

Combating farmland abandonment

Can we shift towards a proactive approach?

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1 Farmland abandonment: causes and facilitators

Farmland abandonment¹ is a complex process that results of the interaction of several different underlying causes (drivers), which often interact at different scales. These include biophysical variables like soil quality, climate, water supply, or topography, but also variables related to farm and parcel structure like property fragmentation, average farm size, or parcel accessibility (e.g. [Gellrich and Zimmermann, 2007](#); [Baumann et al., 2011](#); [Corbelle-Rico et al., 2012](#); [Pelissier et al., 2013](#)). The relative importance of these variables often depends on the scale at which the problem is considered, and not all of the variables considered in studies at local level do necessarily play a relevant role when analysed at broader scales ([Baldock et al., 1996](#)). In any case, although most of these variables are not completely static in time, they are usually not subject to substantial changes along time. Therefore, important changes in the socio-economic ([Strijker, 2005](#)), political ([Prishchepov et al., 2013](#)), or technological context ([O'Rourke et al., 2012](#)) usually act as triggers for the appearance of farmland abandonment processes.

The idea of farmland abandonment as a consequence of changes in the context in which farming activities take place is clearly related to the concepts of marginality or marginalisation, from either an economic or social perspective ([Pinto Correia and Breman, 2008](#)). What is relevant to consider from this perspective is that a given set of biophysical or farm or parcel structure characteristics are often not causes but facilitators of farmland abandonment: particularly when, given a new technological, social, political, or economic context, these characteristics do no longer fit into the prevalent farming system. As we often can only react to changes already triggered, trying to influence those variables is mainly about trying to *adapt* their values to the new conditions.

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¹For the purposes of this text we will adhere to the definition of farmland abandonment proposed by [Terres and Nisini-Scacchiafichi \(2013\)](#): “a cessation of management which leads to undesirable changes in biodiversity and ecosystem services”.

1.1 Examples

Whenever system conditions change more or less abruptly and result in important, long-term changes in the structure and functioning of a system, we usually talk of a *regime shift* (Crépin et al., 2013). This is a well known concept in the fields of ecology and natural sciences (e.g. Hughes et al., 2013) that is being increasingly applied to the study of land use and land cover changes, including those affecting farm area (Munteanu et al., 2014; Niedertscheider and Erb, 2014).

The second half of the twentieth century marked the beginning of a regime shift in the farming systems of most European countries. The industrialization of farming activities and migration from rural to urban areas pushed the fringe between profitable and marginal farming systems, resulting in changes in the intensity and location of farming. Extensification and eventual abandonment of farming took place in some areas (usually peripheral, mountainous areas, or those presenting characteristics that, like property fragmentation, prevented the formation of large farming units) while intensification and expansion of farming area took place in other regions. This is the pattern broadly described by the case studies presented by (MacDonald et al., 2000).

But this is not a linear story... for example, work in progress (Corbelle-Rico, Butsic, Enríquez-García & Radeloff, under review) suggests that spatial specialization and extensification/intensification was taking place in NW Spain in the period from the early 1960s to the decade of 1980, only to be reversed after Spain joined the European Economic Community in 1986, as many areas—competitive and suitable for production within the context of the industrialization of the Spanish farming sector— became marginal in the new European context. A more dramatic example of the influence of policy and institutional changes on land use is presented by Hostert et al. (2011): the collapse of the Soviet Union seems to have resulted in land use changes at least as drastic as those attributable to the nuclear accident in Chernobyl in 1986.

1.2 Risk of farmland abandonment: indicators

The interest of the European Commission on the issue of farmland abandonment resulted in IRENA² indicator number 14, “Risk of farmland abandonment”, proposed in 2006 (European Commission, 2006). A proposal of drivers that should be included in AEI 14 was issued in 2013 by The Joint Research Centre (Terres and Nisini-Scacchiafichi, 2013), that initially included determinants of farmland abandonment related to biophysical suitability for agriculture (block 1), low farm stability and viability (block 2) and negative drivers from regional context (block 3), but focused considerably more on block 2. Although limited by the availability of harmonized data at UE level, the drivers included in the indicator can be successfully used at NUTS 3 (province) level and, under certain circumstances, even at LAU 2 (municipality) level (Corbelle-Rico and Crecente-Maseda, 2014).

²Indicator reporting on the integration of environmental concerns into agricultural policy

2 Instruments to combat farmland abandonment

Very often the instruments proposed to reduce the extent of farmland abandonment are focused on farm and parcel structures. Among these, instruments focused on the reduction of property fragmentation such as land consolidation and land banking are commonly used along with measures specifically aimed at increasing security and mobility of land markets (e.g. [Deiningger et al., 2012](#); [Pašakarnis et al., 2013](#); [Hartvigsen, 2014](#)). The variety of underlying situations mean that no single approach can be recommended in all cases: for example, compulsory participation in land consolidation projects is not always desirable, or some countries or regions may have resources available for the management (and possibly for the creation) of large land funds/ land banks while others may not. The rural development policy of the European Union contemplates payment for areas with natural handicaps as the most important measure to prevent farmland abandonment, followed by financial support for land consolidation, afforestation, or early retirement.³

2.1 Examples

We will present in this session three particular examples of measures or instruments currently in place or under preparation in the northwestern Spanish region of Galicia. The first of them, the Galician Land Bank, has been already presented in previous LandNet events, and will therefore be described here in a very brief form. The main purpose of the Land Bank is to increase the mobility of the land rental market by acting as mediator between landowners and farmers. To this end, guarantees are given to both concerning a minimum rental period, a fair rent amount.

As a second example we will present a joint venture in which several co-operatives, a private foundation, the Galician Land Bank, and the University of Santiago de Compostela take part. This initiative was launched with the aim of putting under production a thousand hectares of abandoned land in the region. The project includes a phase of initial research to assess the needs and requirements of existing farms, a phase of land suitability assessment to identify areas that fulfill the requirements previously defined, and a negotiation phase intended to create the arrangements needed to put the identified land into production.

The third example is an algorithm for support of voluntary land consolidation projects (Corbelle-Rico, Porta-Trinidad & González-Otero, in preparation). This project aims to create a genetic algorithm that can suggest optimal solutions for the exchange of multiple parcels among multiple owners. Genetic algorithms are a particular kind of heuristics, which try to find optimal solutions to a given problem by introducing successive mutations in existing solutions and discarding the less suitable ones until a stopping criteria is satisfied.

³Answer provided by Mr Ciolos, on behalf of the Commission, to a written parliamentary question posed by Giancarlo Scottà in January 2011 (<http://www.europarl.europa.eu/sides/getDoc.do?type=WQ&reference=E-2010-010904&language=EN>).

3 Final remarks

Underlying causes of farmland abandonment are often relatively well known. Many of them can be influenced with public policy and specific instruments, particularly those related to farm or parcel structure. In any case, it is worth considering that underlying causes are not, by themselves, the ones triggering abandonment processes. Moreover, even considerable changes in underlying drivers of abandonment achieved by specific policies may not be enough to make a specific region competitive, for a given production or farming system, when compared with other areas of the world. The perfect policy for minimum farmland abandonment, therefore, would imply making the existing farming systems resistant (able to remain relatively unaffected) and resilient (i.e. able to recover their state soon after disturbance) to social, economic, political, technological, or climatic changes, and would involve a good deal of forecasting and scenario building. As this is obviously not easy, an alternative—and complementary—approach would imply looking for productions or farming systems in which a particular region may be competitive given its biophysical and structural characteristics.

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