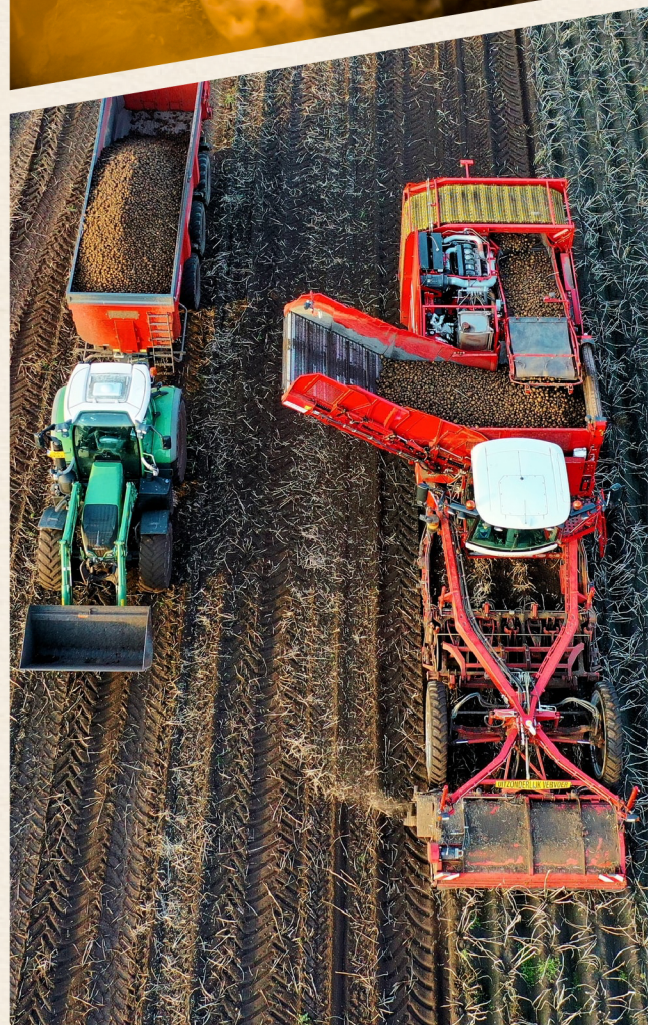


NORTH AMERICAN

# POTATO SUSTAINABILITY ASSESSMENT REPORT



2023



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# INTRODUCTION

## Report Objective

The objective of this report is to communicate the North American sustainability results and insights gathered from the PSA Program annual on-farm assessment, providing PSA members and participating growers with a valuable benchmark for evaluating their own reports.

# The Potato Sustainability Alliance

The Potato Sustainability Alliance (PSA) is an inclusive, pre-competitive collaboration open to all players in the potato value chain.

We are defining, measuring, and advancing potato sustainability by using robust metrics to drive improvements in productivity and profitability.

Our efforts are focused on protecting the environment and streamlining how farm-level data is collected and made available to end-users.

## VISION

To be the recognized industry leader in advancing potato sustainability.

## MISSION

We work at the intersection of farmers, businesses and communities as the trusted alliance to support, advance, and communicate potato sustainability.



# Our Sustainability Program

The [PSA Program](#) supports growers in measuring and reporting on-farm sustainability and provides opportunities to enhance sustainability efforts in partnership with PSA members.

Through the Program, growers receive guidance and access to customized market tools that have been tailored by PSA to meet shared ESG market requirements, simplify the reporting process, and provide valuable performance insights aligned with industry-defined focus areas and commitments (Figure 1).

The Program is currently administered through an annual on-farm assessment using the [Sustainable Outcomes in Agriculture \(SOA\) Standard](#) and Cropwise™ Sustainability (CWS) app. Growers across North America are invited to participate and share their on-farm management practices with PSA and selected PSA Members. This process provides growers

with immediate feedback on their sustainability performance and community benchmark reports with additional insights into the performance of other participating growers in the same region. Selected PSA members receive aggregate reports summarizing data shared by growers to fulfill supply chain reporting requirements and inform sustainability initiatives.

With a focus on continuous improvement, the Program offers a range of opportunities to leverage insights gathered from the on-farm assessment, including sharing on-farm achievements, developing opportunities for continuous improvement, and pursuing certification and verification to support sustainability claims.

ENVIRONMENTAL STEWARDSHIP			FARM LEGACY			SAFE & NUTRITIOUS FOODS
GHG Emissions	Water Stewardship	Food Waste	Soil Health	Farmer Prosperity	Bio-diversity	Integrated Pest Management
The Alliance is committed to reducing energy use and greenhouse gas emissions, adopting responsible water management practices, and collaborating to reduce food waste through the production system.			The Alliance is committed to ensuring that future farmers can profitably grow potatoes on healthy soils while supporting biodiversity.			The Alliance is committed to growing safe, affordable, and nutritious potatoes through targeted and responsible pesticide use.

Figure 1: Defining sustainability pillars, focus areas, and commitments of the PSA Program.

# EXECUTIVE SUMMARY

In 2023, a total of **420 growers**, representing **589,120 potato acres** across the U.S. and Canada participated in the PSA Program by completing the Sustainable Outcomes in Agriculture (SOA) Standard through the Cropwise™ Sustainability (CWS) app and selecting PSA as their sustainability partner (Table 1).

Growers were invited to complete the self-assessment during a reporting period from August 15th through November 15th, to receive community insights and streamline data-sharing.

Participating growers identified the survey region their operation is a part of and this region was used as a reference point to deliver a community [Benchmark Report](#). Additionally, growers had the opportunity to share their data with participating PSA members, fulfilling supply chain reporting requirements and contributing to their sustainability initiatives (Figure 2).

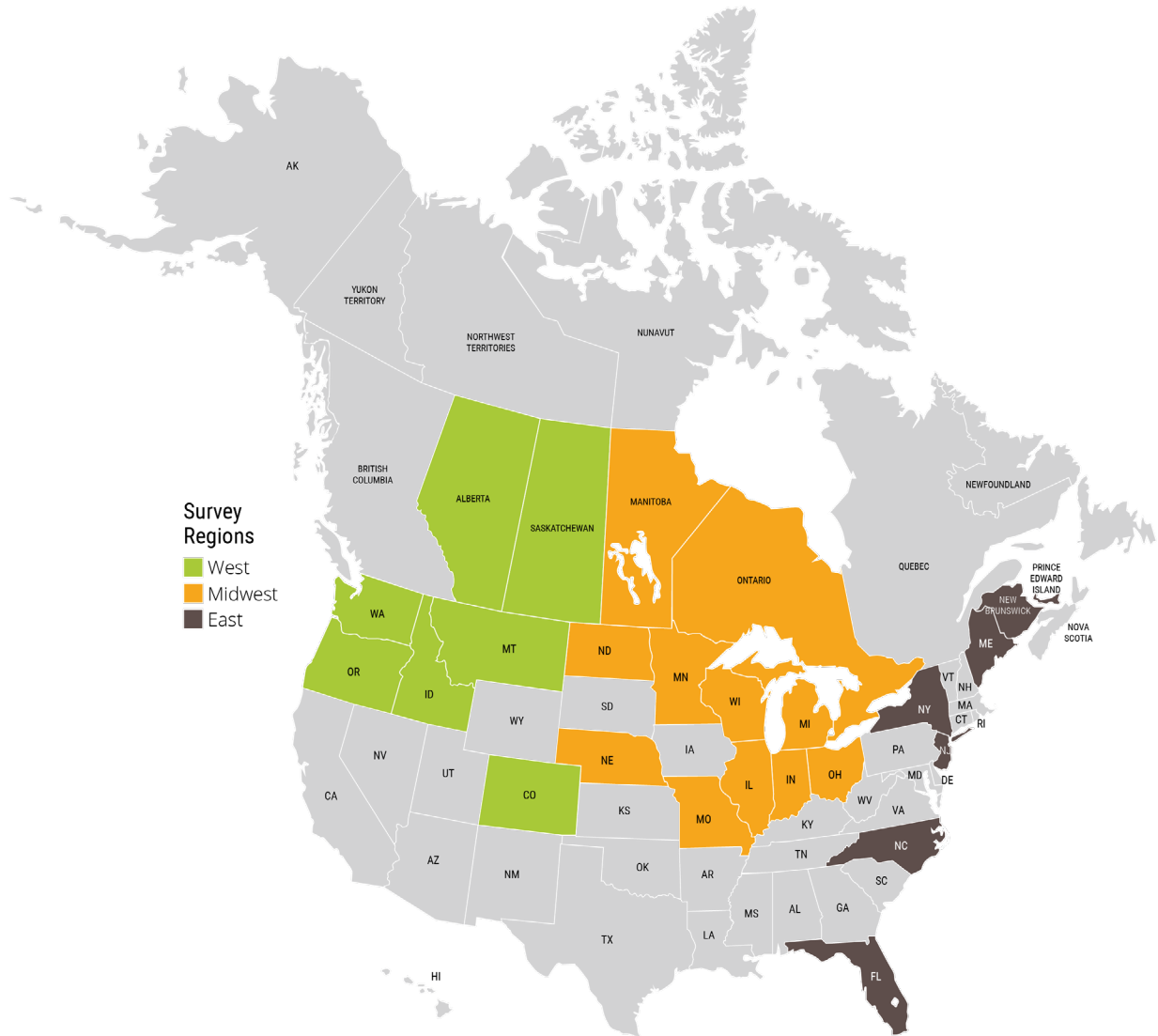
The results and insights from the SOA standard are reported using a performance metric of Essential, Basic, Medium, or High, summarizing the adoption of beneficial management practices that are increasingly advanced (Figure 4).

Participating growers achieved an overall performance score of Medium. This score reflects the collective adoption of various management practices contributing to sustainable production that are informed by data collected and experts. Additionally, it signifies the adoption of new practices and technologies that are consistent with improving the industry standard.



Figure 2. Current PSA members who participate and receive aggregate sustainability insights at the discretion of growers.

## REGIONAL PARTICIPATION



REGION	WEST	MIDWEST	EAST
Canada Growers	47	47	129
Canada Potato Acres	58,346	62,080	86,114
U.S. Growers	100	57	40
U.S. Potato Acres	231,515	115,508	35,557
<b>Total Growers</b>	<b>147</b>	<b>104</b>	<b>169</b>
<b>Total Potato Acres</b>	<b>289,861</b>	<b>177,588</b>	<b>121,671</b>

Table 1. The number of participating U.S. and Canadian potato growers in each survey region and their represented potato acres.



# THE SUSTAINABLE OUTCOMES IN AGRICULTURE STANDARD

This report presents the results and insights gathered from the PSA Program annual on-farm assessment, using the Sustainable Outcomes in Agriculture (SOA) Standard and Cropwise™ Sustainability (CWS) app.

In 2023, PSA's Board of Directors voted to implement the SOA Standard and CWS app as the on-farm assessment tool, replacing the proprietary PSA Survey used from 2017 to 2022. Notably, this marks the inaugural year of reporting and using the SOA Standard to share on-farm achievements and inform opportunities for continuous improvement across industry-defined Program focus areas (Table 2).

## PSA PROGRAM FOCUS AREAS

SOA STANDARD	GHG EMISSIONS	WATER STEWARDSHIP	FOOD WASTE	SOIL HEALTH	FARMER PROSPERITY	BIO-DIVERSITY	INTEGRATED PEST MANAGEMENT
Optimal Production	X	X	X	X	X		X
Water Impact	X	X		X			
Soil Health	X	X		X			X
Biodiversity & Habitat						X	
Human & Animal Health		X		X			X
Community Leadership					X	X	
Specific Management Practices	X	X		X	X	X	X

Table 2. Each row in this table corresponds to specific SOA Standard criteria aligned with PSA Program focus areas. The alignment represents management strategies, practices, and technologies contributing to sustainability across Program focus areas.

PSA Program adoption of the SOA Standard facilitates a credible and consistent approach to measuring on-farm sustainability performance. This is achieved in part through the SOA Standard’s alignment with and integration of global sustainability benchmarks and frameworks, including a gold-level benchmark to the Sustainable Agriculture Initiative Platform (SAI Platform) [Farm Sustainability Assessment](#) (FSA) and integration of The Sustainability Consortium (TSC) [Responsible Pest Management \(RPM\) Framework](#). Furthermore, PSA has partnered with Syngenta to customize the CWS app to be fit-for-purpose for the potato industry, integrating specific features and streamlining transparent data sharing across value chain partners.

Assessment results and insights are presented in alignment with SOA Standard criteria, to provide a North American industry benchmark for participating PSA members and growers evaluating their own reports. The SOA Standard criteria encompasses a sustainable outcomes framework used for scoring to measure, communicate, and benchmark performance and an additional assessment of specific management practices used to develop continuous improvement opportunities.

# Sustainable Outcomes Framework

The sustainable outcomes framework consists of six broadly applicable sustainable agriculture outcomes that result from the adoption of various management strategies, practices, and technologies: Optimal Production, Water Impact, Soil Health, Biodiversity and Habitat, Human and Animal Health, and Community Leadership.

Each outcome contains specific drivers and criteria established for four distinct levels of leadership that are used to measure, communicate, and benchmark performance: Essential, Basic, Medium, or High.

The report section “Performance Scores and Insights” presents the leadership levels achieved by growers participating in the PSA Program for each outcome, alongside outcome performance scores averaged across all leadership levels. Key insights into the practice criteria contributing to each outcome performance score and identified opportunities for improvement are included, noting the alignment to PSA Program focus areas.

# Specific Management Practices

Detailed management practices aligned to the outcomes are included in the SOA Standard to provide additional insight on relevant opportunities in sustainable and regenerative agriculture. These practices include nutrient and pest management, conservation strategies, livestock integration, irrigation management, regulatory compliance, record-keeping, community engagement, and storage protocols.

The report section “Specific Management Practices” presents insights into the most commonly used sustainability practices among growers participating in the PSA Program. Additionally, identified opportunities for increased adoption and some insights aligned to PSA Program focus areas are included to further communicate on-farm achievements.



# PERFORMANCE SCORES AND INSIGHTS

This section serves as a North American benchmark for both participating PSA members and growers to evaluate their own reports. Participating growers receive individual performance scores and insights through the Cropwise™ Sustainability (CWS) app and community Benchmark Reports.

Growers have the option to share their data with participating PSA members who receive aggregate reports with performance scores and insights for their supply chain.

## How to Interpret the Scores

Performance in the SOA Standard is a measure of potato growers' leadership in adopting beneficial management strategies, practices, and technologies across four distinct levels of leadership used to measure, communicate, and benchmark performance (Figure 3).

1	Essential	Fully compliant with regulatory requirements.
2	Basic	Beneficial management practices are well established in the operation and consistent with meeting the industry standard. Engaged in education and learning with awareness of barriers to adoption of new crop management and conservation practices.
3	Medium	Beneficial management practices are well established in the operation informed by data collected and experts. New practices and technologies are being implemented consistent with improving the industry standard. Barriers to adoption of practices that benefit conservation are being overcome.
4	High	Whole farm management and optimization for long-term profitability, risk reduction and the conservation of natural resources. Collaboration and influence beyond the farm provide benefits for the operation as well as for the broader community.

Figure 3. The sustainable attributes associated with adopting on-farm strategies, practices, and technologies across four performance levels.

# North American Scores and Insights

Potato growers across North America achieved an overall performance score of **Medium**, averaged across all outcome scores and the leadership levels attained by individual growers in each outcome (Figure 4).

Overall	Biodiversity and Habitat	Community Leadership	Human and Animal Health	Optimal Production	Soil Health	Water Impact
Medium	Medium	Medium	High	Medium	Medium	Medium

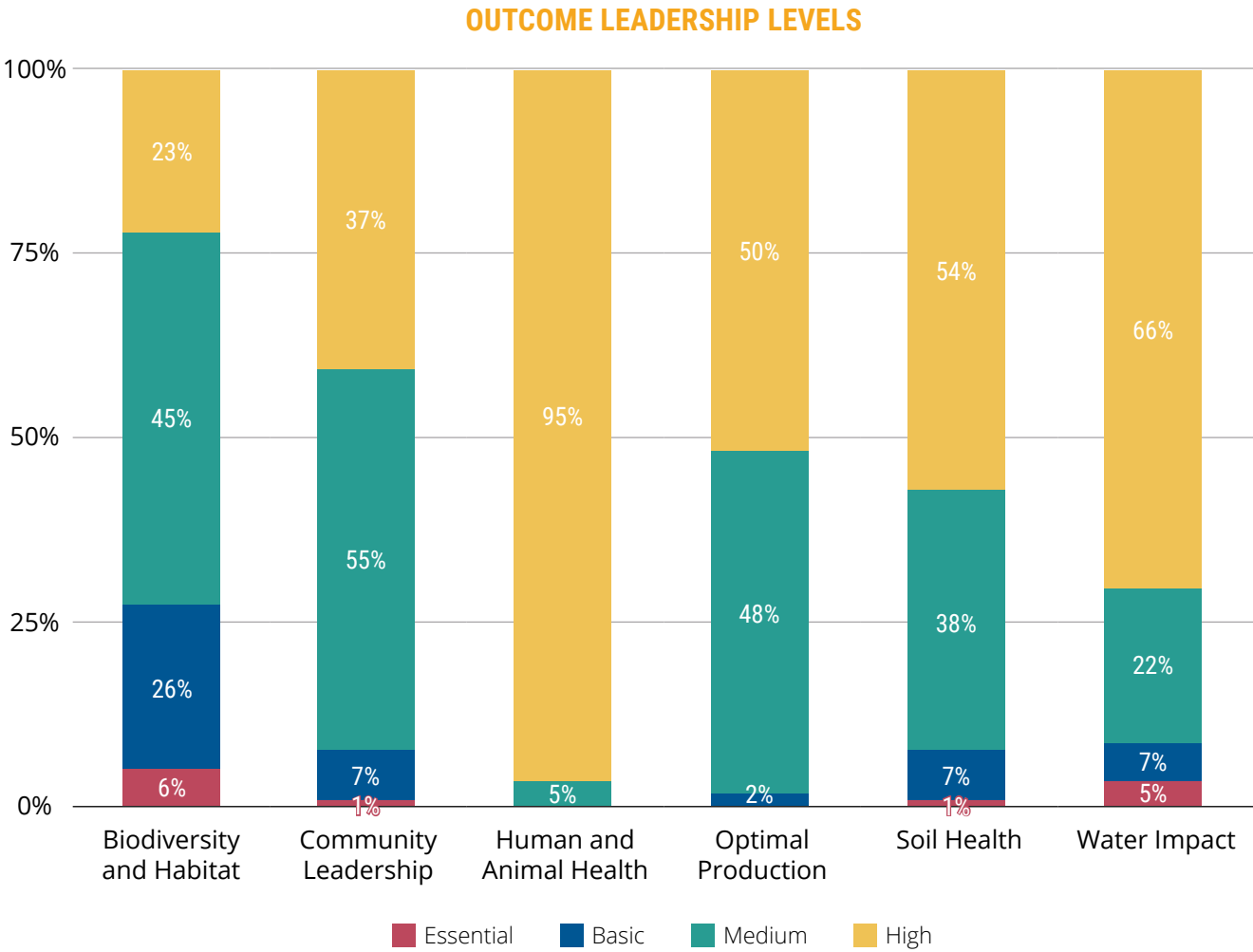


Figure 4: The percentage of growers that achieved an average leadership level of essential, basic, medium, or high in each outcome.

## BIODIVERSITY & HABITAT

Growers achieved an overall leadership level of **Medium** in this outcome.

This score reflects the adoption of beneficial management practices that encompass habitat quality and pollinator management. Performance insights identified in this outcome will be used to inform PSA Program activities in the biodiversity focus area.

The biggest opportunity identified to improve overall performance in this outcome involves collaborating and participating, as available, in regional biodiversity and habitat initiatives.

# 43%

of growers actively maintain or restore cropped and uncropped areas on the farm to improve the quality of habitat for biodiversity.

# 23%

of growers established new habitat or improved the quality of habitat for pollinators in the past 3 years.

## COMMUNITY LEADERSHIP

Growers achieved an overall leadership level of **Medium** in this outcome.

# 49%

of growers participate in local community events, support local business and/or make financial contributions to the community associated with the farm.

# 37%

of growers have incorporated new ways to share farming, conservation and restoration initiatives for species and habitat in the past 3 years.

This score reflects the adoption of beneficial management practices that encompass community engagement, worker opportunities, worker conditions, and education and training. Performance insights and opportunities for improvement identified in this outcome will be used to inform PSA Program activities in the farmer prosperity and biodiversity focus areas.

The biggest opportunity identified to improve overall performance in this outcome involves encouraging community understanding and support for agriculture through participation in local educational and outreach efforts.



## HUMAN & ANIMAL HEALTH

Growers achieved an overall leadership level of **High** in this outcome.

This score reflects the adoption of beneficial management practices that encompass product selection, worker and neighbor protections, pest related health management, waste management, and hazardous material management. Performance insights and opportunities for improvement identified in this outcome will be used to inform PSA Program activities in the IPM, water stewardship and soil health focus areas.

# 99%

of growers actively communicate in response to questions/complaints concerning operations and product selection (e.g., drift, dust, odor, visual PPE).

# 56%

of growers conduct residue and health risk testing and/or audits and share results with supply chain partners, and others.

## OPTIMAL PRODUCTION

Growers achieved an overall leadership level of **Medium** in this outcome.

# 95%

of growers have contracts in place to market crops to minimize harvest loss, processing loss, and storage losses of crop.

# 93%

of growers customize their crop plans based on previous year's data to support multi-year plans to optimize yield, stability, and quality.

This score reflects the adoption of beneficial management practices that encompass the use of records, farm planning, in-season adjustments, the use of precision and decision technology, fuel energy management, electricity energy management, equipment management, and crop loss and waste reduction. Performance insights and opportunities for improvement identified in this outcome will be used to inform PSA Program activities in the GHG emissions, water stewardship, food waste, soil health, farmer prosperity and IPM focus areas.

The biggest opportunity identified to improve overall performance in this outcome involves using electricity measurements, analyses, or audits to implement improvements and increase efficiency.

## SOIL HEALTH

Growers achieved an overall leadership level of **Medium** in this outcome.

This score reflects the adoption of beneficial management practices and technologies that encompass runoff erosion management, wind erosion management, soil function, production for conservation, and soil measurement. Performance insights identified in this outcome will be used to inform PSA Program activities in the soil health, water stewardship, GHG emissions, and IPM focus areas.

The biggest opportunity identified to improve overall performance in this outcome involves identifying less productive, unprofitable, and highly erodible areas within fields and transitioning them to conservation areas.

# 75%

of growers participate in projects that support and measure nutrient management for soil health.

# 49%

of growers adopted a new practice to reduce tillage and compaction at the field level in the past 3 years.

## WATER IMPACT

Growers achieved an overall leadership level of **Medium** in this outcome.

# 91%

of growers that irrigate use a crop production irrigation plan that has been optimized over time to consider long-term water availability and challenges in the area.

# 54%

of growers collaborate with others in their area on watershed or aquifer initiatives to improve water quality.

This score reflects the adoption of beneficial management practices and technologies that encompass water management, irrigation infrastructure, and irrigation planning. Performance insights identified in this outcome will be used to inform PSA Program activities in our water stewardship, GHG emissions, and soil health focus areas.

# SPECIFIC MANAGEMENT PRACTICES

This section provides an overview of sustainable and regenerative management practices being adopted across North America, offering additional insights for participants to evaluate their own strategies and reports.

Growers access individual management practice insights through the Cropwise™ Sustainability (CWS) app and community Benchmark Reports. Growers have the option to share their data with participating PSA members who receive aggregate reports with specific management practice insights for their supply chain.

## Most Utilized Practices

The most utilized practices across North America, adopted by 95% or more of the growers participating in the PSA Program (Table 3), contribute to in-season and long-term system resiliency through sustainable pest and nutrient management. These insights demonstrate the collective dedication of potato growers to sustainable production, ensuring efficient pest management, soil conservation, and nutrient optimization.

PRACTICES	% ADOPTION
Maintain and calibrate spray rates on application equipment at least once per season	99
Crop scouting or monitoring for presence of key pests	98
Crop rotation provides conservation benefits	96
Nutrients applied in forms suitable for soil conditions	96
Crop variety considered in decisions	95

Table 3. Most utilized practices among North American potato growers participating in the PSA Program.

# Opportunities for Increased Adoption

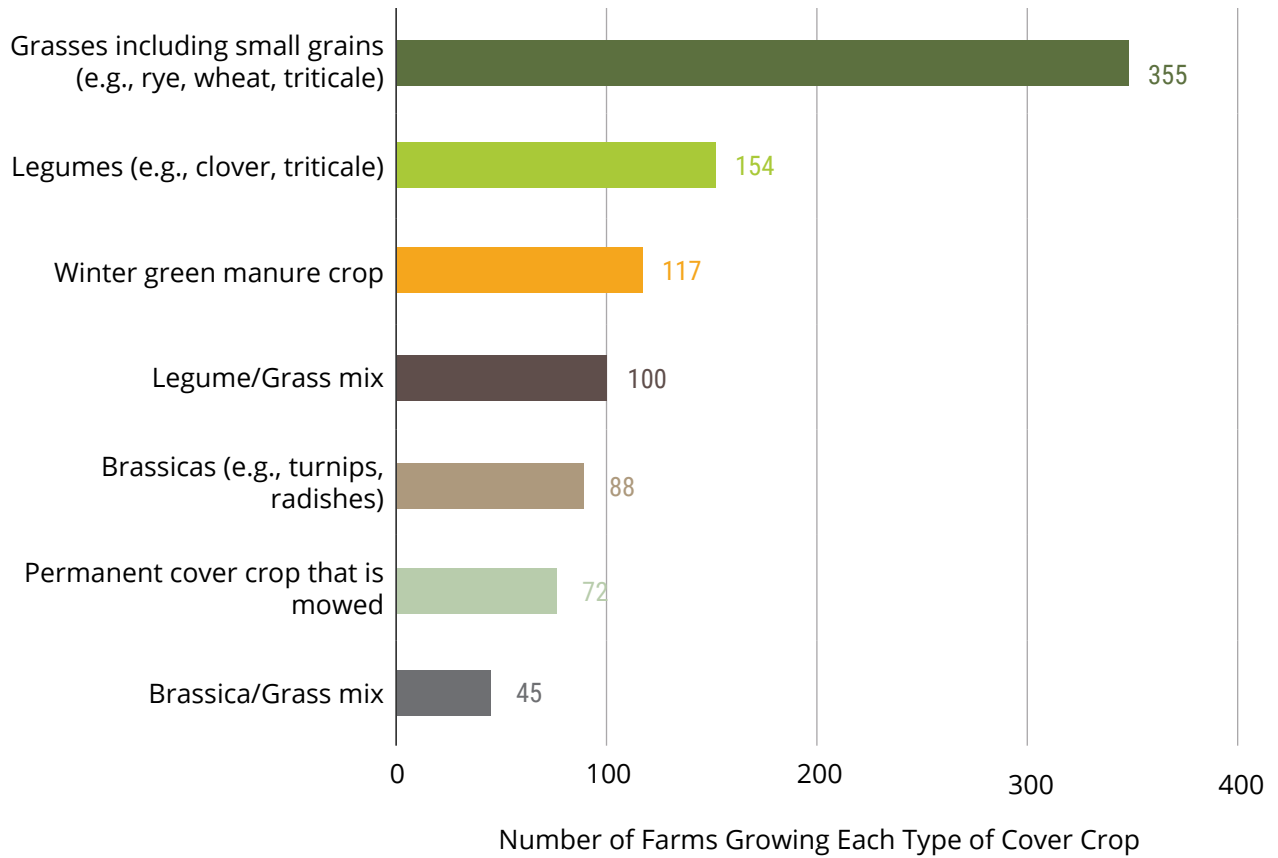
Our identified practice improvement opportunities are based on adoption rates, ranging from 50% to 69% among participating growers, particularly those who scored highest in leadership levels (Table 4). These opportunities highlight areas where targeted support and collaboration can drive further enhancements in sustainable production, where applicable. PSA will leverage these insights, along with others, to develop opportunities for continuous improvement in the PSA Program.

PRACTICES	% ADOPTION
Collaborate in information and knowledge sharing initiatives	<b>69</b>
Practices used to protect or enhance natural/biological pest controls	<b>63</b>
Seed varieties selected for genetic protection from pests	<b>62</b>
Use soil biological amendments/stimulants	<b>60</b>
Map environmental or human inhabited areas to inform your stewardship of these areas	<b>50</b>

*Table 4. Identified key practices for improving outcome scores.*

Additionally, PSA will leverage the insights shared by growers in alignment with Program focus areas to spotlight the achievements and benefits of sustainable practices being adopted across North America, such as cover cropping and days with a living root in ground (Figure 5). These insights align with soil health and water stewardship Program focus areas and regenerative agriculture principles of soil cover and productivity. Additional insights will be released by PSA throughout the year.

### COVER CROPS GROWN



### DAYS WITH LIVING ROOT IN GROUND PER CALENDAR YEAR

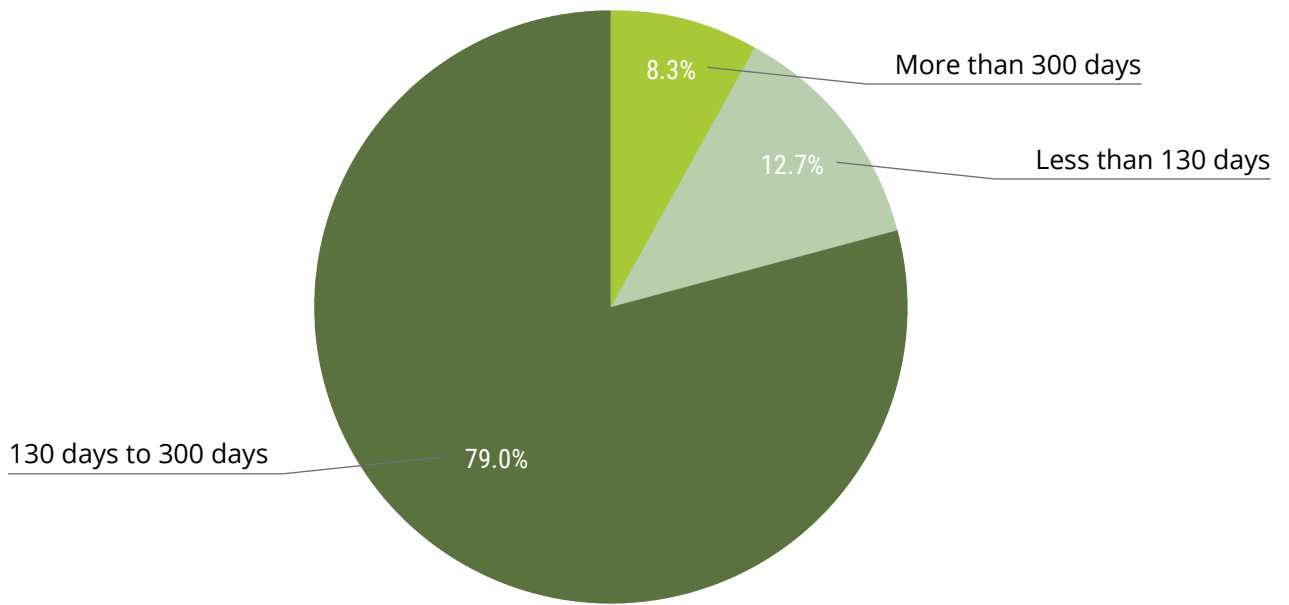


Figure 5: Variety of cover crops grown and the duration of living root in ground across participating farms.




# CONCLUSION

The participation of 420 growers, representing 589,120 potato acres, in the PSA Program showcases a collective dedication to sustainable potato farming in North America.

Moving forward, these findings provide a basis for ongoing collaboration and storytelling, fostering further advancements in sustainable potato production.

Visit our website to learn more about the [PSA Program](#) and subscribe to our monthly newsletter to stay informed about additional insight releases and opportunities to engage further with the PSA Program.



Potato Sustainability Alliance (PSA) is an inclusive, pre-competitive collaboration open to all players in the potato value chain.

Working to define, measure, and advance potato sustainability by using robust metrics to drive improvements in productivity & profitability.

## **CONTACT**

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