



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Untangling the Economic and Social Impediments to Producer Adoption of Organic Wheat

Kynda Curtis^a and Donya Quarnstrom^b

^a*Professor, Department of Applied Economics,
Utah State University,
Logan, UT 84322, USA*

^b*Graduate Research Assistant, Department of Applied Economics,
Utah State University,
Logan, UT 84322, USA*

Abstract

Consumer demand for organic products has grown rapidly in recent years, encouraging the development of a wide range of organic products. Demand for organic wheat products, such as breads and baked goods, currently exceeds supply. This study examines the economic and social impediments to producer adoption of organic wheat through an online survey of wheat producers in the western United States conducted in 2018. Results show that wheat producers are transitioning out of organic production due to pest control and profitability concerns. Current organic wheat producers were motivated to adopt organic methods by profit potential and personal values at the time of transition.

Keywords: grower adoption, organic, personal values, profit, wheat

[Ⓜ]Corresponding author: Tel: 435-797-0444
Email: kynda.curtis@usu.edu

Introduction

Consumer demand for organic products has shown double-digit growth in recent years, encouraging the development of a wide range of organic goods. The percentage share of at-home organic food purchases in 2015 had more than doubled since 2005, to 5% of the total share; organic retail sales in the U.S. were \$43.3 billion in 2015 (U.S. Department of Agriculture, 2017). Organic products can now be found in approximately three-quarters of conventional grocery stores, as major U.S. food retailers such as Walmart, Target, and Costco have expanded their selection of organic food offerings (U.S. Department of Agriculture, 2017). Consumer bypass conventionally produced foods due to concerns about health and the environment and are willing to pay premiums for organic foods. What was previously a lifestyle choice for a small number of consumers has become a common purchase for a majority of Americans, who now purchase organic items at least occasionally (Greene and Dimitri, 2002).

With the increasing demand for organic wheat flour for large customers such as restaurants and food manufacturing companies, Ardent Mills, a major North American supplier of flour, is now attempting to meet the demand with its Organic Initiative 2019 (Ardent Mills, 2015). The initiative will assist growers with adopting organic wheat and the associated concerns. Possible challenges for producers are frequently related to transition costs, weed and pest control, USDA organic certification compliancy, and production yields. (Ardent Mills, 2015).

Consumer demand for organic wheat current exceeds supply. U.S. organic wheat acres increased by only 10% in 2017, due primarily to struggling yields, especially in dryland systems (Koory, 2018). Organic winter wheat is primarily produced in the Northern Plains region; Montana and Wyoming, the top-producing states, together accounted for 15% of total organic wheat acres and experienced an expansion in wheat acreage of 22% in 2017 (Koory, 2018).

This article examines the economic and social impediments to producer organic wheat adoption through an online survey of wheat producers in the western United States conducted in 2018. Results show that wheat producers are transitioning out of organic production due pest control and profitability concerns. Current organic wheat producers were motivated to adopt organic methods by profit potential and personal values at the time of transition. Future research and policy should focus on improving organic wheat yields and overall profitability.

Literature Review

Previous research has identified significant barriers to producer adoption of organic farming methods, include lack of production knowledge, higher cost of inputs, transition costs, concerns regarding weed and pest control, potential volatility of organic premiums, access to markets, and perceived risk (Kallas, Serra, and Gil, 2010; Kuminoff and Wossink, 2010; Uematsu and Mishra, 2012; Lewis et al., 2011; Nelson et al., 2015; McBride et al., 2015). Despite increasing demand—and the fact that organic goods are one of the fastest growing food segments—researchers have found that producers are slower to adopt than expected. Previous organic adoption research spans many commodities, including grains, produce, dairy, and meat products across the globe. Table 1 summarizes findings from previous studies.

Table 1. Variable Effects on Organic Adoption

Variable	+/-	Variable	+/-
Farm size	-	Risk-averse producer	-
Family size	-	Perceived risk	-
Gender (female)	+	Environmental protection concerns	+
Education level	+	Organic policy incentives (government grants)	+
Age	-	Personal belief in organic lifestyle	+
Years of farming experience	-	Concern for health	+
Knowledge of organic farming	+	Believes organic produces better-quality product	+
Organic marketing concerns	-	Worried about organic product yields	-
Distance from processing services	-	Competition from other labels	-
Higher cost of inputs	-	Concerns about weed and pest control	-
Transition costs	-	Volatility of organic premiums	-

Source: Previous literature.

Adoption barriers are often overcome through educating growers on organic production methods, government grants (policy incentives), and the profit margins gained through organic premiums. Organic producers are more likely to be women, younger, and have a relatively higher income level, fewer years of farming experience, and smaller farms (Kallas, Serra, and Gil, 2010). Additional commonalities between organic growers are personal values such as an emphasis on an organic lifestyle, environmental protection concerns, and believing organic production methods produce higher quality products (Padel, 2008).

Survey Data

Data for this study were collected through an online survey using Qualtrics in September 2018. Wheat producers across fourteen western states were contacted and emailed the survey link by various farming and grain growers associations with which they were associated. A total of 111 responses were collected, 82 of which were fully completed and used in this analysis. Utah (30) and Colorado (20) had the highest response rates, and no responses were provided from producers in four states.

Survey questions covered topics relating to basic wheat producer sociodemographics, farm characteristics, history of production practices, trust in various information resources, and concerns about organic production and implementing new technologies on farms generally. Questions related to current farm irrigation strategies (if any), preferred information delivery methods, and knowledge needs were also included. Information on past wheat production practices (organic only, transitioned from conventional to organic, conventional only, etc.) were also obtained. These questions were used to clarify any changes made in the past, the reasons for the change, and producer rationale for not using organic methods. The survey questions were chosen based on findings from a review of literature and the goals of this study.

Results

Table 2 reports basic survey summary statistics. As shown, 26% of the respondents had relatively small farms of less than 150 acres. Another quarter had medium-sized farms with 151–700 wheat acres, and nearly half of the respondents produced wheat on 701 or more acres annually. Only 35% of respondents reported an annual income of less than \$100,000, and nearly 30% grossed \$500,000 or higher. Approximately 40% of respondents leased 60% or more of their farm land. Of the respondents, 8% were female, 94% sold through wholesale channels, and 11% were first-generation farmers. The survey was primarily answered by older producers. Over three-quarters of respondents indicated that they would take on risk to increase profits, while almost 80% of the participants carried federal crop insurance.

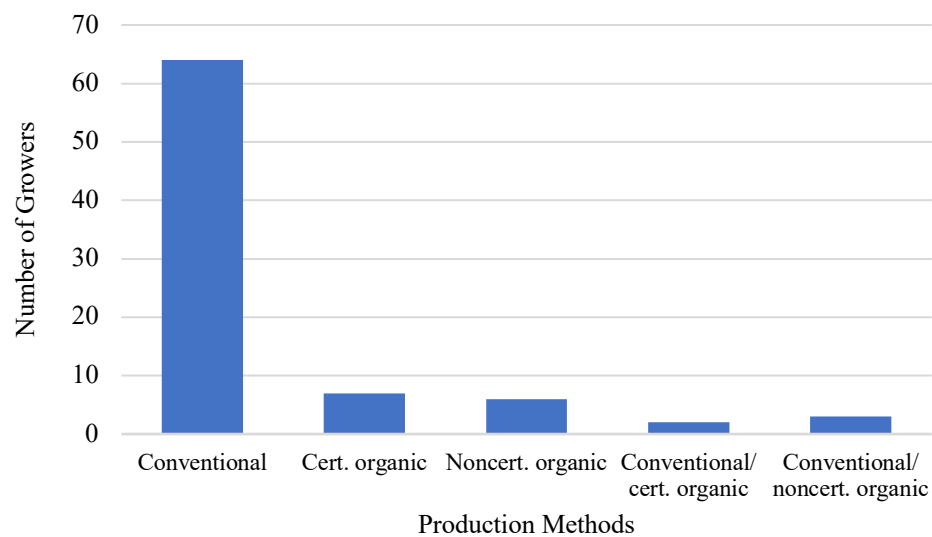
Table 2. Sample Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Small farm size (≤ 150 acres)	80	0.26	0.44	0	1
Large % of acres leased ($\geq 60\%$ of total)	82	0.40	0.49	0	1
Small gross income ($< \$100$ k)	66	0.35	0.48	0	1
Sell directly to retailer (yes = 1)	70	0.06	0.23	0	1
Female (yes = 1)	66	0.08	0.27	0	1
Age group	66	3.05	1.16	1	4
First-generation farmer (yes = 1)	66	0.11	0.31	0	1
Take risk for profit (yes = 1)	66	0.77	0.42	0	1

Of the total survey respondents, 64 producers (78%) used only conventional methods in 2017 (Figure 1); the remainder, or 22%, were organic producers, including complete or partial adopters. Of the 18 organic producers, 9 were certified. Two respondents currently using conventionally methods had started using organic methods and later switched to conventional. Four respondents had grown both organic and nonorganic wheat but now produce only conventional. Of the organic producers, two began with conventional methods.

We asked respondents to rank their preferred information provider related to production/marketing practices on a scale of 1 (most preferred) to 8 (least preferred). Respondents ranked Cooperative Extension workshops/field days as their most preferred source of information (Table 3). Running trials on their farm/land, Cooperative Extension publications and video, and observing trials on other farms were also highly ranked. The least preferred method for information was production/financial assessment tools. Respondents were also asked to rank information sources in terms of their level of trust in that source on a scale of 1 (most trusted) to 8 (least trusted). The most trustworthy sources are university research and neighboring growers (Table 4). The least trusted are federal agencies.

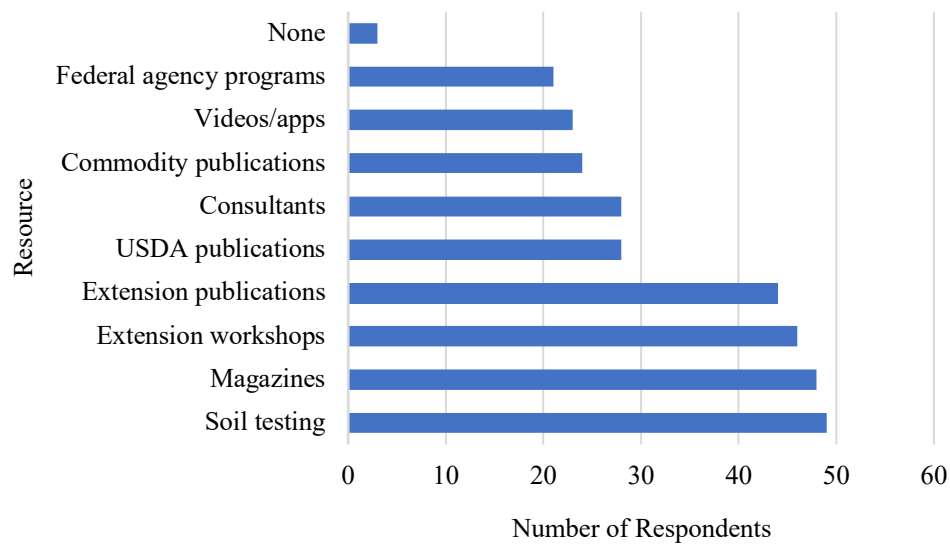
Respondents were asked to indicate their most commonly used resources (Figure 2). Soil testing and magazines were the most commonly used resources. Approximately half of participants used Extension workshops/field days and Extension publications/websites. One-third of respondents used USDA publications; consultants were used with similar frequency. Only around one-quarter of respondents reported using videos and apps as a source of information.

Figure 1. Production Methods Used ($N = 82$)**Table 3.** Ranking of Preferred Information Providers ($N = 82$)

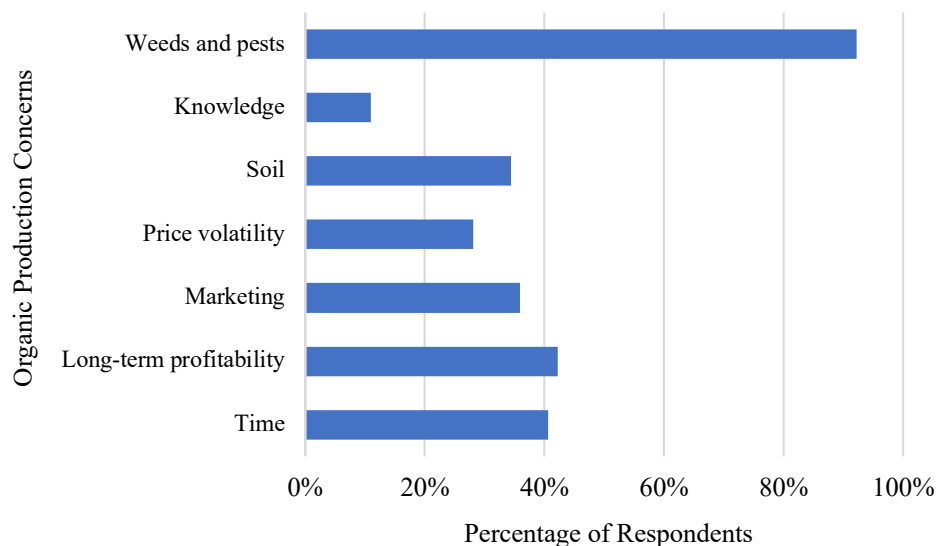
Rank of Preferred Method for Receiving Information or Tools (1 = Most Preferred)	Mode of Responses
Coop. extension publications/videos	2
Coop. extension field days/workshops	1
Production/financial assessment tools	7
On-site consultant	4
Commodity association	3
Trial on personal land	1
Trial on other farms	2

Table 4. Ranking of Trusted Information Sources ($N = 82$)

Rank of Trust in Information Source (1 = Most Trusted)	Mode of Responses
University	1
Neighbor	1
Extension resources	3
Product companies	4
Consultant	5
Commodity association	5
Federal loans/programs	7

Figure 2. Resource Use ($N = 65$)

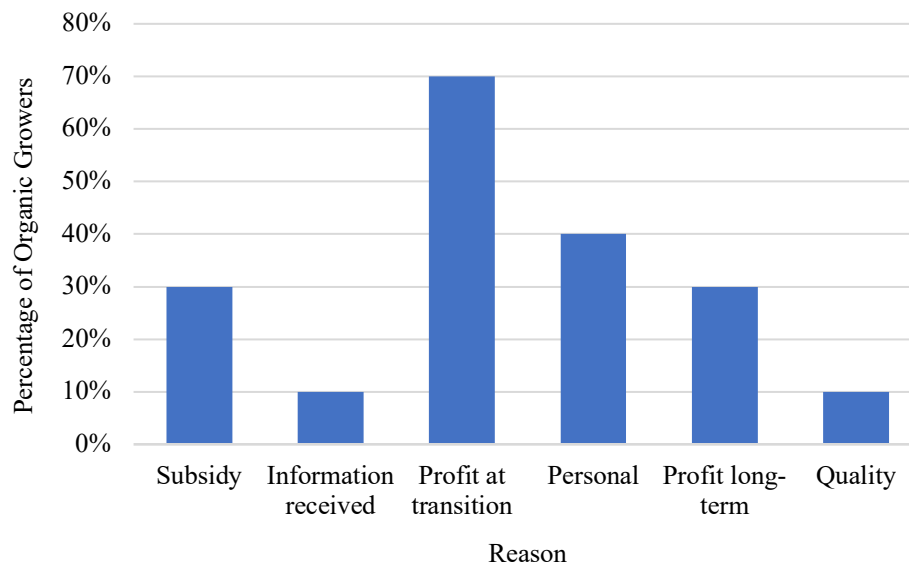
When asked about their concerns regarding organic farming (Figure 3), the most common response was weed and pest control (92%), followed by concern for long-term profitability in organic farming (42%), time required to certify (41%), marketing (36%), and soil impacts (34%). Only 28% of growers were concerned about the actual volatility of organic premiums. Additional concerns included the hassle of protecting organic products from exposure to chemicals, especially upon delivery and storage, and impact on neighboring farms.

Figure 3. Concerns Regarding Organic Production ($N = 66$)

Ten organic growers (both certified or not) responded to the question regarding motives for organic adoption (Figure 4). The most common response was profit opportunity at the time of transition (70%), followed by personal beliefs/values (40%). Additional reasons include continually rising

input costs and the need for a more efficient way to kill herbicide-resistant weeds in conventional systems. Contrary to much of the previous literature, adoption based on information received was the least common response chosen on average. The availability of a subsidy was also a significant reason for adoption, but less than expected profit in the long- and short-term.

Figure 4. Motivations for Organic Adoption ($N = 10$)



Conclusions

This article examines the economic and social impediments to producer organic wheat adoption through an online survey of 82 wheat producers in the western United States. Despite strong growth in nationwide demand for organic wheat products, results show that wheat producers are transitioning out of organic production due to pest control and profitability concerns. Organic wheat production has seen annual reductions in yields, as much as a 10% year-over-year decline (Koory, 2018). While respondents were also concerned with the amount of time necessary to transition to organic production and marketing methods, future research and policy should focus on improving organic wheat yields and overall profitability, if organic wheat production is to keep up with demand.

This is also evidenced by results showing that current organic wheat producers were motivated to adopt organic methods by the profit potential and personal values at the time of transition. While these producers may be more motivated by altruistic ideals, obviously profitability is also a major concern. While information and knowledge surrounding organic production seemed to be less important to organic adoption decisions in the study sample, Cooperative Extension workshops, field-days, and publications were highly used and trusted. Hence, Extension may play a valuable role in conducting (especially through farm-based field trials) and disseminating research on yield improvements and financial planning in organic wheat production. Also, policies that provide subsidies to dampen the financial burden of transition and improve profitability potential may be more effective than others.

Acknowledgments

This research was supported by the Utah Agricultural Experiment Station, Utah State University, and approved as journal paper number 9170.

References

- Ardent Mills. 2015, Dec. 15. "Ardent Mills to Help Farmers Double U.S. Organic Wheat Acres by 2019." *PR Newswire*. Available online: <https://www.prnewswire.com/news-releases/ardent-mills-to-help-farmers-double-us-organic-wheat-acres-by-2019-300192784.html>
- Greene, C., and C. Dimitri. 2002. *Recent Growth Patterns in the U.S. Organic Foods Market*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, Market and Trade Economics Division and Resource Economics Division, Agriculture Information Bulletin AIB-777.
- Kallas, Z., T. Serra, and J.M. Gil. 2010. "Farmers' Objectives as Determinants of Organic Farming Adoption: The Case of Catalanian Vineyard Production." *Agricultural Economics* 41(5): 409–423.
- Koory, R. 2018, July 7. "Yields Hold Potential Boon for 2018 Organic Wheat Production." *The Organic and Non-GMO Report*. Available online: <http://non-gmoreport.com/articles/yields-hold-potential-boon-for-2018-organic-wheat-production/>
- Kuminoff, N.V., and A. Wossink. 2010. "Why Isn't More US Farmland Organic?" *Journal of Agricultural Economics* 61(2): 240–258.
- Lewis, D.B., J.P. Kaye, R. Jabbour, and M.E. Barbercheck. 2011. "Labile Carbon and Other Soil Quality Indicators in Two Tillage Systems during Transition to Organic Agriculture." *Renewable Agriculture and Food Systems* 26(4): 1–12.
- McBride, W.D., C. Greene, M. Ali, and L. Foreman. 2015. *The Profit Potential of Certified Organic Field Crop Production*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, Economic Research Report ERR-188.
- Nelson, M.C., E.K. Styles, N. Pattanaik, X. Liu, and J. Brown. 2015. *Georgia Farmers' Perceptions of Production Barrier in Organic Vegetable and Fruit Agriculture*. Paper presented at the annual meeting of the Southern Agricultural Economics Association, Atlanta, GA.
- Padel, S. 2008. "Values of Organic Producers Converting at Different Times: Results of a Focus Group Study in Five European Countries." *International Journal of Agricultural Resources, Governance and Ecology* 7(1–2): 63–77.

Uematsu, H., and A.K. Mishra. 2012. "Organic Farmers or Conventional Farmers: Where's the Money?" *Ecological Economics* 78(1): 55–62.

U.S. Department of Agriculture. 2017. *Organic Market Overview*. Washington, DC: U.S. Department of Agriculture, Economic Research Service. Available online: <https://www.ers.usda.gov/topics/natural-resources-environment/organic-agriculture/organic-market-overview/>