



**INTERUNIVERSITY PHD COURSE**  
**“SUSTAINABLE LAND MANAGEMENT”**

**Cycle XXXVI**

<b>PhD Student:</b>	Francesca Maria Melucci
<b>Year of the PhD Course:</b>	First
<b>Academic year:</b>	2020_2021

<b>Title of the Research Project</b>	Mathematical models and composite indicators for the sustainability of agricultural and zootechnical sectors.
<b>Tutor:</b>	Prof. Rocco Roma

**Summary of the Research Project**

The challenge of sustainability in agriculture and zootechnics is not only to reconcile different objectives in a long-term perspective (Wiryawan, 2020), but also in measuring its multidimensionality (Papilo, 2018), that is to consider all aspects simultaneously, to address sustainability policies aimed at the primary sector. The analysis and assessment of sustainability will concern a particular and peculiar territorial context, that is the Mediterranean basin. The appropriate methodological tool is a set of indicators, integrated into a precise evaluation methodology (Moffat, 2001; Lawn., 2006).

These sustainability indicators measure the current state of a system in order to identify development trends, to signal the overcoming of critical thresholds and to monitor the success of interventions to build sustainable models. The selection of indicators shall be based on a list of criteria concerning relevance, the validity, measurability, sensitivity and comprehensibility of stakeholders and decision-makers (Lebacqz, 2013). In particular, the OECD and the JRC provide guidance on the construction of synthetic indicators (OECD, JRC, 2008) identifying the steps to be followed.

Finally, through multicriterial analysis techniques (Janová, 2019; Gómez-Limón, 2020) and multivariate, an integrated assessment of all the variables and indicators considered, to arrive at mathematical models of calculation of sustainability and assess its solidity by applying them to real cases.

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