

FOCUS

FIELD TRIALS

Trusted.
Independent.
Committed.

2025 Edition



SGS



Maximize the impact of field trials

In today's competitive agricultural industry, data-driven decisions are critical for success. Field trials are the cornerstone of this process, helping to ensure that agricultural commodities meet regulatory standards, demonstrate efficacy, and secure market positioning. By conducting GEP (Good Experimental Practice) and marketing field trials, businesses can generate high-quality, reliable data necessary for product registration, efficacy claims, and ensuring that their products meet regulatory compliance.

In this **Focus on Field Trials** newsletter, we will dive deep into the world of field trials, exploring their purpose, processes, and importance in the agricultural sector. You will gain valuable insights into how these trials support product development, drive market success, and foster regulatory trust, whilst also understanding how SGS can support your operations.

In this edition, you will learn about:

- The process of conducting field trials
- The benefits and challenges
- Industry insights
- How SGS can support you
- Emerging technologies and regulatory trends
- How to utilize trial data effectively

SGS: Your trusted partner

At SGS, we are deeply committed to advancing the agriculture industry by providing support for field trials across the world. Backed by state-of-the-art technology, advanced crop management solutions, and digital tools, our team guarantees accurate and reliable results while providing technical expertise and regulatory guidance.

With a strong global presence and in-depth local knowledge, we help businesses navigate complex regulatory landscapes, optimize trial processes, and accelerate product validation. Our commitment to innovation and precision enables us to deliver high-quality data that supports product development, strengthens market positioning, and ensures compliance with international standards.

"We have been using SGS Crop Science for the last few years. The high-quality trials, excellent communication, and expertise the team provides are first class."

Stewart Woodhead
Technical Lead at Sipcarn UK Ltd

Our unrivaled network



"Our GEP field trial services are at the forefront of agricultural innovation, ensuring the highest standards in efficacy testing across Europe. With a dedicated team of project managers and state-of-the-art test facilities, we provide reliable data to support regulatory approvals and product development. By continuously optimizing our methodologies and expanding our expertise, we help our partners bring effective and sustainable solutions to the market." - Yannis Lakasas, GEP EU Studies Director at SGS

At SGS, we are deeply committed to supporting the agriculture industry with cutting-edge solutions and expert guidance.

Our extensive network of laboratories and field stations spans Europe, North America, and South America—each offering localized expertise with a truly global reach. Our services are designed to support the entire field trial process, from early-stage product development and regulatory compliance to on-farm decision-making. Backed by rigorous testing and reliable data, our solutions empower confident, informed advancements in agriculture. Each facility in our network is staffed by experienced professionals dedicated to delivering high-quality, actionable insights tailored to your specific needs.

Whatever the commodity. Wherever the location. Our trusted professionals will be with you every step of the way.

Take your agricultural resources operations to the next level.

Get in touch today.

✉ cropscience@sgs.com



Understanding field trials

Field trials play a pivotal role in the development and success of agricultural products. By generating reliable, high-quality data, these trials support critical milestones such as product registration, efficacy claims, and market positioning. Whether you are evaluating plant protection products or exploring innovative biostimulant solutions, the integrity of your data is paramount.

Efficacy vs. biostimulant field trials

Efficacy and biostimulant field trials serve different but complementary purposes in agricultural research and product development.

Efficacy field trials are conducted under strict regulatory guidelines to ensure that the data produced is both reliable and scientifically robust. These trials are primarily used to support the registration and approval of plant protection products (PPPs), such as insecticides, fungicides, and herbicides. By following the rigorous standards set by organizations like EPPO (European and Mediterranean Plant Protection Organization), efficacy trials focus on testing a product's effectiveness in controlling pests, diseases, and other harmful organisms. The goal of this is to generate reliable data that meets regulatory requirements, ensuring that products perform effectively and safely in real-world conditions.

In contrast, biostimulant field trials focus on evaluating the impact of products that enhance crop performance in ways that extend beyond pest and disease control.

These trials examine aspects such as crop health, stress tolerance, and nutrient uptake efficiency.

Biostimulants aim to improve the overall resilience and productivity of crops, helping them withstand environmental stressors, optimize nutrient use, and grow more effectively. While efficacy trials are essential for demonstrating the effectiveness of pest control products, biostimulant trials provide insights into how products can improve crop health, yield, and long-term sustainability.

The main distinction between the two types of trials lies in their focus: efficacy trials assess the direct impact of products on pest and disease management, while biostimulant trials focus on broader agricultural benefits, such as improving crop vitality and supporting environmental sustainability. Efficacy trials are critical for regulatory approval and ensuring that products meet safety standards for pest control, while biostimulant trials offer valuable information about how products can contribute to healthier, more productive crops. Both types of trials are integral to the development of innovative agricultural products, providing businesses with the data they need to enhance product offerings and meet market demands.



Table 1: Summary of efficacy field trials vs. biostimulant field trials

Aspect	Efficacy Field Trials	Biostimulant Field Trials
Primary Focus	Pest and disease control	Crop enhancement (stress tolerance, nutrient uptake)
Objective	Product efficacy for regulatory approval	Crop health, resilience, and productivity
Regulatory Requirement	Required for registration and compliance	Not required for registration, used for validation
Guidelines	EPPO guidelines for efficacy testing	No formal regulatory standards
Impact	Pest control and market access	Crop performance and sustainability
Duration	Multiple seasons and locations	One season (typically)
Example Products Tested	Insecticides, fungicides, herbicides	Biostimulants

The field trial process

To achieve reliable and reproducible results, field trials typically follow a structured process, of which is adaptable to both Efficacy and Biostimulant trials. This process is as follows:

1. Trial planning & protocol development

Define the objectives, methodology, and compliance requirements, setting the foundation for a robust trial.

2. Site selection & preparation

Choose and prepare the optimal location to ensure that the results are both meaningful and representative.

3. Treatment applications

Implement proper and consistent application techniques, which are critical for maintaining the trial integrity.

4. Data collection & assessments

Conduct regular monitoring and systematic assessments to gather accurate and comprehensive data.

5. Statistical analysis & interpretation

Analyze the collected data rigorously to extract actionable insights and validate the trial outcomes.

6. Reporting & documentation

Compile a formal report summarizing the findings and providing clear recommendations based on trial results.

By adhering to these steps, companies can ensure that their field trials deliver the quality of data required for informed decision-making and successful product development.



Timelines & frequency

The duration of a field trial depends on several factors, including crop growth cycles, trial goals, and regulatory requirements. While some trials may be completed within a single growing season, others require multiple seasons across various locations to generate robust, reliable data.

For efficacy trials, the primary determinant of the trial period is the appearance of the target pest or disease. In contrast, biostimulant and fertilizer trials focus on long-term crop performance, stress tolerance, and nutrient uptake, often requiring at least one full year for product validation before commercialization.

Spring vs. fall trials: choosing the right timing

The season in which a trial is conducted plays a crucial role in determining outcomes, as environmental conditions, crop types, and pest/disease pressures vary throughout the year.

Choose SPRING trials if:

- ✓ You want to test early-season pest control, seed germination, or emergence efficacy.
- ✓ Your focus is on spring-planted crops or pre-emergence herbicide performance.

Choose FALL trials if:

- ✓ You need to evaluate cold resistance, late-season disease control, or post-harvest traits.
- ✓ You are studying winter crops or soil health improvements, such as cover crops and microbial activity.

How often should field trials be conducted?

- **Efficacy trials** typically need at least two seasons in multiple locations before data can be sent for regulatory approval (e.g., EU authorities or national agencies).
- **Biostimulant & fertilizer trials** usually require at least one year of testing under different conditions to prove product benefits before commercialization.

By carefully planning the timing and frequency of field trials, businesses can ensure they generate high-quality, regulatory-compliant data that supports product registration, efficacy claims, and market success.



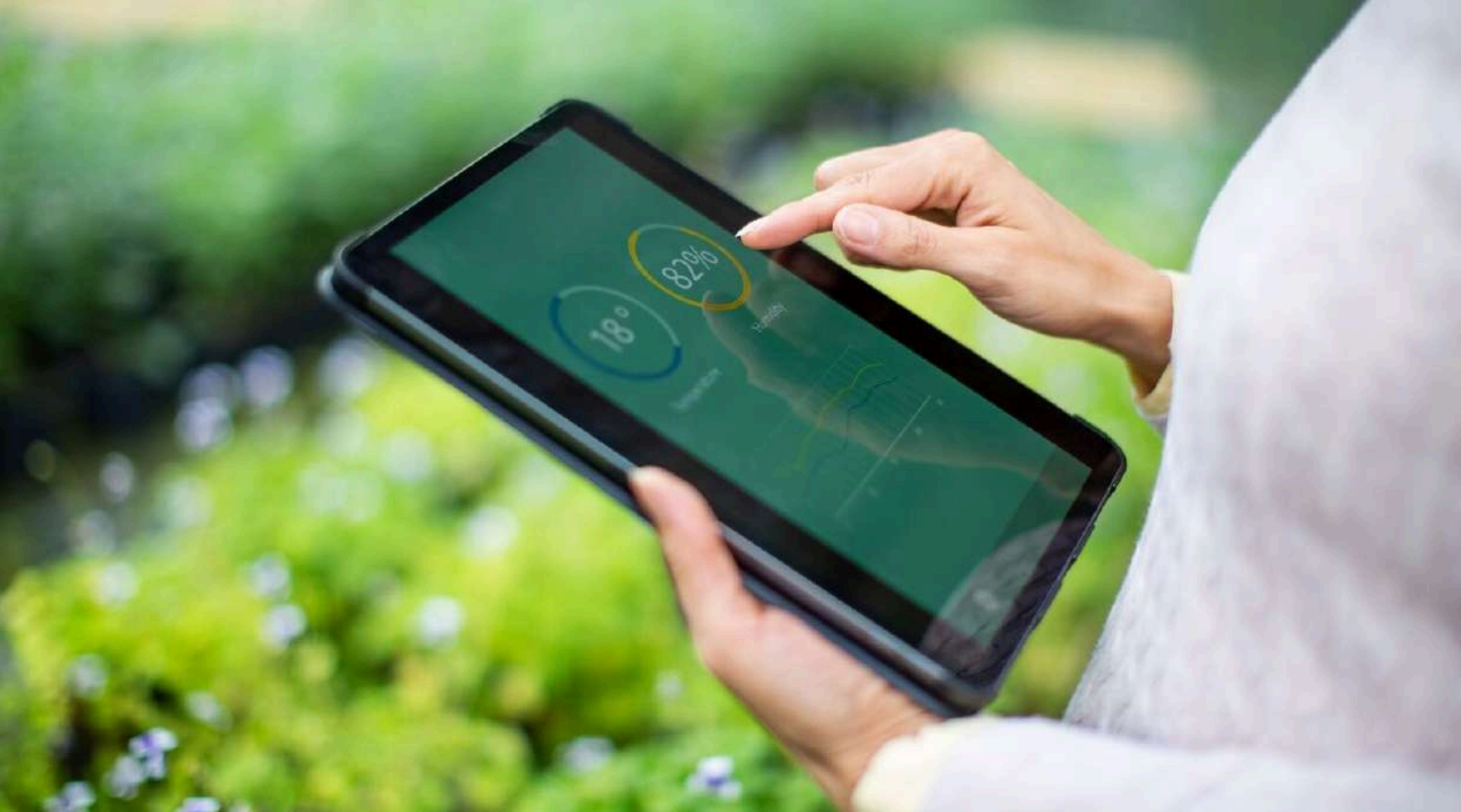
Summary

Table 2: Summary of trial types and affecting factors

Trial Type	Typical Duration	Factors Affecting Duration
Short-term trials (e.g., Biostimulants, fertilizers)	3–6 months	Focus on early growth stages, stress tolerance, or nutrient uptake.
Single-season efficacy trials (e.g., pesticides, fungicides, herbicides, seed treatments)	6–12 months	Covers one crop cycle; assessments include efficacy, phytotoxicity, and yield impact.
Long-term multi-season trials (e.g., resistance management, soil health, crop rotation)	2–5 years	Studies long-term effects of treatments on soil microbiota, pest/disease resistance, and sustainability.

Table 3: Breakdown of trial phases

Phase	Timeframe	Activities
1. Trial Planning & Protocol Development	1–3 months	Define objectives, select site, prepare protocol, and get regulatory approvals (if needed).
2. Site Selection & Preparation	1–2 months	Field scouting, soil preparation, and plot marking.
3. Treatment Application	Varies (1–6 months)	Applied at specific growth stages (e.g., transplanting, flowering, fruiting).
4. Data Collection & Assessments	Ongoing (1–12 months)	Multiple field visits for crop assessments (e.g., growth, efficacy, stress indicators).
5. Harvest & Yield Evaluations	1–2 months	Measuring marketable yield, quality, and post-harvest traits.
6. Statistical Analysis & Report Writing	2–4 months	Data processing, statistical validation, and reporting for regulatory submission or internal review.



Benefits and challenges

Field trials are a critical investment for agricultural businesses, providing essential data that supports regulatory approval, market positioning, and long-term product success. By conducting well-structured trials, product owners can reduce risk, confirm efficacy claims, and build consumer trust, ultimately leading to increased sales and market acceptance.

Beyond business advantages, field trials also help consumers by ensuring that agricultural products contribute to a safe, nutritious, and sustainable food supply. By rigorously testing fresh solutions, these trials help bring effective, environmentally responsible, and cost-efficient products to the market, promoting both public health and environmental sustainability. By investing in field trials, businesses not only enhance their product credibility but also contribute to a healthier, more sustainable agricultural ecosystem—a win-win for both the industry and consumers.

Challenges and considerations

Before conducting field trials, it is crucial to anticipate potential challenges that could impact their success. For example, unpredictable weather, soil differences, and pest fluctuations can all influence trial outcomes, and some herbicides may be highly effective in dry conditions but lose potency after heavy rainfall. As seen in fertilizer trials, poor plot layout, cross-contamination, and inconsistent measurements can skew results where uneven application affects yield comparisons. Regulatory approval adds another layer of complexity, requiring strict adherence to GEP standards while safeguarding intellectual property.

Furthermore, data collection and analysis also pose challenges, as human errors or low statistical significance can impact conclusions and delay commercialization. Field trials require significant resources, from land and labor to specialized equipment.

Who benefits from field trials?

Despite these challenges, field trials are invaluable to many sectors. Agrochemical and biotech companies rely on them to confirm pesticides, fertilizers, and seeds before market entry. The food and beverage industry uses trial data to ensure crop quality and sustainability, while regulatory bodies and environmental organizations assess product safety and environmental impact.

At SGS, we help businesses navigate these complexities with end-to-end field trial support, ensuring accurate, compliant, and actionable data. Our expertise in trial design, execution, and analysis allows companies to generate high-quality insights that drive product success.

If you're concerned about any of these factors, this is where **SGS can help**. Contact our team today to understand how we can support your operations to safely, effectively, and efficiently undergo field trials.



The future of field trials

As agriculture evolves, so must the way we conduct field trials. The future of Good Experimental Practice (GEP) and biostimulant testing is being shaped by cutting-edge technologies and shifting regulatory landscapes. With a growing emphasis on sustainability and efficiency, advancements in nanotechnology, digital agriculture, and AI are set to transform how we evaluate crop inputs.

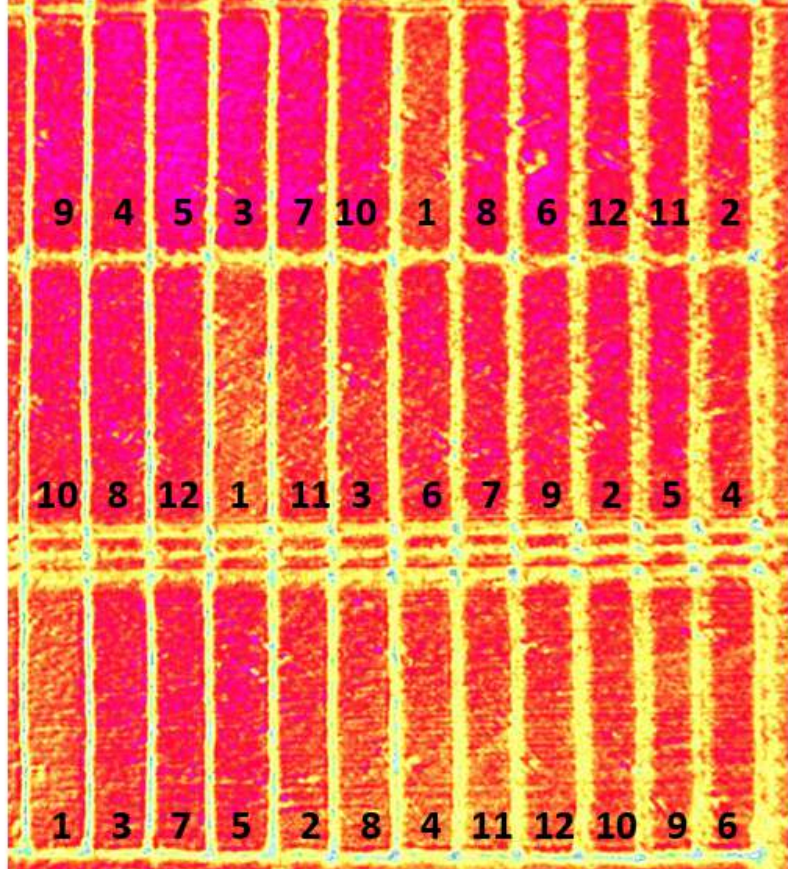
Nanotechnology is steadily emerging as a significant change in agriculture, with materials like iron oxide nanoparticles improving nutrient delivery and pest control. Their ability to enhance plant uptake makes them particularly promising for next generation biostimulant formulations. Meanwhile, digital tools such as drones, remote sensors, and IoT devices are redefining precision farming. These innovations offer real-time insights into soil health, plant stress, and environmental conditions, enabling more accurate applications and robust data collection during trials. Artificial Intelligence is also playing a crucial role, analyzing vast datasets to identify trends, predict outcomes, and optimize trial design—making field research more efficient than ever.

At the same time, regulatory frameworks are evolving to support more sustainable agricultural practices. The EU's Fertilizing Products Regulation (EU) 2019/1009 has introduced harmonized criteria for marketing fertilizers and biostimulants, emphasizing safety, quality, and compliance.

The Sustainable Use of Pesticides Directive and the Green Deal's Farm to Fork Strategy are further accelerating the shift away from chemical inputs, increasing demand for validated biostimulant alternatives. By 2030, the EU aims to reduce chemical pesticide use by 50%, making rigorous field trials essential for proving the efficacy of new, eco-friendly solutions.

With innovation and regulation moving hand in hand, the future of field trials lies in harnessing technology while meeting stricter sustainability standards. Adapting to these changes will improve trial reliability and ensure that agricultural advancements contribute to a more resilient and productive food system.

Concerned about how these regulations may affect your business? Contact teams today by contacting us at crops@sgs.com.



Utilizing data effectively

"As part of the technical team of Bayer, it is very important for me to cooperate with companies with authority in the field of conducting quality field tests, such as SGS. We have been partnering with colleagues from the Bulgarian team of SGS for several years. What gives me reason to assign projects to SGS is their flexibility and professionalism. We work with ease and always find optimal solutions in one or another situation that has arisen in the field."

- Representative from Bayer AG.

Field trials generate invaluable data that guide product development, regulatory approvals, and on-farm decision-making. A final report compiles trial conditions, crop response, and statistical analysis to assess efficacy and environmental impact. But beyond documentation, this data plays a crucial role in shaping the future of agricultural products.

Product optimization relies on trial insights to refine formulations, improve compatibility with other inputs, and determine the best application conditions. If a biostimulant proves most effective at early growth stages, future versions may enhance root development for maximum benefit. Regulatory compliance also depends on this data, as GEP trial results are essential for product approvals.

Supply chain and production strategies benefit from field trial findings by prioritizing high-yielding, stress-resistant varieties and refining input use. Farmers, in turn, gain precise agronomic guidelines from irrigation adjustments to tailored regional recommendations. A treatment showing drought resistance, for instance, could be strategically promoted in arid regions.

Beyond the field, marketing teams use trial data to build trust with farmers and distributors, benchmark against competitors, and create compelling sales materials. Meanwhile, continuous research ensures long-term adaptability, identifying areas for improvement and expansion to new crops and climates.

Ultimately, field trial data is more than just numbers—it is a roadmap for smarter, more sustainable agriculture.



Your trusted partner in field trials

At SGS, we know that field trials are more than just data collection—they are the foundation for product success. That is why we are here to support you every step of the way, from trial design and execution to regulatory approval and market entry. With our expertise in Good Experimental Practice (GEP), we help agrochemical, biostimulant, and seed companies generate high-quality, reliable data that meets global standards.

Our team designs and runs trials that assess the effectiveness of pesticides, fertilizers, and biostimulants in real-world conditions. We evaluate everything from crop growth and stress tolerance to soil health and nutrient uptake. Need controlled-condition research? We've got you covered with greenhouse and growth chamber studies that offer precise insights into product performance under specific environmental conditions.

Beyond conducting trials, we ensure seamless project management. We handle site selection, treatment application, field monitoring, and data collection—so you get accurate results without the hassle. Our statistical analysis and regulatory submission support help streamline the approval process, giving you the confidence to move forward with your product.

With operations available globally, we bring a unique mix of global reach and local expertise. Our trials align with European and Mediterranean Plant Protection Organization (EPPO) and international regulatory standards, ensuring your data is compliant and recognized by authorities. We also leverage innovative technology, including drone-based monitoring, high-resolution imaging, and GPS mapping, to enhance precision and efficiency.

We know time and resources matter. That's why we focus on delivering cost-effective, time-efficient solutions that keep your project on track. With over 100 years of experience, our reputation for independent, science-based testing makes us the trusted partner of industry leaders worldwide.

In conjunction with our field trial solutions, we can also provide:

- GLP Residue Studies & Environmental Fate Testing
- Integrated Pest Management (IPM) & Resistance Management Studies
- Controlled-Condition Trials (Greenhouse, Growth Chambers, & Lab Studies)
- Crop & Seed Performance Testing
- Tank Mix Compatibility & Application Studies
- Market Access & Commercialization Consulting

Start your journey to excellence by contacting us today at cropscience@sgs.com.

Trusted. Independent. Committed.

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The SGS logo, consisting of the letters 'SGS' in a bold, white, sans-serif font, positioned in the bottom right corner of the page.

When you need to be sure