Journal of Rural Studies 39 (2015) 145–155

Contents lists available at ScienceDirect

Journal of Rural Studies

journal homepage: www.elsevier.com/locate/jrurstud

Farmer identities and responses to the social–biophysical environment

Jean M. McGuire [a, *], Lois Wright Morton [b], J. Gordon Arbuckle Jr. [c], Alicia D. Cast [d]

[a] Iowa State University, Department of Sociology, 315 East Hall Iowa State University, Ames, IA 50011-1070, United States
[b] Iowa State University, Department of Sociology, 317C East Hall Iowa State University, Ames, IA 50011-1070, United States
[c] Iowa State University, Department of Sociology, 303C East Hall Iowa State University, Ames, IA 50011-1070, United States
[d] University of California – Santa Barbara, 3133 Social Sciences & Media Studies University of California at Santa Barbara, Santa Barbara, CA 93106-9430, United States

ARTICLE INFO

Article history:
Received 1 August 2014
Received in revised form
10 March 2015
Accepted 23 March 2015
Available online 16 May 2015

Keywords:
Agriculture
Farmer identity
Water quality
Soil conservation

ABSTRACT

Row crop production in the United States (US) Midwest is responsible for a myriad of water pollution issues in the Mississippi River Basin and the Gulf of Mexico. US federal and state governments have spent billions of dollars since the 1930's to understand and develop biological and geophysical practices that will reduce the negative impacts of agriculture on these landscapes and water bodies. However, significantly fewer resources have been applied to understanding the human factor within this social–ecological system. Recently the social psychological framework known as farmer identity as been used to better understand how farmers view themselves as they perform their role as farmer. To empirically test this concept in the US state of Iowa, a farmer identity question was developed and data were collected as part of an annual survey of Iowa farmers. Four farmer identities (Productivist, Conservationist, Civic-minded, and Naturalist) are identified using principal components analysis and tested for their ability to predict support for farm policy scenarios related to soil and water resource protection. Results show that Productivist, Conservationist, and Naturalist identities were likely to be activated by soil and water policies; and the Civic-minded identity was not activated by soil and water policies in general but was significantly against more money for conservation because it might mean more regulation.

1. Introduction

The act of preparing soil to grow food has unintended consequences at field, farm, and watershed levels and beyond (Jackson et al., 2010; Tilman et al., 2002; Turner et al., 2012). Many types of intensified farming practices have led to loss of wetlands and wildlife habitat, erosion of the farmland soil base, and off-field sediment, pesticide, nitrogen and phosphorus losses that lead to downstream pollution and hypoxic conditions (EPA, 2013; Rabalais et al., 2002; Turner et al., 2012). These problems are not new. Seventy–five years ago Aldo Leopold wrote "The landscape of any farm is the owner's portrait of himself" (1939:299). He argued that a myopic focus on yield was reducing soil fertility, increasing soil erosion and decreasing the diversity of flora and fauna on cropland in the United States (US) Corn Belt.[1] Leopold urged farmers to recognize that healthy, stable soil provides a home to a variety of plants, animals, insects, and microorganisms that are an important part of the ecological system on their farms and the local social systems as a place to enjoy nature for recreation, socialization, and relaxation. He urged farmers to take as much interest in the dynamics of social and ecological systems on their farms and nearby landscapes as they did in understanding the mechanics of the tractors and implements they use to practice agriculture. In other words, he was asking them to see their farms as integrated social–ecological systems (SES). His assertion that farm landscapes

* Corresponding author.
E-mail addresses: jmcguire@iastate.edu (J.M. McGuire), lwmorton@iastate.edu (L.W. Morton), arbuckle@iastate.edu (J.G. Arbuckle), acast@soc.ucsb.edu (A.D. Cast).

[1] Corn is grown in most U.S. states, but production is concentrated in the Heartland region (including Illinois, Iowa, Indiana, eastern portions of South Dakota and Nebraska, western Kentucky and Ohio, and the northern two-thirds of Missouri). Iowa and Illinois, the top corn-producing States, typically account for slightly more than one-third of the U.S. crop (USDA 2013).

http://dx.doi.org/10.1016/j.jrurstud.2015.03.011

are portraits of a farmer continues to be applicable and provides an argument that understanding farmers' identities and how those identities are expressed in the performance of agriculture is still important today.

Studies of farmer identity have been conducted in the US, European Union and Australia. These studies have focused on better understanding how farmer beliefs about how agriculture should be performed translates into the practices that are used on-farm. Understanding why farmers perform agriculture as they do may inform efforts to engage farmers in educational opportunities, incentives, and regulations that will motivate them to modify their practices to take action that improves and protects the social and ecological systems within and outside of their farm gates. In the US agriculture is being pushed to produce more food, fiber and feed, along with recent opportunities to produce renewable fuel, which has resulted in a number of negative impacts on the environment. The negative impact with the highest public profile is impaired water quality. As technology has helped farmers increase yields, it has also made it easier and less expensive to identify the sources of pollution in agricultural landscapes and water bodies. It is clear that row crop production agriculture is a primary cause of water pollution in the Mississippi River Basin and the Gulf of Mexico (EPA, 2013; Rabalais et al., 2002).

In the US there has not been a strong emphasis on farmers producing ecosystem services in the past and as a result ecosystem service production has remained a largely voluntary practice. However, as the need for food and clean water grow with the increasing population, so have society's expectations that farmers will adopt practices that will significantly reduce or eliminate the negative impacts of agriculture on water resources (Herrero and Thornton, 2013). This societal expectation creates a social situation that can be challenging for some farmers to verify their farmer identity as doing "good" the environment.

Two themes, individual farmer identities and the social–ecological context within which those identities are activated are the focus of this paper. A farmer's view of the land as part of (or not part of) the social–ecological system that ranges from the microscopic to the planet scale (Arbuckle, 2013a; Arbuckle, 2013b; Burton and Wilson, 2006; Egoz et al., 2001) seems to underlie the identity which dominates how a farmer practices agriculture.

Past research has explored two ideal types of farmers: the Productivist and the Conservationist. As with any business, farmers expect to recover their costs of operation and earn a profit. In many ways farms managed by both types of farmers may look quite similar to those not familiar with agriculture. The Productivist farmer relies heavily on one or two crop rotations, heavy applications of synthetic fertilizers, pesticides, genetically engineered seed and high-tech farm machinery (Tilman et al., 2002). High yields are produced, but often result in increased soil erosion, pollution of ground and surface water with nutrients and pesticides and a significant loss of biodiversity. In short, the Productivist's primary goals are short-term profits and maximizing the output of the land resource in order to achieve high yields. The Conservationist takes a slightly different view. While he/she likely uses many of the same practices and has many of the same yield and income goals as the Productivist, these farmers also consider the long-term value of the land resource and take action to reduce soil erosion and improve soil health. Concurrently those actions have the effect of reducing some of the negative impacts on the quality of water that flows through their farms. These management practices might include riparian buffers around streams and grassed waterways along the edges of fields that reduce the flow of nitrogen and other nutrients beyond their farms.

When farmers practice agriculture, they are influenced not only by their internal beliefs, values, knowledge and past experiences, but also by iterative interactions with their social and biophysical environments (Arbuckle, 2013a; Arbuckle, 2013b; Burton and Wilson, 2006; Egoz et al., 2001). Social and biophysical situations can range from field, farm, community and watershed conditions to local and global markets to social relations to public policies. While the Productivist and Conservationist identities are described in much of the literature on farmers, there is a gap in our knowledge about how these identities react to various social and biophysical situations. Further, all individuals, including farmers, have multiple identities and it is not well understood how the many roles and identities a farmer can assume might be activated to have concern for agro-ecosystem well-being while assuring their livelihoods.

The first applications of identity theory to farming focused on understanding farmer decision-making and behavior at the individual level of analysis. Burton first used identity theory to understand why farmers refused to participate in a plan to reforest their farmland (Burton and Wilson, 2006). Others have examined the adoption of agri-environmental practices (Arbuckle, 2013a; Arbuckle, 2013b; Burton et al., 2008; Burton and Paragahawewa, 2011; Burton and Schwarz, 2013; Emery and Franks, 2012; Sutherland, 2010); efforts to improve water quality (Blackstock et al., 2010; McGuire et al., 2013); the use of organics (Stock, 2007; Sutherland and Darnhofer, 2012; Sutherland et al., 2012); comparisons of farmer and consumer views of food (Selfa et al., 2008); and the role of social capital in farming communities (Sutherland and Burton, 2011). Most of the previous farmer identity research has been limited in scope. That is, much of the work was done using qualitative measures such as interviews and doing surveys with non-statistically valid samples. Others have advanced this concept through literature reviews and syntheses or case study analyses, and expanded theoretical work by incorporating other sociological theoretical frameworks (Arbuckle, 2013a; 2013b being the exception). These scientists have no doubt advanced this theoretical framework, but they have also challenged their peers to do empirical research in order to further test and develop this theory (Burton and Paragahawewa, 2011).

In this paper we take up the challenge of developing quantitative measures to further test this theory. Our intent is to examine farmers as individuals and the identities that are activated when making production decisions in varied environmental and social situations. Although the Productivist and Conservationist identities have been the primary focus of prior literatures, two additional identities which have little or no literatures are developed here. All four identities – Productivist, Conservationist, Civic-minded, and Naturalist – are subjected to different social and biophysical scenarios to understand how the social–ecological situation can activate one identity over another within the same individual.

Principal components analysis (PCA) is used to guide the development of indices that measure components of these four distinct identities based on data from a random sample state-wide survey of Iowa famers. Five farm-related public policy models representing social–ecological situations are used to evaluate the relationships between measures of identity and statements about agricultural policy. Results are then presented and followed by a discussion of the concept of "farmer identity" and its further development to increase understanding how identities influence farmers' perceptions and support for farm policies that attempt to address two of the unintended consequences of agricultural production: soil erosion and water pollution. Lastly we conclude by discussing the implications of findings and limitations of this research.

2. Identity theory and farmers

The identity construct has been defined as "a set of meanings