

**Policy (to be better defined)**

Europe: RDPs (Pillar I and II); COM 2006/231 (soil thematic strategy);

Policies for Austria not yet implemented.

First draft

## TOOL BIOMASS POTENTIAL PRODUCTIVITY – *Scale: Regional, Local*

### WHY

The evaluation of the Ecosystem Service “Food Production” is very important because it depicts the potential productivity of a specific soil-plant-atmosphere combination in a specific piece of land.

Moreover, the quantification of this ecosystem service is crucial to quantify the impact of land degradation processes over land productivity. This is the case for soil sealing<sup>i</sup>, erosion and many other land degradation processes affecting our landscapes.

The Ecosystem service is calculated by applying the well-known concept of the “wheat equivalent”, a FAO concept able to transform different cereals or other important crops to an equivalent quantity of wheat in order to easily compare different productions, and hence, easily transform them in monetary values.

The tool simulates i) the potential wheat production in the area for which the ecosystem service is to be calculated according to the specific soil properties, climate and agronomic management practices, and ii) the gross margin of the representative farm producing wheat in the same area.

### FOR WHOM

The biomass potential productivity tool is designed to assist land planners and managers in their planning and to ensure optimum soil management and conservation.

### HOW – if you want to *select your Region Of Interest (ROI)*<sup>ii</sup>

The tool works for the entire Marchfeld region and Telesina Valley area and allows free selection of any region of interest ROI following a very simple procedure:

#### Operational procedure

- Selecting the “Regional” or “Local” territorial scales in the upper-left part of the page and then choose “Marchfeld” or “Valle Telesina”
- Clicking on the "Draw (Polygon)" button on the top bar, draw the desired area (ROI) and assign it a name<sup>iii</sup>.
- By using the "Save" button, the ROI is stored in the system memory and can be retrieved whenever necessary.

**HOW – if you aim to the “EQUIVALENT WHEAT PRODUCTION” tool****Operational procedure**

This tool can be selected from the toolbox on the right of the Graphic User Interface. Then, by clicking on the “Equivalent wheat production” icon and by selecting the region of interest, it is possible, in the “Results” section, by clicking the last operation, to consult the information about soils (local name, classification, surface in ha and % and the potential equivalent wheat grain production in q/ha/year.

In the “Elaboration detail” section, it is also possible to visualize the map of the “Equivalent wheat production” for the chosen ROI.

**What for**

The information obtained provides local-scale assessment of the loss of the “Food production” Ecosystem Service due to soil sealing. On a larger scale, the tool offers an overview of potential soil productivity that may be useful for planning purposes.

**HOW – if you aim to the “ESTIMATED GROSS MARGIN” tool****Operational procedure**

This tool can be selected from the toolbox on the right of the Graphic User Interface. Then, by clicking on the “Estimated gross margin” icon and by selecting the area of interest, it is possible, in the “Results” section, by clicking the last Elaboration, to consult the information on:

- the local name of the soils within the selected ROI,
- the classification of the soils according to the USDA system,
- the surface area of each soil in ha,
- the percentage of the specific ROI area covered by each soil
- the estimated gross margin in € per year.

In the “Elaboration detail” section, it is also possible to visualize the map of the “Estimated Gross Margin” for the chosen ROI.

**What for**

The information obtained provides local-scale assessment of the economic value due to soil sealing of the Ecosystem Service “Food production”.

**LIMITATIONS**

The user should be aware that the following limits exist. Spatial variability of climate data is not actually considered. The soil maps, just like all the other thematic layers, have inherited the limits (scale, n. observation, etc.) of the original maps (see metadata on the platform). Currently, the model cannot work with user-customizable data.

**FUTURE DEVELOPMENT**

The following future developments are expected: (i) new tools will be developed upon request from stakeholders, (ii) the end-user will be enabled to upload his own soil data, (iii) the “Food production” tools will be referred to real land use (e.g. olive, vineyard, wheat, etc.), both in terms of productivity and economic valuation; (iv) other areas will be included (i.e., Zala County in Hungary).

<sup>i</sup> EC. (2006). Thematic strategy for soil protection (Tech. Rep. No. COM (2006) 231 final). Brussels, Belgium: EC (European Commission).

<sup>ii</sup> Special care is required when user draws/select the Region of Interest. In fact LANDSUPPORT is a multi-scale decision support system. Each of the 15 available tools is designed for a specific application and for a specific scale. Furthermore, the databases using specific standards required for that specific scale. The users of LANDSUPPORT web platform must therefore be well aware of the limitation embedded in the different maps that they require for their specific application. The users must be expert on their specific problem and must understand if the input data offered by the platform are suitable for their problem. In light of the above, the system provides very reliable results only if used appropriately.

<sup>iii</sup> It is also possible to draw a ROI with numerous polygons. In this case, it is possible to assign different values (eg numbers) to each of the drawn polygons.