



Defining farmer typology to analyze the current state and development prospects of livestock breeds: The Avileña-Negra Ibérica beef cattle breed as a case study



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ARTICLE INFO

Article history:

Received 18 October 2013

Received in revised form

29 June 2014

Accepted 3 September 2014

Keywords:

Farmer typologies
Cultural capital
Local animal breed
Avileña-Negra Ibérica
Agriculture subsidies

ABSTRACT

We developed a general farmer socioeconomic typology to help in analyzing the herd dynamics and farmers' decision making and in designing strategies for the development of local animal breeds. The typology was built on few measurable socioeconomic factors that are often used as indicators of the economic and cultural capital of farmers. We used a sample of 85 farmers of the Spanish Avileña-Negra Ibérica (ANI) local cattle breed to illustrate and test the procedure. The farmer types were defined by a hierarchical cluster analysis with a set of canonical variables derived from five socioeconomic factors: formal educational level and age of a farmer, year since the farmer started keeping the ANI breed, percentage of the total household income covered by the farm and percentage of the total farm land owned by the farmer. Five farmer types were determined based on the formal educational level of a farmer and on the percentage of the total household income covered by the farm: (1) Land owners, medium educated; (2) Owners of part of the farm land, low educated; (3) Owners of part of the farm land, high educated; (4) Landless farmers, medium educated; and (5) Landless farmers, low educated. The farmer types were found to be linked to several other attributes used in summarising farm profiles. The farmer types also differed in how farmers make farm management decisions about herd size and breed composition, breeding aims and collaborative activities with other farmers. In addition, the farmer types had a variable dependency on subsidy payments suggesting that the changes in subsidy programme will lead to a redistribution of farmers across the types. We conclude that typologies based on farmers' cultural and economic capital, could be a useful tool to foresee farmers' decision-making concerning the on-farm breed development

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1. Introduction

There is a continued need to improve the efficacy of agricultural, rural or environmental programmes and policies (Landais, 1998; Emtage et al., 2006). This is particularly

important in the case of local and regional breeds many of which are threatened or in danger of becoming threatened (Food and Agriculture Organization of the United Nations, 2007a). In many European countries agri-environmental subsidies have been paid to farmers maintaining local breeds. Although these subsidy programmes have been successful in stopping the decline of many local breeds (Food and Agriculture Organization of the United Nations, 2007b; Gandini and Oldenbroek, 2007), it is unknown how ceasing such subsidy programmes may affect the dynamics

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and future of local breeds. Some surveys have revealed that many farmers would keep local breeds even without subsidies (Soini et al., 2012).

Local breeds are nowadays raised by highly diverse types of farmers in equally diverse types of farms (Gandini et al., 2012). This heterogeneity may lead to variation in the management and decision-making for the breeds (Emtage et al., 2007; Martín-Collado et al., 2013) which in turn may translate into variable impact of policies and programmes. Therefore, the consideration of socioeconomic features of farmers when designing strategies for local breeds could optimize their impact (Emtage et al., 2006). Typologies summarise the characteristics of archetypal persons and show the relationships among the characteristics (Emtage et al., 2007). Farmer typology usually aims to determine the factors influencing farmer's behavior and to provide an insight to the reasons behind the behavior (Emtage et al., 2007). This way, typologies can help to design a range of relevant solutions adjusted according to the needs and means of different types of farms (Landais, 1998).

One approach to develop agriculture related typologies is to pay attention to a chosen set of practices (e.g. Siegmund-Schultze and Rischkowsky 2001) in order to design targeted policies and programmes for promoting their best management. However, the obtained typologies cannot be generalized for assessing the aspects beyond the analyzed practices (Emtage et al., 2007). Another approach, which we will follow, is to develop typologies considering farmers' features and attitudes at more general level (Emtage et al., 2006 and 2007) aiming to illustrate variation among farmer with respect to a wide variety of practices or decisions (Landais, 1998).

There is evidence that local breed farmers keep favoring the breed even though they think it is economically less profitable than mainstream breeds (Soini et al., 2012). Thus, local breed farmers' decision-making on the breeds is influenced not only by economic aspects but also by non-economic issues. Bourdieu (1986) has proposed three forms of capital, economic, cultural and social, that would be the base of people's actions and decisions. Following this approach, we suggest a typology based on easily measured variables, which characterize the economic and cultural capital of farmers and possibly influence farmers' management decisions.

The forms of capital as introduced by Bourdieu, have been used in the farming context (Burton and Paragahaweve, 2011; Sutherland and Burton 2011). The economic capital refers to the capital required for agricultural production, such as land, buildings and machinery. Cultural capital is linked to farmer's formal education (institutionalized cultural capital) and to farmer's traditional knowledge (embodied cultural capital) but also to the prestige derived from commonly accepted symbols of 'good farming' (Burton and Paragahaweve, 2011). Social capital constitutes the networks and social relations, which are the basis for the informal (mutual help and exchange of information) and formal (production and marketing cooperatives) cooperation between farmers (Svendsen and Svendsen, 2000).

The ultimate aim of this paper is to develop a general farmer socioeconomic typology which can be used to

analyze a wide variety of farmer's management decisions and practices. Specifically we aim to explore 1) which farmer types could be derived using variables as indicators of economic and cultural capital?; 2) are the farmer types linked to certain farm profiles and in which way?; and 3) are the farmer types different for management decisions and if yes, in which way?. Based on this analysis we discuss, how this kind of typology can help building policies and programmes for the development and conservation of local breeds.

2. Material and methods

2.1. The Avileña-Negra Ibérica regional cattle breed

The Avilena-Negra Ibérica (ANI) cattle breed was the target of a case study to develop the farmer typology. Based on the wide knowledge on the breed and the long and fruitful collaboration with the ANI Breeders' Association (e.g. Vassallo and Díaz, 1986; Martín-Collado et al. 2013) our work is providing the expert interpretation needed in developing typologies (Kostrowicki, 1977; Emtage et al., 2007) and in testing their validity and utility (Emtage et al., 2007). Traditionally ANI breed has been associated with two kinds of farmers: wealthy farmers from high-class families that own farmland where they raise cattle as a way of living and peasants that usually live in villages and raise cattle using public common land. The ANI Breeders' Association was established in 1970 and it has been very active in trying to maintain the ANI breed that has to compete with the mainstream cattle breeds (see Martín-Collado et al., 2010).

2.2. Data: survey for ANI farmers

The data set used in the study was based on a structured survey of farmers of ANI cattle breed that was carried out in 2011. We interviewed face-to-face 85 farmers out of the 471 farmers that formed ANI Breeders' Association. The survey was carried out as a part of a wider Spanish national research project (funded by the Spanish Ministry of Agriculture, Food and Environment), that included five other Spanish beef cattle local breeds. Farms included in the project were selected in consultation with ANI Breeders' Association according to the number of animals and geographical location to cover a very wide range of farmers. In this paper the information provided by the survey was used to build the typologies and analyze its association with the farm profiles and the farmer management decisions.

2.3. Development of farmer types

In order to build the farmer types we used five socioeconomic variables that have consistently been used to define landowner types regardless the aim of the typology (e.g. Siegmund-Schultze and Rischkowsky 2001; Kristensen et al., 2004; Emtage et al., 2006) and which can be immediately related to economic and cultural capital of farmers. These indicator variables of the economic and cultural capital of farmers are; (1) formal educational level of a farmer

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