

Potato Research Advisory Committee

Research Study Interest Areas

(established 2024)

Research Priority: New Protective Solutions

Definition: Innovative strategies, technologies, and practices to enhance productivity, sustainability, and resilience within the potato farming sector. These approaches encompass various innovations spanning crop management, soil health, pest and disease control, and post-harvest handling. New Protective Solutions in potato agriculture aims to address the industry's critical challenges.



AREAS OF INTEREST

Fumigation Practices and Replacements

As concerns over the safety and sustainability of traditional fumigation practices continue to rise, developing and adopting alternative methods are becoming increasingly important.

Variety Development and Resistant Genes

Using advanced genetic techniques to develop potato varieties with improved traits like disease resistance, drought tolerance, better nutrition, reduced days to maturity and increased yield. These varieties are carefully adapted to different regions and market needs.

Neonic Alternatives

Neonicotinoids are a class of systemic insecticides widely used in agriculture to control a broad range of pests. While effective against pests, neonicotinoids have come under scrutiny due to their potential adverse effects on non-target organisms.

Chlorpropham (CIPC)

Findings here contribute to alternative sprout suppressant methods.

Innovative Agronomics or Biologics

Implementing novel agronomic and/or biologics to control pest management, diseases, or other challenges; to enhance soil health; or to provide other beneficial results.

Research Priority: Sustainability

Definition: Sustainability in potato research aims to develop practices that balance environmental health and economic viability in potato production. It involves optimizing agricultural methods to enhance soil health, conserve water, promote biodiversity, reduce pesticide use, and build resilience to variable weather patterns, ensuring long-term viability for farmers and ecosystems.



AREAS OF INTEREST

Precision Agriculture

Utilizing technology such as GPS, sensors, and data analytics to optimize resource use (water, fertilizers, pesticides) and increase crop yields while minimizing environmental impact.

Post-Storage Loss Management

Investigating storage practices affecting potato quality—a better understanding of basic potato physiology and pathology in storage, including wound healing. Findings contribute to more effective storage protocols for reliable potato management.

Energy Efficiency

Research studies involving energy-efficient farm practices, including integrating alternative energy sources. Explore integrating technologies into potato cultivation systems to enhance sustainability, productivity, and energy efficiency.

Nutritional Sustainability & Stability

"Nutritional sustainability" in the context of potato research refers to developing and implementing agronomic practices that enhance the sustainable production of potatoes while maximizing their nutritional value and promoting human health. Documenting the nutritional richness of potatoes versus other food sources as part of the industry's environmental stewardship heritage is a crucial outcome.

Environmental Conservation Best Practice Adoption

A thorough understanding of the challenges, roadblocks, benefits, and economics of the adoption of sustainable best practices tracked by the Potato Sustainability Alliance (PSA) on behalf of the industry.

Research Priority: Disease, Virus, and Pest Mitigation



Definition: Research in this pillar encompasses understanding, preventing, and controlling potato crop infestations and infections. These may include research on well-known potato diseases (late blight, early blight, blackleg, etc.), viruses (PVY, potato leafroll virus, etc.), or pests (Colorado Potato Beetle, Root Knot Nematodes, etc.), or management of novel diseases.

AREAS OF INTEREST

Disease Management

Studies to assess and mitigate diseases with a significant impact on the potato industry. Powdery scab and verticillium wilt are of escalating concern.

Integrated Pest Management

Research focuses on developing integrated pest management (IPM) strategies that combine multiple approaches to effectively manage potato crops' diseases, viruses, and pests. IPM incorporates cultural, biological, and chemical control methods to optimize pest control while minimizing environmental impact and reducing reliance on pesticides.

Plant Defense Mechanisms

Studies enhance the understanding of the potato plant's disease resistance mechanisms and practices that support disease suppression. Research explores strategies to improve resistance, such as rotating pesticides with different modes of action, using pest thresholds, and promoting genetic diversity in potato cropping strategies. Disease-resistant cultivars are of particular interest.

Agronomic Management

Studies here evaluate agronomic practices (e.g., crop rotations) that can reduce disease incidence and severity in potato crops.

Vector Management

Studying the biology, behavior, and ecology of insect vectors transmitting viral and bacterial pathogens in potato crops to develop targeted vector management strategies.



Research Priority: Groundscape

Definition: "Groundscape" refers to scientific investigations focused on understanding the physical characteristics and conditions of the land where potato crops are grown. Groundscape research aims to assess how variations in conditions impact potato growth, yield, and overall agricultural productivity.

AREAS OF INTEREST

Soil Health

Research here refers to scientific investigations focused on understanding, evaluating, and enhancing soil's biological, chemical, and physical properties in potato cultivation. This research aims to assess soil quality, fertility, and resilience while developing sustainable management practices that optimize soil health, support potato crop growth, and promote agricultural sustainability.

Impact of Environmental Factors

Investigating the influence of environmental factors such as temperature, humidity, rainfall, and vegetative cover on potato crops' quality, yield, and disease transmission dynamics can inform the industry of future challenges.

Field Variability

"Field variability" in potato research refers to natural differences observed within a field regarding soil properties, topography, and microclimate conditions. Understanding these differences helps researchers develop site-specific management strategies to optimize potato crop productivity and sustainability.
