Potential for growth in the U.S. cover crop seed industry

Insights from a quantitative survey

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Contents

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Background

Cover crop adoption across the United States continues to expand, with support from numerous initiatives aimed to promote cover crop adoption for improved soil health, crop yields and farm resilience. However, the extent to which the cover crop seed industry is able to support this growth is largely unknown. In a prior report, interviews with cover crop seed industry leaders revealed key issues and topics that require further attention to improve understanding of whether marketplace demand can be met (Wilson et al. 2024).[1] Building on this work, we conducted a survey with seed industry professionals across the U.S. to understand how they perceive the current cover crop industry and its future opportunities and challenges. Specifically, our study evaluates cover crop seed production and sales, identifies barriers to increased cover crop seed production, and assesses industry input and market demand for different cover crop characteristics.

Survey distribution

We conducted a targeted email campaign requesting cover crop seed companies' responses among the American Seed Trade Association (ASTA) cover crop seed committee members (n = 153). Anyone involved in a seed company was eligible to complete the survey. We promoted the survey at ASTA meetings and in their newsletters, and also conducted a personalized, targeted email campaign to maximize responses. We collected data April through August 2024 and received 69 responses. Of those, 45 were complete, usable responses (> 20% question completion), resulting in a 30% response rate. Thirty-seven respondents worked at companies that sold cover crop seed in 2023 (n = 37), and their responses are the focus of this report. Most respondents had an executive and management or sales role in the company, with 65% (n = 37) of respondents having greater than 10 years of experience in the industry.

Company characteristics

Most of the respondents were wholesale seed distributors (57%; n = 37), followed by cooperative seed companies (16%). About half of the companies were fairly small (under 25 employees), 30% were midsized (25 to 100 employees) and 20% had over 100 employees.

Company sales

Most companies' net sales exceeded $1 million (87%; n = 37), yet 57% reported that cover crop seed sales made up less than 10% of their total sales in the prior year. Cover crop seed companies use several sales approaches, categorized as Tiers 1–4 in a prior report (Wilson et al. 2024). Tier 1 represents companies that sell exclusively to other companies; Tier 2, to both companies and farmers; Tier 3, exclusively to farmers. Tier 4 represents farmers who grow and sell cover crop seed to other farmers. Most companies in our study used a Tier 2 sales

model, selling cover crop seed both to other companies and directly to producers or landowners (59%; n = 34), whereas 26% sold exclusively to other companies (Tier 1) and 15% sold exclusively to producers or landowners (Tier 3).

Cover crop sales were reportedly split roughly equally between "common" (i.e., variety not stated, or VNS) or as "named and registered" varieties, on average. Similarly, cover crops were sold about equally as a multispecies mix or as a single species. The majority of seed sales were in the Midwest (50%; n = 36), followed by the western (26%) and then the southern (19%) U.S.

According to the U.S. Department of Agriculture (USDA), a cover crop[2] can be defined as "any crop grown to cover the soil and may be incorporated into the soil later for enrichment" and can include a variety of grasses, legumes and forbs. Forages and grains such as oats and rye are commonly used as cover crops but are also used as cash crops or can be used for grazing. For this study's purposes, we adopted an inclusive definition of cover crops, which may include cover crops that are harvested as cash crops or grazed. The species that were sold most often, based on both highest volume and value, were oats, cereal rye and radish, selected by approximately half of respondents (Figures 1 and 2). Triticale and annual ryegrass were included in the top five highest sales by volume (Figure 1), while forage turnip and wheat were included in the top five highest sales by value (Figure 2). However, there is some ambiguity as to the proportion of seed sold for use as either a forage or cover crop.

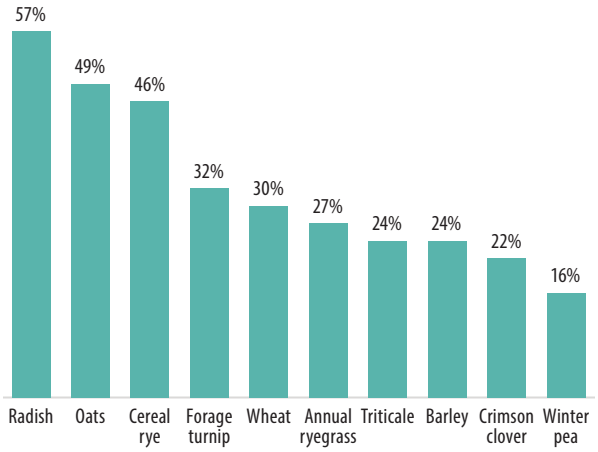

Figure 1. Top five cover crops species sold by companies, by total volume. Percentage reflects the number of respondents who selected a particular species as being in their company's top five (n = 37).

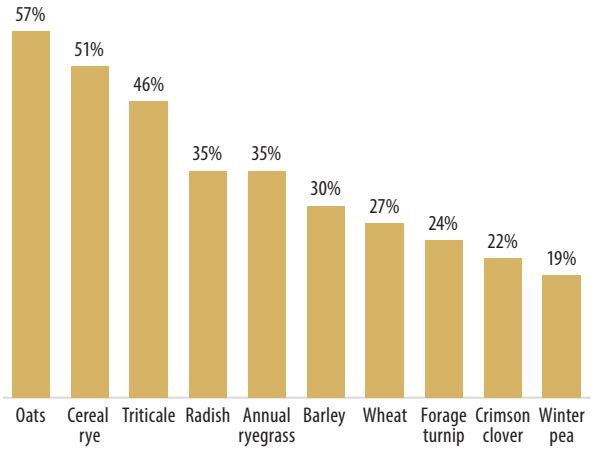

Figure 2. Top five cover crops species sold by companies, by value in U.S. dollars. Percentage reflects the number of respondents who selected a particular species as being in their company's top five (n = 37).

Cover crop seed sourcing

We asked respondents to report all sources of cover crop seed, with some reporting multiple sources. Most companies reported purchasing inventory from other U.S. seed companies (89%; n = 37), and about half implement contract production with U.S. producers (54%), sourcing their inventory primarily from the West (47%; n = 34), followed by the Midwest (33%) (Figures 3 and 4).

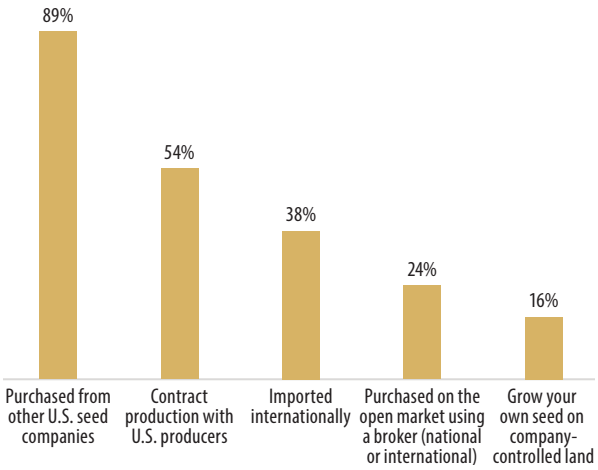

Figure 3. Cover crop seed inventory sourcing by mechanism (n = 37).

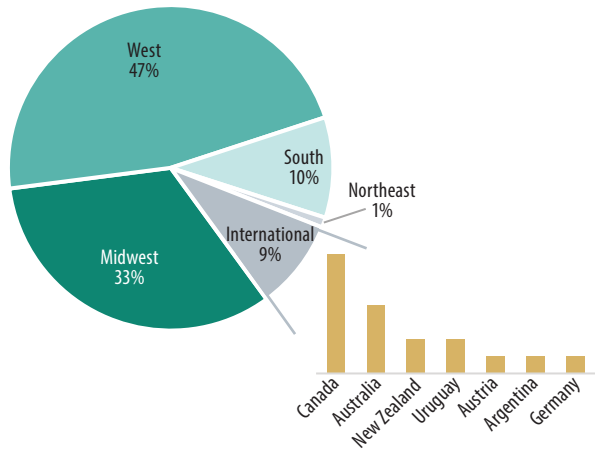

Figure 4. Cover crop seed inventory sourcing by geographic region (n = 34).

Results

Perceived trait value

We asked respondents what traits they believed were most influential to crop and livestock producers' choice in cover crop seed (Figures 5 and 6). Cover crop seed companies indicated cost as one of the top three traits most valued among both row crop and livestock producers (54%–59%; n = 37), with a greater variety of traits perceived as important to row crop producers, including ease of spring control, nitrogen addition and weed control, whereas livestock producers were perceived to primarily prioritize forage yield (73%) and quality (49%) traits in their cover crop choices.

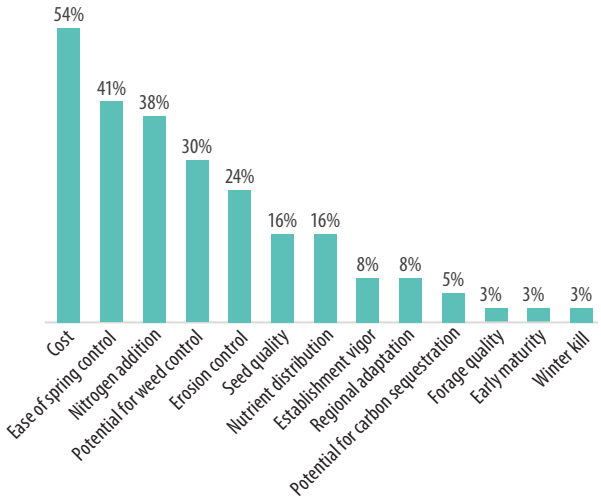

Figure 5. Cover crop traits that cover crop seed companies perceive as most valuable to row crop producers. Percentage reflects number of respondents who selected a particular trait as one of the top three traits for that category (n = 37).

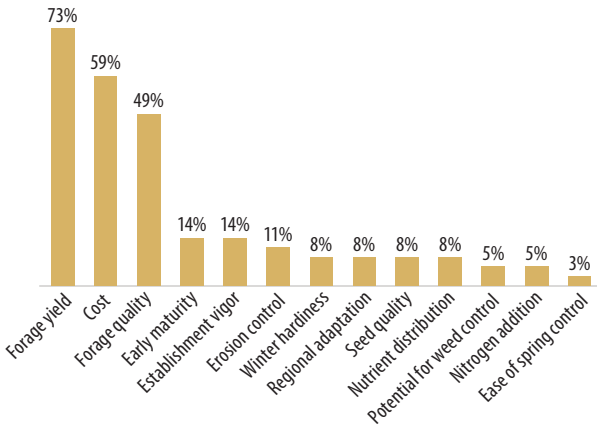

Figure 6. Cover crop traits that cover crop seed companies perceive as most valuable to livestock producers. Percentage reflects number of respondents who selected a particular trait as one of the top three traits for that category (n = 37).

The top three traits perceived to increase demand specifically for named and registered varieties compared to VNS included forage quality, lower cost and regional adaptation. One respondent elaborated, "Cover crops are a commodity — all about price. No one cares about someone's variety of rye, clover, or radish etc. …", suggesting that cost may be a major deterrent to sales of named varieties, despite their potential benefits in terms of other traits.

Current and future expectations of cover crop production and sales

Over half of companies perceived a 10% to 50% increase in cover crop seed sales by volume by 2030 (Figures 7 and 8). About 15% of companies perceived a greater than 50% increase in sales (n = 31). Companies expected both the sales and production of cover crop seeds in the next five years to grow on average by 35% and 33%,

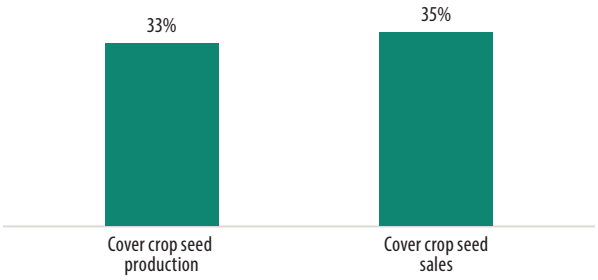

Figure 7. Average expected percentage change in cover crop seed production and sales over the next five years (n = 27).

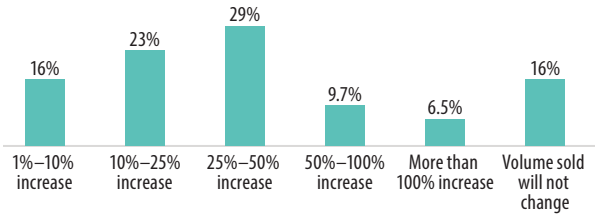

Figure 8. Projected annual percentage change in sales by volume by 2030 (n = 31).

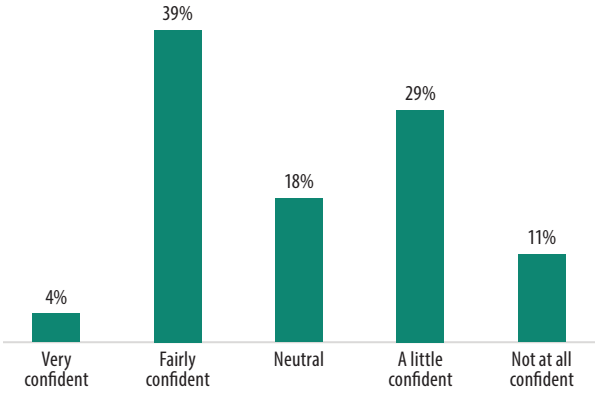

Figure 9. Cover crop seed companies' confidence in forecasting cover crop seed demand 12 to 18 months in advance (n = 28).

respectively (n = 27). However, companies had highly mixed levels of confidence in forecasting demand; about 40% were "very" or "fairly" confident and another 40% indicated they were "a little" or "not at all" confident (Figure 9).

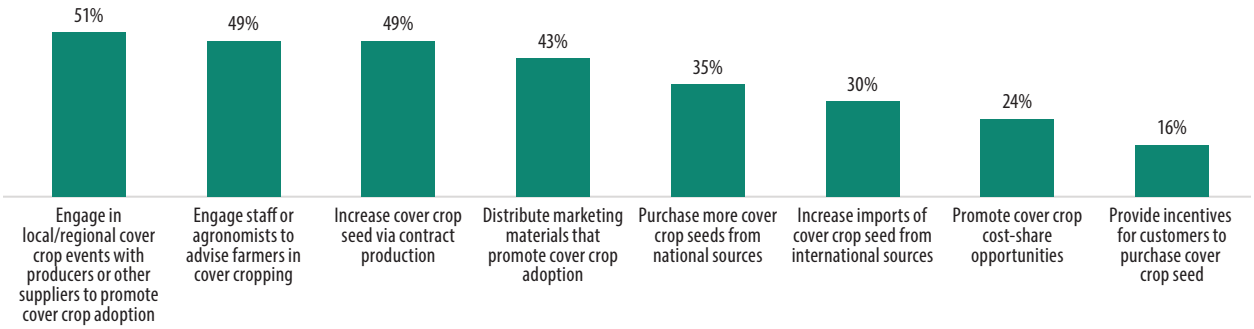

Figure 10. Companies' planned responses to changes in the cover crop industry over the next five years (n = 37).

In response to potential changes in the demand, production and sales of cover crops, companies indicated that they planned to engage in cover crop promotional events, providing farmers with informed agronomists or staff to advise on implementation, and to increase contract seed production (Figure 10). Most companies indicated they are not planning to invest in long-term storage (55%; n = 31), despite about a quarter of companies indicating they are currently at their storage capacity (Figures 11 and 12).

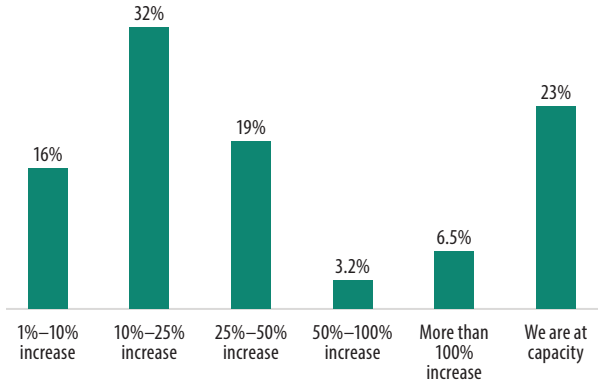

Figure 11. Companies' current additional storage capacity for cover crop seeds by volume (n = 31).

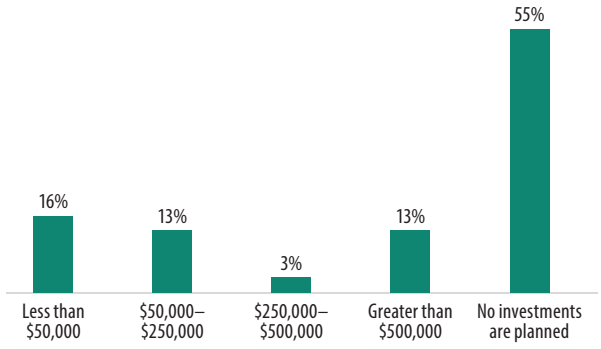

Figure 12. Companies' planned future investment for long-term storage (n = 31).

We also asked which cover crops the respondents felt would benefit from increased U.S. seed production to help meet domestic demand. There were mixed responses: the most commonly indicated species were cereal rye, berseem clover, triticale and radish (six responses each), followed by "none of these" (five responses).

Industry challenges

We asked about three major challenge areas in the cover crop seed industry previously brought to light during interviews with industry leaders (Wilson et al. 2024): demand, supply and policy issues. Over half of the company representatives indicated that the top three major challenges related to cover crop seed demand included (1) the availability

of data to inform cover crop seed demand projections (64%; n = 28), (2) weather impacts on cover crop seed demand (e.g., severe drought, flood, heat) (60%; n = 30), and (3) changes in cover crop-related government policy and/or industry programs (56%; n = 27) (Figure 13).

Cover crop seed supply issues were seen as less challenging than demand issues (Figure 14). Economic factors that impact inventory costs (i.e., interest rates) were perceived as a major challenge by the most respondents (54%; n = 28), followed by seed contamination (i.e., weed seeds) (29%; n = 28), and time and logistical costs associated with sourcing seed (24%; n = 29). Seed germination and availability of regional varieties were seen as a major challenge by fewer than 10% of respondents.

Of the three challenge areas, policy challenges were most concerning to cover crop companies. The majority of respondents indicated almost all policy issues were a major challenge (Figure 15). Among those perceived as most challenging were communication between federal and state governments and seed suppliers to inform future cover crop programs or recommendations (74%; n = 27), state and federal program requirements for named versus variety not stated (VNS) cover crop varieties (59%; n = 27), weather impacts to cover crop seed yield and supply (59%; n = 29), and long-term use of crop crops (e.g., producers in cover crop cost-share programs may stop using cover crops when the incentive payments end) (56%; n = 27).

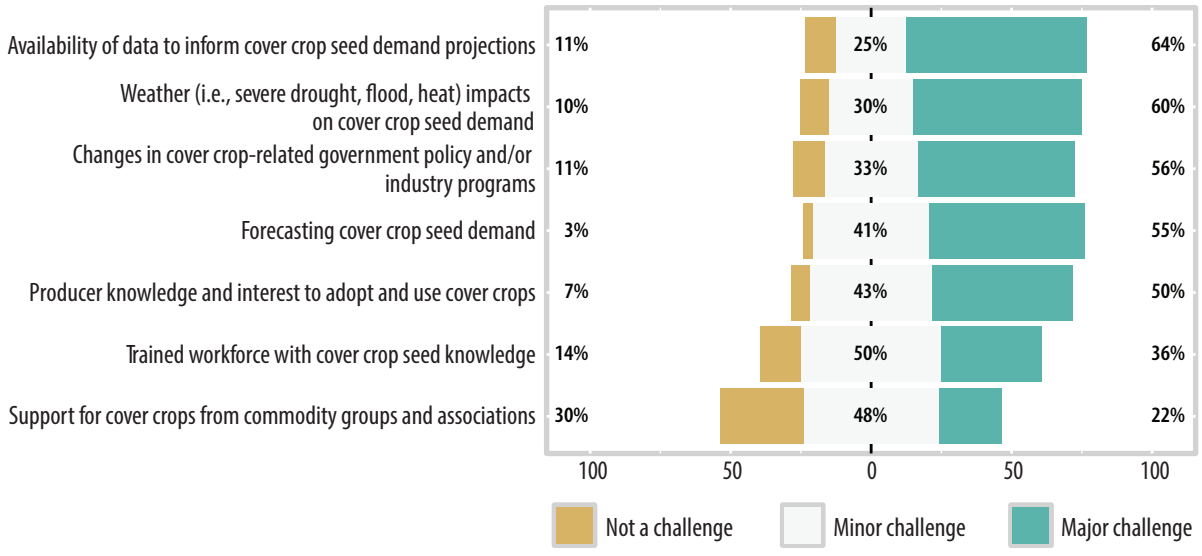

Figure 13. Companies' perceptions of potential challenges for cover crop seed demand (n = 27–30).

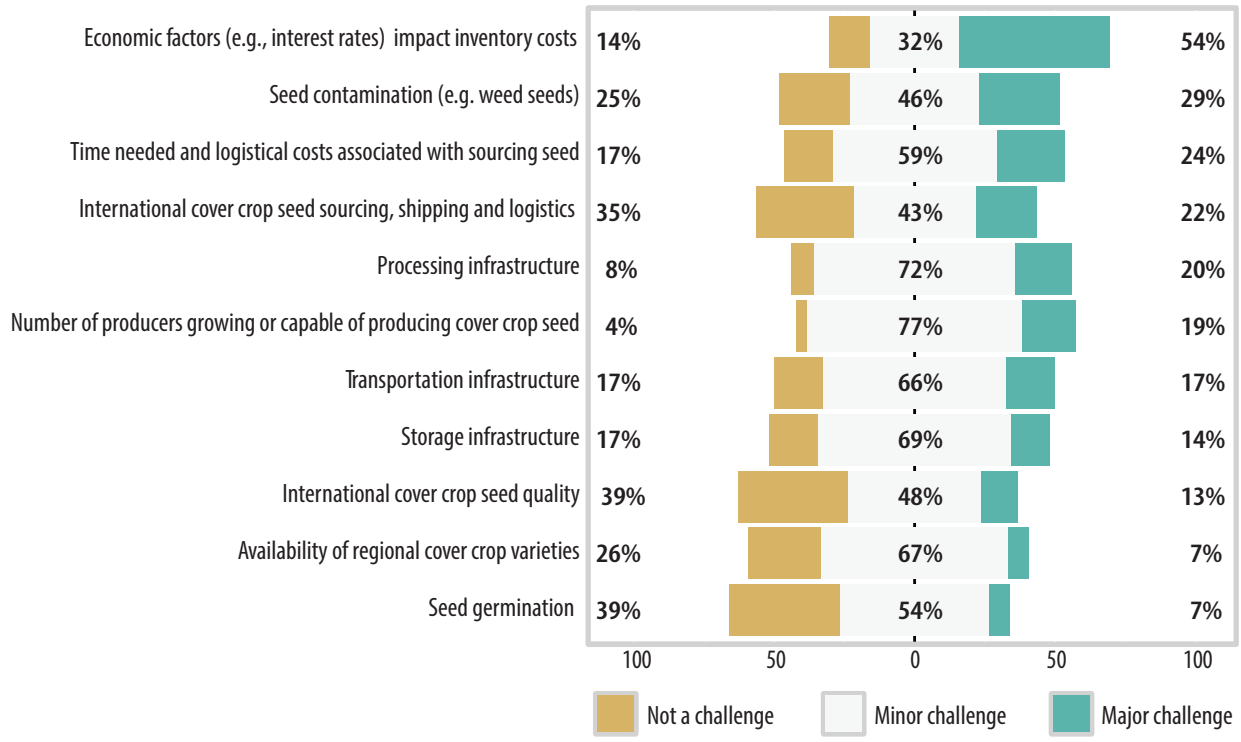

Figure 14. Companies' perceptions of potential challenges for cover crop seed supply (n = 23–29).

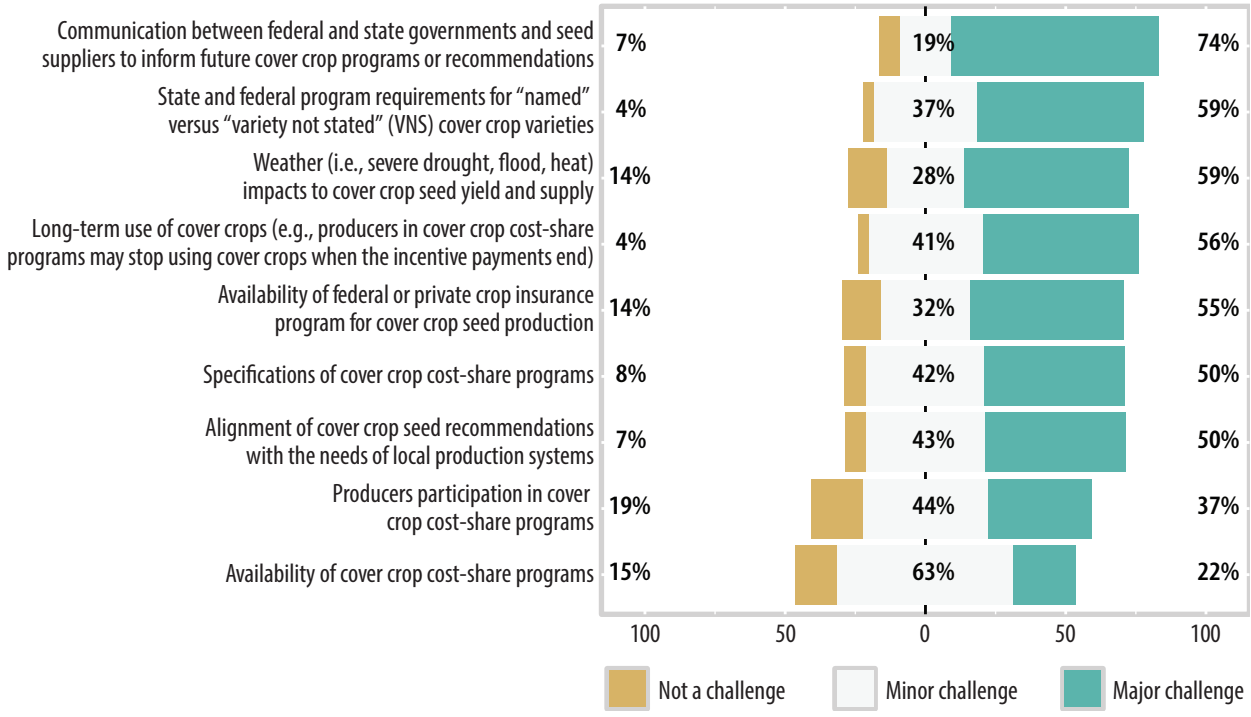

Figure 15. Companies' perceptions of potential challenges for cover crop seed policy (n = 22–27).

Future priorities

Finally, company representatives indicated how the cover crop seed industry would like to prioritize forward progress with respect to policy, economics and research.

Standardized seed quality and contamination regulations were perceived as the top priority with 86% (n = 28) of respondents indicating this was a moderate-to-high priority (Figure 16). Expanding existing federally supported crop insurance to cover crop seed producers was seen as a moderate-to-high priority by 73% (n = 27) of respondents. Training for USDA or other agronomists to make informed cover crop recommendations to farmers was perceived as the third highest priority (n = 28).

Company investment in labor infrastructure, financial incentives and crop insurance discount were seen as the three highest economic priorities by 56% to 59% (n = 27) of the respondents (Figure 17)

Over half of respondents perceived all research initiatives included in our survey question as moderate-to-high priorities (Figure 18). In particular, cover crop impacts on soil health and the quantification of cover crop impacts on farm profitability, soil organic carbon and crop yield had the largest relative proportion of respondents indicating these were high priorities.

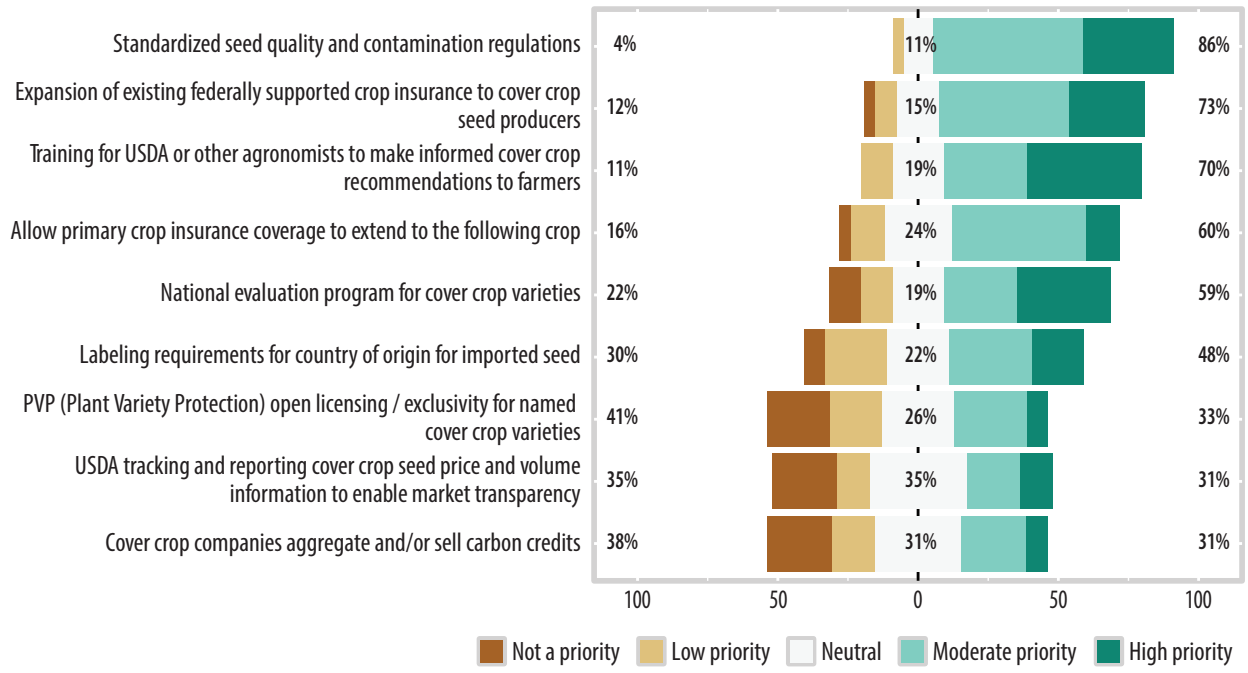

Figure 16. Policy-related priorities for the future of the cover crop industry (n = 25–28).

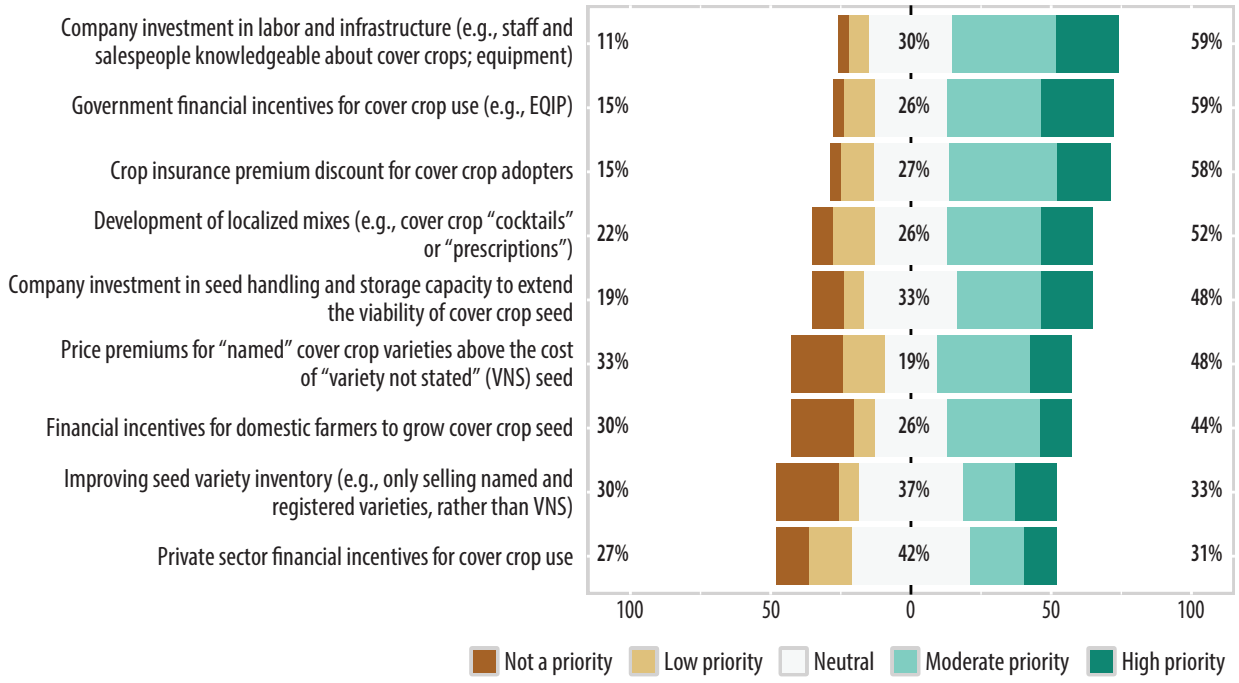

Figure 17. Economic priorities for the future of the cover crop industry (n = 26–27).

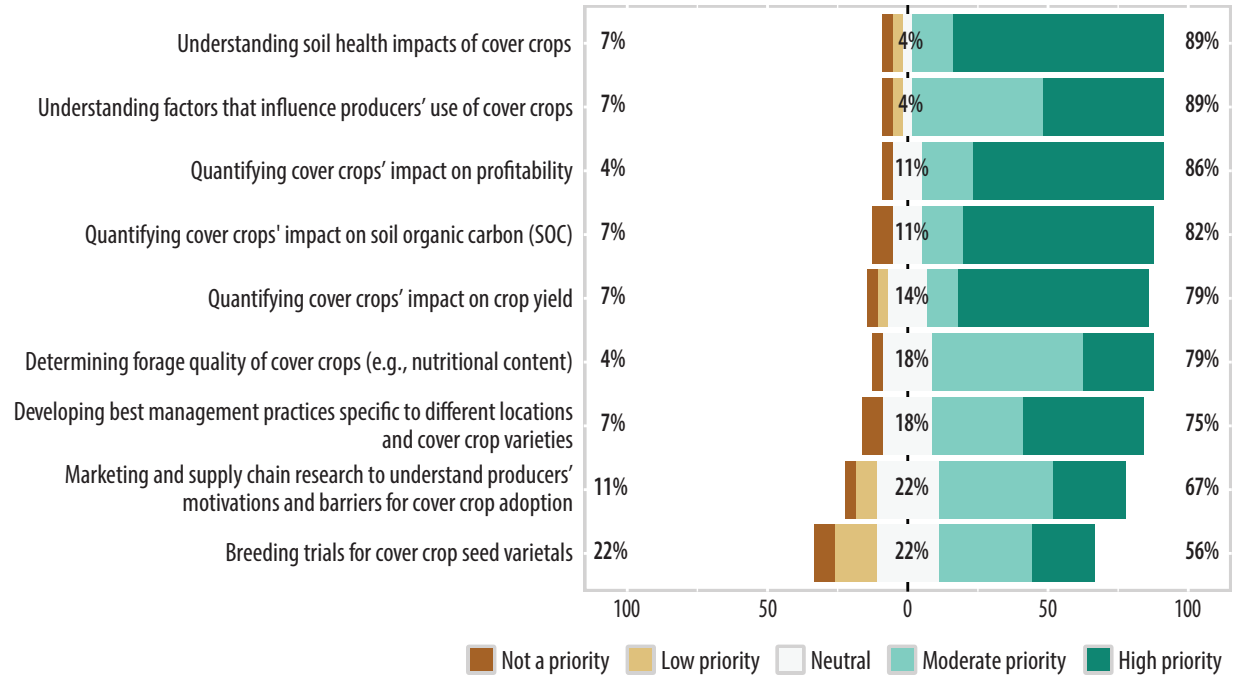

Figure 18. Research priorities for the future of the cover crop industry (n = 27–28).

Conclusion

Looking ahead, companies anticipate significant growth in cover crop seed sales, with most expecting a 10% to 50% increase by 2030 and an average projected growth of 35% over the next five years. Despite these optimistic projections, confidence in forecasting demand remains mixed, with a large portion of seed industry respondents expressing uncertainty.

The industry also faces several challenges, particularly in demand forecasting, where the availability of reliable data, weather impacts and shifting government policies create uncertainty. Supply chain issues, although reportedly somewhat less pressing, are influenced by economic factors such as inventory costs and seed contamination.

However, policy-related challenges are the most concerning, particularly the lack of communication between federal and state agencies and seed suppliers, as well as regulatory requirements for named versus VNS cover crop varieties.

To address these challenges and support industry growth, companies would like to see standardized seed quality and contamination regulations prioritized, as well as expanded crop insurance for cover crop seed producers, and improved training for agronomists to provide informed recommendations to farmers. Research on cover crop impacts on soil health, profitability and carbon sequestration is also perceived as high priority, as companies seek to better quantify the long-term benefits of cover crops.

Endnotes

1. Wilson, Kelly R., Mary K. Hendrickson, Ryan Milhollin, J. Alan Weber, and Robert L. Myers. 2024. Is the U.S. Cover Crop Seed Industry Ready to Support Projected Adoption Rates? A Snapshot of the Industry (mospace.umsystem.edu/xmlui/handle/10355/106442). University of Missouri Center for Regenerative Agriculture.

2. For more information, visit the USDA Cover Crops and Crop Rotation webpage (usda.gov/about-usda/general-information/initiatives-and-highlighted-programs/peoples-garden/soil-health/cover-crops-and-crop-rotation).

Acknowledgments

This research is part of a national collaborative project supported by the USDA-NIFA, Grant No. 2023-68012-38993, "Cover Crop Variety Development Coordinated Agricultural Project" (Cover Crop Variety Project): "Catalyzing Cover Crop Advancement as a Climate-Smart Practice Through a National Variety Improvement and Seed Production Program" (cra.missouri.edu/cover-crop-variety-development-project). Research data and supporting metadata are stored in the team's centralized Cover Crop Variety Project database.

The Institutional Review Board at the University of Vermont reviewed and approved this work (STUDY00002831). The research funders had no role in research design, data collection or analysis of results. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the authors and should not be construed to represent any official USDA or U.S. government determination or policy.

Thank you to our industry partners involved in this project: Payton Englert with the American Seed Trade Association, La Crosse Seed, Go Seed, and Green Cover, as well as our academic partner, the Center for Regenerative Agriculture at the University of Missouri.