

Estimation of the use of pesticides and their potential environmental impacts in Hipólito Yrigoyen, Buenos Aires, Argentina

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The process of agriculturalisation in the Pampean Region of Argentina revealed not only a significant advance of agriculture on medium to low-end land, but also the adoption of certain cultural practices, including the use of pesticides. In this sense, this research aims to know the estimated use of herbicides in the Hipólito Yrigoyen District (PHY) during the agricultural campaign 2015/16 and the potential environmental impacts resulting from the society / nature relationships identified from ecological zoning of the same.

The Ecological Zoning (ZE) of the PHY (166.300 ha) at a scale of 1:500.000 allowed to identify 3 Morphological Units (UM) and 6 Morpho-phytopedic Units (UMFE), which were evaluated according to their ecological rural suitability. This evaluation indicates that 34,46% of the PHY shows aptitude from regular to good for annual crop yield, while 65,54% of the remaining area has regular or good aptitude for livestock use of cultivated forage (46,21%) and native plants (19,33%). However, despite PHY's livestock-agricultural aptitude, the evolution of current land use indicates that since 1988 and especially in 2002, only agricultural activities have led land use, focusing on the production of a few crops. In fact, in the 2015/16 crop year, 92.900 ha were sown mainly with soybean (59,2%) and maize (19,38%), and to a lesser extent with oats, barley, wheat, sunflower and sorghum (21,42%).

The estimation of the use of agrochemicals according to the productive approach identified in the Inland Pampa, allows to affirm that within the group of herbicides, the most used in the 2015/16 campaign in PHY was glyphosate (364.500 l), followed by atrazine (72.800 l), 2,4-D (48.550 l) and Metsulfuron-methyl (532.000 g).

According to the above, in relation to the production modality and the estimation of the use of herbicides in the last agricultural season, the analysis of the society-nature relations in the PHY reveals the potential environmental impacts derived from this activity. In general terms, potentially impacted environmental factors include soil, vegetation, fauna, ecosystems, water and society, and within the identified impacts, the proliferation of agrochemical resistant weeds, the simplification and homogenization of ecosystems, the genetic erosion and loss of variability, the reduction of surface and ground water quality, and the health risks of workers and the nearby population, are directly associated with the use of agrochemicals.