



# SustainFARM

## Public Goods Tool

### CASE STUDY: ROMANIA

#### Location

Petrova is situated in the north of Romania, on the left bank of Vișeu River, about 12 km from its confluence with the Tisza River and 100 km away from Baia Mare, former capital of the historical Maramures region. The area of the commune is 7200 ha, of which 75% represents the hilly area and 25% the meadow of the Vișeu River.

#### The farm

The Mihalca farm is a traditional diverse silvopasture with extensively grazed cattle of the local breed Brună de Maramures. The farm is in a hilly area with slopes between 0 and 40%. Woody vegetation has not been planted but occurred spontaneously as a result of ecological succession in ecosystems. The age of the old trees from grassland can exceed 100 years, but woody vegetation is dominated by trees between 5 and 15 years old. In the silvopasture tree densities range between 20 to 200 trees per ha and are coppiced and pruned. Hayfields are mostly mown by machinery while gathering is done with hay baler. However, manual mowing is necessary to be made especially on sloping areas. Fertilizers and pesticide are not used. Depending on the plot, the amount of manure used as fertilizer is between 10 to 25 t per hectare. Liquid manure collected is also distributed as organic fertilizer. There are three permanent employees and day workers when needed. The main products sold on the market are traditional local cheeses (70% of the gross income), milk, beef and pork meat.



*Figure 1. Silvopastoral system in Mihalca farm.*

## Results

As a diverse extensive livestock farm with trees, Mihalca farm scores highly across many of the spurs, particularly animal health and welfare, agricultural system diversity and energy and carbon (Fig. 2). Its lowest score is for soil management; the farm would benefit from regular soil analyses and measures to reduce soil erosion in this hilly area (Fig. 3). This shows how the SustainFARM PG Tool can highlight areas for improvement. The LER is 1.58 which suggests that 58% more land is needed under a monocropping scenario to achieve the same level of production (based on metabolizable energy) as the silvopastoral system on the farm (Fig. 4). The energy benchmarking shows that the dairy enterprise uses over three times more than the dairy benchmark, but that the domestic energy use is only 40% of the benchmark. However, 51% of the farm energy use is from renewable sources using wood fuel produced on farm, and the CO<sub>2</sub> balance is -15.1 tonnes CO<sub>2</sub> equivalent per year.

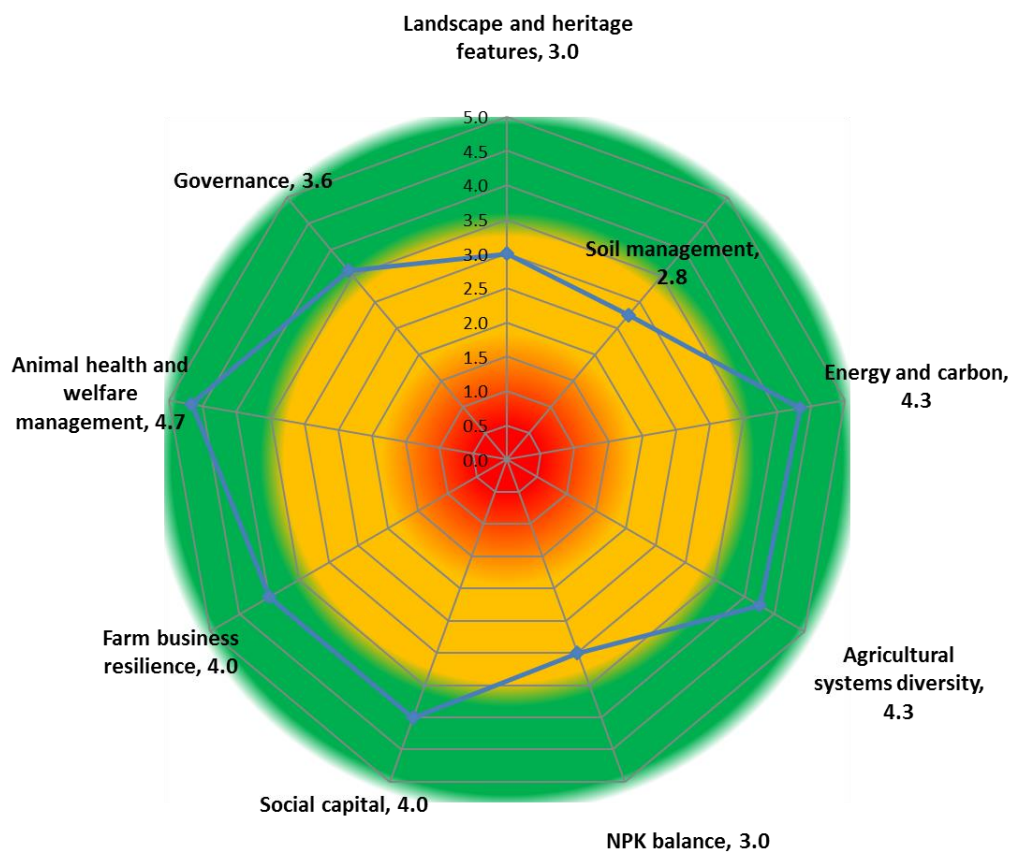


Figure 2. Spur scores for Mihalca Farm, Romania



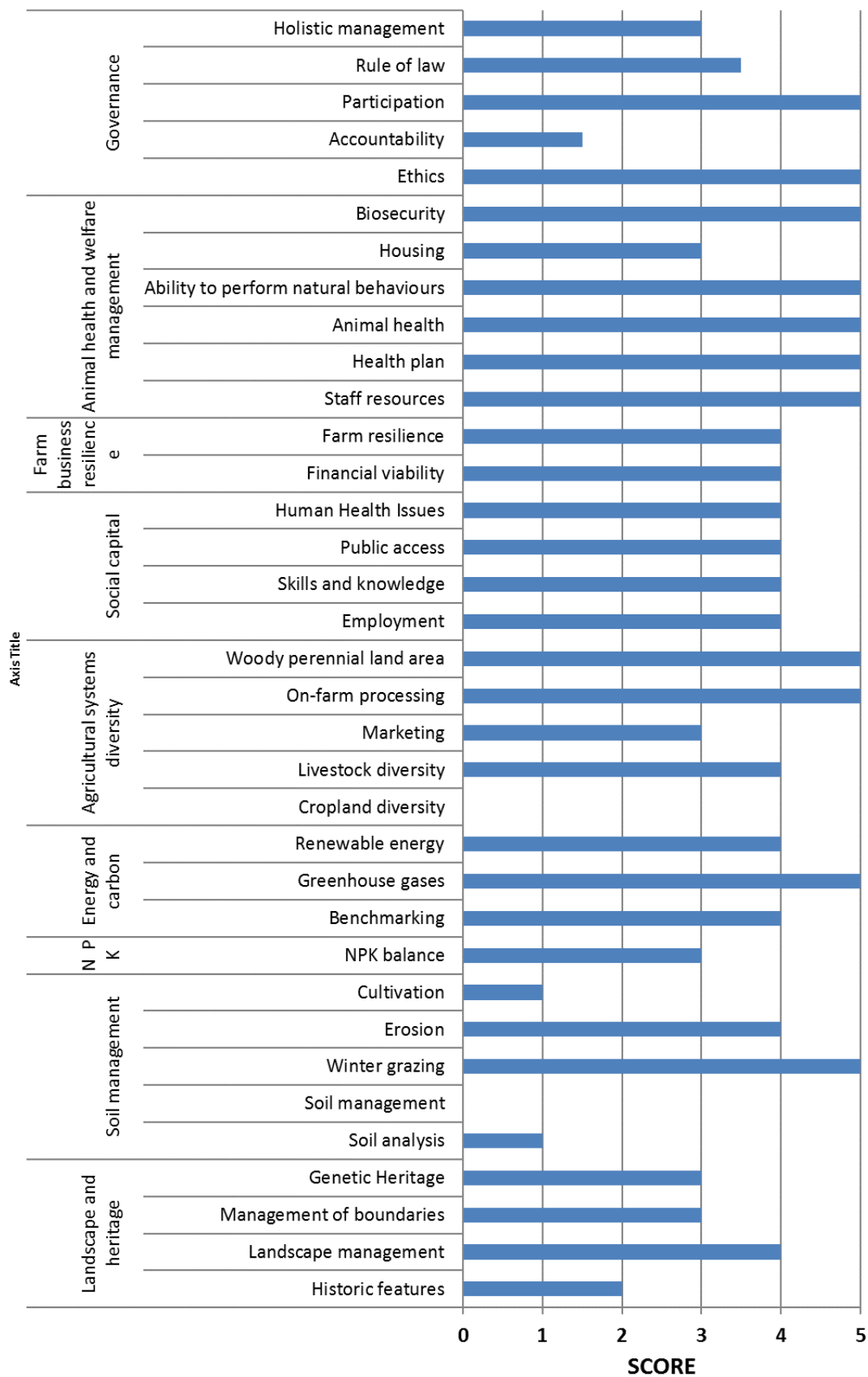


Figure 3. Bar chart showing sub-scores for Mihalca Farm, Romania

Key assessment criteria		
<b>Land Equivalent Ratio</b>	<b>1.58</b>	
<b>Farm gate NPK balance</b>		
N balance per ha	33	kg
P balance per ha	-8	kg
K balance per ha	19	kg
<b>Energy benchmarks (energy use as % of average figures)</b>		
Arable	No arable	
Beef & sheep	0%	
Dairy	230%	
Pigs	0%	
Poultry - layers	No layers	
Poultry - broilers	No broilers	
Domestic	40%	
Total farm renewable energy	51%	
<b>CO<sub>2</sub> balance</b>	-15.1	tonnes CO <sub>2</sub> equivalent yr
<b>Labour use - ALUs</b>	3.8	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Please note:</b> 1 ALU is one full-time employee working 2200 hours per year         </div>

Figure 4. Key results for Mihalca Farm, Romania

### Acknowledgements

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