

## Use Authorization

In presenting this thesis in partial fulfillment of the requirements for an advanced degree at Idaho State University, I agree that the Library shall make it freely available for inspection. I further state that permission to download and/or print my thesis for scholarly purposes may be granted by the Dean of the Graduate School, Dean of my academic division, or by the University Librarian. It is understood that any copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Signature \_\_\_\_\_

Jordan Burke

Date \_\_\_\_\_

**Idaho Farmers' Perceptions of their Role in Food Production: A Narrative Analysis**

By

Jordan Burke

A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Arts in the Department of Sociology

Idaho State University

Spring 2016

## Committee Approval

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of Jordan Burke find it satisfactory and recommend that it be accepted.

---

Dr. Katrina Running, Major Advisor

---

Dr. Jeremy Thomas, Committee Member

---

Dr. Mark McBeth, Graduate Faculty Representative

## ACKNOWLEDGEMENTS

Many individuals deserve my sincerest acknowledgements. These people were integral in not only the completion of my thesis, but also in furthering my knowledge and love of sociology.

Foremost, I would like to thank my mentor and advisor, Dr. Katrina Running. This thesis would not have been possible if it were not for Dr. Running's continued encouragement and support. She sparked my interest in environmental sociology and provided me with the tools needed to engage in environmental sociological research. She has a passion for environmental research that is inspirational. I will forever be indebted to Dr. Running for these things and more; she has truly been an advocate, a mentor, and a friend. Thank you Dr. Running, for all of the time, effort, advice, and support you have afforded me throughout my graduate education.

I would like to thank the two other members of my thesis committee, Dr. Jeremy Thomas and Dr. Mark McBeth. Dr. Thomas, your knowledge of sociological theory and passion for research are unparalleled. Dr. McBeth, your enthusiasm for environmental research is both contagious and encouraging. These professors have left me excited for future research and writing endeavors. Their patience and guidance throughout this project have been invaluable. My deepest thanks to you both.

The chair of the Sociology Department, Dr. Gesine Hearn, also deserves my sincerest thanks. Dr. Hearn has provided continued support and guidance throughout my undergraduate and graduate degree programs. If it was not for this support, I do not believe I would be where I am today. She has gone above and beyond in assuring my prosperity as a student. Many thanks to you, Dr. Hearn.

The former chair of the Sociology Department, Dr. Ann Hunter most certainly deserves my acknowledgement. Dr. Hunter introduced me to the discipline of sociology; this changed my life. She took an interest in furthering my sociological education, and for this, I am very grateful. Thank you Dr. Hunter.

I would like to thank all of the other professors I have had the pleasure of working with throughout my graduate education at Idaho State University. Dr. DJ Williams, you definitely changed the way I view leisure and a number of other social phenomena. Dr. James Aho, I greatly appreciate both your advice and perpetual positivity. I would like to give thanks to the late Dr. Teresa Casey. As a single mother pursuing a graduate education, Dr. Casey was a true inspiration. When feeling overwhelmed, she provided a shining example that it can be done. We will miss you Dr. Casey.

I would like to acknowledge the other graduate students in the program. Thank you all for allowing me to vent my frustrations, and of course, for offering much-needed advice throughout my time at Idaho State University. I would also like to thank two undergraduate students, Tomas Cota and Kathleen Shipley, for all of your valued assistance with this research project.

The Managing Idaho's Landscapes for Ecosystem Services (MILES) EPSCoR Program also deserves great thanks. This research program not only funded my education and my thesis research, but has also provided an avenue for my continued educational and research prospects. I would like to give special thanks to the MILES lead at Idaho State University, Dr. David Rodgers, for taking an interest in my research and in providing much-needed feedback.

Lastly, I need to give thanks to my children, Maddux Burke and Jade Burke. Thank you for behaving throughout my long hours at home in front of the computer. I could not ask for greater kids. I love you!

## TABLE OF CONTENTS

Abstract.....	pg. vii
Introduction.....	pg. 1
Literature Review.....	pg. 3
Theoretical Framework.....	pg. 8
Data.....	pg. 19
Methods.....	pg. 21
Results/Discussion.....	pg. 23
Conclusion.....	pg. 39
References.....	pg. 44
Appendix.....	pg. 50

**Idaho Farmers' Perceptions of their Role in Food Production:  
A Narrative Analysis**

ABSTRACT

Farming is a needed practice, but one that is often at odds with sustainability. This research analyzed the implications surrounding farmers' conservation efforts through addressing the farmers' description, or narrative, of these efforts. Within this process, we sought to understand the contextual, social, and psychological factors that may affect farmers' environmental behavior. We interviewed farmers in Southeastern Idaho in a semi-structured setting. We asked questions regarding their background, environmental attitudes, farming practices, and experiences with farming regulations. We analyzed the interviews in order to understand the way that farmers see themselves and their role within food production, along with themes from the theory of planned behavior and the value-belief-norm model of behavior. We argue that humans construct narratives based on this role formation, and hence their norms/values/beliefs and overall experience with the social world. Qualitative results indicate that many of the factors, particularly those related to contextual forces, social norms, environmental values, and perceived behavioral control, might influence these farmers' intended environmental behavior. This likely affects their behavioral actions, such as willingness to adopt conservation measures and/or to support regulatory policies that may improve the safety of farming practices.

## INTRODUCTION

Farmers are arguably one of the most important stakeholder groups when it comes to managing ecosystem services in not only our region, but on a worldwide scale. As human beings, we need nourishment to survive which farmers provide. In 2012, 22.2% of total land in Idaho was classified as farmland (USDSA 2015). Agribusiness is the third largest industry in Idaho, and provided over 100,000 jobs in 2010 (Taylor, Eborn, Watson, and Rodriguez 2012). Agriculture accounted for 31% of Idaho's total employment, with 8,226 jobs located in the Southeastern Idaho region (Idaho Department of Labor 2014), and Bingham, Power, and Bannock counties have more land in agriculture and food production than in industry (Southeast Idaho Council of Governments 2013). Although critically necessary given increased population strains and caloric intake per capita, increases in agricultural production "have been associated with degradation of land and water resources and the deterioration of related ecosystem goods and services" (Nations 2011). Globally, 40% of land and 70% of water is used for agricultural production, much of which was developed from deforestation, and agriculture is said to account for 17.4% of greenhouse gas emissions (Kleinschmit 2009). In order to produce food in quantity, certain environmental concessions are bound to occur. Given the prevalence of agriculture in Idaho, it is important to analyze factors that may inhibit or promote pro-environmental behavior among farmers.

Many have studied environmental behavior among farmers (Burton et al. 2008; Cary and Wilkinson 1997; Pilgeram 2011; Ryan et al. 2003; Tosakana et al. 2010). Farmers are at the center of the conflict between sustaining ecosystem services and producing enough food for a growing population. Of course, farmers also depend on the environment to execute their role as a food provider. Therefore, in looking at farmers' perceptions of their role as a food producer, and incorporating factors related to previous findings on pro-environmental behavior, we can investigate how farmers negotiate their agricultural practices taking into consideration the seemingly contrary notions of efficiency and sustainability. As such, we address two fundamental questions within this research: How do farmers' describe their conservation efforts? What contextual, social, and psychological factors may affect their willingness to engage in pro-environmental behavior?

## LITERATURE REVIEW

### *Economic Factors in Pro-Environmental Behavior:*

Throughout much of the literature, researchers have studied economic factors related to farmers' environmental behavior. In looking at this, Pilgeram (2011) found while studying sustainable farming, that familial income and educational attainment are factors in those engaging in sustainable farming. They found that the more wealth a farmer had the more sustainable farming practices they were able to implement. Cary and Wilkinson (1997) found that profitability was the largest contributor to conservation behavior among farmers. Tosakana et al. (2010) found in a study of farmers in northern Idaho and eastern Washington that the expense of implementing and maintaining conservation was a major concern. However, only about half of respondents regarded profitability as a concern in regards to conservation practices. This suggests that perhaps the economic ability of farmers to implement conservation practices surpasses the need to profit. Farmers also indicated that conservation requirements by regulatory agencies were a deterrent to their use; they expressed the belief that these efforts cost more than they were worth.

In looking further at regulatory efforts promoting conservation, Porter et al. (2007) found in a program analysis of land management practices in Australia, that the costs of conservation practices were a barrier, along with the perceived effectiveness of these practices. They argue that the cost of conservation efforts is a barrier if farmers believe the practice to be ineffective. This may also relate to information acquisition and trust; farmers were much more likely to believe information from an agronomist or other farmers than from regulatory agencies.

Other studies examined farming subsidies' impact on conservation behavior among farmers. In looking at agro-environmental schemes (AESs) in Europe, Burton et al. (2008) argue that these schemes, taking the form of subsidies to promote farming conservation practices, may affect conservation behavior, but have done little in the way to change environmental attitudes. Other studies throughout Europe have supported this relationship between subsidy policies and behavior/attitude, including Ireland (Aughney and Gormally 2002), Finland (Herzon and Mikk 2007), Switzerland (Schenk, Hunziker, & Kienast 2007), the United Kingdom (MacDonald and Johnson 2000), and Austria (Schmitzberger, et al. 2005). From these studies, we can postulate that other factors outside of regulatory efforts affect the promotion of pro-environmental behavior among farmers.

*Values, Norms and Pro-Environmental Behavior:*

Some studies have found that cost was not a major factor in pro-environmental behavior or attitudes. Ryan, Erickson, and De Young (2003) found that farmers that engaged in conservation practices were often intrinsically motivated, through such factors as land attachment. Gosling and Williams (2010) found that connectedness to nature was moderately associated with pro-environmental behavior among farmers in Australia. Cutforth et al. (2001) found social influences, such as norms, to be factors in farmers' conservation behavior. Others argue that both external and internal interests work to affect pro-environmental behavior among farmers (Chouinard, Paterson, Wandschneider, & Ohler 2008). In looking at any attitudinal orientation, it is important to realize that socio-cultural factors, such as norms, will influence one's outlook.

Research has shown that generalized trust and social capital promote pro-environmental behavior among individuals (Macias 2015). Previous work has shown that trust is associated with various pro-environmental efforts, such as recycling (Sonderskov 2011) and water conservation efforts (Van Vugt & Samuelson 1999). Higher levels of social capital existing from frequent interactions with others may also work to assuage the effects of the media on consumption practices (Macias 2015; Schor 1998). Macias (2015) found that generalized trust influenced one's willingness to sacrifice for the good of the environment. This indicates the importance of information acquisition and social networks in shaping environmental behavior.

*The Self and Pro-Environmental Behavior:*

Other work has focused on the importance of identity and personality while investigating environmental behavior. Quinn and Burbach (2008:103) found that personality typology affects environmental behavior. They found a positive association between "ecocentric reasoning about environmental issues, intrinsic process motivation, goal internalization motivation, and a farmer's internal self-concept" when investigating the adoption of best management practices involving surface water quality. Ecocentric reasoning would suggest an environmental valuation posited within the concept that the environment holds value above its human use value. Anthropocentric reasoning relates to the concept that the environment's value lies in its human use. They assert that motivation which is intrinsic and goal oriented, rather than extrinsic in the form of incentives or disincentives, is more effective. Farmer's notion of self is also found to be positively related to pro-environmental behavior when one holds values for nature that are ecocentric. In addition to profit influence, Heath and Gifford (2006) also found that

low levels of ecocentrism (i.e., a nature-centered system of values), environmental apathy, and low self-efficacy were negatively associated with pro-environmental behavior. These studies highlight the importance of self-identity and formation in affecting pro-environmental behavior.

*Cultural Factors and Pro-Environmental Behavior:*

Research efforts have found that racial, ethnic, and economic minorities often hold more environmental concern than those with dominant demographic traits (Macias 2015). Some argue this is due to environmental threat inequities and environmental racism (Bullard, Torres, and Johnson 2011; Jones & Rainey 2006). Jones (1998) using *General Social Survey* data from 1973-1993 found that environmental concern decreases more for whites than for blacks during times of economic distress. Using 2010 *General Social Survey* data, Macias (2015) found that political conservatism, white racial status, and male sex all had a negative relationship with environmental risk perception. Risk perception was the strongest predictor of willingness to sacrifice for the good of the environment (Macias 2015). Males in general view risk lower than females, and whites lower than people of color (Finucane, Slovik, Mertz, Flynn, and Satterfield 2000). In looking at risk perception discrepancies by sex, some findings suggest that neither education nor ability to rationalize diminish this gap; females, no matter their education, generally view greater risk than males (Gardner and Gould 1989; Barke et al. 1997; Slovic et al. 1997). Farmers are disproportionately male and white in Southeastern Idaho, which may influence their willingness to engage in conservation efforts.

Other research efforts have focused on rural culture and its effect on environmental behavior. In looking at rural America, previous research had concluded

that rural individuals are often much more directly affected by their environment than those in urban settings, and therefore often experience more pressure from constraining forces (Hamilton et al. 2013; Dunlap 2010; Molnar 2010). One's regional culture will greatly influence their sense of self and identity formation, which ultimately influences one's perception of the environment and attitudes towards adopting pro-environmental behavior (Devine-Wright 2013; Hamilton et al. 2010; Hamilton et al. 2013).

## THEORETICAL FRAMEWORK

In looking at determinants of pro-environmental behavior, two prevalent frameworks in social psychology are the value-belief-norm model (Ajzen 1991) and the theory of planned behavior (Stern 2000). Both of these models incorporate social/contextual factors, such as norms and resources, with attitudinal functions, such as perceived behavioral control within the TPB and values within the VBN.

### *VBN (Value-Belief-Norm) Model of Pro-Environmental Behavior:*

Previous efforts have largely measured environmental behavior in terms of results or impact (Stern 1997). Stern (2000) argues that in addition to impact-oriented behavior, we need to study the processes involved in individual choices regarding environmental behavior (i.e., intent-oriented behavior). Intent-oriented research differs from impact-oriented investigations in two ways: “It highlights environmental intent as an independent cause of behavior, and it highlights the possibility that environmental intent may fail to result in environmental impact” (Stern 2013: 408). For instance, we may engage in behaviors that we believe are pro-environmental, such as not using aerosol spray cans because of the belief that they contain harmful chemicals, when in reality chlorofluorocarbons (CFCs) have been restricted for use in consumer products for quite some time. It is the intent that needs to be noted, not just the impact. It is through understanding intent that we can understand the processes that lead to pro-environmental behavior.

It was this belief that led to the value-belief-norm model of environmental behavior. The VBN model of non-activist pro-environmental behavior links several

concepts introduced by previous theories: values theory, norm-activation theory, and The New Environmental Paradigm (Stern 2000). According to the VBN, environmental values influence environmental beliefs, taking into account the New Environmental Paradigm (NEP), adverse consequences, and one's perceived control over a value threat. It is through this process that pro-environmental personal norms are formed, which will then affect one's pro-environmental behavior.

Stern et al. (1999) found that the VBN variables are significant predictors of pro-environmental behavior involving the private sphere (e.g., recycling at home), policy support, and environmental citizenship (e.g., buying environmentally friendly products). Stern (2000) asserts there are four types of causal variables that explain pro-environmental behavior. These are attitudinal (values, beliefs, norms, etc.), external/contextual forces (community expectations, costs, benefits, etc.), personal capabilities (skills, knowledge, energy, etc.), and habit or routine.

The VBN is a causal chain, beginning with "relatively stable, central elements of personality and belief structure to more focused beliefs about human-environment relations (NEP), their consequences, and the individuals' responsibility for taking corrective action" (Stern 2000: 412). It argues that value threat detection influences behavior. There are three value typologies identified by Stern: egoistic, altruistic, and biospheric. Egoistic values are those concerned with "self enhancement," such as "obedience, self-discipline, and family security" (Stern 2000: 414). According to Stern (2000), egoistic values have a negative relationship with pro-environmental behavior. Biospheric values largely relate to an ecocentric worldview, and are those concerned with the environment based on its own importance. Altruistic values, also referred to as self-

transcendent values, are those concerned with valuing the environment because of its importance to some larger group (e.g., humanity). Stern (2000) asserts that altruistic value threats influence pro-environmental behavior. Therefore, those with altruistic values will respond when others that are valued are threatened; such as the case would be if a community's ground water were contaminated and community members acted to reduce this threat. However, it maintains that this attitudinal perspective is only one link in the chain. There are also contextual factors, such as resources and ability that will influence one's behavior. One may have altruistic values, but if they have little knowledge or resources in regards to influencing a value-threat, they are unlikely to change their behavior. The VBN formed from the basic premise that human behavior "is an interactive product of personal-sphere attitudinal variables and contextual factors" (415). Contextual factors affect attitudinal factors, which in turn will affect behavior. Attitudinal factors alone as predictors are "strongest when contextual factors are neutral and approaches zero when contextual forces are strongly positive or negative" (415). In looking at the social world, context is going to matter; we all exist in a place, time, and situation. Therefore, these factors are going to affect attitudinal factors that are ultimately going to affect behavior.

Many studies of sustainability and pro-environmental behavior have applied the VBN model. Henry and Dietz (2012), while looking at factors of environmental cognition, found that VBN variables are some of the best predictors of pro-environmental behavior. Weaver (2012) found altruistic value typology concerning environmental concern, sense of empowerment, and sense of obligation to all be significant indicators of eco-tourists' pro-environmental behavior. Wynveen et al. (2015) found the VBN to be

significant in predicting the behavioral intent of stakeholders' impact on marine ecosystems. In studying place attachment and native vegetation conservation behavior, Raymond et al. (2011) found the VBN to be a significant predictor of low-cost environmental choices.

The VBN model of behavior is important because of its emphasis on both internal and external factors, and in accentuating the relationship between cognitive and contextual factors, such as community norms affecting one's environmental value formation and beliefs. It is evident in a study dealing with farmers, that local cultural standards are likely to influence internalized norms, values, and beliefs, which will in turn affect their environmental behavior. At the same time, contextual issues dealing with resources and ability are also going to affect their ability and/or desire to engage in pro-environmental behavior.

*Theory of Planned Behavior:*

The theory of planned behavior is a dispositional approach in looking at behavior prediction, emphasizing the importance of cognitive self-regulation (i.e., our behavior stems from self-regulation as it pertains to disposition). Ajzen (1991) makes the argument that general attitudes have been poor predictors of specific behavior. For instance, one may hold a pro-choice political stance, but may not engage in pro-choice rhetoric within a conservative setting. In this instance, political attitude would be a poor measure of behavior. This setting, or situation, factors into behavioral choices. The TPB is a predictive model of behavior based on the nature of the specific contexts in which behavior occurs.

The TPB emerged from the theory of reasoned action (TRA). According to the TRA, individuals perform behavior based on the consequences associated with performing that behavior (i.e., positive or negative sanctions) (Ajzen 1991). That is, individuals rationally choose their behavior based on the imagined costs or benefits associated. The theory of reasoned action asserts that individual behavioral intent influences behavioral action. These intentions depend on individual attitudes towards a behavior and contextual norms. Previous efforts had largely focused on personality and attitudinal traits exclusively in predicting human behavior. Ajzen posited that these things influence behavior; however, contextual and situational factors are needed in order to ascertain any causal mechanism of human behavior. For instance, a nudist may believe that people should be allowed to be naked in public (belief/attitude), but most would not do this for fear of social sanctions. The theory of planned behavior (TPB) extends the theory of reasoned action.

The TPB includes the factors related to behavioral intent and action, but posits that an individual has to also feel as though they can control their behavior (i.e., ability to control) (Ajzen 1991). Taking the concepts of ability in regards to context, available resources, norms, and behavioral intent, we can better understand the causal mechanisms behind human behavior. Individuals' behavioral attitudes, subjective norms, and perception of control form behavioral intent, which then predicts human behavior. The TPB has been a highly influential theoretical framework in predicting human behavior concerned with the environment and sustainability (Heath and Gifford 2002; Mancha and Yoder 2015; Milakis 2015; Ravis and Sheeran 2003; Sanchez-Medina, Romero-Quintero, and Sosa-Cabrera 2014).

The TPB has been used to study many various types of environmental behavior. In looking at food safety implementation by farm cooperative managers in China, Zhou and Kai Li (2015) assert that managers should be part of the regulatory standard process in order to promote perceived behavioral control, and hence increase food safety practices and compliance. TPB variables have been significant in the evaluation of eco-friendly transportation (Heath and Gifford 2002). Yazdanpanah and Forouzani (2014) found TPB variables concerning attitude, self-identity and moral norms to be predictors of Iranian students' choice to purchase organic food. In looking at information acquisition, Witzling et al. (2015) found that TPB variables, specifically social norms, perceived behavior control and attitude, were all significant predictors of aquatic invasive species compliance efforts. Leeuw (2015) used the TPB to assess high school students' pro-environmental behavior, and found attitudes, subjective norms, and perceived behavioral control to all be significant predictors of both behavioral intent and pro-environmental behavior. Hines et al. (1986/87) found in their initial meta-analysis of pro-environmental behavior that self-efficacy/locus of control, moral obligation, and pro-environmental behavioral intention were all strong predictors of pro-environmental behavior. Bamberg and Mόser (2006), in a subsequent meta-analysis, concurred that perceived behavioral control (PBC), much the same concept as self-efficacy and locus of control, and environmental morals/norms/attitudes all affected environmental behavior, as well as perceived environmental problem awareness and behavioral intention. These findings are in line with other work (see above) that pro-environmental behavior seems to be influenced by both "self-interest and pro-social motives" (Ajzen 1991: 22).

*VBN and TPB Psychological Model of Pro-Environmental Behavior:*

It is found in previous research efforts that pro-environmental behavior is largely internally motivated (Clark and Lowe 1992; Battershill and Gilg 1997; Price and Leviston 2013), and influenced by social and self-expectations (Bamberg and Möser, 2007; Stern 2000). In looking at farmers' motivation to engage in pro-environmental behavior, Price and Leviston (2013) used a combination of factors involved in the value-belief-norm model of behavior coupled with the theory of planned behavior. In doing this, they were able to incorporate multiple dimensions, both social and psychological, of previous findings concerning predictive measures of pro-environmental behavior (Price and Leviston 2013). These include contextual questions regarding environmental behavior, an assessment of environmental values and beliefs, behavioral control beliefs (i.e., self-efficacy), and an assessment of behavioral and social norms. In using this framework, they found that the strongest predictor of pro-environmental farming behavior was in relation to environmental control beliefs (internal locus of control). This is consistent with both the VBN (i.e., ability to reduce perceived threat) and the TPB (i.e., perceived behavioral control) in the assertion that farmers' willingness to engage in pro-environmental behavior relates to their perception of their ability to do so, as well as, the efficacy of such efforts. They also found that environmental value typology, in particular that of biospheric valuation, does lend to pro-environmental farming practices. This concurs with previous research that found that biospheric and altruistic values are predictors of pro-environmental behavior (Arnocky et al. 2007; Seymour et al. 2010; Quinn and Burbach 2008). Other findings suggest that pro-environmental behaviors have a reciprocal relationship with pro-environmental beliefs and values. That is, not only do

values influence farmers' behaviors concerning good environmental practices, but those that implement pro-environmental practices often come to hold pro-environmental values that are biospheric or altruistic in nature, and are therefore, more willing to enact further pro-environmental efforts. Therefore, encouraging farmers to implement a particular practice may lead to the further acceptance of pro-environmental agricultural practice; however, they also found that farmers have to feel a sense of self-efficacy for this to occur.

For the purposes of this study, the focus will be on evaluating environmental values (i.e., altruistic, biospheric, egoistic), beliefs regarding self-efficacy or locus of control (i.e., do farmers feel in control of their farming practices?), and the notion of perceived threat (regulatory agencies, public perception; constraints). It is also important to look at contextual factors that affect the construction of these previous concepts. It is important to realize that the social world influences our values, beliefs, and norm formation, as well as, our perception of self and others. Therefore, an array of intra-personal and social factors influence farmers' pro-environmental behavior. In following Price and Leviston's (2014) work, these factors relate to concepts found in both the VBN and the TPB.

### *The Self and Behavior:*

The meanings we assign to our everyday reality and sense of self have been a long-standing interest in many of the social sciences, but in particular sociology. Some scholarship has focused on the self as a mostly internal cognitive affair (Goffman 1959; Hochschild 1983; Mead 1934). Others, such as Berger and Luckman (1966), assert that everyday life is constructed through our subjective interpretations of the world around us.

Reality becomes something that just is; it is taken-for-granted and referenced as being something beyond oneself (i.e., it is reified). They argue that everyday reality is situated in the “here of my body and now of the present” (Berger and Luckman 1966:23). They also assert that reality is “intersubjective”; it comes to be out of interaction with others and is based on shared meanings or “commonsense knowledge” (23). One of the largest factors in this process of intersubjective commonsense understanding is language, and language is most effective for the transmission of subjectivity during face-to-face interactions. This is because language combines with other forms of “expressivity”, resulting in the realization of another as “fully real” (29). Berger and Luckman stress the importance of the socialization process in one becoming a “member of society” (129). They argue that every individual is born into an “objective reality” (131). Every person then internalizes their place within this reality as their own. The meanings one attaches to their role and reality are based on this internalization (Berger and Luckman 1966). Whether mostly internal, or a process of internalization of social instances, meaning is central in understanding how we operate within society and how we view ourselves in relation to others.

In looking at our place within reality, one’s role is contingent upon the reality they experience. Farmers represent a specific role within both global food production and the rural communities in which they live. Stenholm and Hytti (2014) argue that this role is socially constructed based on social norms and farmers’ experience with institutions, resulting in two distinct identities: the producer and the entrepreneur. The producer identity emphasizes profit as a means to legitimacy. The entrepreneur identity promotes farmer competition in an attempt to “become the biggest and the best” (Stenholm and

Hytti 2014: 133). In line with this assertion, McGuire et al. (2013) argue that the “good farmer identity” in America is reliant on one’s ability to maximize production.

In looking further at this process of self-formation, we can see how other social factors are bound to the formation of personal norms and the psychological process of pro-environmental behavior exhibition. The VBN (value-belief-norm) model of pro-environmental behavior contends, “. . . that personal moral norms are the main basis for individuals’ general predispositions to pro-environmental action” (Stern 2000:413). In referencing the TPB (theory of planned behavior) model, Ajzen (2011) asserts “Even if inaccurate, biased or otherwise irrational, our beliefs produce attitudes, intentions and behaviors consistent with these beliefs”, which are situated within a rational cost/benefit calculation by the individual (1116; Price & Leviston 2014). One’s role, and notion of self, form through experiences, most notably interactions with the social world. Concepts from the VBN and the TPB incorporate this concept; our norms, values and beliefs are contextual.

#### *The Self and a Story:*

According to Puchalska-Wasyl et al. (2008), individuals’ internal dialogical efforts and the formation of conversational characters serve basic formative and alleviating functions. These include providing support for oneself, “an escape from everyday life,” bonding and a sense of understanding, and supporting self-improvement and self-guidance (p. 244). The construction of narrative metaphors facilitates one’s conceptualization of self-identity (Hermans 1996). According to Hermans (1996:33), “Identity includes one’s social roles and status, as well as one’s personal characteristics and feelings.” It is a combination of ensuing cognitive and social components. Although

some argue that narrative formation is primarily a psychological function (Bruner 1986), many maintain that narratives originate and serve primarily social functions related to interaction (Gergen and Gergen 2011; Bamberg 1987; White 1987). In taking a relational constructionist approach, Gergen and Gergen (2011) argue that we construct these narratives based on relational interactions, but this is not to say that there is nothing cognitive occurring. They assert that individuals use narrative metaphors, or a story, in the construction of self-identity because of social interaction. They state:

Given the lodgment of narrative in relational process and the substantial variations in the demands of context, one would naturally come to harbor multiple narrative potentials. However, because the concept of life story is widely shared within society and one's circle of close acquaintances may be limited, one may also sustain and exercise the potential to integrate multiple events into a single, coherent narrative. And, when in motion, this narrative may be understood as inhering in the core of self (Gergen and Gergen 2011: 380).

This self is a product of relational factors that inherently promote psychological and intra-personal processes in this construction. This study aims to examine both social and intra-personal factors related to pro-environmental behavior. In constructing a narrative based on the VBN and TPB variables, we are able to elucidate how these factors operate within the context of farming and within the role construction of the self as farmer. In taking the perspective that we construct our notion of self because of our world interaction, we can view one's role as incorporating many factors, in particular values, social norms, and beliefs, as they are contextually situated.

## DATA

This research used thirty semi-structured in-depth interviews taken from the Managing Idaho's Landscapes for Ecosystem Services (MILES) Idaho's Farmers Research Project (2015). We collected the sample using convenience-sampling methods. The recruitment process involved distributing fliers in local businesses where we speculated farmers might frequent. We were able to find some farmers from online sources, namely those that were associated with farming associations, and through personal contacts. The majority of the farmers contacted agreed to participate. We conducted the interviews from June – August 2015 in southeastern Idaho. We then transcribed the recorded interviews, which ranged from seven to twenty-four pages. The interviews ranged from approximately thirty minutes to two hours.

The respondents were all male and white, ascertained from the interviewer's subjective observation (Table 1). Eighty-three percent of respondents identified as politically conservative, while the other 17% self-identified as an independent/moderate. The median age of respondents was 55 years, ranging from 27 to 78 years of age. The median household size was two persons, ranging from one to eight. All of the respondents had knowledge of the day-to-day operations of the farm, with all but two having direct ownership (the two were children of the owners). The respondents represented a broad range of farm sizes, 110 to 25,000 acres, with a mean of 3,617.57 acres and a median of 1,600 acres. The majority of respondents were born into farming (87%), while only 13% reported being first-generation farmers.

Table 1: Descriptive Statistics

	Percentage	Mean	Median	Minimum	Maximum
% Conservative	83%	—	—	—	—
% Independent/Moderate	17%	—	—	—	—
Age of Respondent (years)	—	55.66	55	27	78
% Male	100%	—	—	—	—
Size of Farm in Acres	—	3,617.57	1,600	110	25,000
Household Size	—	2.59	2	1	8
% White	100%	—	—	—	—
Years Family has been Farming in Area	—	67.9	60	5	130
Born into Farming	87%	—	—	—	—
First Generation Farmer	13%	—	—	—	—

## METHODS

In using the thirty semi-structured interviews, we created a qualitative account relating to the manner in which the respondents view their role in food production. We assigned all of the respondents pseudonyms in order to protect their identity. It is my assertion that farmers' role construction and environmental sentiments work to justify one's environmental behavior. Both external influences, constraining or reinforcing, and internal cognitive processes are going to affect the way one views the world and their role within society. Through analyzing this role as it emerged from farmers' narratives, we were able to identify factors from the TPB and VBN models of behavior.

We identified factors through a method of free form qualitative coding, allowing themes to emerge from the data. This is in line with Glaser and Strauss' (1967), as opposed to Strauss and Corbin's (1990), grounded theory method coding procedure. Initially, the interviews were coded with little theoretical orientation or direction. We coded the interviews based on emerging thoughts and themes. Then we coded the interviews with more specificity based on the themes deemed important by the research team (i.e., constant comparative method). One of these themes was the manner in which farmers construct their role within food production and how they view constraining forces. From here, I was able to engage in further coding identifying factors specific to the VBN and TPB. The farmers' narratives conveyed these factors and themes.

I did not enter into this project with either the VBN or the TPB taken into consideration; therefore, I ascertained the factors related to these theoretical models using a subjective interpretation of the responses given by the participants. As such, not every factor will be accounted for related to these models. The factors identified in relation to

the TPB were attitudes regarding pro-environmental behavioral efforts, particularly as they relate to regulatory efforts, perceived behavioral control, social norms/attitudes/beliefs, and behavioral intent. From the VBN, I identified factors related to environmental value typology, environmental threat awareness, and information availability and resources.

## RESULTS/DISCUSSION

<sup>1</sup>While analyzing qualitative interviews for various factors from the VBN and TPB models of human behavior, several themes emerged. In looking at attitudes and beliefs held by farmers, it was evident that they seem to feel as though regulatory efforts and public perception affect their ability to execute their role as food provider. Most of these farmers expressed frustration with regulatory efforts that they feel are imposed upon them with little input from farmers, suggesting that there is a lack of perceived control or self-efficacy among these farmers. In looking at environmental value typology, both egoistic and altruistic themes were evident. I assert that these factors relate to contextual issues regarding resource and information acquisition, social norms, and other regional cultural influences, which all aid in the creation of farmers' self-identity, including their role formation.

### *Attitudes toward Pro-Environmental Efforts:*

#### **Public perception:**

The farmers expressed the opinion that public perception constrained their ability to execute their role as food provider. Most of the farmers mentioned that public perception of GMOs was inaccurate and that concern over GMOs was unwarranted.

Baldwin, a sixty-seven-year-old hay and grain farmer remarked:

It is a little aggravating to listen to these people talk about it that don't really know what is going on. I mean your seeds have changed over the years to the positive direction. You got 20-35 bushels of wheat back then and now you get

---

<sup>1</sup> We assigned random pseudonyms to participants in order to protect their identity. We assigned any other person mentioned within the interviews pseudonyms as well.

140-150 bushels of wheat. How are you going to feed the world if you go back to where you were 100 years ago?

Dale, a sixty-three-year-old potato, sugar beets, wheat, and corn farmer stated:

These have been a very positive thing. People are scared of it. I don't think I see. Everybody can get all their different information. They can get lots of emotional information off of the social media thing.

A major theme within these interviews involved the farmers feeling as though the public had little to no knowledge about farming practices. The farmers feel as though the public is largely uneducated in regards to the importance of farming. Gale, a sixty-to-year-old wheat, barley, and canola grower commented:

Well, I think there is a wide gap in where people think their food comes from. And I think there is a need for some education to educate the public so they are aware of what happens to put a slice of bread on the plate.

These attitudes toward the public perception regarding farming and GMO use may affect farmers' willingness to implement farming practices that the public wants. According to the TPB, individual attitudes toward a behavior in congruence with contextual norms work to influence behavioral intent and subsequent behavioral action (Ajzen 1991). Farmers' belief that the public is ill informed is an attitude/belief that may inhibit motivational efforts in relation to public demand. These attitudes are bound to social norms, as well. Farmers invalidate public attitudes that would stymie production efforts because of a perception of threat. This sense of threat was exceedingly apparent in relation to regulatory efforts.

### **The government and regulatory agencies:**

Most of respondents communicated that regulatory agencies/government were a concern, and constrained their ability to farm. This theme emerged from various questions throughout the interviews. They often mentioned these constraining forces in regards to climate change legislation. Ian, a sixty-one-year-old potato, sugar beet, and wheat farmer stated:

You know, I do think and I sound like a guy that hates regulations, but I see documentaries where India and China haven't taken steps to regulate the output of huge factories, rubber factories and that, and it's a mess. So, I think there's a place for regulation. I just think that we need to be middle of the road somewhere. I think Al Gore would just stop production of food and would have us all going back to doing it by hand and if we did that, it would be really the safe way to go, but people would die of starvation.

Others mentioned this concept in regards to water regulation. Ben, a seventy-eight-year-old tree farmer commented:

Some of it is coming from having to send more water down the river for the salmon. Some years we really need it bad; but the environmentalists have got it bottled up to where we gotta give it to the salmon.

Most of the farmers were worried about water availability, with those in one particular area being very concerned with water allocation and regulation. In regards to regulatory concerns, most of the respondents that shared these focused on the expenses imposed because of increased regulations. When discussing emission regulations, Eddy, a fifty-five-year-old wheat and hay grower remarked:

Their exhaust will have to be cleaner than the air they are taking in. Which all sounds really good and everything, but it tripled the cost of an engine in a tractor. So those regulations all sound real good and it's good to have the air cleaned up; but nobody ever analyzes the cost of what we are doing.

Expenses in general are a concern for most of the farmers studied. Regulations and expenses were a major theme that may allude to environmental values that are egoistic in nature. This is in line with previous efforts that have found cost to be a barrier to pro-environmental behavior (Pilgeram 2011; Tosakana et al. 2010; Porter et al. 2007; Wilson and Hart 2001; Cary and Wilkinson 1997). However, this theme may emerge from conservative culture, and the perception that big government will negatively affect business profit. This refers to an issue of contextual constraints that may inhibit the creation of pro-environmental attitudinal factors, which in turn influences the creation of pro-environmental intent and behavior. Another issue regarding this concern may stem from issues of perceived control.

*Self-efficacy and Perceived Control:*

It was evident from the interviews that farmers are unenthusiastic about regulation. They seem to feel as though they have little control or input to shape these efforts. A statement from Andrew, a twenty-seven-year-old potato, sugar beet and wheat farmer, exemplifies this concept:

Because of my personal beliefs, I don't know if I really want them to. I kind of believe or appreciate more of a hands off, kind of free market experience even though it's not working. You know one thing that I think we're faced with. It used to be that more people were from an agricultural background that were in the government, so we would get a little more of a voice. Now we are kind of looked at as a minority, especially when it comes to who has the money to support campaigns or whatever you want to call it. So, I think that our voice has gotten a lot quieter in agriculture until it starts to hurt real bad for us.

Many of the farmers felt as though the constraining forces were unwarranted and imposed upon them for motives of profit by others, or because of environmentalists'

influence on government decisions. When asked what the government could do to help farmers, Ben stated:

Well, they're not going to because the environmentalists have such a big hold on the politicians that they don't dare. They've taken chemicals away that did us a lot of good for pesticides. They really have.

He voiced his frustration with this treatment, "No, we don't have a voice. We plant a crop and we are everybody else's mercy; but we take the loss." Quinn, a fifty-five-year-old corn and grain grower, stated when asked about farm challenges:

Mainly the political side of things, the legislation trying to regulate, overregulate what we do. We are pretty good at regulating ourselves; because if we screw our stuff up, we are not here next year.

In reference to the TPB, farmers may be more likely to enact conservation efforts if they feel as though they have some control or input within the regulatory process. The TPB emphasizes that individuals must feel as though they are able to perform a behavior before they will engage in a behavior (Ajzen 1991). It asserts that contextual factors, such as social norms and resources, are likely to affect one's perception of control. In looking at farming, it seems that resources, particularly those in relation to expenses, may affect this perception of ability. Farmers may also not feel as though the behavior will benefit them. The TPB asserts that attitudes form based on beliefs regarding the costs and benefits of a given action (Ajzen 1991). The VBN also argues that contextual factors, such as resources, will influence behavioral action (Stern 2000). Within the VBN, contextual factors affect attitudinal factors (i.e., values, beliefs, norms) which then affect behavioral action. Given the sentiments expressed about regulatory agencies by the farmers, it seems likely that varying contextual and attitudinal factors reciprocally affect the formation of these attitudes.

*Social Norms and Beliefs:*

The fact is farming is a volatile industry. Farms in Southeastern Idaho are becoming fewer and larger because owners of larger farms are purchasing many of the small farms (USDA 2015). In order to stay competitive within today's agricultural economy, farmers are forced to become more efficient through the purchase of expensive equipment, and because of globalization, they are at the whim of the global marketplace (Dimitiri, Effland, and Conklin 2005). Connor, a seventy-two-year-old sugar beet, wheat, and alfalfa grower stated:

What are the biggest challenges? That is a good question. I think the biggest challenge for a young farmer wanting to start out is the cost of the real estate. The real estate has gone so terrifically out of whack. For a young farmer, unless he has got somebody to turn over the farm over to him, he can't hardly afford to get into the farming situation.

He continued when asked if there were many young farmers in the area, "No. Big farmers are getting bigger. Small farmers are disappearing."

Other local and cultural factors may impact farmers, as well. Most of the farmers identified as conservative, which is typical of southeastern Idaho. This may also account for insecurity surrounding regulation and government intervention, this being that conservative ideologies often favor business and local oversight, as opposed to federal supervision. Individuals that identify as Republican have been found to be less likely to perceive benefits from regulatory efforts and to believe that local needs are more important than national oversight (Hamilton et al. 2013). Many respondents shared their disdain for oversight when discussing any number of opinions, these include those related to genetically engineered crops, chemical oversight and exclusion, environmental

standards and conservation practices, experience with regulatory agencies, water availability, and when they were asked their political affiliation.

In line with previous work (Hamilton et al. 2013; Dunlap 2010; Molnar 2010), rural communities are often more dependent on the environment. Hamilton et al. (2013) assert that place attachment, rooted in historical perceptions, affects individual perceptions of the environment. Slama (2004) asserts that due to low population density rates in rural communities, individuals experience more pressure to conform to social conventions and norms. Slama (2004) refers to this as “the fishbowl effect,” meaning that individuals in rural areas are much more aware that they are being observed by others, and therefore, act in accordance with social conventions (Slama 2004). This is easily associated with the VBN, taking into consideration the relationship between social/norms beliefs and their effect on environmental value typology. The heightened pressure to conform to social norms within these farming communities will directly affect their environmental perceptions and value formation. This in turn may affect their pro-environmental behavioral intent and subsequent action.

*Perceived Value Threat:*

According to the VBN model of behavior, when someone’s values are threatened, they will respond in an attempt to normalize the situation (Stern, Dietz, Abel, Guagnano, and Kalof 1999). In looking at pro-environmental values, people holding egoistic values of nature may respond by pushing back against regulation that they feel threatens their ability to thrive as farmers. We have seen this trend previously in regards to water regulation and chemical usage, as well as, the public concern over genetically engineered crops and environmental threats such as climate change. This may take the form of

attempting to invalidate these concerns. (i.e., they use invalidation as a form of norm stabilization). Dale states of his previous GMO use:

We tried some GMO potatoes back in the 1990s. They are very good. The only reason why they got taken off the market is because of the emotional thing that they did in Europe. Nothing was based on science. That technology was a great technology.

In regards to chemical use, he stated:

Compared to what they did 40-50 years ago, we probably use less chemicals now than we did then because of the amounts that we use. We might use a few more chemicals, but the amounts of the chemical are very, very minute per acre and each application.

Wayne, a forty-year-old potato, sugar beet, wheat, and hay farmer states when discussing water regulation:

Um, because it's very scary when different environmental groups and different government agencies want to come out and tell you what's wrong or what's right when it's not even their area of expertise. It's very scary. I worry a lot about our water rights. I worry about a lot of the rules and regulations that they pass, and at the end of the day, they're all a joke because there's no one to enforce them. If they'll let the farmers be farmers, and the pencil pushers be pencil pushers, everyone will just get along just fine. But, there's just a lot of things that you know, they talk about soils, they've never gone out. They've never even kneeled down on their hands and took a handful of soil. They've grown tomatoes that they got at Costco. It's ridiculous. Nobody cares about the dirt like the guy making a living off the dirt.

This is in line with previous efforts that look at responses to risk and individuals' tendency to normalize these threats (Barnett and Breakwell 2001; Halpern-Flescher, et al. 2001; Lima 2004; Lima et al. 2005). In evaluating risk perception, Barnett and Breakwell (2001) state, "desensitization may occur when frequency is high but impact is low and outcome is relatively neutral or positive" (176). Lima et al. (2005:1229) state, "Contact with a threat has often been associated with becoming habituated to its presence; the association between a hazard and its negative consequences become normalized, this

being particularly true for voluntary risks or those with less-visible consequences.” These regulatory concerns are ever-present for these farmers, and they seem to perceive little environmental impact related to their farming practices. Farmers may experience desensitization as a result.

Through discounting value threats in relation to climate change, genetically engineered technology regulation, and/or chemical and water regulation, farmers are better able to negotiate engaging in behaviors that may exacerbate environmental concerns. They also seem to go on the offensive through justifying a lack of regulation in certain areas. When asked about his opinion of genetically engineered seeds, Connor stated, “They are great. I think the world is going to starve to death if we don't use them.” In regards to climate change, the majority of respondents reported believing that climate change was occurring because of some natural cycle or occurrence. Ben stated after we asked him whether climate change was human caused:

Well, I think the earth goes through changes off and on. We was in an Ice Age at one time. We went to another age. I've heard people say we are going to go back to the Ice Age; but I don't think so.

Others, such as a fifty-four-year-old wheat, hay, and corn grower, maintained that chemicals that they use are safe:

We use corn that has been modified. It works very well for us. As far as I know, the research that I've seen, Roundup is pretty much neutralized once it hits the soil (Adam).

At the same time, there are contextual factors related to information that may also be influencing these perspectives.

*Information Acquisition and Perception:*

The majority of farmers reported receiving information from agro-chemical companies in one form or another. These companies, along with crop distributors, often hold informational meetings and classes. In line with previous findings (Porter et al. 2007), there seemed to be great trust in these farmers' "field men", or agro-chemical representatives. There were several respondents, however, that preferred to hire an independent consulting firm, particularly when it came to chemical use. Greg, a fifty-eight-year-old potato, wheat, barley and hay grower stated:

I have an agronomist hired named Santa Clause. It is what he went to school for. I also have two field men. Simplot has a really sharp field man, Karl Marx, out of Smalltown, which is our field man. The only problem with field men is they will always tell you this. Well, yeah. But the field man, he might want to sell you more of certain products cause he gets a commission. We have an independent agronomist that we pay big bucks. He comes twice a week. I meet with him twice a week and look at all the spud fields. He helps us make water decisions as well as these chemical decisions that I'm talking about. That's his job. He knows what's going on up and down the valley. He makes recommendations.

There seems to be an economic relationship between trust in agro-chemical companies and farmers' trust (i.e., those with larger farms are more likely to hire a consultant). Several hypothetical explanations relate to this concept. First, the larger, wealthier farmers may be able to afford to hire an outside consultant. Second, the larger farms grow more potatoes, and therefore have to pass a Good Agricultural Practices (GAP) evaluation. This is required in order to sell potatoes to large distributors, such as Wal-Mart. GAP audits are voluntary in regards to regulatory compliance, yet required by many of these large distributors. They involve evaluating farming practices, in order "to assess a farm's effort to minimize the unintentional microbial or chemical contamination of potatoes prior to reaching the consumer" (Kimberly Research and Extension Center

2013). Only seven of the farmers interviewed hired outside consultants, and only one of these did not grow potatoes. Largely, farmers receive their information from agro-chemical representatives, word of mouth, a university extension that will consult in matters of pest problems (though not typically the day-to-day application instances), and some outside consulting.

*Farmers' Role in Food Production:*

Farmers' self-perceived role and surrounding identity was a major theme that emerged from these interviews. Most farmers positioned themselves as a good steward of the land, and as Zack, a sixty-five-year-old hay and grain grower described the group: "very knowledgeable, very bright and aggressive, hard-workers, good people." They described their respect and use of the land in various terms. There were those that believed farmers were conscientious because they make their living off the land, and therefore, do not want to harm it. Dale stated:

We feel like we are good stewards of the soil. We are going to do. We've planted wind breaks. I've planted probably 5,000 trees in my lifetime. Not that all of them lived, but the majority of them have. So we are trying to do things that will help save the ground.

Adam stated:

Especially like with our feedlot. I know that people are worried about the gases that come – those and the water quality and the treatment of animals. We take that pretty seriously. We try to treat them as good as we can.

Others mentioned taking care of the environment for others and future generations, which often included stressing the use of new agricultural technology, such as genetic engineering. When asked his opinion of genetically engineered crops, Connor stated, "I think the world is going to starve to death if we don't use them." Eddy responded:

It think if we take them away, the poorest people in the world are the ones that are going to suffer. Because of lack of supplies, they will be the last people to be able to buy and eat. It is easy for us to get on our high horse and say we're not going to have any when we know we are going to be fed and not be concerned about people in the world that won't be.

These farmers seem to feel as though they serve an important function in society.

We all need food, and farmers provide that food. This importance may also relate to the diminishing number of farms. The number of farms worth over \$500,000 has increased from 1300 in 2004 to 2000 in 2013, while the number of total farms decreased by 500 during this same time-period (USDA 2014). As they become larger and fewer, the owners become more unique and valuable. Greg states:

As farmers, I think we have kept food cheap in this country comparatively. I mean you can complain all you want about oh my gosh I can't believe how much grapes are and a, a, a. But overall, we still get to use the majority of our money on other things besides food. I am afraid the perception out there is that big farming is bad. Only family farms need help and we will support them. Family farms now, the good ones, are big farms.

Oliver states in reference to genetically modified crops:

You know I'm actually in favor of genetically modified crops, just because they predict by the year 2050 there will be 9 plus billion people in the world, and there's going to be starvation if we don't, if the farmers can't raise the food. And God's not making any more farm land, so the farmer's that exist and, as you know there's becoming less and less farm land all the time with urban encroachment and things, so the remaining and existing farmer have to increase more and more food in order to feed a growing population.

Others emphasize the importance of family farming on the community and in maintaining our food supply. Lane stated:

I think it's a way of life, and I think family farms provide community with good people that love the community and that love the environment.

Eddy commented:

I wish they would do more to preserve the small farms. I think that is a resource we are sorely going to miss. I think that we are setting up for a famine. If you have a small number of farmers and times get really tough and they can't make it go, I think it's going to make a huge impact on our food supply. Whereas, if you had a lot of farmers and some of them had struggles they'd help each other out and find ways of getting by.

It is evident from the interviews that farmers feel as though they occupy a much-needed role within food production, and within their local communities. It is my assertion that farming dynamics, such as size and value, affect this role formation, as well as contextual and attitudinal concepts established from the VBN and the TPB. Farmers' values, attitudes, and beliefs regarding their role, especially as they pertain to the environment for our purposes, develop from the space they occupy within a culturally significant context.

*Environmental Value Typology:*

Overall, it was evident in the majority of the interviews that farmers value the environment. In looking at the value typologies of altruistic, biospheric, and egoistic, we can definitely see a trend involving altruistic and egoistic values. Altruistic values were evident with many of the respondents, in that they are concerned about protecting the environment for future generations. Most stressed the importance of using technology, such as that of genetic engineering, to ensure that farming remain viable and produces enough food to feed the world. Hank, a fifty-five-year-old wheat, hay, and cattle farmer stated, "So, I guess the most exciting thing for me, is to watch the crops grow and turn into something that people can eat." This altruism is apparent in farmers' role identity; they stress the importance of feeding others and relate this to the environment. Farmers want to take care of the environment so that they can continue to produce the world's

food. Frank, a sixty-two-year-old potato, grain, corn, canola, and safflower grower stated in regards to farming challenges:

If you take away all the natural resources, you always have got to be concerned with the most efficient use of what we just talked about, the water, the soil, and we will call it the sustainable use.

In discussing agro-chemical use, Dale stated:

The chemical companies are trying to be very responsible for what is going on there. We are too, because if you get something that goes into a different crop and it stays in the soil for some reason it will affect the next crop. So we just very careful about those type of things. We want things to be healthy.

My interpretation is that there may also be egoistic valuation among farmers, given the emphasis throughout the interviews on regulation costs, in terms of both monetary and time/convenience components. Frank stated:

There are a lot of rules that we need because we needed them. As society, we couldn't do the right thing ourselves. But basically government is there to do what individuals can't. Individually sometimes, I think it is a little: could we get by with less regulation? Yes. Does it cost us money? Yes. If you had asked me twenty years ago, I would have said you know personally I can't tell you where this costs money. I know it is costing me money; because businesses I sell to are telling me it is costing money. . . I have to have a person in the office just doing paperwork to show everybody that I am sustainable and my carbon footprint is getting less.

Xavier, a thirty-six-year-old potato and grain farmer stated:

There's a lot of surveys, a lot of information gathering that goes on, and basically there's just a fear of more regulation that will, kind of, that's expensive, and it kind of impedes your progress a little bit.

According to Stern (2000), individuals that hold egoistic environmental values are less likely than individuals with altruistic environmental value typology to engage in pro-environmental behavior. However, according to the TPB and the VBN, individuals may hold a certain value, but other contextual issues, namely resources and social norms, may

inhibit pro-environmental behavior. It seems that in using the TPB and the VBN, we can see how difficult navigating the enviro-resource landscape may be for farmers.

*Pro-environmental Behavioral Intent and Action:*

Almost all of the farmers have implemented conservation efforts, particularly those related to soil and water conservation. These things are good for the environment, but they are also just good business sense; one has to have good soil and sufficient amounts of water in order to grow a crop. Dale stated:

Everything we do, we have to sustain this land. Everything we do is trying to keep the highest productivity, the healthiest land that we can keep in order to produce for the next year, for the next generation, for those who will come along.

Most farmers expressed caution in regards to chemical use. This caution largely came from a business perspective, as well. Farmers were concerned about the effects of chemical on their ability to sell and profit from their crops and on general soil health.

Baldwin remarked:

Yeah I'm a little concerned, of course you don't know what's going on the corporate world as far as fertilizer and chemicals, and everything else. And the environmental, EPA and everything is going to try and change or make things harder to grow crops.

These guys that want to farm all the time, they want to stay in business, and they don't want to jeopardize their farm. If they put the wrong chemical on their ground there is a chance they won't be able to get a potato crop on the same ground next year because they put the wrong chemical on their wheat to kill the weeds or something.

A few farmers seemed to show genuine concern for the health of people and other life in referencing chemical use. Robert, a sixty-four-year-old potato, wheat, sugar beet, alfalfa, and safflower farmer communicated that he changed chemical practices in order

to lessen harm to bees. He states, “I am aware there have been problems with bee populations dwindling. You mix it with the seed that just kind of holds the dust.” Zack voiced concern over chemicals in the area:

Sometimes they put this acid on the grain stubble, and sometimes I think you are smart to get in your car and drive away. Quite a few of these chemicals they put on the fields these days besides the acid, they will post and say do not enter because there’s a hazardous product out there for 24 hours or 36 hours. The only one comment I would make is that some of these farmers that put on the acid, I think they should have to come and tell the people within say a one or two mile radius the day before and say we’re spraying this field with acid tomorrow and we want you to know that.

Although a few farmers mentioned these other environmental concerns, almost all of the farmers mentioned concern in regards to regulatory efforts to limit chemical use. Farmers’ concern over chemical use was overwhelmingly concerned with their ability to continue farming. Almost all of the farmers indicated engaging in conservation efforts, but again, the majority of these were beneficial to the farmers themselves. I believe that farmers’ behavior may be difficult to change when it does not benefit efficient production. Again, this illustrates an environmental valuation that is egoistic, or possibly altruistic when linked with role obligations and the need to produce food for others.

## CONCLUSION

Farmers provide one of the most important service to humanity; they feed us. Farming, however, is responsible for significant resource depletion and environmental degradation. Many research efforts have focused on farmers and farming practices, such as economic factors' impact on environmental behavior (Cary and Wilkinson 1997; Pilgeram 2011; Porter et al. 2007; Tosakana et al. 2010). Others have focused on the relationship between affective factors, social norms, and environmental behavior (Choinard et al. 2008; Gosling & Williams 2010; Ryan et al. 2003). Some research has investigated the relationship between personality, environmental value typology and environmental behavior (Heath and Gifford 2006; Quinn and Burbach 2008). Previous research efforts have shown that demographic and cultural factors influence environmental behavior (Finucane 2000; Jones 1998; Macias 2015). Many of these concepts converge within the theoretical frameworks of the VBN model of behavior (Stern 2000) and the TPB (Ajzen 1991).

In using the VBN and the TPB, we are able to see how various contextual and intra-personal factors consecutively, and often dialectically, affect our environmental decisions and behavior. From the TPB, I was able to identify attitudinal factors related to pro-environmental efforts, particularly as they pertain to efforts that may constrain farmers' ability to execute their role as food provider. The farmers largely expressed the belief that the public were ill informed about farming practices. This may strain relations between the public and farmers, especially in relation to new technology, such as genetically modified crops. Farmers also shared the attitude that many regulatory efforts were unwarranted, and the belief that regulatory agencies constrained their farming

practices. These sentiments may influence their willingness to cooperate with new environmental regulations, especially as they pertain to chemical use and combatting climate change. Much of the concern over regulatory efforts was in relation to the cost associated with these efforts.

I argue that localized cultural norms and contextual factors, such as resources, are likely to impact and/or exacerbate beliefs regarding pro-environmental efforts. The TPB indicates that resources, such as money, are likely to affect one's perception of control, especially if expenses are in relation to efforts that they believe are ineffective. This also relates to the VBN in the assertion that contextual factors, such as resources, are likely to affect the formation of values and beliefs regarding specific behavior. In other words, the attitudes and beliefs regarding such things as public perception and regulatory efforts form from contextual factors, which in turn, may affect environmental value typology. In looking further at contextual factors, most of the farmers identified as conservative, which likely further affects their trust in these efforts. Being as farmers live in rural, politically conservative areas, they are likely to adopt dominate social normative beliefs. This influences environmental threat perception beliefs, which in turn affects trust in pro-environmental efforts, and coincidentally will affect environmental value typology formation. Local social norms are also likely to affect the information that farmers seek and use. Most farmers put their trust in information gained from other farmers and from agro-chemical companies, rather than independent consulting firms or regulatory agencies.

Farmers' environmental value typology is difficult to ascertain. In certain situations, it seems that farmers may be altruistically oriented. Most farmers mentioned

the need for farming to remain viable in order to provide food for those in need. However, also an egoistic value orientation was evident. This is most evident when looking at pro-environmental efforts, such as water conservation and chemical use standards, and issues of cost. I believe these value typology discrepancies relate to factors previously discussed, as well as, farmers' role formation. Farmers' told a story within these interviews. This story centered on conflict; conflict between efforts that inhibit production, efforts to maintain production and protect future production, and conflict within the self and role expectations. Farmers' roles and sense of self is rooted in their importance within society; they provide a much-needed service. Farmers care about their land and in ensuring the future viability of production. This is needed in order to protect their identity and in maintaining their importance within society.

In order to perform their role expectations, farmers may be required to put production and efficiency above pro-environmental efforts. Although most farmers have enacted conservation efforts, these efforts relate to notions of efficiency and productive capacity. This is evident in farmers' concern over the availability and use of chemicals. Most concern over chemical use was in relation to the effect of chemicals on soil health and future crop viability, which relates to cost. In looking at soil and water conservation efforts, farmers overwhelmingly linked these concepts with efficiency: the need to produce the greatest yield with the least cost. In other words, pro-environmental efforts relate to good business sense, rather than concern for the environment itself (i.e., biospheric valuation). This is not to say that farmers do not respect their land, but it is my assertion that the need to embody and fulfill the role of global food producer is of paramount concern.

The evaluation of these interviews illustrates that efforts to persuade farmers to adopt pro-environmental farming practices should take a number of factors into consideration. There are obvious contextual barriers, but of particular importance are information acquisition and resources. Informational resources should be available to farmers concerning such things as chemical use, conservation practices, and resource scarcity. Farmers, however, need to trust the sources of this information, namely regulatory agencies and environmental organizations. There are of course deeply ingrained cultural barriers surrounding trust and farmers' perceptions of such organizations, but increased efforts to reach out to farmers may diminish their impact. This research concurs with the TPB in arguing that perception of control affects the formation of pro-environmental attitudes, beliefs, and in line with the VBN, environmental value typology. More communication and transference between farmers and informational resources is needed in order to increase this perception of control and therefore increase trust. Another important policy implication concerns economic incentives. The costs associated with pro-environmental efforts were of vital concern for these farmers, especially when it comes to the prospect of future expenses. Policy initiatives that address these economic concerns are likely to be more effective than those that do not. Again, this involves increased input and communication between farmers and governmental agencies. It is my assertion that farmers' role has come to incorporate a strong sense of neoliberal marketplace rationales that may make farmers successful, but that are most certainly at odds with long-term environmental sustainability. By incorporating farmers' input within the regulatory process, rather than taking a strictly authoritarian approach to the implementation of pro-environmental policy, farmers' may

come to incorporate this behavior as their own; their role will come to include pro-environmental sentiments. People react when their beliefs are threatened, especially when these beliefs are rooted in the viability of their very identity. It is only through the integration of beliefs with one's identity that beliefs truly gain esteem, and hence affect one's behavior.

## REFERENCES

- Ajzen, Icek. 1991. "The Theory of Planned Behaviour." *Organizational Behavior and Human Decision Processes* 50: 179-211.
- Aughney, T., and M. Gormally. 2002. "The Nature Conservation of Lowland Farm Habitats on REPS and non-REPS Farms in County Galway and the use of Traditional Farm Methods For Habitat Farm Management Under the Rural Environmental Protection Scheme." *Irish Journal of Agri-Environmental Research* 2: 1-14.
- Bamberg, Michael. 1987. *The Acquisition of Narratives : Learning to use Language*. New York: De Gruyter.
- Bamberg, S., and G. Möser. 2007. "Twenty years after Hines, Hungerford, and Tomera: a New Meta-analysis of Psycho-social Determinants of Pro-environmental Behaviour." *Journal of Environmental Psychology* 27: 14-25.
- Barke, R., H. Jenkins-Smith, and P. Slovic. 1997. "Risk Perceptions of Men and Women Scientists." *Social Science Quarterly* 78: 167-176.
- Battershill, M., and A. Gilg. 1997. "Socioeconomic Constraints and Environmentally Friendly Farming in the Southwest of England." *Journal of Rural Studies* 13: 213-228.
- Berger, Peter L., and Thomas Luckman. 1966. *The Social Construction of Reality*. New York: Anchor Books.
- Bernett, Julie and Glynis M. Breakwell. 2001. "Risk Perception and Experience: Hazard Personality Profiles and individual Difference." *Risk Analysis* 21(1):171-177.
- Bruner, Jerome. 1986. *Actual Minds, Possible Worlds*. Cambridge, MA: Harvard University Press.
- Bullard, Robert D., Angel O. Torres, and Glen S. Johnson. 2011. *Environmental Health and Racial Equity in the United States: Building Environmentally Just, Sustainable, and Livable Communities*. Washington D.C.: American Public Health Association.
- Burton, Rob, Carmen Kuczera, and Gerald Schwarz. 2008. "Exploring Farmers' Cultural Resistance to Voluntary Agri-environmental Schemes." *Sociologia Ruralis* 48(1): 16-37.
- Cary, John W., and Roger L. Wilkinson. 1997. "Perceived Profitability and Farmers Conservation Behavior." *Journal of Agricultural Economics* 13-21.

- Chouinard, H., T. Paterson, P. Wandschneider, and A. Ohler. 2008. "Will Farmers Trade Profits for Stewardship? Heterogeneous Motivations for Farm Practice Selection." *Land Economics* 84: 66-82.
- Clark, J., and P. Lowe. 1992. "Cleaning up Agriculture: Environment, Technology, and Social Science." *Sociologia Ruralis* 32: 11-29.
- Cutforth, L., C. Francis, G. Lynne, D. Mortensen, and K. Eskridge. 2001. "Factors Affecting Farmers' Crop Diversity Decisions: An Integrated Approach." *American Journal of Alternative Agriculture* 16(4): 168-176.
- Devine-Wright, Patrick. 2013. "Think Global, Act Local? The Relevance of Place Attachments and Place Identities in a Climate Changed World." *Global Environmental Change* 23(1): 61-69.
- Dimitiri, Carolyn, Anne Effland, and Nielson Conklin. June 2005. *The Twentieth Century Transformation of US Agriculture and Farm Policy*. Economic Research Service/USDA.
- Dunlap, Riley E.. 2010. "Climate Change and Rural Sociology: Broadening the Research Agenda." *Rural Sociology* 75(1): 17-27.
- Ecoscope Applied Ecologists, and CPM Environmental Planning and Design Ltd. 2003. *Review of Agri-Environment Schemes- Monitoring Information and R&D Results*. London: Department for Environment, Food, and Rural Affairs.
- Finucane, Melissa L., Paul Slovik, C.K. Mertz, James Flynn, and Teresa A. Satterfield. 2000. "Gender, Race, and Perceived Risk: The 'White Male' Effect." *Health, Risk, and Society* 2(2): 159-172.
- Gardner, G., and L. Gould. 1989. "Public Perceptions of the Risks and Benefits of Technology." *Risk Analysis* 9: 225-242.
- Gergen, Kenneth J., and Mary M. Gergen. 2011. "Narrative Tensions: Perilous and Productive." *Narrative Inquiry* 21(2): 374-381.
- Glaser, Barney, and Anselm Strauss. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine Publishing Company.
- Gosling, Elizabeth, and Kathryn J.H. Williams. 2010. "Connectedness to Nature, Place Attachment and Conservation Behavior: Testing Connectedness Theory Among Farmers." *Journal of Environmental Psychology* 30: 298-304.
- Halpern-Flescher, B., S. Millstein, J. Ellen, N. Adler, J.Tshann, and M. Biehl. 2001. "The Role of Behavioural Experience in Judging Risk." *Health Psychology* 20:120-126.
- Hamilton, Lawrence C., Chris R. Colocousis, and Cynthia M. Duncan. 2010. "Place Effects on Environmental Views." *Rural Sociology* 75(2): 326-347.

- Hamilton, Lawrence C., Joel Hartter, Thomas G. Safford, and Forrest R. Stevens. 2013. "Rural Environmental Concern: Effects of Position, Partisanship, and Place." *Rural Sociology* 79(2): 257-281.
- Heath, Y., and R. Gifford. 2002. "Extending the Theory of Planned Behavior: Predicting the Use of Public Transportation." *Journal of Applied Social Psychology* 32(10): 2154-2189.
- Heath, Y., and R. Gifford. 2006. "Free-market Ideology and Environmental Degradation-The Case of Belief in Global Climate Change." *Environment and Behavior* 38(1): 48-71.
- Henry, Adam D., and Thomas Dietz. 2012. "Understanding Environmental Cognition." *Organization and Environment* 25(3): 238-258.
- Hermans, Hubert J.M. 1996. "Voicing the Self: From Information Processing to Dialogical Interchange." *Psychological Bulletin* 119(1): 31-50.
- Herzon, I., and M. Mikk. 2007. "Farmers' Perceptions of Biodiversity and their Willingness to Enhance it Through Agri-Environmental Schemes: A Comparative Study from Estonia and Finland." *Journal for Nature Conservation* 15(1): 10-25.
- Hines, J.M., H.P. Hungerford, and A.N. Tomera. 1986/87. "Analysis and Synthesis of Research on Responsible Environmental Behavior: A Meta-Analysis." *Journal of Environmental Education* 18: 1-8.
- Jones, Robert E. 1998. "Black Concern for the Environment: Myth versus Reality." *Society and Natural Resources* 11(3): 209-228.
- Jones, Robert E., and Shirley A. Rainey. 2006. "Examining Linkages Between Race, Environmental Concern, Health, and Justice in a Highly Polluted Community of Color." *Journal of Black Studies* 36(4): 473-496.
- Kimberly Research and Extension Center. 2013. *Good Agricultural Practices (GAP) Manual*. University of Idaho.
- Leeuw, Astrid de, Pierre Valois, Icek Ajzen, and Peter Schmidt. 2015. "Using the Theory of Planned Behavior to Identify Key Beliefs Underlying Pro-environmental Behavior in High School Students: Implications for Education Interventions." *Journal of Environmental Psychology* 42: 128-138.
- Lima, M.L. 2004. "On the Influence of Risk Perception on Mental Health: Living Near an Incinerator." *Journal of Environmental Psychology* 24(1): 71-84.
- Lima, M.L., J. Barnett, and Jorge Vala. 2005. "Risk Perception and Technological Development at a Societal Level." *Risk Analysis* 25(5): 1229-1239.

- MacDonald, D.W, and P.J. Johnson. 2000. "Farmers and the Custody of the Countryside: Trends in Loss and Conservation of Non-Productive Habits 1981-1998." *Biological Conservation* 94(2): 221-234.
- Macias, Thomas. 2015. "Risk, Trust, and Sacrifice: Social Structural Motivators for Environmental Change." *Social Science Quarterly* 96(5): 1264-1276.
- Mancha, Ruben M., and Carrol Y. Yoder. 2015. "Cultural Antecedents of Green Behavioral Intent: An Environmental Theory of Planned Behavior." *Journal of Environmental Psychology* 43: 145-154.
- McGuire, Jean, Lois Wright Morton, and Alicia D. Cast. 2013). "Reconstructing the Good Farmer Identity: Shifts in Farmer Identities and Management Practices to Improve Water Quality." *Agriculture and Human Values*, 30(1): 57-69.
- Milakis, Dimitris. 2015. "Will Greeks Cycle? Exploring Intentions and Attitudes in the Case in the New Bicycle Network of Patras." *International Journal of Sustainable Transportation* 9(5): 321-334.
- Molnar, Joseph J. 2010. "Climate Change and Societal Response: Livelihoods, Communities, and the Environment." *Rural Sociology* 75(1): 1-16.
- Pilgeram, RYanne. 2011. "The Only Thing that Isn't Sustainable . . . Is the Farmer": Social Sustainability and the Politics of Class Among Pacific Northwest Farmers Engaged in Sustainable Farming. *Journal of Rural Sociology* 76(3): 375-393.
- Porter, Natasha B., David I. Tucker, Zoe Leviston, Simon N. Russell, Murni P., Alexandra J. Fry, Wendy McIntyre, Blaire E. Nancarrow, and Lorraine E. Bates. 2007. *Partnerships and Understanding Towards Targeted Implementation: Identifying Factors Influencing Land Management Practices*. CSIRO Land and Water.
- Price, Jennifer, and Zoe Leviston. 2014. "Predicting Pro-environmental Agricultural Practices: The Social, Psychological, and Contextual Influences on Land Management." *Journal of Rural Studies* 34: 65-78.
- Quinn, Courtney, and Mark E. Burbach. 2008. "Personal Characteristics Preceding Pro-environmental Behaviors that Improve Surface Water Quality." *Great Plains Research* 18: 103-114.
- Raymond, Christopher M., Gregory Brown, and Guy M. Robinson. 2011. "The Influence of Place Attachment, and Moral and Normative Concerns on the Conservation of Native Vegetation: A Test of Two Behavioral Models." *Journal of Environmental Psychology* 31: 323-335.
- Ravis, A., and P. Sheeran. 2003. "Descriptive Norms as an Additional Predictor in the Theory of Planned Behavior: A Meta-analysis." *Current Psychology: Developmental, Learning, Personality, Social* 22: 218-233.

- Ryan, R.L, D.L. Erickson, and R. De Young. 2003. "Farmers' Motivations for Adopting Conservation Practices Along Riparian Zones in a Midwestern Agricultural Watershed." *Journal of Environmental Planning and Management* 46: 19-37.
- Sanchez-Medina, A., L. Romero-Quintero, and S. Sosa-Cabrera. 2014. "Environmental Management in Small and Medium-sized Companies: An Analysis from the Perspective of the Theory of Planned Behavior." *PLOS One* 9(2): 1-12.
- Schenk, A., M. Hunziker, and F. Kienast. 2007. "Factors Influencing the Acceptance of Nature Conservation Measures - A Qualitative Study in Switzerland." *Journal of Environmental Management* 83(1): 66-79.
- Schmitzberger, I., T. Wrbka, G. Steurer, J. Aschenbrenner, J. Peterseil, and H. Zechmeister. 2005. "How Farming Styles Influence Biodiversity Maintenance in Austrian Agricultural Landscapes." *Agriculture, Ecosystems and Environment* 108(3): 274-290.
- Schor, Juliet. 1998. *The Overspent Americans: Upscaling, Downshifting, and the New Consumer*. New York: Basic.
- Slama, Kay. 2004. "Rural Culture is a Diversity Issue." *Minnesota Psychologist* 9-13.
- Slovic, P., T. Malmfors, C.K. Mertz, N. Neil, and I.F.H. Purchas. 1997. "Evaluating Chemical Risks: Results of a Survey of the British Toxicology Society." *Human & Experimental Toxicology* 16: 289- 304.
- Sonderskov, K.M. 2011. "Explaining Large-N Cooperation: Generalized Social Trust and the Social Exchange Heuristic." *Rationality and Society* 23: 51-74.
- Stern, Paul C. (1997). Toward a working definition of consumption for environmental research and policy. In D. T. Stern P.C., V. Ruttan, R. Socolow, & J. Sweeney, *Environmentally Significant Consumption: Research Directions* (pp. 12-35). Washington D.C.: National Academy Press.
- Stern, Paul C. (2000). "Toward a Coherent Theory of Environmentally Significant Behavior." *Journal of Social Issues*, 56 (3): 407-424.
- Stern, Paul C., Thomas Dietz, Troy Abel, Gregory A. Guagnano, and Linda Kalof. 1999. "A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism." *Research in Human Ecology* 6(2): 81-97.
- Strauss, Anselm, and Juliet Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Thousand Oaks, CA: SAGE Publications.
- Tosakana, N.S.P, L.W. Van Tassell, J.D. Wulfhorst, J. Boll, R. Mahler, E.S. Brooks, and S. Kane. 2010. "Determinants of the Adoption of Conservation Practices by Farmers in the Northwest Wheat and Range Region." *Journal of Soil and Water Conservation* 65(6): 404-412.

- United States Department of Agriculture. 2014. *2014 Idaho Annual Agriculture Bulletin*. Boise, ID.
- United States Department of Agriculture National Agricultural Statistics Service Northwest Regional Field Office. 2015. *2014 IDAHO ANNUAL AGRICULTURE BULLETIN*.
- Van Vugt, M., & and C.D. Samuelson. 1999. "The Impact of Metering in a Natural Resource Crisis: A Social Dilemma Analysis." *Personality and Social Psychology Bulletin* 25: 731-745.
- Weaver, David B. 2012. "Protected Area Visitor Willingness to Participate in Site Enhancement Activities." *Journal of Travel Research* 52(3): 377-391.
- White, Hayden. 1987. *The Content of the Form: Narrative Discourse and Historical Representation*. Johns Hopkins University Press.
- Wilson, Geoff A., and Kaley Hart. 2001. "Farmer Participation in Agri-Environmental Schemes: Towards Conservation-Oriented Thinking." *Sociologia Ruralis* 41(2): 254-274.
- Witzling, Laura, Brett Shaw, and Michael S. Amato. 2015. "Incorporating Information Exposure into a Theory of Planned Behavior Model to Enrich Understanding of Proenvironmental Behavior." *Science Communication* 37(5): 551-574.
- Wynveen, Christopher J., Brooklynn J. Wynveen, and Stephen G. Sutton. 2015." Applying the Value-Belief-Norm Theory to Marine Contexts: Implications for Encouraging Pro-environmental Behavior." *Coastal Management* 43(1): 84-103.
- Yazdanpanah, Masoud, and Massoumeh Forouzani. 2014. "Application of the Theory of Planned Behavior to Predict Iranian Students' Intention to Purchase Organic Food." *Journal of Cleaner Production* 107: 342-352.
- Zhou, Jie-hong, and Zhen Yan Kai Li. 2015. "Understanding the Farmers Cooperatives' Self-inspection Behavior to Guarantee Agri-product Safety in China." *International Conference of Agricultural Economists*. Milan.

## APPENDIX. INTERVIEW QUESTIONS

Please tell us a little bit about how you got into the farming business.

And how long have you or your immediate family been farming in this area?

What do you grow?

And how many acres do you farm?

In what ways, if any, has urban expansion or any nearby construction affected you and your farm?

Do you have any current plans to sell or lease part of your farm in the future?

Do you have any idea what you will do with your farm when you stop farming it yourself?

How important would it be to you that your farm remains an agricultural operation?

Have you implemented any conservation practices into your farming operation?

What type of conservation practices?

What kind of pesticides and/or herbicides do you use on your farm?

How do you make decisions about pesticide and herbicide use and application?

So, the use of GE (genetically engineered – also sometimes referred to as GMO) seeds has been in the news a lot recently, but the coverage only rarely discusses how American farmers are being impacted – either positively or negatively – by this technology. Has the use of GE seeds affected you as a farmer, and if so, how?

Are you currently using any genetically engineered seeds?

What is your opinion of genetically engineered crops?

Turning now to the subject of environmental change, have you noticed any changes in the environmental conditions in your area that seem beyond normal variation from year to year?

*If yes* – What type of changes?

What do you think is causing these changes?

Have you noticed any persistent changes in the length of your growing season, or the first and last frost dates of the year?

Have you noticed any persistent changes in average winter temperatures and average yearly snowfall?

Many of us have heard about the drought affecting the western U.S. right now. Have you noticed any persistent changes in yearly precipitation?

Do you worry about water availability or maintaining your water rights?

Where and how do you receive your water?

If you have a certain amount of water allocated to you, about how much of that water do you usually use?

Do you rely on bees to pollinate any of your crops? If so, have you noticed any changes in bee populations around here recently?

Thinking specifically about changes to the climate, how concerned are you about climate change?

Do you think that any of the changes to the climate some people are talking about are caused by human activities?

For you, other than water, since we know that is extremely important, what is the most valuable natural resource for successful farming?

Are you worried about the health or availability of any natural resources in this area?

Have you changed any of your farming practices or decisions in recent years, such as the type of crops you are growing, when you plant or harvest your crops, how you manage pests, or other major changes, and if so, why?

What are the biggest challenges you see to farming in southeastern Idaho?

How are these challenges different from what they were in the past, if they are different?

What is your favorite thing about farming in southeastern Idaho?

Where do you go to get news about weather, regulations, or other farming-related information?

Which regulatory agencies, such as the USDA or other government agencies, have you been in contact with in the last few years?

How was that experience for you? For example, was it a positive or negative experience, and why?

Is there anything that the local, state, or federal government could do or provide for you to help you do your job?

What about other people or organizations in this area, can you think of anything they could do to help you farm?

Are you using aerial drones or unmanned aircraft systems at all for your farming operations?

*If yes* – How are drones helping you understand the land you farm?

*If no* – Are you interested in using drones in the future and if so, how do you think they will be of benefit?

Okay, before we finish here, I would just like to ask you a couple of brief demographic questions. Including yourself, how many people live in your household?

In the simplest terms, how would you describe your political views?

And what is your age?

Finally, is there anything else you would like to share with us about farming in southeastern Idaho that we have missed?