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Examining U.S. Military Veteran Farmers' Agricultural Characteristics

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Abstract

Most research regarding veteran farmers emphasized the mental health benefits of farming for military veterans, leaving a gap in understanding their production roles and educational needs. The study aimed to describe the production interests, challenges, motivations, and farm-generated income of military veterans engaged in agriculture using capability approach theory and access theory together as a conceptual framework. A national online survey was distributed through nonprofit organizations that received federal funding to deliver nonformal agricultural education to veterans. The survey collected data on veteran demographics, military history, agricultural background, current production activities, land access, and income from farming. Respondents also identified their top motivations to farm and challenges faced when farming. Findings showed a higher representation of commissioned officers than enlisted personnel among the respondents. Nearly half of respondents had access to less than 50 acres of land, and most had early-life exposure to agriculture. Vegetables were the most produced commodity. Respondents often cited altruistic motivations for farming, while fewer emphasized therapeutic reasons. Common challenges included limited time, labor, land, and equipment. Over half of respondents reported that a significant portion of their income came from agricultural operations. These results can help develop more effective agricultural educational programming for this audience.

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Introduction and Problem Statement

The agricultural sector faces ongoing labor shortages exacerbated by the aging of farm operators, the decline in rural populations, and growing uncertainty around the availability of foreign and seasonal labor (Ahearn, 2011; United States Department of Agriculture Economic Research Service [USDA ERS], 2022). More attention has been placed on expanding the pipeline of new agricultural producers and agricultural educators, policymakers, and federal agencies have identified military veteran farmers as a group deserving of targeted support (Iles et al., 2023; United States Department of Agriculture National Institute of Food and Agriculture [USDA NIFA, 2023). While support of veteran farmers has increased, it is unclear what is driving this trend or how these individuals are engaging in agricultural production (Bjornson & Forman, 2020). Aligning agricultural education with the specific needs and capacities of veteran learners offers a pathway for supporting their engagement in production agriculture and strengthening the sustainability of the U.S. food system (USDA NIFA, 2023).

Existing literature on military veteran farmers often centers on the therapeutic or lifestyle benefits of farming (Van Dyke & Rickard, 2021); however, such narratives tend to misrepresent the population as Bjornson and Forman (2020) found veteran farmers' motivations were not primarily related to mental health. Without a more complete understanding of their backgrounds, production practices, resource access, challenges, and motivations, educational programs may fail in reaching their programmatic goals (Weiler et al., 2026). The current study sought to address a knowledge gap by profiling the agricultural characteristics of military veterans who participated in federally funded nonformal education. Variables examined included demographics, military service characteristics, land access, production pursuits, challenges and motivations, and the proportion of income derived from agricultural operations. These insights are meant to inform program design and workforce development strategies within United States (U.S.) agriculture.

Theoretical and Conceptual Framework

As a distinct and growing population within the agricultural workforce, military veterans bring unique experiences, needs, and goals to their farming pursuits (Tidball, 2018). The following study is guided by a conceptual framework that positions veteran engagement in agriculture to inform educational programmers and policy, utilizing a scaffold consisting of seven interrelated domains: demographic characteristics, military service history, exposure to agriculture, resource access, production pursuits, financial characteristics, motivations to farm, and challenges faced in agricultural production. The conceptual framework draws on principles from capability approach theory (Sen, 1999) and access theory (Ribot & Peluso, 2003) to examine the veteran farmer population's personal background, prior experiences, resource availability, challenges, and motivations.

The capability approach theory emphasizes the importance of assessing not only material conditions, such as access to land and equipment, but also the motivations and freedoms that

drive individuals to engage in agricultural practices. The capability approach theory (Sen, 1999) focuses on the real opportunities available to individuals to achieve well-being by recognizing both their resources (i.e., capabilities) and their agency to act upon them (Robeyns, 2005). According to Sen (1999), capabilities are not merely defined by the availability of resources but by an individual's ability to convert these resources into meaningful outcomes based on their personal values and goals. For veteran farmers, the capability approach suggests that their decision to practice agriculture can be understood as a function of both the material resources at their disposal and the personal motivations and aspirations they possess. Furthermore, this approach recognized that populations transitioning from other professional identities use agency to shape their career experiences (Egdell & Robertson, 2021). By using the capability approach as a component of the overarching conceptual framework, the study contributes to a more nuanced and equitable understanding of how veterans engage with agriculture and as a domain of human development shaped by opportunity, access, and agency (Robeyns, 2017; Walker & Unterhalter, 2007). This lens is particularly well-suited to inform policy and program design that aims to support a more inclusive and sustainable agricultural workforce.

Access theory explains how individuals gain and maintain the ability to benefit from resources (Ribot & Peluso, 2003), with resource access defined here as access to land, capital, and time. The theory has been applied across various disciplines to examine how people gain or are denied access to essential resources, opportunities, or systems (Boyadjieva & Ilieva-Trichkova, 2021). In their seminal study, Ribot and Peluso (2003) introduced the concept of "access" as the ability to derive benefits from resources, distinguishing it from traditional notions of property rights, shaped not only by legal rights but also by social, economic, political, and institutional power that enables or restricts people's use of those resources. Furthermore, access constraints often limit scalability and sustainability in agricultural operations (Calo & De Master, 2016); therefore, knowing veteran farmers' accessibility can offer insight into barriers veteran farmers need help navigating. Understanding barriers can offer insight into resource access that affects adoption and production in agriculture (Da Silveira et al., 2023). In this baseline study, barriers were perceived broadly as challenges veteran farmers face in their agricultural operations.

Purpose

The purpose of the study was to examine the agricultural characteristics of military veteran adult learners who pursue nonformal agricultural education, with the aim of informing educators engaged in program design and policymakers responsible for resource allocation. The research objectives were to:

1. Describe respondents' demographic characteristics and military service backgrounds;
2. Characterize respondents' agricultural production profiles;
3. Identify respondents' motivations for engaging in farming and challenges they face;
4. Assess respondents' Veteran Affairs (VA) disability status and farm-related income sources.

Methods

The following study was part of a larger research project (Weiler et al., 2025) that employed a quantitative, cross-sectional survey to describe characteristics, motivations, and educational preferences of U.S. military veterans in agriculture. Cross-sectional surveys capture beliefs and behaviors at one time and are well-suited for descriptive research (Fraenkel et al., 2021). The design offers cost-efficiency and time savings, particularly when paired with digital delivery (Wang & Cheng, 2020). The survey was distributed via email to improve accessibility and completion rates (Story & Tait, 2019).

Instrument Description and Appropriateness

Survey items were adapted from Iles et al. (2023), the USDA Census of Agriculture (United States Department of Agriculture National Agricultural Statistics Service [USDA NASS], 2022), and Department of Defense (United States Department of Defense [DoD], 2020) resources to capture production types, land use, and service background. The goal was to create an agricultural profile informed by personal and structural factors. Given the limited literature about veteran farmers characteristics (Ahearn, 2011), items were constructed to address a broad range of relevant variables.

Reliability

A pilot survey distributed at the 2024 Farmer Veteran Coalition Conference informed further adjustments, especially for usability and data consistency in Qualtrics. Concise, closed-ended questions were prioritized to reduce survey fatigue (Story & Tait, 2019). Neutral wording and randomized item ordering helped avoid bias (Schuman & Ludwig, 1983). Because the majority of survey items were measured at the nominal or ordinal level, rather than on a continuous scale, the use of Cronbach's alpha to assess internal consistency was not appropriate. Some questions were revised after pilot testing to improve construct alignment and response clarity. Specification and measurement errors were addressed through these revisions (Biemer, 2010).

Validity

Face validity was accomplished through an expert review by an academic committee and educational outreach personnel. Revisions addressed clarity, readability, and conceptual alignment. Content validity was established by borrowing items used in instruments by Iles et al. (2023) and the Census of Agriculture (USDA NASS, 2022), various DoD resources helped inform questions relevant to military careers. Furthermore, construct validity was supported by asking AgVets educational outreach organizations for instrument feedback.

Data Collection

The survey was developed in Qualtrics and distributed through 10 organizations that offer nonformal agricultural education to military veterans. These partners had discretion over distribution and were offered access to aggregate data as an incentive to participate. No identifying information was collected in the instrument (Oldendick, 2012). The survey ran from November 17 to December 15, 2024, and 513 completed responses met the inclusion criteria

after removing 33 responses due to incomplete responses. Incentives were used to improve response rate, as recommended by Dillman et al. (2014). Since third parties distributed the survey, follow up with respondents was not initiated by the researcher, especially since the desired response rate was exceeded. A separate Amazon gift card drawing, hosted on Mailchimp, encouraged participation while maintaining respondent anonymity because it was not tied to the initial surveys.

Target Population & Sampling

The population consisted of separated U.S. military veterans who engaged in AgVets-funded nonformal agricultural outreach education. Veterans were eligible regardless of region, former military branch, gender, or discharge status. Due to the undefined size of the population, purposive sampling was used with a goal of 384 responses which was exceeded. A sample of 384 provides a representative estimate of a very large population with 95% confidence and a ±5% margin of error, assuming maximum variability (Krejcie & Morgan, 1970). Recruitment transpired through AgVets-funded organizations and Farmer Veteran Coalition national conferences. Eligibility was confirmed through self-disclosure of military veteran status.

Limitations

The study provides a baseline but not a comprehensive examination of all veteran farmers, as a limited number of organizations and members participated in the survey. The risk of survey fatigue restricted more in-depth questions. The cross-sectional nature of the study meant changes over time among responses were not captured (Fraenkel et al., 2021). Due to anonymity, no follow-up study was possible.

Findings

At least one response was recorded from 43 states. The top three states represented were California (*f* = 161; 31.8 %), Texas (*f* = 147; 28.65%), and New York (*f* = 36; 7.01%). It is important to note that the data is derived from a convenience sample, and it does not suggest the actual veteran farmer population in each state will reflect the same proportions in the dataset. Table 1 displays the gender and age groups among respondents. Most respondents were male (*f* = 405, 78.94%) and between the ages of 35-54 years (*f* = 299, 58.27%).

Table 1

Summary of Respondents' Gender and Age (N =513)

	f	%
Gender		
Male	405	78.94
Female	105	20.46
Non-Binary/Third	1	0.19
Prefer Not to Say	2	0.38
Age		
18-24 years	3	0.58
25-34 years	82	15.98
35-44 years	139	27.09
45-54 years	160	31.18
55-64 years	106	20.66
65-74 years	21	4.09
75 years +	1	0.19
Prefer Not to Say	1	0.38

The condensed military rank data in Table 2 indicated that nearly half of officer respondents were high ranking general officers (*f* = 154, 44.77%), followed by field grade officers (*f* = 117, 34.01%), while company grade officers represented a small proportion of the sample (*f* = 18, 3.49%). Among enlisted respondents, junior enlisted personnel (E-1–E-4) comprised the largest group (*f* = 85, 50.90%), followed by noncommissioned officers (*f* = 53, 31.74%) and senior noncommissioned officers (*f* = 29, 17.37%).

Table 2

Respondents' Former Officer and Enlisted Rank (N = 513)

	f	%
Officer Rank		
Company Grade Officers (O-1–O-3)	18	3.49
Field Grade Officers (O-4–O-6)	117	34.01
General Officers (O-7–O-10)	154	44.77
Warrant Officers (all ranks)	55	15.99
Total	344	100.00
Enlisted Rank		
Junior Enlisted (E-1–E-4)	85	50.90
Noncommissioned Officers (E-5–E-6)	53	31.74
Senior NCOs (E-7–E-9)	29	17.37
Total	167	100.00

Table 3 defines the respondents' current production endeavors with vegetable production leading (*f* = 249; 48.53%), followed by poultry (*f* = 204; 39.76%), and aquaculture (*f* = 202; 39.37%). It is noted respondents could select all options that apply.

Table 3

Frequency of Agricultural Products Grown or Raised (N = 513)

	f	%
Vegetables	249	48.53
Poultry	204	39.76
Aquaculture	202	39.37
Commodities (such as cotton, corn, soy, wheat)	201	39.81
Fruit, tree nuts, and berries	166	32.35
Livestock (such as cattle, sheep, pigs, horses)	154	30.01
Dairy	113	22.02
Nursery, greenhouse, floriculture, and sod	152	29.62
Specialty (such as Christmas trees, tobacco, vanilla, maple syrup, honey)	122	23.78
Forage (such as hay, alfalfa)	101	19.69

Note. Total does not equal 100%; respondents were able to check all that apply.

Table 4 shows that over half of the respondents had access to 1-49 acres (*f* = 312; 60.81%). The majority (*f* = 295; 57.50%) reported having 6-10 years of agricultural experience.

Table 4

Description of Respondents' Land Access and Agricultural Experience (N =513)

	f	%
Land Access		
None at This Time	20	3.98
Under 1 Acre	30	5.12
1-9 Acres	166	32.35
10-49 Acres	146	28.46
50-179 Acres	97	19.10
180-499 Acres	33	6.43
500 Acres +	20	3.89
Prefer Not to Say	1	0.19
Years of Agricultural Experience		
5 Years or Less	126	24.46
6-10 Years	295	57.50
11-Years or More	91	17.93
Prefer Not to Say	1	0.19

Table 5 displays the respondents' top five motivations for transitioning into agriculture. The top three motivations were: To support a sustainable food system (*f* = 312; 60.81%); To promote local economies (*f* = 263; 51.26%); and to reduce the ecological impacts of food production, protect the environment, and conserve natural resources (*f* = 232; 45.22%).

Table 5

Respondents' Top 5 Motivations to Farm (N = 513)

	f	%
To support a sustainable food system.	312	60.81
To promote local economies.	263	51.26
To reduce the ecological impacts of food production, protect the environment, and conserve natural resources.	232	45.22
To pursue farming as a lifestyle.	225	43.85
To get away from political, economic, and social structures of our current food system.	214	41.71
To have a place where my family and I can enjoy each other's work and company.	175	34.11
To raise my family to understand the importance of hard work.	180	35.08
To pass down the values, land, and the way of farming to future generations.	180	35.08
To improve mental health.	100	19.49
To earn an income for me and my family.	98	19.10
To prevent farmland from being converted to other uses.	91	17.73
To raise children to be close to the food they eat and the soil that supports us.	83	16.17
To provide fresh food to our communities.	80	15.59
To increase the presence of small farms.	79	15.39
To contribute to the local food movement.	70	13.64
To have a place for our community members to see how food is grown/raised.	39	7.60
Other, not listed.	2	0.38

Note. Respondents were asked to select up to 5 options.

Table 6 provides the top five challenges the respondents reported facing in their agricultural pursuits. The top three challenges most frequently reported among respondents were: Finding time and/or labor (*f* = 272; 53.02%), Securing equipment (*f* = 245; 47.75%), and Knowing environmental impacts of their farming practices (*f* = 253; 49.31%).

Table 6

Respondents' Top 5 Challenges Faced in Their Agricultural Operation (N = 513)

	f	%
Finding time and/or labor	272	53.02
Securing equipment	245	47.75
Knowing environmental impacts	253	49.31
Securing land	241	46.97
Knowing proper farming techniques	189	36.84
Choosing products to grow	174	33.91
Getting along with farmers	166	32.35
Having emotional support	158	30.79
Where to direct farm questions	124	24.71
Learning business management side	124	24.71
Prioritizing information	85	16.56
Marketing techniques	75	14.61
Balancing second income	72	14.03
Learning local and state policies	63	12.28
Learning zoning regulations	62	12.08
Dealing with family issues	58	11.30
Identifying financial resources	45	8.77
Where to direct farming questions	43	8.38

To capture some financial characteristics, the respondents were asked if they received military disability; if so, they were prompted with another question asking them to voluntarily disclose the categorized amount they received. (They had the option to not answer the question.) Table 7 shows the respondents' financial characteristics in relation to government disability and income.

Table 7

Respondents' Military Disability and Farm Income Characteristics

	f	%
Receives VA Disability (*N* = 513)		
No	189	36.84
Yes	270	52.63
Prefer Not to Answer	54	10.52
Amount Received Monthly (*n* = 270)		
Up to $1000	22	4.28
$1001-2000	42	18.18
$2001-3000	121	23.58
$3001-4000	48	9.35
$4000+	26	5.06
Prefer Not to Say	11	2.14
Household Income from Farm (*N* = 513)		
Under 10%	35	11.11
11-20%	16	3.11
21-30%	27	5.26
31-40%	31	6.04
41-50%	58	11.30
51-60%	46	8.96
61-70%	64	12.47
71-80%	49	29.04
81-90%	62	12.08
91-100%	20	3.89
Prefer Not to Say	5	0.97

Note. % indicates valid percent.

Over half the respondents (*f* = 270; 52.63%) answered they did receive military-related disability. The majority (*f* = 121; 23.58%) of these respondents received $2,001-3,000 in disability monthly. The largest representation of respondents (*f* = 149; 29.04%) earned 71-80% of their income from their production.

Conclusions, Discussion, and Recommendations

Insights from the study contribute to the development of more inclusive and responsive agricultural education programs. By profiling veterans and their engagement with farming and ranching, the findings can assist program developers, extension professionals, and policymakers

in designing curricula and interventions that reduce barriers to entry and improve educational programming in the sector. Understanding the demographic, experiential, and educational characteristics of these individuals can help tailor outreach, instruction, and support services. Targeted training and meaningful support systems can also recognize the complexities of both their military and post-military lives.

Many veterans reported altruistic motivations for entering agriculture, such as promoting sustainable food systems and supporting local economies, suggesting that farming represents more than an economic activity; it is a valued life path. Prior studies have emphasized improved mental health as a primary motivation for veteran farmers to pursue agriculture (Auburn et al., 2016; Beguin-Fernald, 2022; Donoghue et al., 2014; Besterman-Dahan et al., 2018; Elam, 2019; Fleming, 2015). However, the current study did not identify promoting mental health as a strong motivator for veteran farmers. Mental health ranked 9th out of the 17 motivational factors provided. The finding indicates a need to better understand veteran farmers' motivations for their agricultural pursuits when developing educational programming. A veteran farmer focused on mental health will likely have different professional and personal development needs than a veteran farmer who is production-driven and seeking income. Policymakers should also consider such an implication when allocating funds to develop programming for this audience.

The DoD (2020) reported that the enlisted ranks (*N* = 1,760,719; 82.7%) outweigh the officer ranks (*N* = 369,058; 17.3%) among the overall military population. However, the current study found that most respondents were officers, with a substantial representation of the general rankings. How these individuals approach educational programming may vary from enlisted members, as they typically possess formal graduate degrees as a military professional requirement. Additional research should further explore this finding and determine its potential impact on appropriate educational program design and delivery.

The most recent Census of Agriculture (USDA NASS, 2022) reported that more than half of veteran farmers (54.6%) had access to land of 50 acres or more; however, only 30% of respondents (*f* = 151) reported access to 50 acres or more. Considering income, nearly 46% of respondents (*f* = 236) received 71–100% of their income from their farm, suggesting that training should prioritize small-scale farmers, particularly those who rely significantly on their farm income.

It has been reported that younger beginning farmers struggle to meet the financial demands of their agricultural operations and depend on off-farm income (Iles et al., 2023; Mishra et al., 2009). Because most of the sample was over the age of 35 years, future research could clarify whether age influences access to income and land through the lens of access theory. Given competition for government resources, it is recommended that veteran farmers' access to land use and income be explored further to determine how many within the demographic experience barriers to successful farming operations.

Aquaculture ranked among the top three products reported by respondents, whereas the Census of Agriculture (USDA NASS, 2022) indicated that aquaculture ranked low among U.S. producers. Although aquaculture adoption has been slow due to shortages of fish feed and regulatory challenges, the global market shows strong potential (Garlock et al., 2025). The discrepancy between respondent data and national production statistics warrants further investigation to better understand the appeal of aquaculture and potential income to veteran farmers.

The study provides a preliminary needs assessment for understanding veteran farmers in the United States. By aligning program development with the unique learning needs and preferences of this audience, stakeholders can enhance the effectiveness of nonformal agricultural education initiatives (Goodwin & Gouldthorpe, 2013). It is recommended that publicly grant-funded programs participate in formal research to establish greater accountability for outcomes. Future studies should collect data from a larger, more representative sample to strengthen the profile of the U.S. veteran farmer.

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