



VALUES AND CHARACTERISTICS ASSOCIATED WITH THE ADOPTION OF FARM MANAGEMENT PRACTICES

**Stacey S. Dewald, M.S.
Theresa P. Murphrey, Ph.D.**

**Agricultural Leadership, Education, and Communication
Texas A&M University**

BACKGROUND



PROBLEM

Food and fiber supply – agriculture commodity crop yields across the world, needs to double by 2050 to meet the demands of the human population (Deepak, Mueller, West, & Foley, 2013)

Environmental Impacts – a decline in healthy energy, land, water, and climate resources (Crosson, 2016)

Political contributions – current tariffs affect prices of equipment and operation costs (Paschal, 2019) farms in a way that make it difficult for farmers to meet the production demands

REDUCE NEGATIVE ENVIRONMENTAL IMPACTS

Adopt and implement Best Management Practices (BMPs) – considered a program, operating system, device, etc. that can prevent or reduce nonpoint source pollution, and is backed by scientific data (USDA-NRCS, n.d.d.).

Incentive programs or cost-share programs compensate farmers and ranchers for implementing BMPs, such as Natural Resources Conservation Service's (NRCS) programs (USDA-NRCS-EQIP, 2018).

Voluntarily adopted – need to be actively sought by the farmer

BARRIERS & CONTRIBUTIONS TO ADOPTING BMPS

Incentive programs often do not always cover the full costs of implementing and maintaining practices (Rodriguez et al., 2009; Berthold, 2014; Baumgart, Prokopy, & Floress, 2012)

Immediate short-term influences, has not been effective in long-term use of conservation practices (De Young, 1993)

Landowners who saw their farm operation as a business, were concerned with the profitability of their land, were also less likely to adopt conservation practices (Reimer, Thompson, & Prokopy, 2012).

However, landowners in Washington were willing to sacrifice profit to implement practices that reflected good land stewardship (Chouinard, Paterson, Wandschneider, & Ohler, 2008)

VALUES

Impact an individual's motivation to behave in a specific way (Rokeach, 1979)

Goals that serve as a guiding principles in life (Schwartz, 1992)

Cognitively developed and translated into reasoning for decisions, depending on the situation and circumstances (Schwartz, 1992)

“Values steer attention and affect how people evaluate different consequences of choices, which in turn influences their preferences and choices” (Steg, 2016, p. 280).



THEORITICAL FRAMEWORK

VALUES BELIEFS NORMS THEORY (Stern, 2000)

Values and personal norms are the antecedents to behavior

An individuals' awareness and consequences influence pro-environmental behavior

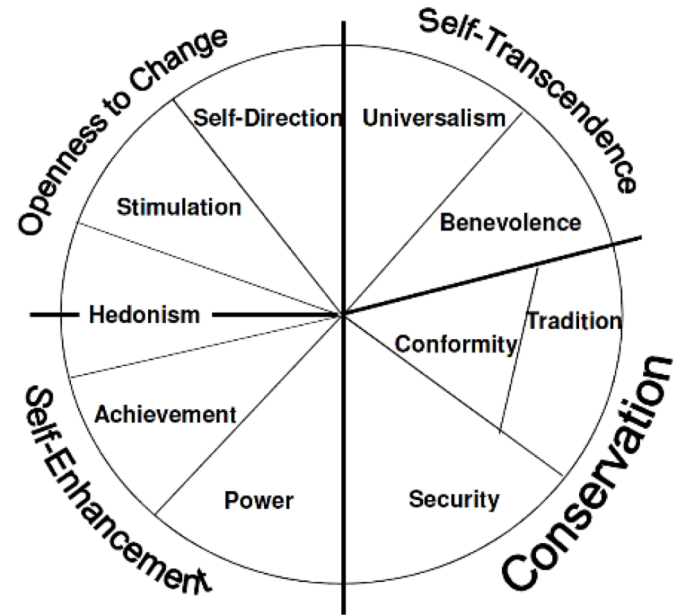
“A person’s awareness of the behavioral consequence depends on his or her ecological worldview and, at the same time, determines a person’s self-ascribed responsibility to act, which then leads to a person’s sense of obligation to act (i.e., his or her personal norms)” (Kaiser, Hübner, & Bogner, 2005, p. 2153).

THE VALUES THEORY (Schwartz, 1992)

Human values are important motivators to behavior

Values are prominent motivators that encourage individuals to behave in ways that align with those values

Self-direction	Security
Stimulation	Conformity
Hedonism	Tradition
Achievement	Benevolence
Power	Universalism



HOW VALUES ARE DEVELOPED

Values are not concrete (Williams, 1970), instead they are criteria for evaluating and deciding to act (Rokeach, 1979)

Created over a lifetime and established in many ways (State of New South Wales, 2009)

Change over time (Rokeach, 1979) – through life experiences



RESEARCH PURPOSE & QUESTIONS

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Purpose

Identify Northwest farmers' values associated with the potential to adopt BMPs

Research questions

Are there differences in education levels and the potential to adopt BMPs?

Are there differences in household net income levels from commodities produced and the potential to adopt BMPs?

What values are associated with the potential to adopt BMPs?



METHOD

STUDY DESIGN

Quantitative survey design

Farmers in the Pacific Northwest

Idaho, Oregon, and Washington totaled 4,211,000 acres of wheat produced in 2018 (United States Census of Agriculture, 2018a; 2018b; 2018c)

700 contacts in the Pacific Northwest Direct Seed Association

Census method (Bryman, 2016)

Aim for at least 200 completed surveys (Kline, 2015)

INSTRUMENT DEVELOPMENT

Values PVQ-21 (Schwartz, 1992) – Contains 21 statements, split into male and female versions, participants ranked their likeliness of themselves towards the statements

Potential to adopt – construct made up of ten statements, participants ranked their agreement towards the statements

Validity – three northwest farmers and PNSDA executive director

Reliability – Cronbach's alpha was conducted on value constructs, ranging from $\alpha = .02-.80$, and the potential to adopt construct $\alpha = .80$, and a pilot test

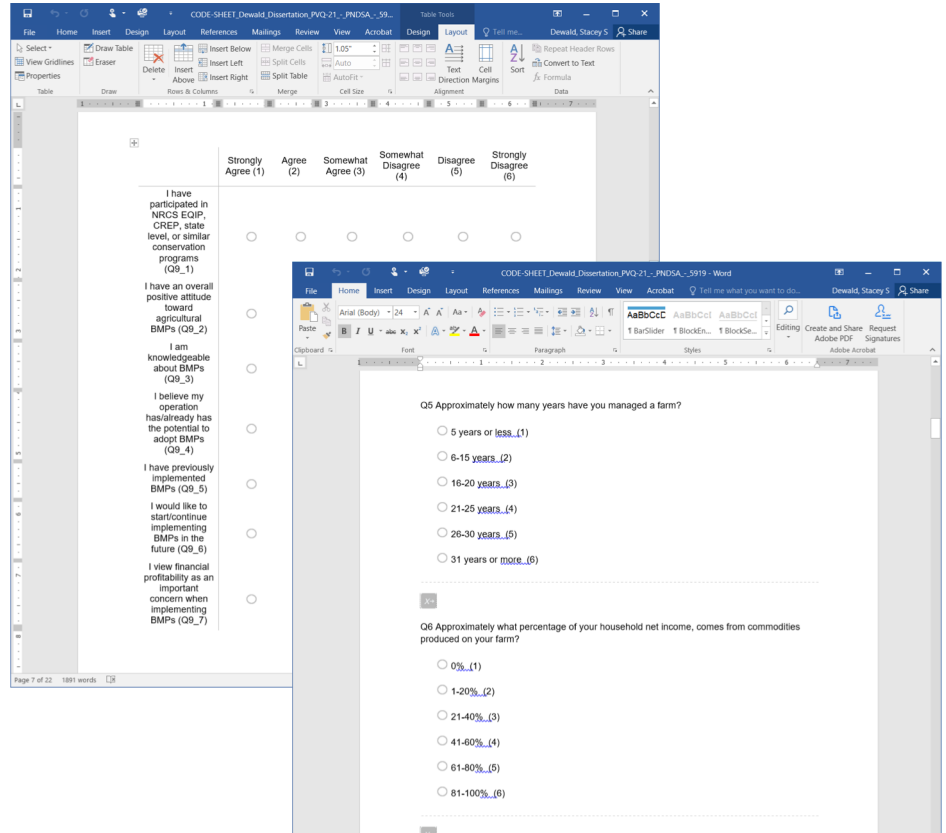
DATA ANALYSIS

Exported data from Qualtrics as an Excel – .csv file, numerical values, no missing data

STATA 15 software

Code sheet – exported from Qualtrics

Analysis – descriptive statistics, t-tests, and ordinal logistic regression



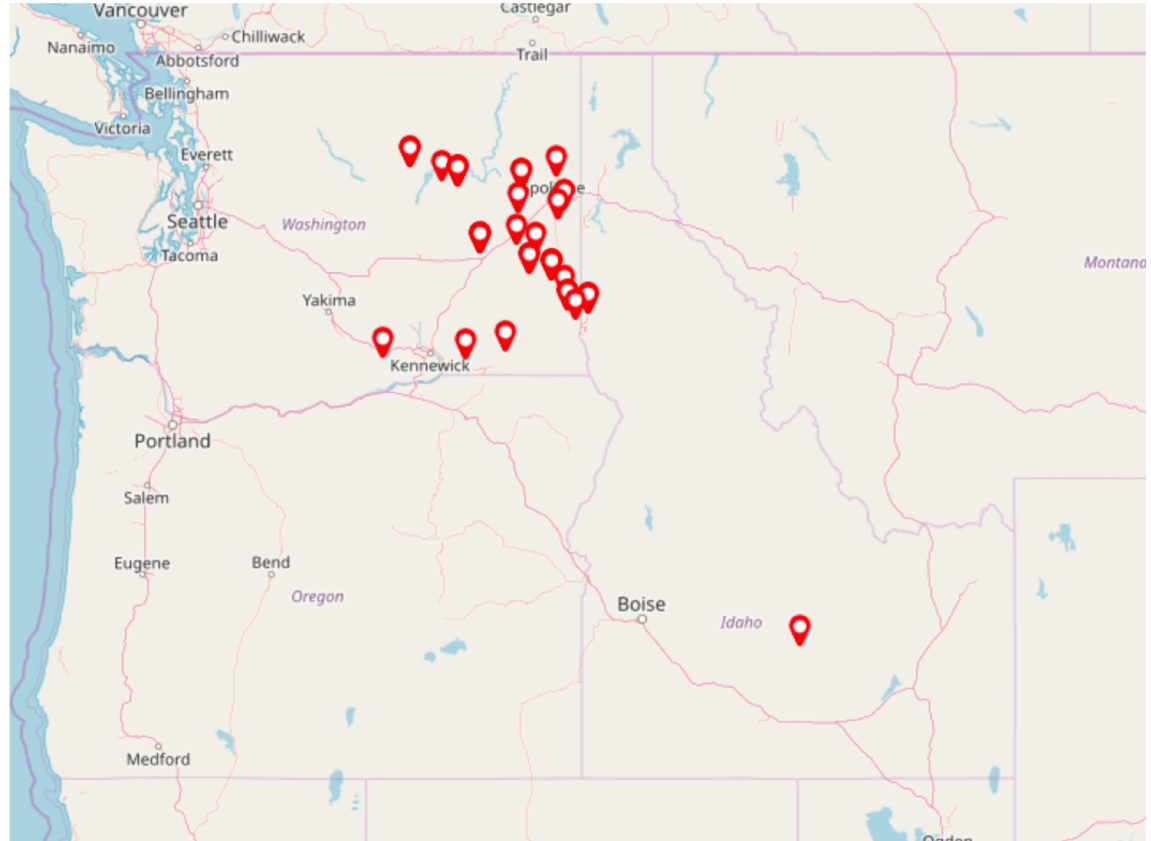


RESULTS

PARTICIPANTS LOCATION

2 States
WA & ID

32
Participants

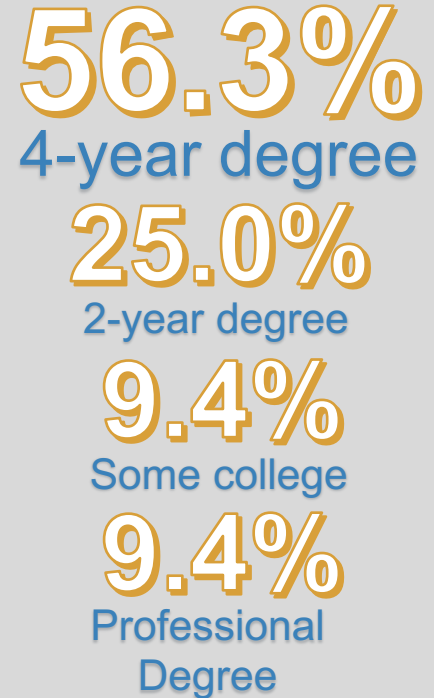


DEMOGRAPHICS

Reported Gender



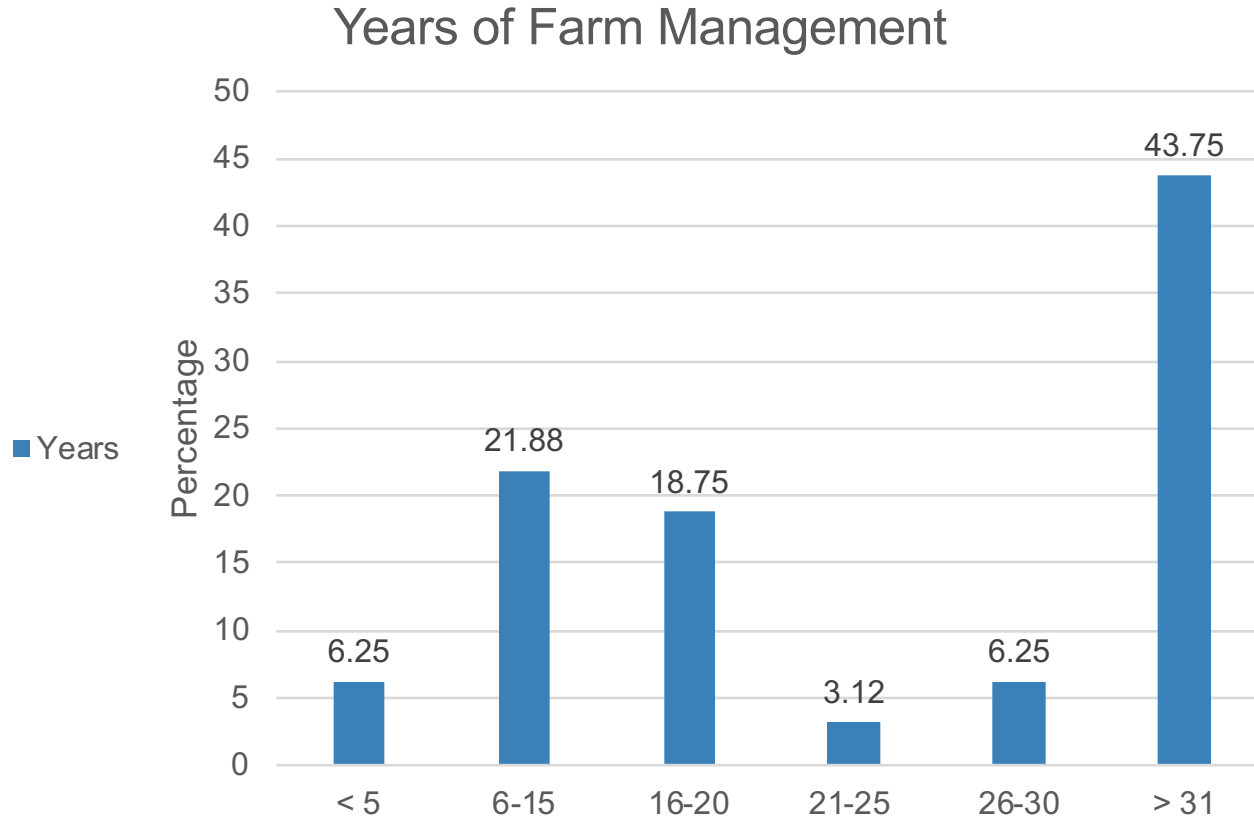
Education Level



Average Age

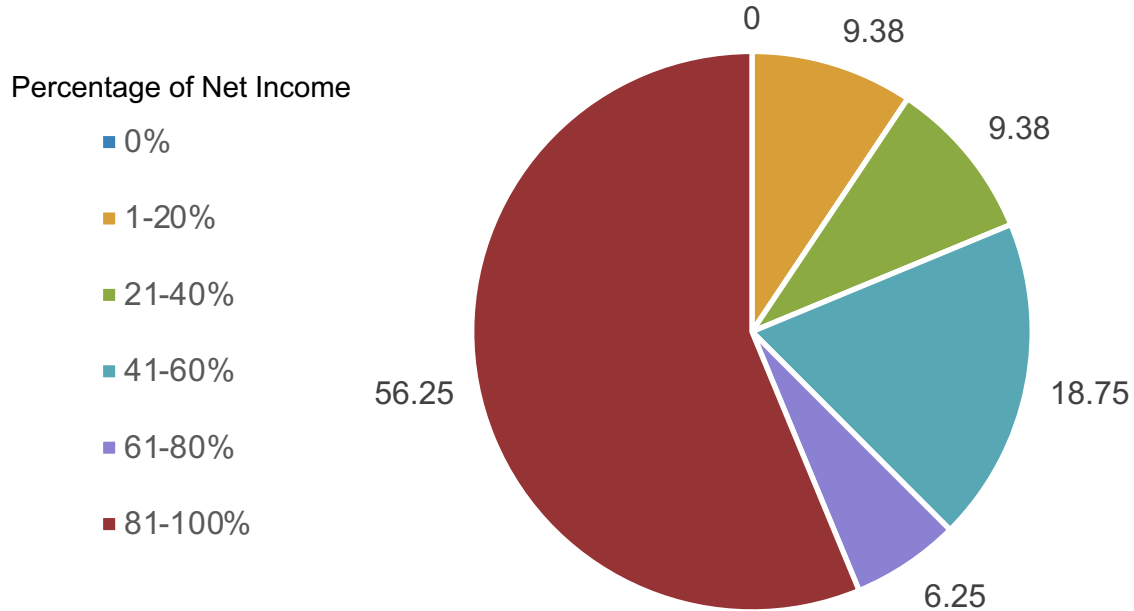


GENERAL CHARACTERISTICS



GENERAL CHARACTERISTICS

Household Net Income from Commodities Produced on their Farm



STATISTICAL TESTS

No differences between *education levels* (2-year degree or less & 4-year degree or more) on potential to adopt BMPs, $t(30) = -0.76$, $p = .50$

No differences between *income percentage levels* (60% or less or 61% or more) on potential to adopt BMPs, $t(30) = -1.09$, $p = .28$

Most associated with the *adoption of BMPs*, $Chi^2 = .14$; $F(13) = 18.49$

Positive = stimulation (1.92) & security (1.64)

Negative = hedonism (-1.42)

Most associated with the *amount of years of no-till*, $Chi^2 = .01$; $F(13) = 27.05$

Positive = power (2.73)

Negative = conformity (-1.67) & achievement (-0.98)



CONCLUSIONS

SO WHAT?

Decision-making process – better understand what is driving farmers to break through the barriers of adoption BMPs

Bronfenbrenner's Ecological Systems Theory – values are developed from home, family, community, school, other surroundings

Instill values → increase adoption of BMPs → improve natural resources → strive to reach commodity production demands

LIMITATIONS & IMPROVEMENTS

Re-assign numbers to agreement rating scale

Low reliability on some value constructs

Low sample size – need to expand and gain access to a larger amount of farmers

Limited time of data collection – gaining access to large email list, not having direct access to email list, IRB approval



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QUESTIONS?