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An assessment of the potential of Mediterranean land-use/land-management systems to enhance food sufficiency in a territorial perspective

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Contextualization of the problem and main objectives of the communication

Landscape patterns of agricultural land in the Mediterranean basin have become increasingly complex, mainly due to changing land management practices or abandonment [1]. Complex land use change has also been observed in areas surrounding cities from the discontinuous urban sprawl [2]. Such complexity can influence positively the ability of agricultural areas to be a support of food security at local level [3]. However, the local relationship between the complexity of agricultural landscape patterns and food security may drastically change according to the social, economic or geographical context [4]. Our paper presents an assessment of the relationship between land use-land management systems and food security at several scales in Mediterranean countries, performed as part of the *LaSeR-Med* program[1]. Our objective is to reveal the main factors that influence the potential of agriculture to contribute to food security at territorial level.

Methodology and sources used

On the basis of multiple global data sources, which include *MapSpam* [5], *HYDE* [6], *ESA-CCI Land Cover* [7] and *FAOSTAT* [8], we built a comprehensive database on land use, land management, and bio-physical, climatic and demographic variables to assess the possibilities of multiple types of agricultural systems to provide diversified foodstuff for Mediterranean populations. By performing

[1] LaSer-Med is a 4-years OT-Med Labex project that aims at predicting the impacts of climate change on terrestrial and marine ecosystems of the Mediterranean Basin, and on the services they provide in terms of agricultural production, terrestrial and marine carbon sequestration, and fisheries (see http://www.otmed.fr/research/integrated-modelling-mediterranean-systems).

statistical models of food production, we also explore on the geographical and socio-economic drivers that underpin the current level of agricultural food supply. Formulation of baseline models of land use and food production in the Mediterranean region is done at the geographical level of NUTS2 or equivalent in non-EU countries (25 countries and 330 sub-national areas). These models look for establishing the relationships between the production of food and the corresponding use of land – hence the contribution of each area to food availability – and a number of factors that influence agricultural production levels and the respective contribution to the production of food nutrients.

Conclusion

Our findings highlight the influence of demographic and contextual factors on a diversified agricultural production, showing the linkages between environmental and socio-economic characteristics of agricultural areas and their potential to contribute to food self-sufficiency. The analysis of food supply through the statistical identification of drivers of food production in the Mediterranean basin and the scenarios of change that can be foreseen are in progress. These models will have a twofold output. Firstly, they will provide evidence on the current structure of food production in the Mediterranean region. Secondly, they will set the basis for the simulation of socio-economic scenarios and its implications for food production in the near future. Both open questions for the multiple issues regarding the allocation of land resources.

References

1 Malek Z, Verburg P. 2017. Mediterranean land systems: Representing diversity and intensity of complex land systems in a dynamic region. Landscape and Urban Planning, vol. 165 : 102-116
2 Sanz Sanz E. et al. 2017. Repenser la planification urbaine à partir des espaces agricoles. Revue d'Economie Rurale et Urbaine 1: 5-29.
3 Khoury C.K. et al. 2014. Increasing homogeneity in global food supplies and the implications for food security. PNAS, vol. 111, n° 11: 4001-4006
4 Turner et al. 1995. Land-Use and Land-Cover Change: science/research plan. International Geosphere-Biosphere Programme, (Stockholm); report, 35.
5 Wood-Sichra U., Joglekar A.B., You L.. 2016. "Spatial Production Allocation Model (SPAM) 2005: Technical Documentation". Harvest Choice Working Paper. Washington, D.C.: International Food Policy Research Institute (IFPRI) and St. Paul: International Science and Technology Practice and Policy (InSTePP) Center, University of Minnesota.
6 Goldewijk K.K., Beusen A., and Janssen P. 2010. Long-term dynamic modeling of global population and built-up area in a spatially explicit way: HYDE 3.1. The Holocene 20(4) 565–573
7 LAND_COVER_CCI partnership, 2017. Land Cover CCI Product User Guide Version 2.0. UCL-Geomatics.
8 FAOSTAT 2018 – available from http://www.fao.org/faostat/en/#home