

Assessing the Needs of Southern Maine Farmers: Challenges, Opportunities, and the Role of Extension

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INTRODUCTION

York County, located in southern Maine, plays a vital role in the state's agricultural landscape and serves as a representative model for the broader New England farming community. While York County includes significant urban and suburban population centers, its farmlands make it a key hub of the state's specialty-crop production and a useful bridge between urban markets and rural agricultural communities. Its proximity to urban markets such as Portland and Boston has enabled many local farms to thrive through direct-to-consumer sales, agritourism, and value-added enterprises. According to the USDA 2022 Census of Agriculture, York County is home to 689 farms, encompassing approximately 50,741 acres of farmland (USDA NASS 2022). The county's agricultural operations are highly diverse and include small, family-run farms, mid-sized commercial operations, and multigenerational enterprises, and this structural diversity is reflective of New England's broader farming profile, where land fragmentation, high land costs, and urban proximity shape both opportunities and constraints (Inwood et al. 2013).

Farm sizes in York County (Figure 1) are predominantly small to mid-scale: 25 percent of farms operate on less than 10 acres, and over 60 percent operate on less than 50 acres. This pattern is consistent with trends across the

region, where most agricultural enterprises must balance production scale with land limitations. Despite these constraints, York County producers have maintained robust output. In 2022, the total market value of agricultural products sold in the county exceeded \$31.6 million, with crop sales accounting for over 81 percent of this value. Prominent sectors include vegetables, nursery crops, berries, and floriculture, along with livestock such as cattle, poultry, and horses (USDA NASS 2022).

York County's agricultural resilience is also evident in land-use and conservation practices. Of the county's farmland, 16,022 acres are dedicated to cropland and over 3,400 acres to pasture, while 1,088 acres are irrigated, a notable figure given the county's shallow soils and occasional drought stress (USDA NASS 2022). Farmers in the region have increasingly adopted conservation practices, including no-till and reduced tillage, cover cropping, and integrated pest management (He et al. 2025; Heeb et al. 2019), approaches that align with New England's regional push toward climate-conscious agriculture and sustainable intensification.¹

Furthermore, the county has seen a growing emphasis on diversified farming systems, direct sales, community-based agriculture, and the rise of flower farming, agritourism, and CSA models has provided new revenue opportunities while promoting local food

FIGURE 1. Map of Maine Counties



Note: Situated in the southern part of the state bordering New Hampshire and the Atlantic Ocean, York County serves as the focal region for this agricultural needs assessment.

access (USDA NASS 2022). York County's ability to navigate labor shortages, climate pressures, and market fluctuations illustrates both the challenges and the adaptability of farming in southern Maine.

The Cooperative Extension System, grounded in the principles of participatory research and public education, serves a vital role in delivering practical, science-based guidance tailored to the needs of local growers. A core component of effective Extension programming is the needs assessment, a systematic process for identifying stakeholder priorities, challenges, and opportunities through surveys, interviews, and community dialogue (Seever et al. 1997). By aligning programs with the needs identified by growers, Extension professionals are better positioned to provide relevant technical support, conduct applied research that addresses

on-the-ground production issues, and contribute to the resilience of local food and floral systems.

To inform future programming, the University of Maine Cooperative Extension conducted a formal needs assessment with growers in York County, Maine. The goal was to gain insight into current practices, interest in emerging technologies, knowledge gaps, and preferred methods of training. The results of this assessment will help shape Extension initiatives aimed at supporting technology adoption, strengthening partnerships between growers and researchers, and enhancing the resilience and competitiveness of agriculturally diverse operations across southern Maine.

MATERIALS AND METHODS

From March to December 2024, I conducted a qualitative needs assessment through in-person site visits and meetings (n=46) with farmers across York County, Maine. Participants were recruited through direct outreach and reflected a broad range of agricultural operations, including small-scale farms, family-run businesses, large commercial enterprises, single-owner operations, homesteads, and multigenerational farms; this diverse sample provided a well-rounded perspective on the region's agricultural landscape.

Each site visit followed a semi-structured interview format, during which farmers were asked to reflect on four guiding questions: (1) What is going well? (2) What challenges are you facing? (3) Where do you see knowledge gaps? and (4) How do you perceive Extension? These open-ended questions were designed to elicit candid insights into production practices, educational priorities, and support needs. Notes were manually recorded during

each visit, and emerging themes were later coded and categorized to identify trends and common challenges across the region, this process not only yielded valuable data but also fostered deeper relationship-building and trust between Extension staff and stakeholders.

In addition to the site visits, I organized three informal events to gather further input from growers in a more relaxed, social setting. These included the York County Farmers Network Listening Session held on April 18, 2024, with 36 registered participants; the Flowering in the North Social on April 20, 2024, with 29 registered participants; and the Strawberry Shortcake Social on June 18, 2024, with 12 registered participants. Each event was free of charge and served as an opportunity for farmers to share their experiences, challenges, and perspectives on Extension programming through open conversation. Feedback gathered during these gatherings was integrated into the overall needs assessment findings, further enriching the understanding of technical, educational, and contextual needs within York County's agricultural community. While one recruitment event focused on cut flower growers, the overall participant pool represented a broad cross-section of diversified New England farm operations, and thus findings should be understood within the context of multi-enterprise agricultural systems rather than a single commodity group.

RESULTS AND DISCUSSION

Drawing on both qualitative and quantitative data collected through interviews, surveys, and site visits, the findings are discussed in relation to the four primary questions outlined earlier in this article. These questions serve as a framework for interpreting the lived experiences,

priorities, and insights of farmers, service providers, and community stakeholders, and they help illuminate the evolving agricultural landscape in southern Maine. The results aim to inform strategies for future Extension programming and policy support.

What Is Going Well

Farmers in York County highlighted several strengths and promising developments within the local agricultural landscape, many of which stem from the region's distinctive geography, strong community values, and strategic market access. A consistently cited asset was the seasonal influx of tourists, with southern Maine's reputation as "Vacationland" generating a substantial uptick in farm sales during the summer months. This seasonal population coupled with proximity to affluent urban centers like Boston and New York has created strong demand for niche agricultural products.

A deeply rooted commitment to community and local food also remains a major strength. Farmers emphasized the continued momentum of Maine's local food movement, supported by a shared ethos around eating whole, minimally processed foods and sustaining local farms. Pick-your-own operations were described as especially valuable, offering both higher profitability and direct engagement with consumers. Many growers observed increased public interest in farming since the COVID-19 pandemic, with customers seeking greater connection to nature, transparency in food sourcing, and improved quality of life. Several participants also noted the inclusive nature of agricultural work, with some farms integrating individuals with disabilities into their operations demonstrating agriculture's adaptability and social value. Peer-to-peer support networks such as the York County Farmers Network and industry associations were also seen as

critical to farm success. Growers praised the Maine Flower Collective for its marketing and logistical support.

Digital tools and platforms were recognized as valuable additions to farm marketing and operations. Farmers cited social media as an effective means of customer engagement, workforce recruitment, and brand building. Innovations such as cashless farm stands adopted widely during the pandemic also became popular, reinforcing a culture of trust. Many farmers shared that customers often paid more than the asking price, highlighting the strength of community relationships. Mentorship, especially for beginning farmers, was another theme that emerged as vital to the success and sustainability of newer operations.

Finally, respondents acknowledged the state's proactive approach to emerging challenges, such as per- and polyfluoroalkyl substances (PFAS) contamination. Maine's regulatory response was seen as reassuring, reinforcing confidence in long-term support for agriculture. The availability of conservation easements was also noted as a protective measure against development pressure. Taken together, these developments contribute to a farming environment marked by diversity, innovation, and a growing sense of resilience and cautious optimism for the future.

While Francis et al. (2003) emphasize the multifunctional nature of farms incorporating tourism, education, and value-added activities, their framework aligns conceptually with trends in greenhouse-based diversification, even though it does not specifically address greenhouse adoption. Findings from this assessment suggest that protected cultivation is increasingly viewed not only as a tool for enhancing production efficiency but also as a strategy for

economic diversification and community engagement, helping farms build resilience in an evolving agricultural landscape.

Challenges Faced by Farmers

Farmers across York County reported a complex set of economic, environmental, and structural challenges that affect both their daily operations and long-term sustainability. A major concern was the escalating cost of labor, with several growers noting that labor expenses account for up to 70 percent of their annual budget, much of it concentrated within a 12-week peak growing season. Difficulty in recruiting and retaining reliable farmworkers, particularly younger individuals or first-time employees unaccustomed to the physical demands of agricultural labor, was a widespread issue. While efforts have been made to build partnerships with community colleges and technical high schools, the results have been mixed. Housing for seasonal or full-time laborers remains a persistent barrier.

Climate-related concerns also loomed large. Shifting long-term weather patterns marked by sudden frosts, increased storm intensity, altered growing zones, and persistent standing water pose significant threats to crop health and yields. Pathogens such as *Phytophthora* thrive in these wetter conditions, leading to increased disease pressure such as late blight of potato and tomato, various root and stem rots affecting woody plants and ornamentals, and root rot in vegetables and fruit crops. Several farmers shared accounts of complete crop losses from single weather events, often without adequate insurance coverage to absorb the financial impact. Emerging issues like PFAS contamination and the threat of avian flu further heightened concern, with many expressing a need for clearer,

real-time guidance to manage these risks effectively.

Economic pressures continue to weigh heavily on growers. Rising input costs, aging infrastructure, and limited time or energy to manage key business functions such as marketing, bookkeeping, and financial planning make it difficult to maintain profitability. Many farmers expressed frustration over the disconnect between the true cost of producing food and what consumers are willing to pay, particularly outside of special occasions or events. While diversified operations may offer resilience, they also demand constant attention, contributing to widespread feelings of burnout, lack of work-life balance, and exhaustion. Several participants described creative approaches to financing greenhouse infrastructure, including leveraging agritourism revenue, securing USDA grants, and selling high-value seasonal products at farmers' markets to offset capital costs.

Additional systemic barriers further complicate operations. Farmers reported difficulty accessing meat processing facilities, sourcing replacement parts for equipment tailored to small-scale production, and coordinating the use of shared equipment especially when multiple farms need it at once. The small size and fragmented nature of agricultural land in southern Maine often make it less attractive to service providers and manufacturers, leaving local farmers with limited support and few tailored solutions. Compounding this are uncertainties surrounding the implementation of the Right to Food Act and evolving pesticide regulations, which have generated confusion around inspection standards, food safety, and long-term marketing implications.

Succession planning also emerged as a critical concern. Many older farmers are approaching retirement

with few younger successors ready to take over. Although community-supported agriculture (CSA) models have helped stabilize income for some, they represent only a portion of the overall revenue picture. Farmers emphasized the need for stronger in-person programming and community-building efforts, particularly considering the isolation and disconnection experienced during the COVID-19 pandemic. Other challenges such as invasive species, inconsistent markets during the off-season, limited time for rest, and uncertainty around food sovereignty policies reflect the layered and ongoing pressures facing today's agricultural producers in southern Maine.

Knowledge Gaps

During site visits conducted across York County, farmers articulated a wide range of knowledge gaps spanning technical, business, and educational areas. One of the most commonly cited needs was for updated best practices in aquaculture and greenhouse technologies particularly in the context of controlled environment agriculture and strategies for overwintering in hoop houses given the severity of Maine's winters. Many participants expressed strong interest in hands-on training focused on sanitation and disinfection protocols, fertigation systems (which apply water-soluble fertilizers dissolved in irrigation water), and integrated pest management (IPM), including foundational principles and biological control strategies. There was also growing enthusiasm for climate-smart agriculture practices such as regenerative farming, no-till production, soil health management, and tools to assess and reduce farm-level carbon footprints.

Farmers also identified critical gaps in business and administrative skills. Bookkeeping, inventory control, and effective recordkeeping were highlighted as areas needing attention,

particularly in relation to planning and operational efficiency. Several participants expressed uncertainty around identifying and applying for appropriate grant opportunities, especially those who were newer to farming or unfamiliar with institutional funding processes. There was strong demand for training in market analysis, value-added food safety practices such as canning and preservation, and general small business management. Labor management including strategies for recruitment, retention, and succession was a recurring concern, with farmers also noting the importance of engaging youth and developing long-term leadership pipelines within the agricultural workforce.

Technological literacy also emerged as an area of interest. Farmers called for more training on emerging agricultural innovations, such as water-saving technologies, suitable soil amendments, and manufactured soils. Some expressed interest in niche topics such as homesteading, beekeeping, and farm-based education for homeschooling families, reflecting a growing recognition of the farm as both a livelihood and a learning environment. Additional topics of interest included composting systems, conservation easements, and strategies to enhance profitability from specialty crops like ornamentals and microgreens.

The agricultural landscape in southern Maine is experiencing meaningful demographic changes, marked by a rise in women farmers, growers from communities traditionally excluded from agricultural support programs, and immigrant-led farming initiatives. Interviewees highlighted the emergence of culturally significant crops such as Somali leafy greens, chili peppers, and traditional herbs, now being cultivated within newly established greenhouse systems along with

the selling of halal meat. On 104 acres in Wales, Maine, Liberation Farms run by the Somali Bantu Community Association (SBCA) is of particular note, because it is dedicated to the production of culturally important crops and provides immigrant-run agriculture that reconnects families to traditional foods while contributing to Maine's food system (Watters, 2021).

These developments reflect broader national trends toward increased diversity in agriculture and align with global efforts to build more inclusive and culturally responsive food systems (Horst and Marion 2019). While this diversification presents important opportunities for Extension to expand its support of historically underserved communities, it also underscores the need for more intentional, multilingual outreach efforts and culturally tailored resources focused on greenhouse production and crop selection.

Taken together, these responses point to a strong demand not only for technical instruction but also for holistic, applied educational opportunities that bridge production, sustainability, and profitability. Farmers consistently emphasized the importance of learning opportunities that are accessible, practical, and firmly rooted in real-world farm settings.

Perception of Extension

Farmers across York County shared a range of perspectives on the Cooperative Extension system, highlighting both its long-standing value and current limitations within the region's agricultural landscape. Many participants reflected on their lifelong awareness of Extension, referencing early exposure to institutions such as University of Maine (UMaine), the University of Massachusetts Amherst (UMass), the University of Connecticut (UConn), the Pennsylvania State University (Penn State), and Cornell

University (Cornell). Extension was widely regarded as a reliable, science-based, and unbiased resource, particularly appreciated for its services in soil testing, invasive species identification, and plant diagnostics, services that were also noted for being both accessible and affordable.

There was a strong sense of reassurance that Extension remains available as a public good, with many growers recalling positive experiences and relationships with individual Extension staff. However, several respondents noted that this relationship-driven approach may be a double-edged sword. The impact of Extension was seen as overly dependent on specific personnel, with concerns that retirements and vacant positions have led to a decline in outreach capacity. Participants expressed frustration over delays in hiring and a shrinking staff, which they felt had reduced the institution's visibility and responsiveness in recent years.

Newer and small-scale farmers, in particular, were less aware of Extension's offerings. Several participants were surprised to learn that many Extension resources are available at no cost, suggesting a need for improved communication and broader public outreach. Additionally, there was widespread feedback that Extension's online presence particularly research bulletins and fact sheets require updating and should be made more user-friendly to meet current digital expectations.

Despite these concerns, the Cooperative Extension system was consistently described as a vital and underfunded institution. Its contributions to youth development through 4-H and its historical role in supporting the region's agriculture were especially appreciated. The overarching sentiment among participants was one of gratitude and support, tempered by the concern that without increased

investment and strategic modernization, Extension's ability to serve the evolving needs of farmers may continue to decline even as demand grows.

CONCLUSION

This needs assessment offers a snapshot of the evolving agricultural landscape in York County, revealing both the momentum and vulnerabilities shaping its farming community. While producers are capitalizing on opportunities related to agritourism, local food systems, and conservation practices, they face persistent barriers including land access constraints, infrastructure gaps, labor shortages, climate uncertainty, and knowledge deficits in both technical and business domains. Farmers across the region expressed a clear desire for more responsive, culturally relevant, and accessible educational support that aligns with the practical realities of small and mid-sized operations.

University of Maine Cooperative Extension is well positioned to play a transformative role in addressing these challenges. By centering programming on farmer-identified needs and expanding outreach to underserved groups, Extension may strengthen its relevance and impact. Moving forward, investments in hands-on education, policy engagement, and knowledge exchange will be critical for building resilience, sustaining local food systems, and supporting the next generation of farmers in southern Maine.

NOTES

- 1 "New England Climate," American Farmland Trust, <https://farmland.org/new-england-climate>

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