Agriculture ecosystem services in highly urbanized metropolitan areas

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**Abstract.** Agricultural areas in highly urbanized metropolitan regions represent a very important territorial resource capable of providing human communities with a wide range of ecosystem services (ES).

The study was inspired by the need of the Municipality of Rho (in the metropolitan city of Milan) to revise the municipal land-use plan. Rho, located north-west of Milan, despite having a high population density (about 50,000 inhabit. on 22 sq km), still has about a quarter of its territory occupied by agriculture (545 ha), mainly arable land and about 15 ha of orchards, vegetable gardens, meadows and nurseries. These agricultural areas are scattered in the external part of the municipal territory and are highly fragmented due to the presence of urbanization and infrastructures. The municipal green area is completed by the presence of some wooded areas, riparian vegetation and urban green areas (included those attached to the road infrastructures), for a total of about 442 ha.

In this context, the study aimed to assess the existing agricultural areas, identifying (1) the areas that still have a strong agricultural production vocation and (2) those that, on the other hand, it is preferable to focus on the supply of regulation and cultural ES.

As regards the first objective, the study performed a series of assessment phases in order to calculate a composite score (0-1 scale) used to identify the agricultural areas with a productive vocation (293 ha, 54% of the municipal agricultural area), where the new municipal land-use plan established to encourage as much as possible the productive activities of the farmers.

Then, as regards the second objective, the study identified the agricultural areas that can provide natural and cultural ES, among those with a lower productive vocation: 694 ha (252 ha of agricultural areas and 442 ha of woods, uncultivated areas and urban green areas) equal to 30% of the municipal area, within which it is possible to create a soft mobility network scheme about 40 km long. In these areas, the new municipal land-use plan established to start a shared path with farmers for the definition of activities related to the supply of natural and cultural ES.