

## Challenges and Training Needs of Texas Small Producers: Results from 2017-2019 Needs Assessment Survey

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### ABSTRACT

From 2017-2019, survey data was gathered on the challenges and needs facing small-scale agricultural producers in Texas. The needs assessment survey instrument was developed using stakeholder input from the first Small Producers Initiative stakeholder meeting at Texas State University in August 2015, and evidence from the literature. Fifteen challenges and 43 specific training needs were identified and included in the survey instrument. Results provide insight into the myriad challenges and needs of Texas small producers. The top five challenges were: 1) lack of access to capital (71%); 2) aversion to acquiring debt to finance a larger operation (68%); financing (66%); organic certification requirements (64%); costs of regulations and permits (64%).

**KEY WORDS:** small producers; agriculture; Texas; needs assessment; survey; underserved; beginning; minority farmers; Small Producers Initiative

### INTRODUCTION

Between 232,000 and 242,000 Texas farms have a gross cash farm income (GCFI) of less than \$350,000 annually (Whitt et al. 2019), designating them as *small farms* by the U.S. Department of Agriculture (USDA). According to the 2017 USDA Census of Agriculture (USDA 2017), *low-sales farms*, a subdivision of small farms, have a GCFI of less than \$150,000. In other words, roughly 93-97% of farms in Texas are designated as small farms, and 90% of Texas farms (223,569) gross less than \$50,000 annually, which alludes to the prevalence of retirement, off-farm occupation, and farming-occupation low-sales operations (Burns and MacDonald 2018).

While most Texas farms are categorized as small, Texas also has a high number of underserved farmers, also defined as *socially disadvantaged farmer or rancher* (SDFR) (Congressional Research Service 2021). SDFR refers to a farmer or rancher who is a member of a group whose members have been subjected to racial and/or gender discrimination (Congressional Research Service 2021). According to the USDA, SDFR includes farmers of the following race and ethnic groups: African Americans, American Indians, Alaskan Natives, Asians, Hispanics, and Pacific Islanders (USDA 2019). The Agriculture Censuses show Texas has the highest number of Hispanic and Black producers (USDA-NASS 2019a; USDA-NASS 2019b). In six Texas counties - Starr, Zapata, Brooks, Jim Hogg, Duval, and Webb - 80% or more farms are Hispanic-operated (USDA-NASS 2019b). In two Texas counties, Smith and Freestone, more than 300 black-operated farms exist (USDA-NASS 2019a). Texas also has a high share of veteran farmers; nearly 13% of Texas producers have military service affiliation according to the 2017 Census of Agriculture, compared to 11% nationally. Additionally, there is a growing interest in agricultural production from young, beginning, and women producers in Texas based on membership and attendance at professional meetings.

In addition to having a large number of small underserved, beginning, women, and veteran farmers, Texas is one of the fastest growing states in the nation, ranking number one in total population growth, and fifth in percentage of population growth from 2018-19 (U.S. Census Bureau 2019). These trends allude to growing consumer-driven opportunities upon which small diversified farmers should capitalize.

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Given the growing consumer population who are increasingly demanding more local and organic agricultural products than Texas farmers produce (Morris and Maggiani 2016), there are educational, communication, and resource gaps – as well as market opportunities – for the large base of small farmers in Texas. Thus, the Small Producers Initiative (SPI) at Texas State was founded to address these gaps and opportunities, and provide outreach to the small farm community. Training needs, the gap between the performance of a skill and the intended educational aptitude (Borich, 1980), were also identified. One of the first undertakings of SPI was to assess the collective needs of small-scale farmers in Texas. To do so, a needs assessment survey was developed and distributed.

Previous needs assessment research on producers, farm families, educators, and extension agents have identified many different training needs facing small and alternative producers. The following studies identified some important producer training needs:

- Marketing education, including niche and alternative marketing, new market development, and value-added marketing (Degenhardt et al. 2005; Ekanem et al. 2001; Middendorf 2007; Pasirayi et al. 2011)
- Business management skills, including bookkeeping, recordkeeping, financial management, business planning, accounting, tax management, and time and labor management (Goodwin and Gouldthorpe 2013; Suvedi et al. 2010)
- Organic and nontraditional farming systems (Degenhardt et al. 2005)
- Production methods, including animal science and livestock management, crop production, diversification strategies, chemical and fertilizer training, integrated pest management (IPM) and weed control, soil productivity, and cropping system designs (Degenhardt et al. 2005; Middendorf 2007; Suvedi et al. 2010)
- Laws and regulations (Goodwin and Gouldthorpe 2013; Suvedi et al. 2010)
- Technology (Ekanem et al. 2001; Suvedi et al. 2010)
- Labor access and management (Goodwin and Gouldthorpe 2013; Middendorf 2007; Suvedi et al. 2010)
- Access to land, capital, and equipment (Ekanem et al. 2001)

## METHODS

An assessment survey instrument was developed using evidence from the literature and stakeholder input from a small producer stakeholder meeting at Texas State University in August 2015, that was attended by 40 farmers, farm organization representatives, and governmental officials. Fifteen challenges and 43 specific training needs were identified and explored in the survey instrument. Our survey instrument used a Borich (1980) model to assess producers' competencies on a five-point Likert-style scale (see Appendix). The survey was distributed via convenience sampling to conference attendees at the 2017, 2018, and 2019 Small Producers Conferences, and in 2019 at the Farm and Food Leadership Conference. From 2017 to 2019, SPI collected a total of 184 usable survey responses from small producers in Texas. Descriptive statistics were used in the analysis of data collected.

## RESULTS

**Demographics and Farm Characteristics.** From a total of 184 survey participants, 51% of respondents were female compared to 47% male (2% non-item response), and 70% identified as white, 10% as Hispanic, Latino/a, or Mexican American, and 9% as Black or African American. Other races and ethnicities (e.g., Asian American, American Indian, multiracial) ranged from 1-3%. Overall, SDFR farmers represented 28% of survey respondents (3% non-item response). Respondents were primarily career-aged with 28% of respondents being between 25-44 years of age, and 56% of respondents were between 45-64 years. Only 2% of respondents were younger than 25, and 13% were between 65-74 years of age. Young farmers, defined as farmers less than 35 years of age, made up approximately 15% of survey respondents (n = 28).

Respondents were well educated: 39% held a bachelor's degree, 19% held a master's degree, and another 21% had at least some college education. The percentage of respondents who reported farming as their primary occupation versus non-farming were nearly equal. Ninety respondents (49%) reported farming as their primary occupation, whereas 91 respondents (49%) reported primary occupations other than farming, and three (2%) did not respond to the question.

**Farm Location.** There were 160 respondents who provided the county of their primary farm operation and showed a spread of 65 Texas counties (13% non-item response). The counties with highest representation were Travis (home to the city of Austin) and Hays in Central Texas at 21 and 13 responses, respectively. The location of both conferences, where surveys were distributed, was Hays County, which is just south of Travis County. The counties with the second highest representation were Caldwell (adjacent to Hays County to the east) and McLennan (home of Waco) with 8 responses each. Figure 1 highlights all the counties represented by survey respondents.

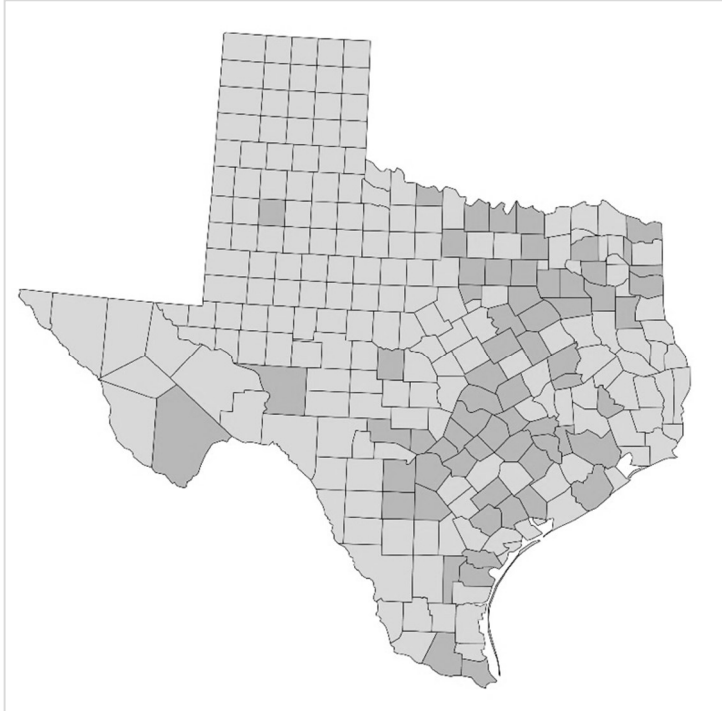


Figure 1. Farm locations of survey respondents by Texas county.

**Farm Income.** The survey targeted small to mid-sized producers; 34% of respondents farmed less than 10 acres, 39% farmed 10-49 acres, and 17% farmed 50-199 acres. The majority (51%) of respondents reported gross annual farm income of less than \$10,000. 32% reported gross annual farm income between \$10,000 and \$49,999 and another 9% reported \$50,000 to \$99,999. Only 4% indicated gross annual farm income over \$100,000.

**Primary Production Activity.** Respondents varied in their production activities. The most frequent responses were livestock, poultry, or dairy producers (41%) followed by vegetable farmers (33%). 11% of respondents produced nursery or greenhouse plants, 7% produced fruit, 4% produced commodity crops, and 17% produced other categories as their primary activity. Some examples of other production activities included: wildlife, education, herbs, aquaponics, cut flowers, value-added products, and microgreens.

**Small Producer Challenges.** The survey instrument featured fifteen specific challenges. Respondents were asked to identify how challenging each item was on a Likert-type scale, where 1 = not at all a challenge, 2 = minor challenge, 3 = neutral, 4 = somewhat of a challenge, and 5 = a great challenge. We used frequency counts and percentages to determine the leading challenges. First, we summed the total number of respondents who indicated a 4 (“somewhat of a challenge”) or 5 (“a great challenge”). We then divided the summation by the total number of responses (n = 184) to determine their relative frequencies (Table 1). Thus, the top five challenges identified by Texas small producers who participated in the survey were:

1. Lack of access to capital (71%)
2. Aversion to acquiring debt to finance a larger operation (68%)
3. Financing (66%)
4. Organic certification requirements (64%)

## 5. Costs of regulations and permits (64%)

While an aversion to acquiring debt (ranked 2 in relative frequency) was deemed slightly more challenging than lack of access to capital (ranked 1), the difference was not substantial (3.96 versus 3.92). There were only three other instances where ranking (i.e. percentage of survey participants who identified each challenge) and difficulty of each challenge (as identified by survey participants) did not match; they are financing versus organic certification requirements, business management skills versus sustaining labor, and access to land versus website skills. These results are displayed in Table 1. Figure 2 shows the proportional (i.e., percentage) distribution of survey responses for each challenge.

**Small Producer Training Needs.** The survey instrument featured 43 specific training needs. Respondents were asked to identify how important each item was with respect to the need for more research, education, or training on a Likert-type scale, where 1 = no need at all, 2 = slight need, 3 = neutral, 4 = moderately important need, and 5 = very important need. We used the same methods for small producer needs as we did in the challenges section, summing the number of respondents who selected 4 (“moderately important need”) and 5 (“very important need”) to determine frequency counts and percentages (Figure 3). The proportional distribution of survey responses for each training need shows the *least* frequently cited training needs were GPS systems and drones, dairy production, and conventional production methods (Figure 4).

Table 1. Ranking of Challenges facing Texas Small Producers (n = 184). Non-item responses (i.e., blank cells) were not deducted from the total counts prior to taking percentages because the deductions made no impact on the resulting list of challenges.

Challenge	Difficulty score (average)	Total count (sum)	Percentage of total (%)
Lack of access to capital	3.92	131	71
Aversion to acquiring debt to finance a larger operation	3.96	125	68
Financing	3.78	121	66
Organic certification requirements	3.91	118	64
The costs of regulations and permits	3.76	117	64
Lack of access to equipment	3.61	117	64
Business management skills	3.51	113	61
Sustaining labor	3.64	108	59
Access to information on grants and loans	3.41	100	54
Educational program accessibility	3.18	89	48
Advertising	3.14	84	46
Access to land	3.07	83	45
Website skills	3.08	82	45
Access to information on marketing	2.99	78	42
Access to materials and supplies	2.99	72	39

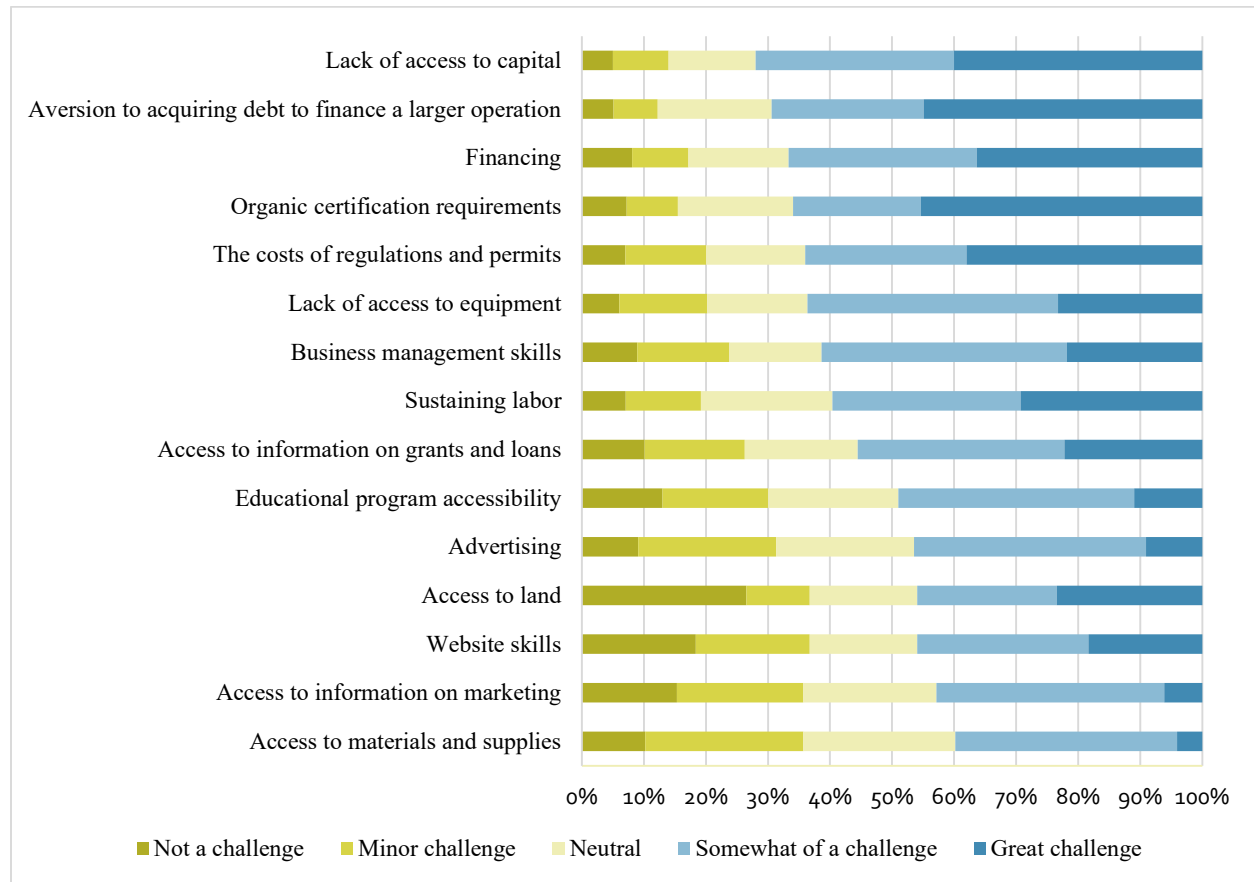


Figure 2. Texas small producer challenges based on percentage of survey responses (Likert-type scale 1-5).

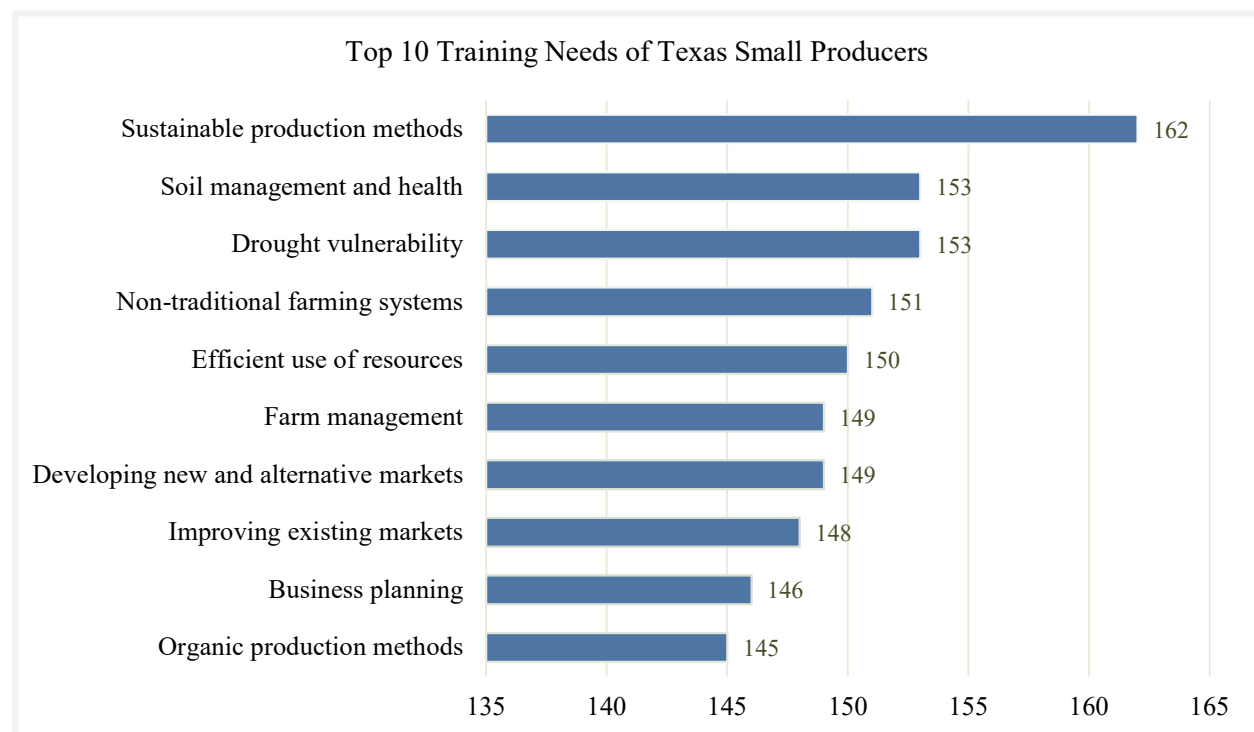


Figure 3. Top 10 training needs of survey respondents by frequency count.

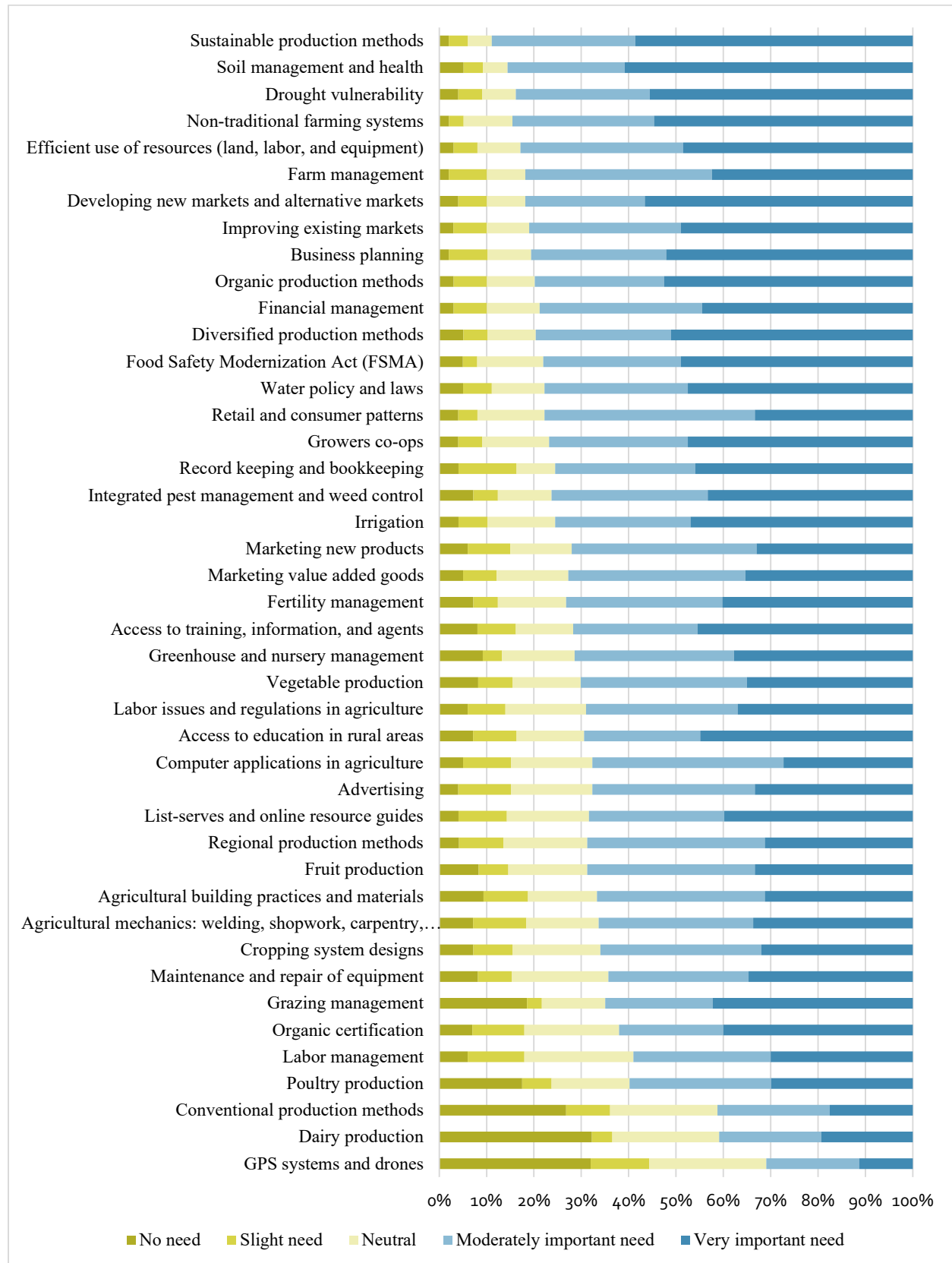


Figure 4. Texas small producer training needs based on percentage of survey responses (Likert-type scale 1-5).

## DISCUSSION

Nonprobability sampling methods were used to obtain survey data, which means that results are not representative of Texas small producers. Nonetheless, survey results provide valuable information to SPI and its collaborators on the challenges and training needs of their stakeholders, members, and program participants. The predominant challenges facing Texas small producers who responded to the survey were capital acquisition, debt, financing, quality standards, and regulations. Respondents were mostly small-scale producers grossing less than \$50,000 annually (83%), which may help explain why financial and business management skills rose to the top of the list of challenges. Many respondents were beginning farmers and/or trying to scale up their operation(s), and therefore may have felt challenged by business, financial, and capital concerns; this is anecdotally supported by conversational interactions with stakeholders.

Many respondents were female (51%) and/or SDFR (28%) producers, which suggests an ongoing need for outreach regarding availability of USDA funding (e.g., FSA, NRCS, AMS) for historically underserved producers in Texas. The frequency of “organic certification requirements” as a challenge indicates that survey data was likely skewed towards sustainable, organic, and/or regenerative agricultural producers. Farm location of participants near large Texas cities (e.g. Austin, Waco) with consumers who demand organic products may have influenced the frequency of this challenge. Further research is needed to understand what specific barriers Texas small producers face regarding organic certification (availability of services, costs, recordkeeping, etc.) and which regulations or permits are challenging for Texas small producers beyond the Food Safety Modernization Act.

The top training needs of Texas small producers who responded to the survey were largely related to sustainable agricultural production. Soil management and health is a rapidly growing area of interest within sustainable agriculture, and survey results suggest that conceptual and technical trainings on soil health management are desired. The need for training in “drought vulnerability” seemingly correlates with sustainable production methods and soil health and management, but it may also highlight a prevalence of water availability concerns among Texas small producers. Trainings in sustainable agricultural production and soil health would address drought vulnerability concerns due to the increased water holding capacity of healthy soils. The need for training in “non-traditional farming systems” may indicate stakeholder interest in sustainable, organic, or regenerative production, enterprise diversification, value-added production, specialty crops, alternative livestock, and/or specific crops such as cut flowers, microgreens, or herbs. Finally, the need for “efficient use of resources” reminds us that many respondents were historically underserved and possibly resource limited. “Efficient use of resources” may also highlight the perceived general interest among survey respondents to produce sustainably, organically, and/or regeneratively.

The second tier of training needs (#5-10) generally related to agricultural business operation: farm management, development and improvement of markets, business planning, and financial management. While these needs compare more directly to the top *challenges* presented by survey respondents, it may be that business and financial trainings are not as desirable to Texas small producers as trainings that involve the technical aspects of production (e.g., soil health management). It is well-known that small producers on a national level struggle with profitability (Burns and MacDonald 2018). Therefore, survey results suggest that business and financial training are an ongoing training need for the continued success of Texas small producers.

A closer look at Figures 3 and 4 indicates that Texas small producers face a variety of challenges and training needs worthy of further discussion. Only the bottom three training needs – 40 *training needs* – had less than 50% of responses in the 4 (“moderately important need”) or 5 (“very important need”) category. Ranking and prioritizing of these training needs provides essential information to organizations like SPI that provide research, education, and extension to Texas small producers while facing their own limitations in terms of capital, personnel, budget, etc. There is certainly no shortage of training needs, and more research is needed to understand the primary causes and potential solutions to the challenges facing Texas small producers.

## CONCLUSION

This paper documents the first research study to explicitly address the challenges and training needs of Texas small producers. To bring more attention to this population, future research should attempt to develop a comprehensive sampling frame and/or obtain a representative sample of Texas small producers. Moreover, inclusion of a qualitative data component would inform and/or strengthen the survey results.

Small producers face numerous challenges and training needs that depend on their specific context. We believe it is important to document these trends through time to ensure that educational programming offered by agricultural stakeholders is relevant and useful. Small producers define our nation’s rural communities and make a substantial

impact on the agricultural economy. Therefore, we see their wellbeing and success as important to the continuation of local food economies, community food systems, land conservation and stewardship, agrarian values, and other economic, environmental, and social characteristics of a truly sustainable agriculture.

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Appendix. Small producer needs assessment survey instrument. Survey participants ranked whether they perceived each of the following listed challenges from 1 to 5.

<b>Challenges</b>	<b>5</b> Great challenge	<b>4</b> Somewhat of a challenge	<b>3</b> Neutral	<b>2</b> Minor challenge	<b>1</b> Not a challenge at all
Business management skills					
Organic certification requirements					
Sustaining labor					
Access to land					
Access to information on marketing					
Educational program accessibility					
Financing					
Advertising					
The costs of regulations and permits					
Lack of access to equipment					
Lack of access to capital					
Aversion to acquiring debt to finance a larger operation					
Website skills					
Access to materials and supplies					
Access to information on grants and loans					

<b>Business Management Skills</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Business planning					
Farm Management					
Financial Management					
Computer applications in agriculture					
Record keeping and bookkeeping					
Labor management					

<b>Marketing Information and Education</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Improving existing markets					
Marketing new products					
Developing new markets and alternative markets					
Marketing value added goods					
Retail and consumer patterns					
Advertising					

<b>Crop Production Skills</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Regional production methods					
Cropping system designs					

Integrated pest management and weed control					
Fertility management					
Vegetable production					
Fruit production					
Greenhouse and nursery management					
Soil Management and health					

<b>Animal Production Skills</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Dairy production					
Poultry Production					
Grazing management					

<b>Resource Conservation</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Efficient use of resources (land, labor & equipment)					
Drought vulnerability					

<b>Production Methods</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Conventional					
Diversified (a combination of animal, fruit, veg, hay and grain)					
Sustainable					
Organic					
Non-traditional farming systems					

<b>Laws And Regulations</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
The new food safety and modernization act					
Labor issues and regulations in agriculture					
Organic certification					
Water policy and laws					

<b>Mechanization and Technology</b>	<b>5</b> Very important need	<b>4</b> Moderately important need	<b>3</b> Neutral	<b>2</b> Slight need	<b>1</b> No need at all
Maintenance and repair of equipment					
GPS systems & drones					
Agricultural building practices and materials					

Agricultural mechanics: welding, shopwork, carpentry, tool care, plumbing					
Irrigation					

Communication and Access	5 Very important need	4 Moderately important need	3 Neutral	2 Slight need	1 No need at all
Growers co-ops					
Access to education in rural areas					
Access to training, information, and agents					
List serves and online resource guides					

**Part D: Demographics**

1. In what county is your agribusiness located? (Drop down menu with counties listed)
2. What size is your agribusiness?
  - a. <10 acres
  - b. 10-49
  - c. 50 – 199
  - d. 200 – 499
  - e. 500 +
3. What is your primary activity at this location?
  - a. Production of commodity crops (cotton, corn, milo, sorghum, etc.)
  - b. Production of livestock, poultry, dairy
  - c. Production of vegetable crops
  - d. Nursery or greenhouse production
  - e. Fruit production
  - f. Other (specify) \_\_\_\_\_

**Optional questions:**

4. Gender of primary farm operator:
  - a. Male
  - b. Female
5. Which of the following best describes the primary farm operator: (check boxes)
  - a. Non-Hispanic White
  - b. Mexican American/Hispanic/Latino
  - c. Black/African American

- d. American Indian/Native American
  - e. Asian American/Asian/Pacific Islander
  - f. Multiracial/Multiethnic \_\_\_\_\_
  - g. Other (Specify) \_\_\_\_\_
6. Age of primary farm operator:
- a. Under 25 years
  - b. 25 to 34 years
  - c. 35 to 44 years
  - d. 45 to 54 years
  - e. 55 to 64 years
  - f. 65 to 74 years
  - g. 75 years and over
7. Highest level of education completed of the primary farm operator:
- a. <High School
  - b. High School/ GED
  - c. Some college
  - d. Associates degree
  - e. Bachelor's degree
  - f. Master's degree
  - g. Doctorate degree
  - h. Vocational or trade school
8. Annual income from farm:
- a. <\$10,000
  - b. \$10,000 - \$49,999
  - c. \$50,000 - \$99,999
  - d. \$100,000+
9. # of employees
- \_\_\_\_part-time employees & \_\_\_\_full time employees
10. Is farming your primary occupation? Y/N