

Thesis: Assessing The Economic Relevance and Productivity of Agricultural Inputs in Italian Farms Through Quantitative Analyses

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Abstract

By establishing environmental targets such as the reduction in the use of chemical inputs, the EU's Farm to Fork Strategy (F2F) promotes more environmentally friendly farming practices. This study assesses the economic effects of reducing chemicals under the F2F on Italian arable farms, with an emphasis on maize grain. Using an agro-supply model integrated with a translog production function, the analysis models farm-level reactions to a scenario involving a 20% reduction in chemical fertilizers and a 50% reduction in pesticides. By endogenizing yields and chemical input quantities, this integration increases the model's flexibility and produces a more dynamic and realistic representation of farm behavior. The model is able to capture the heterogeneity of farm responses by calibrating at the individual farm level, reflecting different agricultural conditions, farm structures and practices as well as providing responses in terms of variations in land use, income, yields, and the use of chemical inputs. The findings show significant short-term economic impacts, such as a reduction in income and agricultural output. Maize production is especially affected in less productive areas where it may be replaced by less input-demanding crops like durum wheat. However, despite their efficiency and higher yields, even the specialized and intensive Northern regions suffer significant losses. These outcomes are coupled with declines in resource use and employment, raising concerns over possible social consequences. These findings suggest that the particular regional and structural contexts of policy measures will determine their effectiveness.