PROTECTING THE ACRE
GROWING THE OPPORTUNITY

OPPORTUNITIES & CHALLENGES IN THE BIOPESTICIDE MARKET:

A Developer's Perspectives

Greg Lindner Technical Business Development Director, Croda
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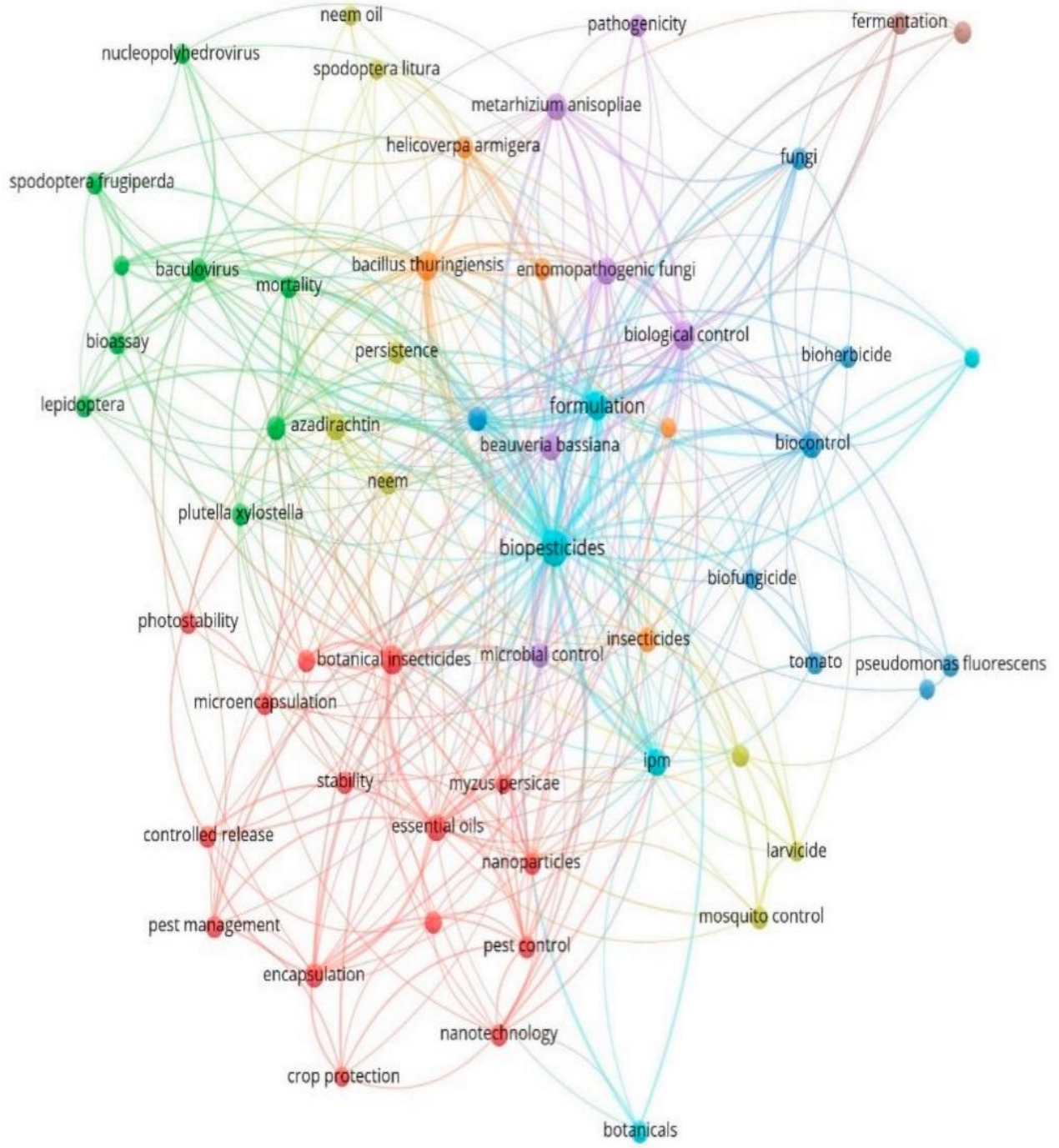
HARNESSING THE STORM. 2026 ADJUVANTS, INERTS & CROP PROTECTION CONFERENCE

CPDA AIC 2026 AUSTIN, TX

Opportunities & Challenges facing Inert Ingredients and Formulants used in Biopesticides



Challenges and Opportunities – Inerts & Formulants

Category	Key Point	Why It Matters
Challenge	Instability of actives	*Limits shelf life and field performance*
Challenge	Variable efficacy	*Reduces farmer confidence and adoption*
Challenge	Regulatory & market barriers	*Slows commercialization and global uptake*
Opportunity	Nanotechnology	*Enhances protection, delivery, and potency*
Opportunity	Improved carriers & stabilizers	*Enables more reliable, user-friendly products*
Opportunity	Cost-effective sustainable options	*Expands access and supports global IPM*

Technocommercial Analysis

- **Three primary challenges are: (1) regulatory and data-generation burdens, (2) formulation and stability constraints, and (3) limited market scale and commercial uncertainty.**
  - **Specific formulation challenges** (e.g., compatibility, technologies, stabilizers)
    - **Maintaining or extending stability and shelf life (microbes most notably)**
    - **Ensuring compatibility and efficacy of biological actives, particularly of microbes with conventional pesticides and adjuvants**
    - **Navigating regulatory and commercialization barriers for new materials, whether synthetic or biomanufactured**
  - **Industry-defining challenges**
    - ***Unstable demand due to limited commercial availability (linked to demand and market size)***
    - ***High production and regulatory costs that suppress market participation (particularly for new capital investment)***
    - ***Fragmented global markets that complicate scale-up***
- **Strategic Opportunities**
  - **Partner early with biopesticide companies** to integrate components into new formulations
  - **Invest in stability-enhancing technologies** (encapsulation, UV protectants) to solve core industry pain points
  - **Target high-growth regions** (e.g., Latin America and EU) notably where regulatory pressure accelerates adoption
  - **Build regulatory expertise** as a competitive differentiator

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Sumitomo Biorational Company

Global Center of Excellence for Biorational Innovation

SUMITOMO BIORATIONAL

- Sumitomo Biorational Company brings together Valent BioSciences LLC, MGK, and Valent North America LLC into a unified, collaborative organization designed to accelerate innovation in biorational and botanical technologies
- The unified organization builds on decades of scientific expertise and world-class solutions to **advance biorational science for a healthier and more sustainable world.**
- The company operates through three divisions:
  - **AgroSolutions Division (ASD)**, led by **Salman Mir**, focused on advancing biorational solutions for agriculture
  - **Environmental Health Division (EHD)**, led by **Steve Gullickson**, which includes the MGK business and supports environmental health markets
  - **Public Health and Forest Health Division (PHFHD)**, led by **Jason Clarke**, focused on protecting public health and forest ecosystems

The Challenges

SUMITOMO BIORATIONAL

We don’t have a performance problem. We have a positioning problem.

It’s not about cost. It’s about confidence in the return.

Biological innovation needs regulatory clarity, not regulatory shortcuts.

We don't have a performance problem.
We have a positioning problem.

Focus where biologicals THRIVE:

- Match biology to the problem
- Place biologicals where they add value in a program
- Position for realistic outcomes

The Opportunity

Find the right use cases and scale what works.

OUTREACH™ SC NEMATICIDE

It's not about cost.
It's about confidence in the return.

Uncertainty impedes adoption:

- Define when it works, and when it doesn't
- Program-level contributions
- Consistent positioning and messaging

The Opportunity

Turn performance data into decision rules

XenTari® BIOLOGICAL INSECTICIDE

Biological innovation needs regulatory clarity, not regulatory shortcuts

Predictability enables innovation:

- Product diversity creates edge cases
- Regulatory risk affects investment decisions
- Timelines can shift with evolving requirements

The Opportunity

Improve predictability by aligning early on data, risk, and timelines

PROTECTING THE ACRE
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ROW CROP BIOLOGICALS STUDY: YEAR 3

Revisiting Farmer Value, Perception & Potential

Cam Camfield
Founder + CEO
STRATOVATION GROUP

HARNESSING THE STORM. 2026 ADJUVANTS, INERTS & CROP PROTECTION CONFERENCE

Where We Focus

- Marketing + Branding
- Strategic Communications
- Event + Trade Show Planning
- Website/Digital Development + Commercialzation
- Market Research + Business Intelligence
- Strategy + Consulting with Deliverables + Measurements

Our Data Driven Approach

Collect market, business, and customer **DATA**, **RESEARCH**, and **REPORTS** to "Aim before we fire".

Data informs the **STRATEGY** & allows us to build informed **PLANS**.

TACTICS (i.e., marketing, website, PR) are designed and implemented, laddering up to the broader plan.

ANALYTICS are used to track success & KPIs (where possible) across tactics to build **REPORTS.**

STRATOVATION GROUP

We help innovative companies understand and attack problems through research, consulting, & marketing services. We're a scrappy team of passionate experts, without the traditional agency or in-house overhead.

Farmer Perceptions of Biologicals

- Currently, **most available research reports focus on macroeconomic trends, often leaving out farmer perceptions** & context from the farm gate
- While these reports are useful for broad trend analysis, **they lack the details needed to identify the opportunities, challenges, and other key factors growers consider** when considering the technology used on their farm.
- The goal of this study is to **provide business, policy, and regulatory leaders the farmer led insights they need to make data-driven decisions** that will positively impact the U.S. agri-food value chain.

Study Objectives

UNDERSTAND

- Awareness of, and **how farmers define biologicals and their sub-categories** (i.e., bio-stimulants, bio-pesticides).
- The **purchase history, usage, & future intent of use for biologicals**, by sub-category & application type, including their connection to carbon sequestration.
- **Top sellers & retailers of biologicals**, including preferred mediums (i.e., retail, direct).
- **Negative perceptions or challenges** from current or past use.

IDENTIFY

- The **demographics, psychographics, and geographics of large row crop producers** (i.e., corn, soybeans, wheat, sugar beats, potatoes, & sorghum) using biologicals
- **Key value propositions** for biologics in the minds of producers.
- **High-level price sensitives** at the acre level of different biologicals.

DISCOVER

- **How farmers track and assess** the success, effectiveness, and ROI of biologicals.
- The awareness and perception leaders in the space, including but not limited to;
  - Product companies
  - Retailers & distributors
  - Thought leaders
  - Media & news outlets

About the Partners

A Unique Partnership

Stratovation Group has partnered with the Ag Retailers Association, The Fertilizer Institute, D.C. Legislative and Regulatory Services and CropLife America for this important effort.

Ag Retailers Association (ARA)

ARA advocates, influences, educates and provides services to support its members in their quest to maintain a profitable business environment, adapt to a changing world and preserve their freedom to operate.

The Fertilizer Institute (TFI)

TFI is the leading voice of the fertilizer industry, acting as an advocate for fair regulation and legislation, a consistent source for trusted information and data, a networking agent, and an outlet to publicize industry initiatives in safety and environmental stewardship.

D.C. Legislative & Regulatory Services (DCLRS)

DCLRS is a bipartisan lobbying and government relations firm representing a diverse group of clients before Congress and federal regulatory agencies.

BPIA

The BPIA is a nonprofit trade association dedicated to fostering continued improvements to the biological products regulatory process.

Stratovation Group

Stratovation Group helps innovative companies understand and attack problems through research, consulting, & marketing services.

Committed Sponsors

PIVOT BIO

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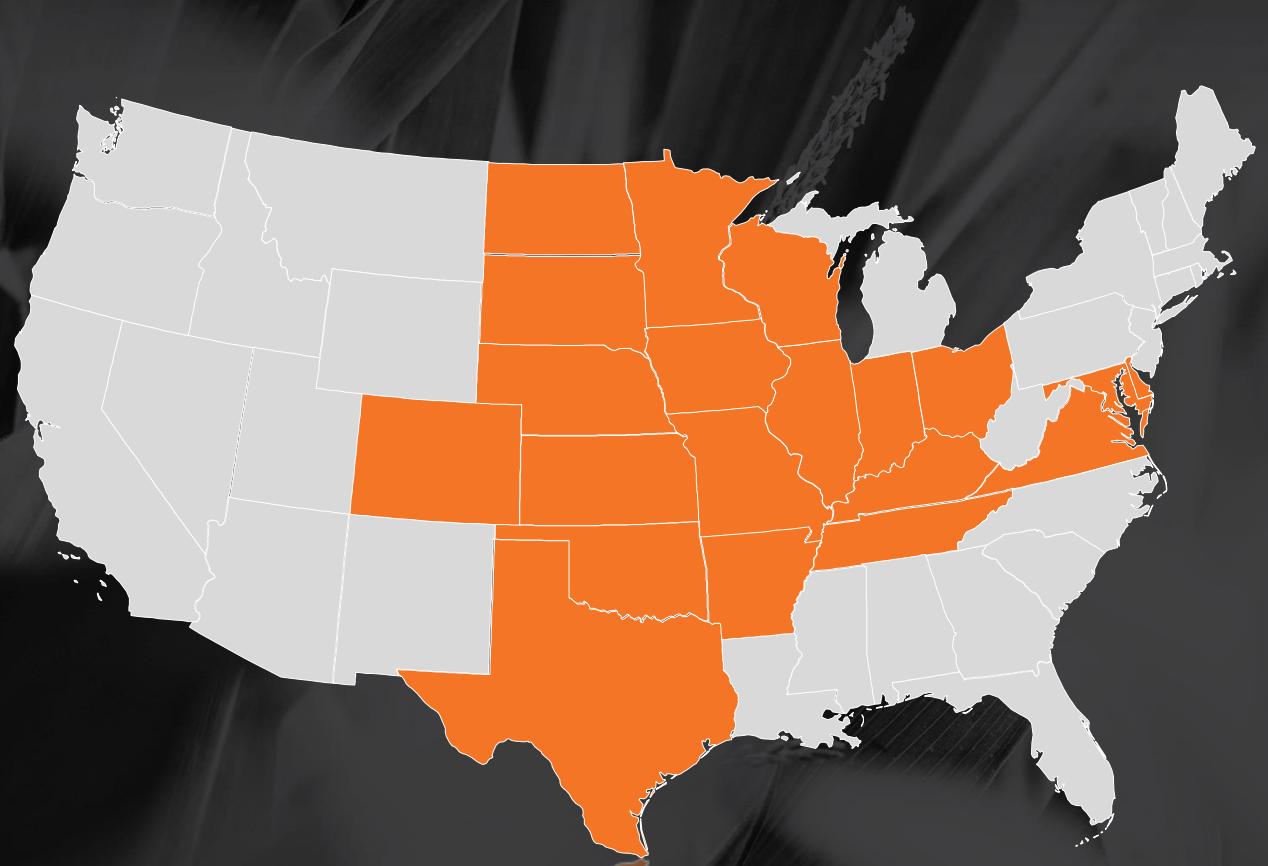
AGRITHORITY®
Science without Borders

Research Approach



TARGET AUDIENCE

- 604 combined acre row crop farmers
  - *(corn, soybeans, wheat)*

DATES IN THE FIELD

- Q1 2026

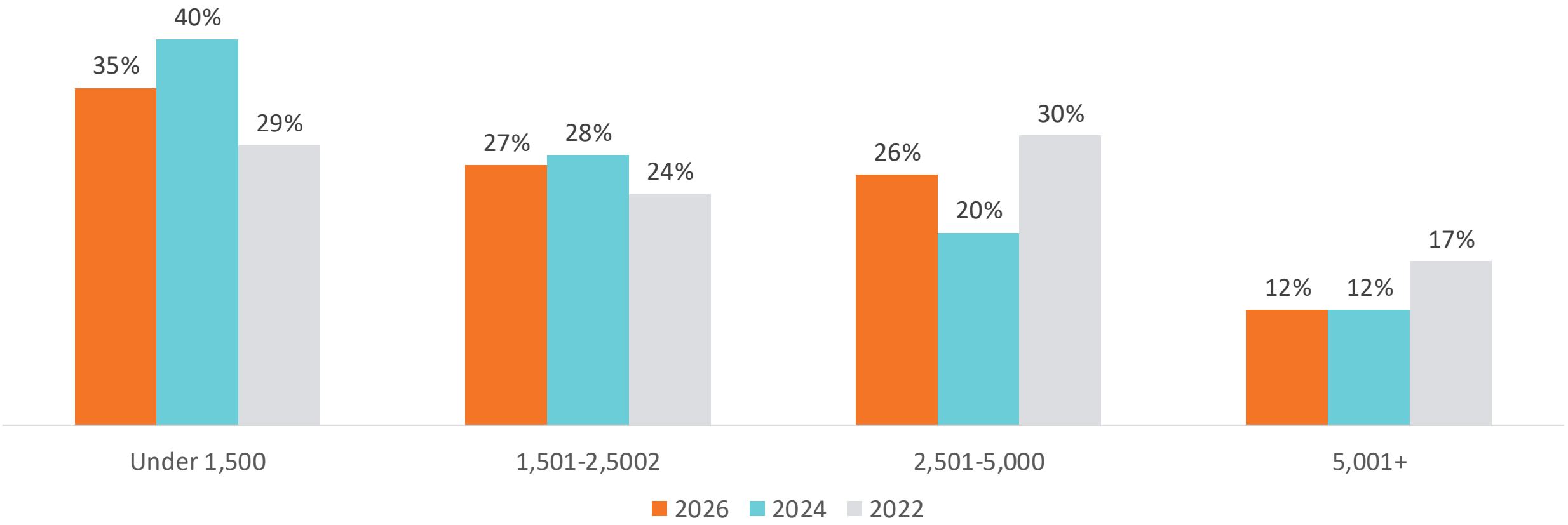
APPROACH

- Blind study
  - No brands were mentioned as a sponsor in the survey

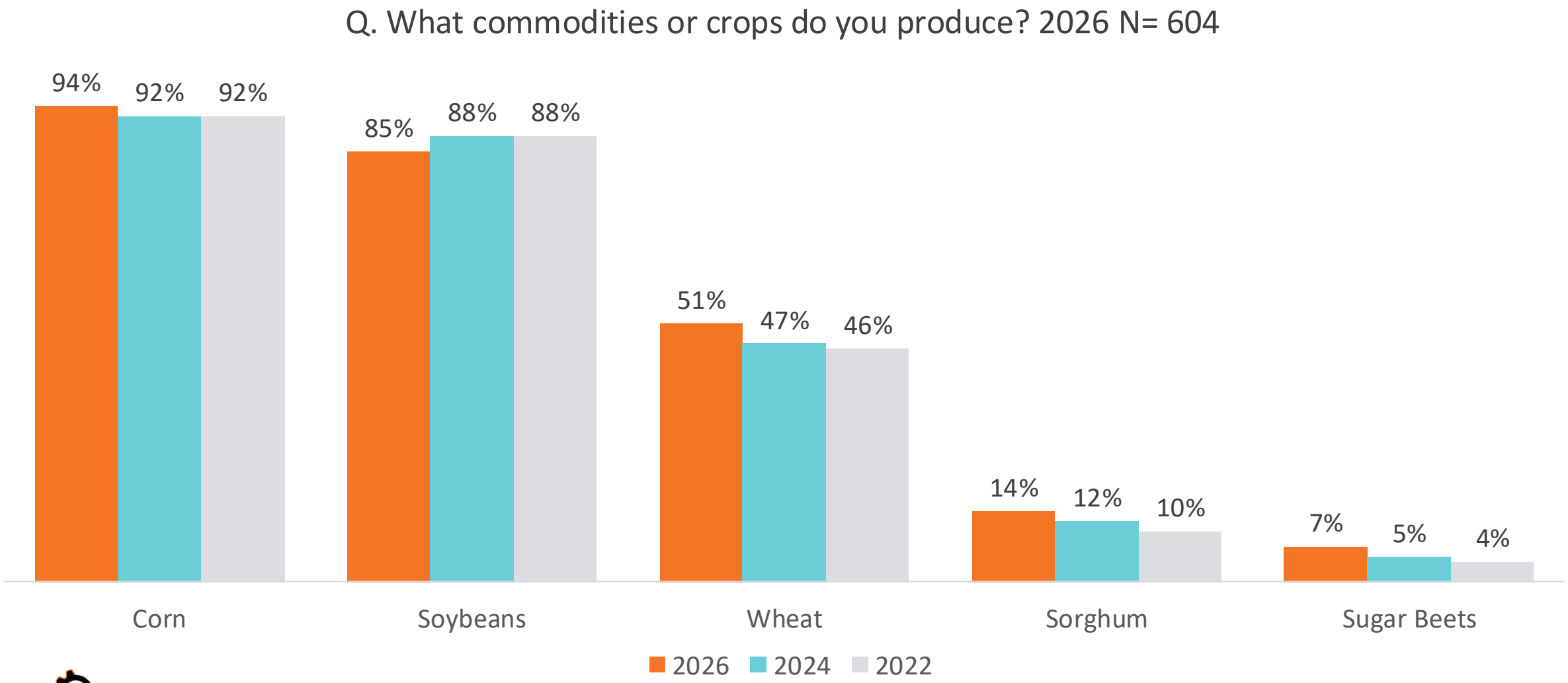
DETAILED FINDINGS

Participant farms varied in size, with most *(65%)* reporting 1,500+ acres or more.

Q. Roughly how many acres do you farm?
2026 N=604, 2024 N=609, 2022 N=500

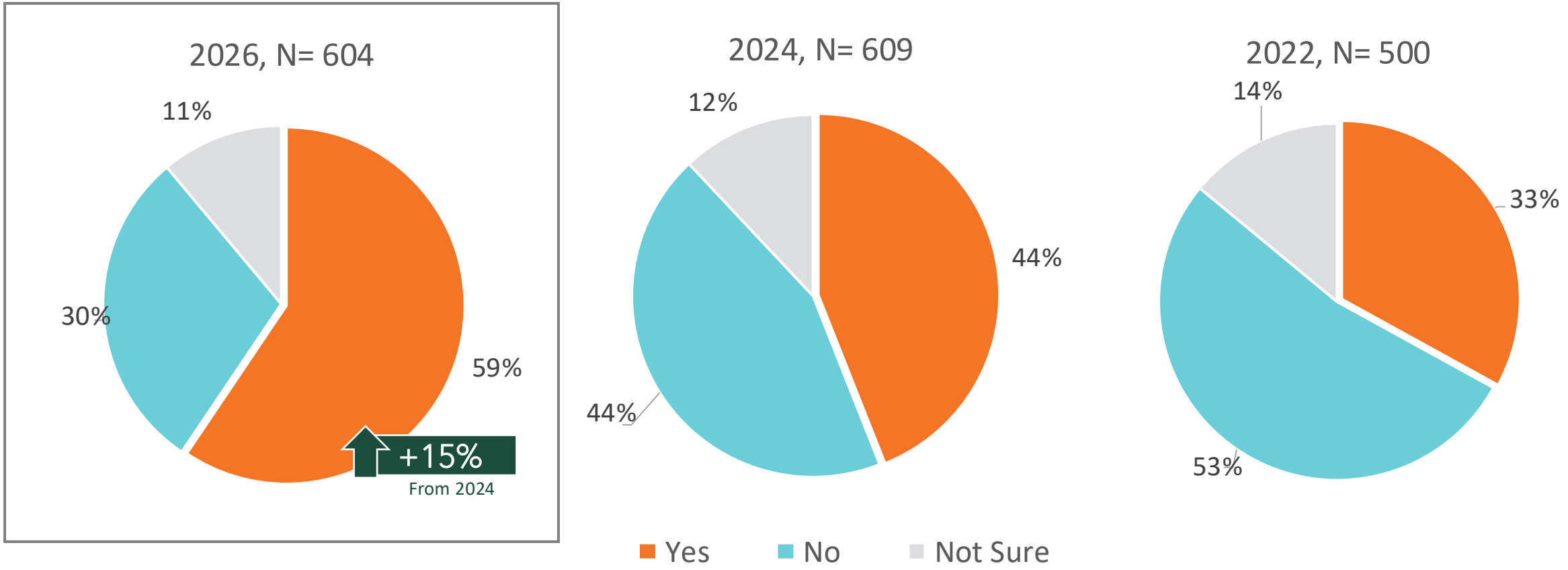


Corn (94%) and Soybeans (85%) were the most common crop types grown.



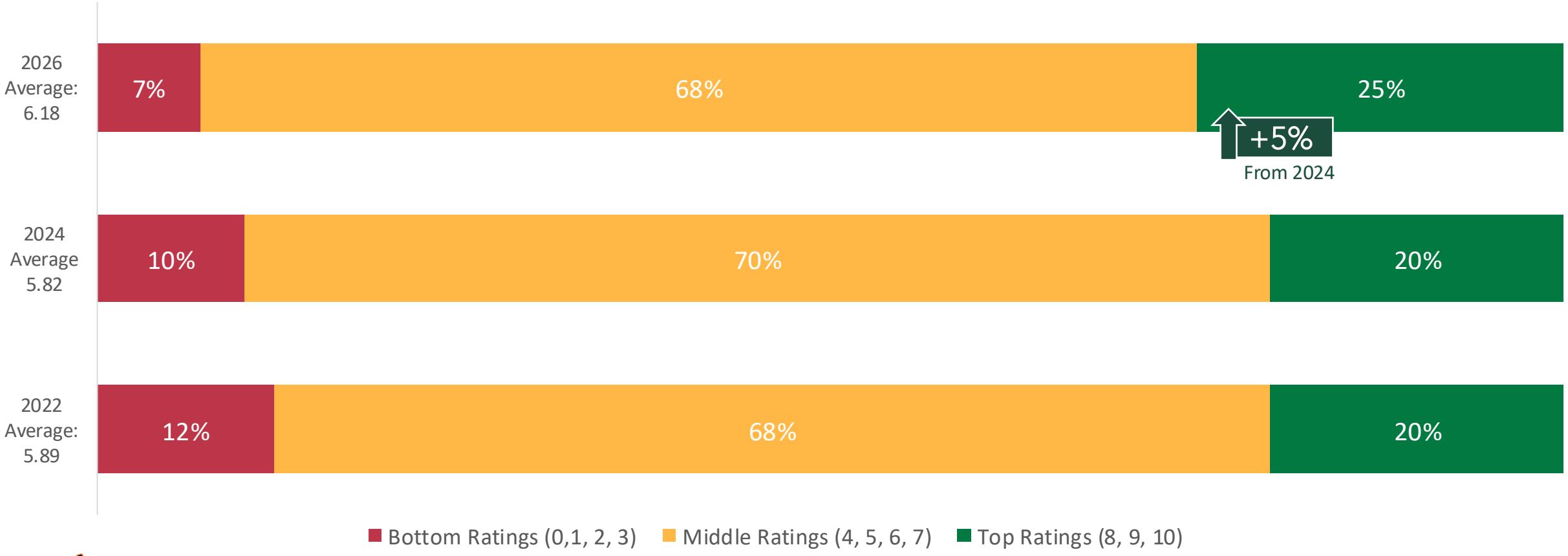
Awareness of bio-pesticides have steadily increased over the four years, increasing from 33% to 59%, a 26% increase.

Q. Have you heard of the term **bio-pesticides**?



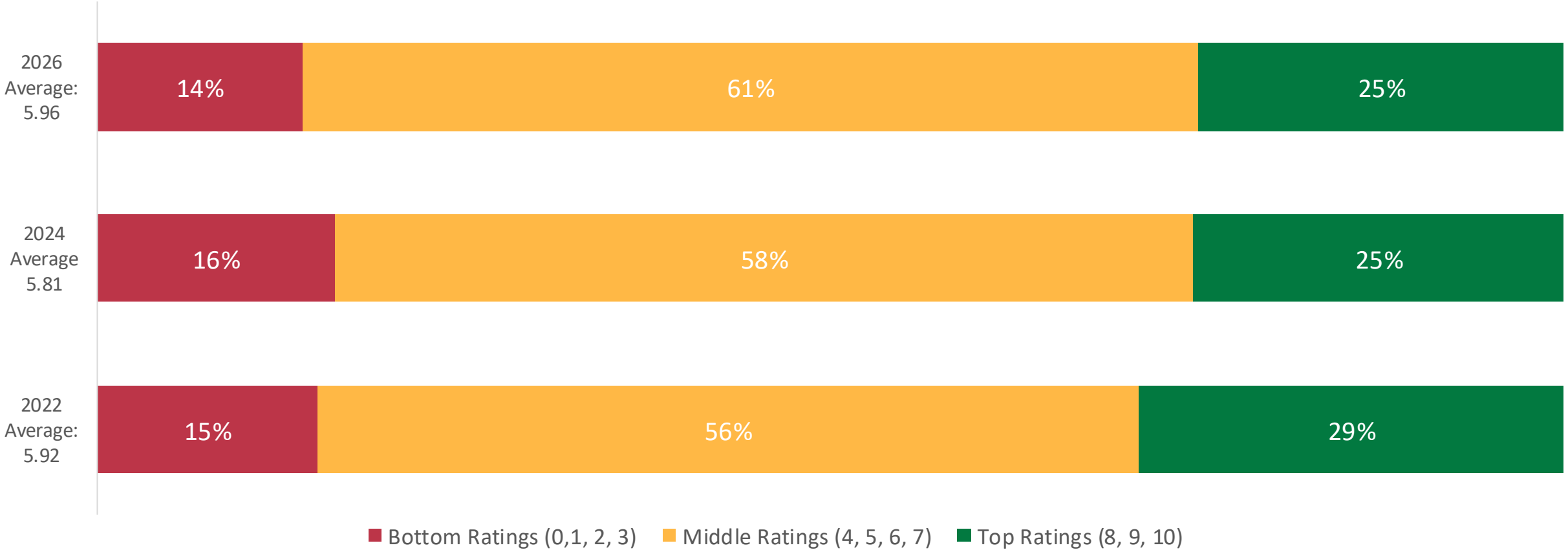
Perception of bio-pesticides have increased over the years polled, with percentage of top ratings increasing from 20% to 25%.

Q. (ONLY if answered YES in Aware of the term bio-pesticides) On a scale of 0-10, with 0 being "very negative" and 10 being "very positive," what would you rate your perception of **bio-pesticides**?
2026 N=604, 2024 N=609, 2022 N=500



Perception of bio-pesticides have increased over the years polled, with percentage of top ratings increasing from 20% to 25%.

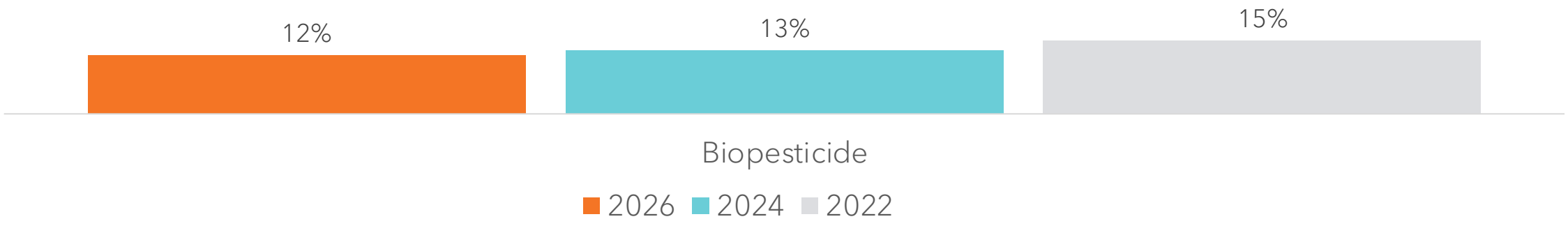
Q. On a scale of 0-10, with 0 being “not at all” and 10 being “very,” how **interested** are you in each of the following topics?
2026 N=604, 2024 N=609, 2022 N=500



Usage in bio-pesticides have decreased slightly over the years polled, but only a minor amount, from 15%-13%.

CURRENTLY USE

Q. What kind of biological products do you purchase? (Select all that apply)
2026 N=317, 2024 N=273, 2022 N=185



THANK YOU