



# IMPACCT CASE STUDY No. 16

## Integrated Management Options for Agricultural Climate Change Mitigation

### Szekszius Farm, Hatvan, Hungary

This case study is based on a small (8 ha) farm located close to the Hungarian market town of Hatvan, in the northern part of the great Hungarian Plain. The farm lies close to a small branch of the Zagyva river. It has a typical flat riverside topography. The soil type is Chernozem which is a black-coloured soil containing a very high percentage of humus.

The farm's main enterprise is horticulture, growing green paprika, tomatoes, cucurbites, beans and strawberries (total of 4.5 ha). It also has a small area (1.5 ha) of cereals (wheat and maize) and 2 ha of permanent grassland.

The farm also keeps horses and has an experimental field used by the nearby University. There are various small areas of bush and wildlife habitats.

Few opportunities exist on this farm to mitigate climate change. The farm has few buildings, does not use large scale machinery and there are few field operations or cultivations. However the farm undertakes the following activities:



Hatvan, Hungary



Strawberry plant

- Water efficiency activities have a high priority. This is for economic reasons as well as environmental ones. The farm installed its own water pump in 2003 and this is used for the horticultural crops. Water is taken free of charge from groundwater reserves and this conserves mains supplies for the public water network. Treatment of mains water is an energy intensive process, energy that the extraction and use of groundwater ('grey water') does not require. There have been several benefits including improving productivity and yields.
- One of the fields on the farm is used by the SZIU Crop Production Institute, Szent István University to undertake field experiments on wheat nutrition. These experiments have led to improved plant biomass and better manure management. Optimising the N supplied by manures maximises the potential substitution of inorganic nitrogen fertiliser and minimises loss of N contained within manures to the environment. Such losses result in emission of nitrous oxide and ammonia. Improvement in yields and input efficiency reduces GHG emissions per unit of output.



**Sowing**



**Experimental plots**



**At maturity**

Original case study content collated by SZIU Crop Production Institute, Szent István University

