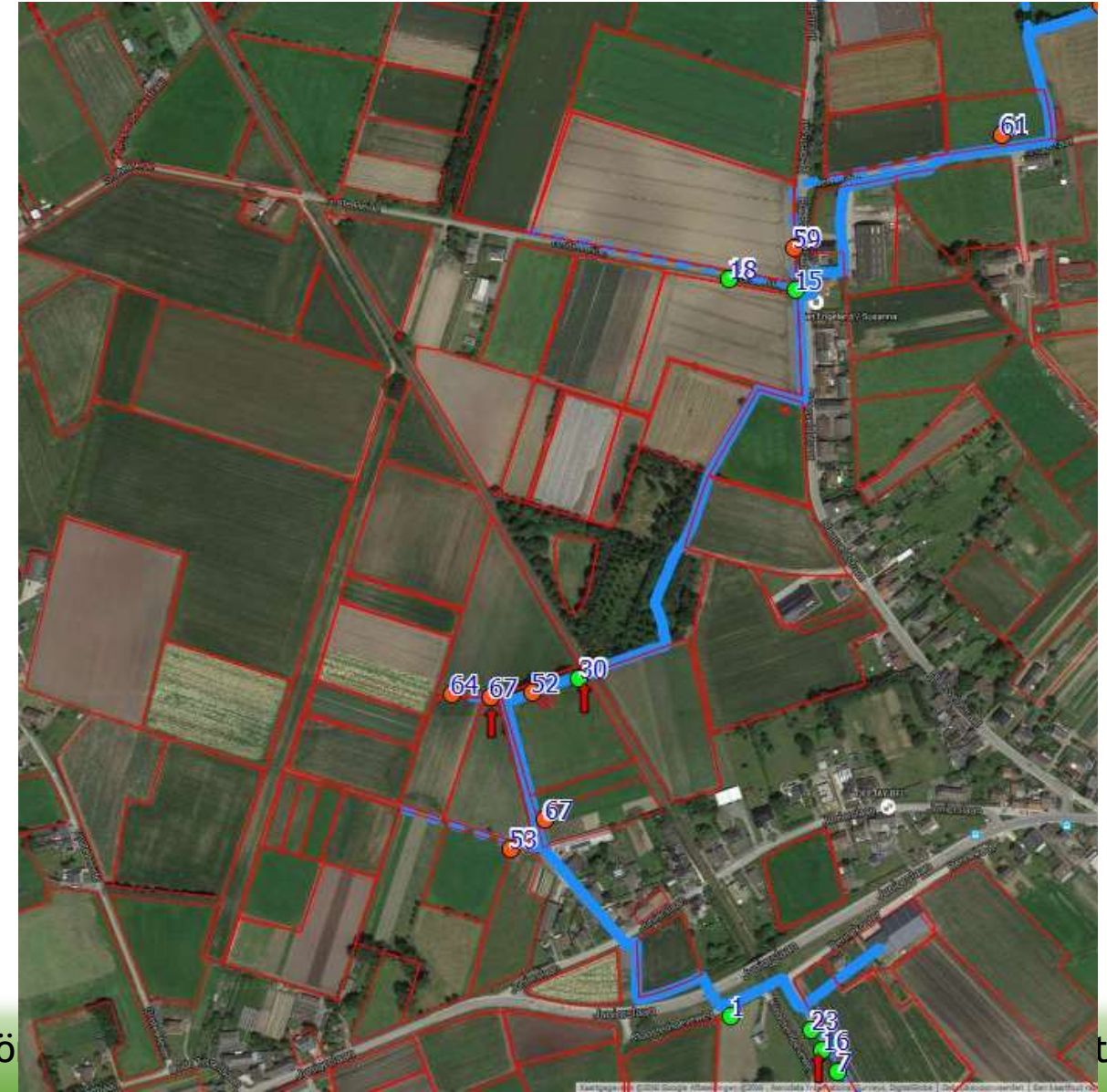
centrum voorlichting en begeleiding duurzame bemesting



# CVBB Water Quality Groups

## Methods

- ▶ In winter meeting with all farmers in catchment area
- ▶ Discussion the results of past year
- ▶ Everyone sees results of everyone
  - social pressure
- ▶ Strengthness approach:
  - ▶ Better insight where nitrate come from
  - ▶ Knowledge of the field (drains eg.)
  - ▶ Peronal relation with farmers
  - ▶ Results confidential in group, not to externs
- ▶ Weakness approach
  - ▶ Source(s) of N-pollution not always clear, diffusive
- ▶ Intensive approach needed



# CVBB Intensive Approach



## Identifying the problem

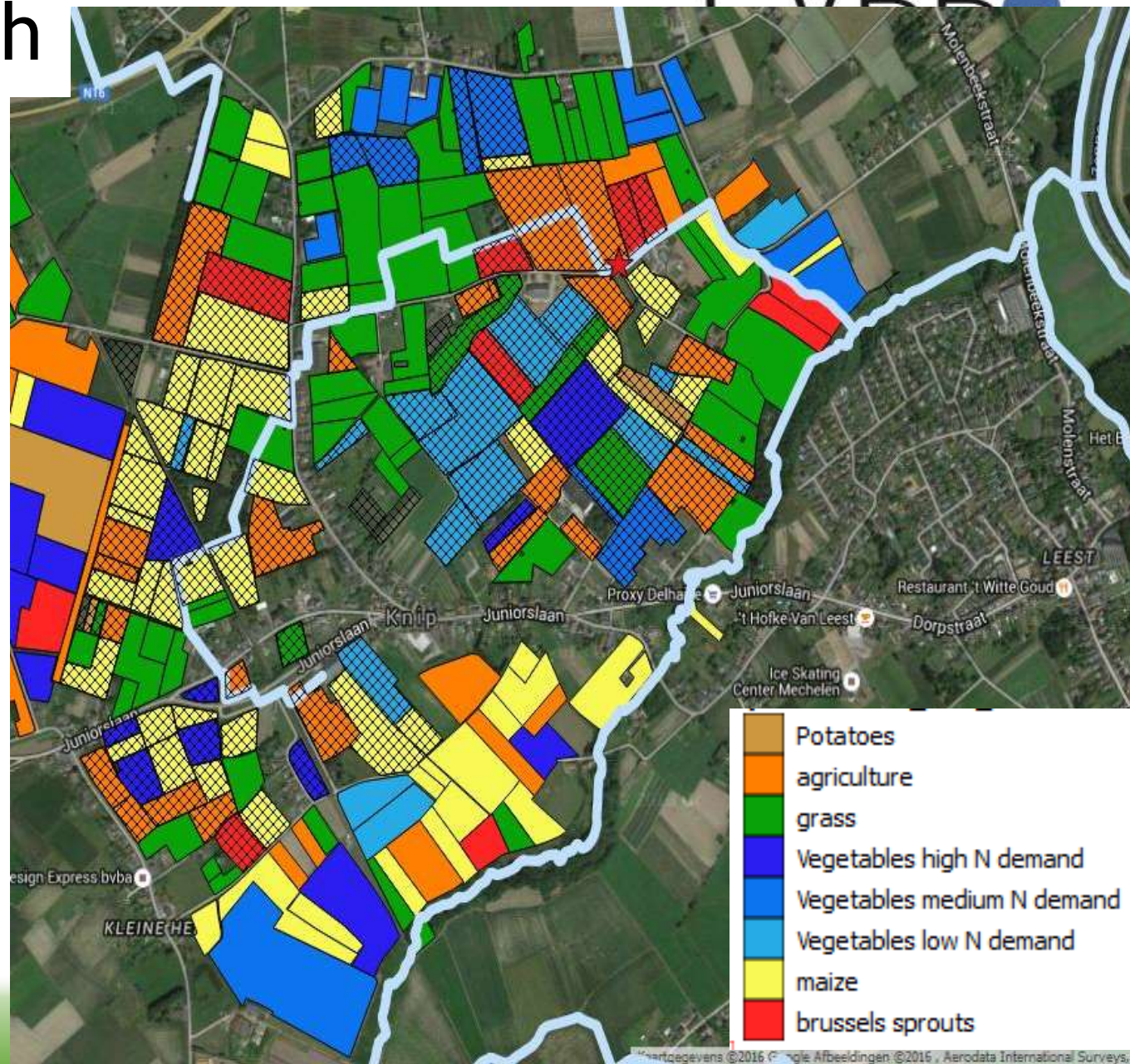
- ▶ Method : Taking soil samples in autumn (end growing season) to determine amount N-nitrate at depth of 90 cm in soil
- ▶ Whole catchment of parts of it (significant high levels nitrate in water)
- ▶ For Flanders: budget for IA € 225.000 (operational costs only)
- ▶ 94 cases of IA (upstream at “red” measuring points)
- ▶ 403 farmers involved



# CVBB Intensive approach

## Solutions

- ▶ Select parcels with risk of leaching N
- ▶ Discuss fertilisation strategy with expert
- ▶ Planning fertilisation through season
- ▶ Taking soil samples, analyse manure,... expert determines on wich parcels

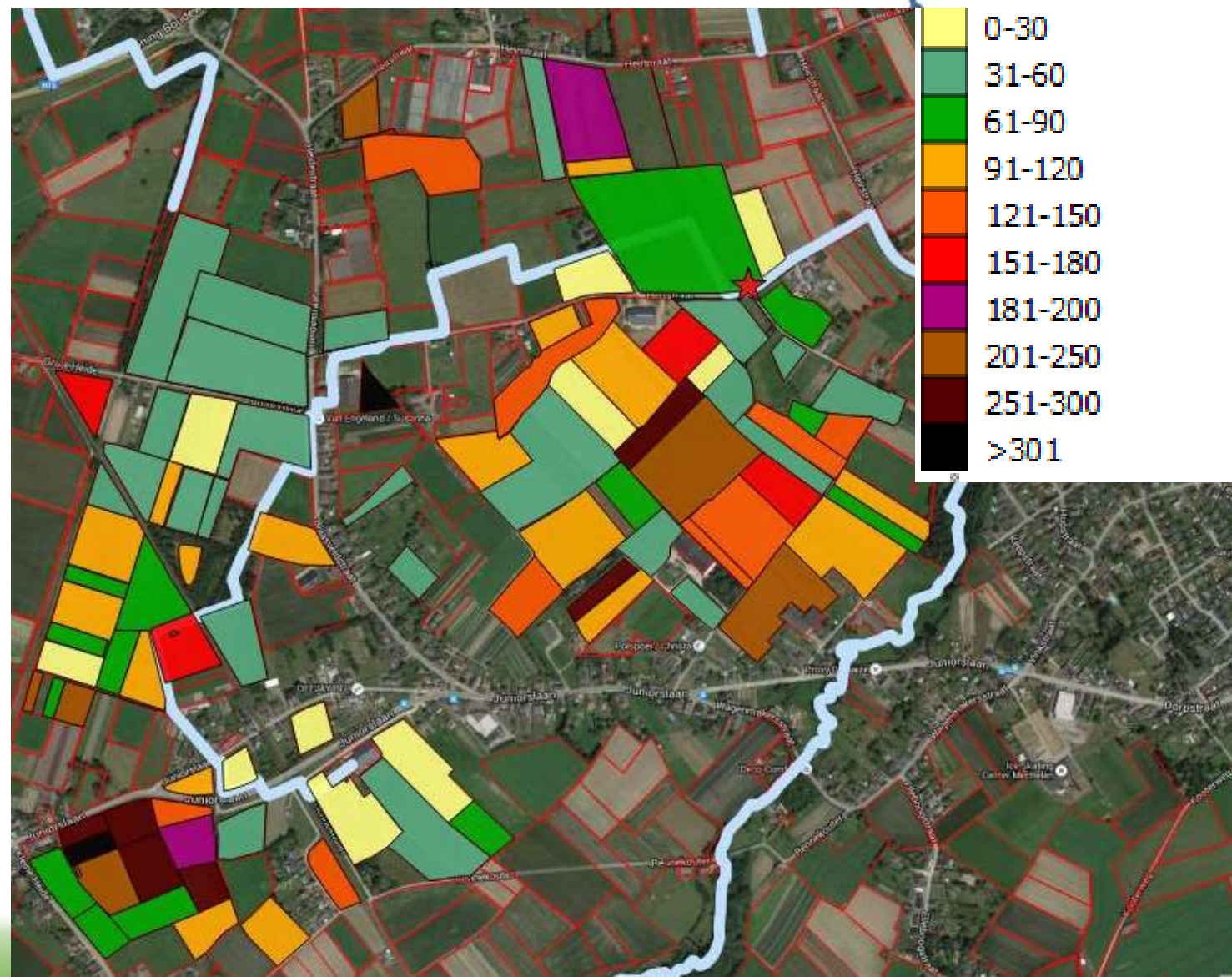




# CVBB Intensive approach

## Nitrate residus 2015

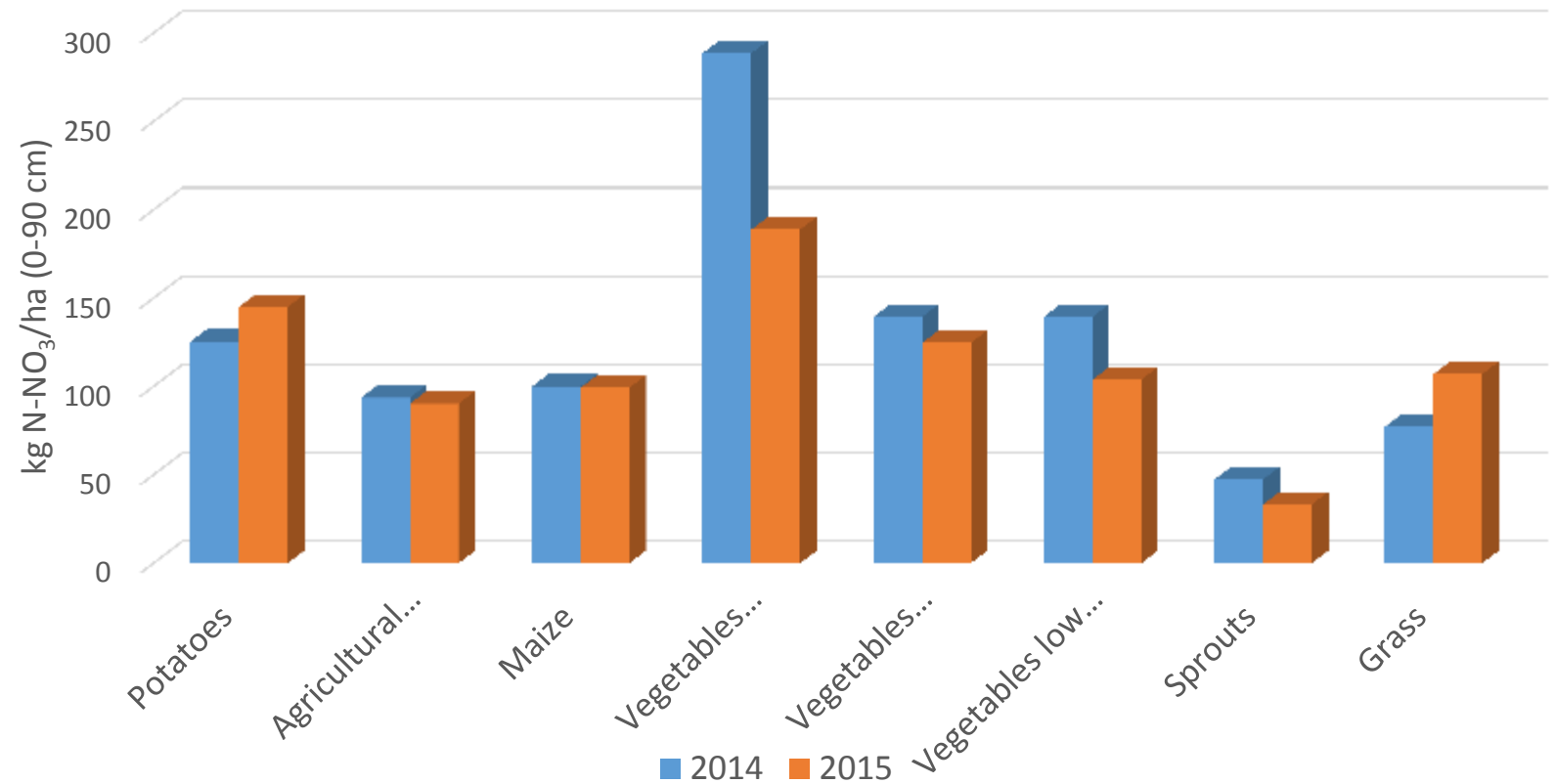
- ▶ Additional information for water quality groups
- ▶ Clear link between farmer-water
- ▶ Even more social pressure
- ▶ Strengthness approach:
  - ▶ Close involvement, farmers want progress
  - ▶ Better results motivate to continue efforts
- ▶ Weakness approach
  - ▶ Long way to change old habits in fertilisation
  - ▶ Small part that won't cooperate



# CVBB Intensive approach Progress?



Average Nitrate residus on site Mechelen





# CVBB Waterquality Flanders



Thank you for your attention

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