

MODERNA

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# ORGANIC CARBON ECO-SCHEMES: A NEW MARKET OPPORTUNITY FOR FERTILIZERS PRODUCTS IN FLANDERS, BELGIUM

**Introduction:**

Eco-schemes in the CAP are subsidy programs where farmers are remunerated for voluntarily adopting improved farming practices with environmental benefits. Eco-schemes differ from the agri-environment-climate measures (AECMs) of the 2nd pillar in the details of implementation, notably: with less administrative burden, the eco-scheme contract will be perceived less onerous, hence a higher number of farmers will be encouraged to commit; additionally, it involves less transactions costs. Eco-schemes could be considered as a light version of the agri-environmental schemes

**In the Belgian context:**

The Flemish government proposes an eco-scheme to increase organic carbon level in the agricultural soils. A subsidy is granted for farmers applying a minimum of 10 ton per ha. Farmers need to prove the application of organic fertilizers such as compost or dried digestate from official certified installations.

**Research objective:**

to assess the participation of farmers and the economic implication of a potential increased demand for compost on the market of fertilizer products and manure processing in Flanders

**Background: Nutrient Surplus Issue**

By the end of 2019, the average synthetic fertilizers consumption for agricultural use for Nitrogen (N), Phosphate (K2O) and Potash (K2O) reached 11.25 MT, 3.11 MT and 2.71 MT respectively (Fertilizers Europe, 2021). Intensified agriculture has led to excessive use of synthetic fertilizer which will not only result in irregular yields on the long run (Zhang J. et al, 2018), but will also cause environmental damage by affecting soil pH and organic matter caused by nutrients imbalance (Quiao Y. et al, 2014).

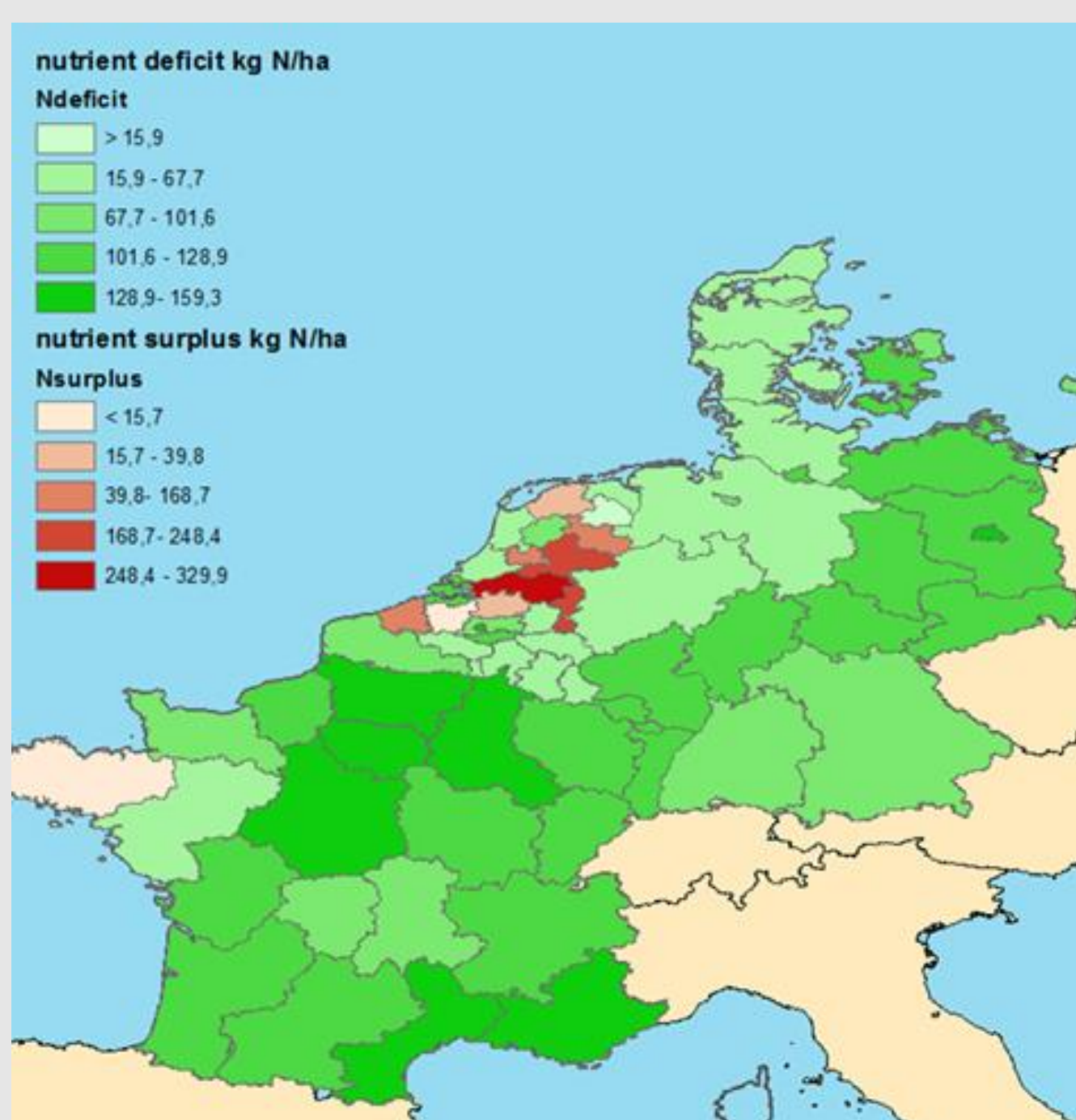


Figure 1: Nutrient surplus distribution

**Reference**

- Buysse, J. and Bral, A., (2018), An analysis of enforceability of fertilization application limits, No 276045, 2018 Conference, July 28-August 2, 2018, Vancouver, British Columbia, International Association of Agricultural Economists.
- Straeten B., Buysse, J., Nolte S., Lauwers L., Claeys D., Van Huylenbroeck G. (2010). A Multi-agent Simulation Model for Spatial Optimisation of Manure Allocation. Journal of Environmental Planning and Management. 53. 1011-1030.

**Methodology:**

The manure allocation and transport model applied in earlier papers (Buysse, J. and Bral, A., (2018), Van der Straeten et al., 2010) simulate the trade-off between using compost at farm level and receiving subsidies versus accepting manure or using own livestock manure within the fertilizers limit

On-farm decision-making plays a crucial role in the market of bio-fertilizer by increasing the demand for such products. This leads us ponder on how to incite farmers, as key stakeholders, to make the optimal on-farm fertilization decision.

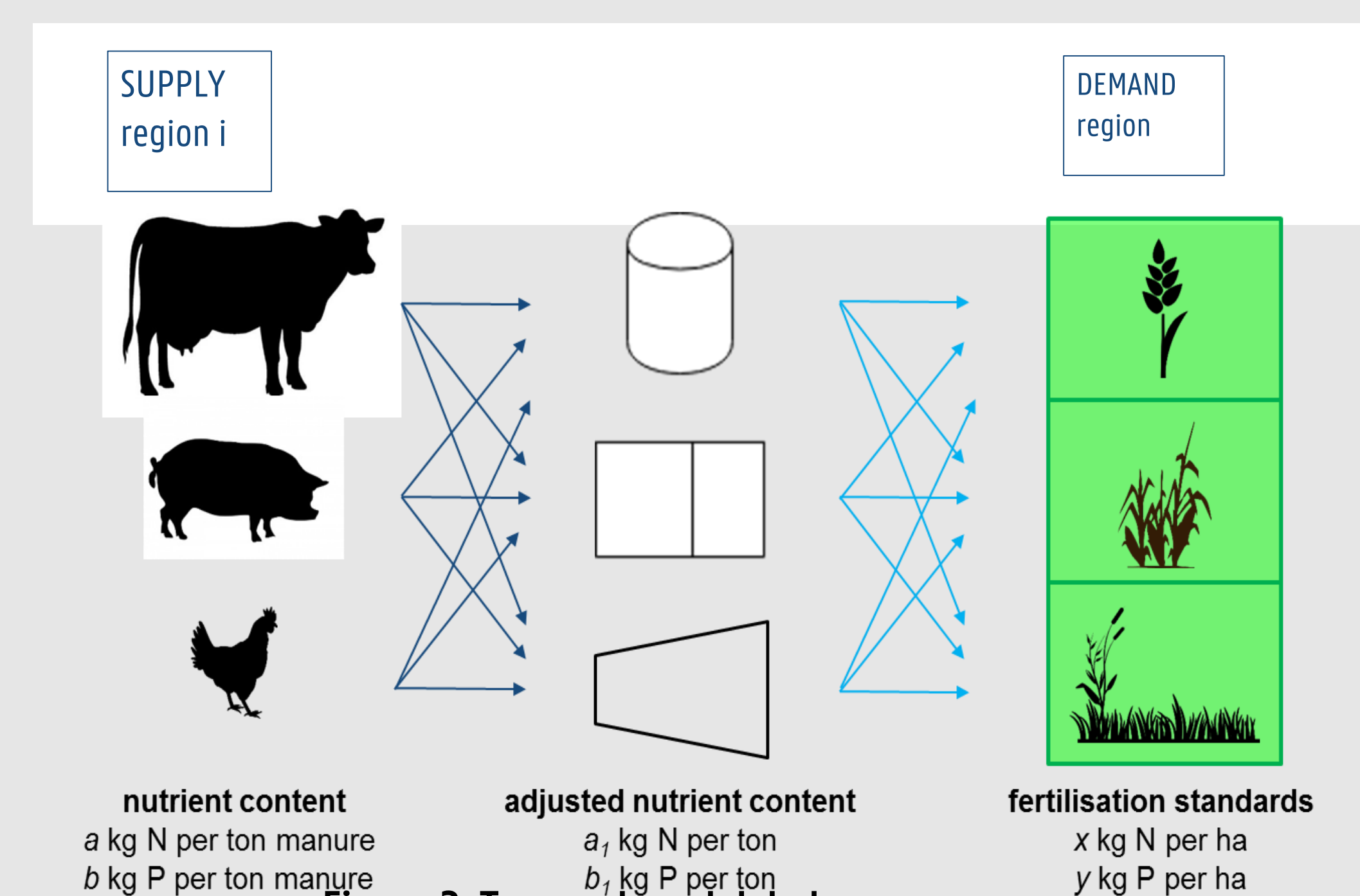


Figure 2: Transport model: balance manure transport cost and processing costs in order to minimize costs (Vanderstraeten, 2012)

**Preliminary results**

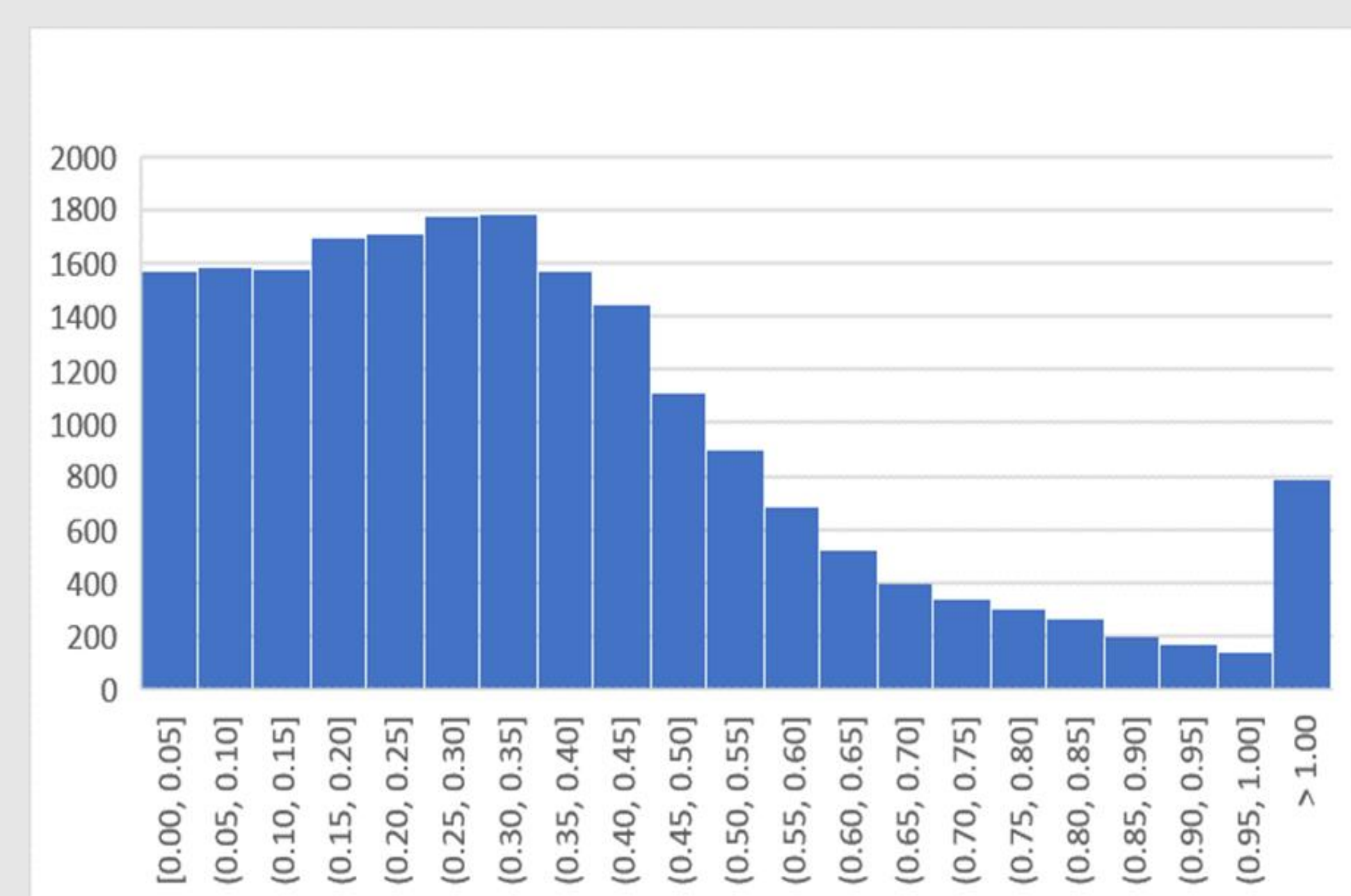


Figure 3: Preliminary results

**Conclusion and Discussion**

- the cost of compliance with the GAEC is less than 50% of the received subsidies for the majority of the farms
- However, almost 800 farms are estimated to have a higher cost of compliance than the compensation received by the CAP direct payments.

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