International Seed Federation
Seed is Life

Seeds for a Resilient Future

A Call to Action from the Private Seed Sector at COP29

Executive Summary

The global seed sector stands as a cornerstone of food production and agricultural innovation, providing solutions that strengthen the resilience of food systems worldwide. This document, presented by the International Seed Federation (ISF) examines climate change as an urgent challenge and explores opportunities to advance sustainable, climate-resilient agriculture with seeds as the starting point.

This document highlights the results of a survey of the global seed sector conducted from June to August 2024 and coordinated by ISF, which celebrates its 100th anniversary in 2024. The survey shows that over half of seed sector stakeholders rank climate change as their foremost challenge. In this context, the urgency to act and innovate has never been greater.

This report calls on international stakeholders led by COP29 State Parties and climate negotiators to recognize and support the critical contributions of the seed sector in building a more sustainable agrifood system, advancing science-based innovation, and fostering global food security.

As climate-related challenges intensify, the seed industry remains at the forefront of innovations that help farmers and growers adapt to climate change, and stands as a key partner of the public sector and civil society to overcome these challenges and help ensure food and nutrition security in the face of increased weather extremes and climate shocks.

About ISF

International Seed Federation (ISF) ISF (International Seed Federation) is a non-governmental, non-profit organization. In 1924, FIS (Fédération Internationale du Commerce des Semences) was established in London. The current organization of ISF was formed in 2002 following the merger of FIS and ASSINSEL (International Association of Plant Breeders), strengthening their respective areas of expertise: plant breeding and seed trade.

ISF believes in a world where the best quality seed is accessible to all, supporting sustainable agriculture and food security. Therefore, it has a mission to promote plant breeding and seed innovation and to create the conditions to ensure the global movement of seeds.

Representing 96 per cent of the global seed trade, ISF members strive to practice and promote sustainable agriculture and contribute to the highest levels of food security. ISF promotes these contributions to be recognized and facilitates the free movement of seed within a framework of fair and science-based regulations, while serving the interests of farmers, producers, industry, and consumers.

In addition, ISF promotes incentivizing innovation through the protection of intellectual property rights for plant varieties and plant-related inventions. It also develops rules for seed trade to clarify and standardize contractual relationships between buyers and sellers at the international level.

Finally, ISF fosters cooperation and collaboration through the events it organizes, which enable seed industry stakeholders to identify issues, stimulate strategic thinking and accelerate the adoption of common positions. From 1924, when the first International Seed Congress was held in London, to the present day, it has represented the interests of its members and is widely recognized as the voice of the global seed industry.

Climate Change:
The Sector's Most Pressing Challenge

COP29 is taking place this year, which is on track to be the warmest year on record (according to the World Meteorological Organization); at the same time, 733 million faced hunger, according to the 2024 report from the UN Food and Agriculture Organization.

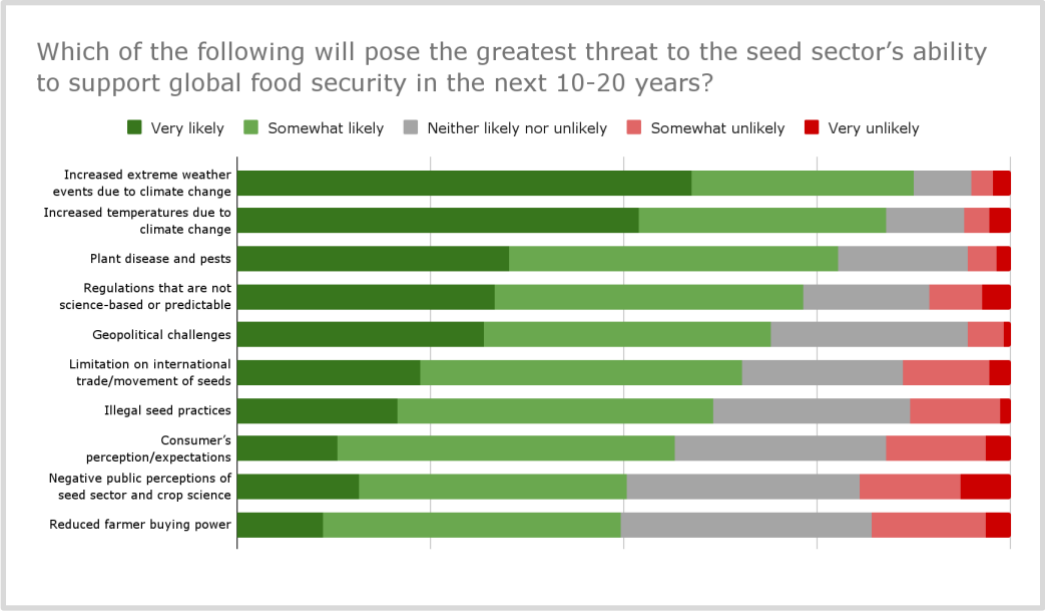
The impacts of climate change – from temperature rises to water scarcity, soil degradation and salinization – are punishing agriculture around the world. But we can shift this trajectory. With new plant breeding technologies, resilient crop varieties can be developed at a faster rate, allowing farmers to have access to varieties that can thrive under harsh conditions. Furthermore, we are at an important crossroads politically, with countries and regions like Europe having the opportunity to establish clear, science-based regulatory frameworks that would allow plant breeding and seed companies to get these much-needed climate-resilient varieties to farmers who need them most.

As an official observer organization in the UNFCCC, ISF is at COP29 to advocate for urgent action to ensure climate-resilient crop varieties reach farmers, especially in low-income and food-insecure countries. Our calls to action are informed by our experience stretching back to the last century, in which the seed sector has driven transformative advancements that have bolstered global food security and agricultural resilience.

The seed industry has been instrumental in bringing about agricultural breakthroughs, from the Green Revolution, which helped avert famines and uplifted millions of lives, to the establishment of the International Union for the Protection of New Varieties of Plants (UPOV), which has provided crucial protections for plant breeders while increasing agricultural productivity in countries like Vietnam.

With scientific advancements like CRISPR-Cas9 and hybrid breeding, the seed sector has fostered a diverse and resilient food system capable of adapting to changing global demands. However, climate change poses unprecedented challenges, intensifying the need for innovative, climate-resilient crop varieties.

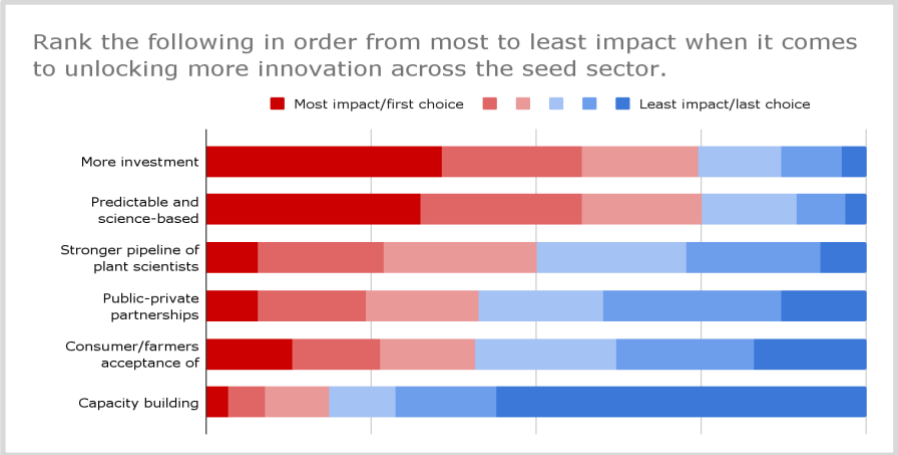
In a seed sector survey conducted by ISF in June to August 2024, more than half of survey respondents identified climate change and climate change-related impacts as the most significant threat to the seed sector. This includes increased extreme weather events due to climate change, increased temperatures, and plant diseases and pests, the spread of which is exacerbated by rising temperatures.



Towards a Climate-Resilient Future

The path forward requires concerted efforts to support innovation in plant breeding and seed treatment, increase investment in research and development from both the private and public sectors, foster collaboration to build inclusive seed and food systems, all of which strengthen agriculture's resilience to climate change.

In the seed sector survey, respondents particularly emphasized the need for **increased investment,** with nearly all indicating that advancements in breeding could significantly enhance climate resilience. Public-private partnerships and dedicated funds for research can expedite the development of climate-ready seed varieties, creating economic and environmental benefits.



Climate resilience is a shared responsibility. Effective partnerships among governments, the private sector, and international organizations are essential for creating a supportive environment for seed innovation. These collaborations are needed to build frameworks that reduce trade barriers, implement regulations that are based on science and consistent with international standards, and enable the exchange of knowledge and fair and equitable access to and use of genetic resources. Our on-the-ground experience with the Seed Resilience project in Rwanda demonstrates how local farmers and communities can benefit from improved access to high-quality, locally adapted seeds.

Emerging technologies like gene editing, drought-resistant varieties, and disease-resistant crops offer promising tools for building resilience. However, their success depends on supportive policies that facilitate research, development, and the deployment of these innovations, especially in regions vulnerable to climate change.

Harnessing quality seeds to improve food and nutrition security in Rwanda

Improved varieties often remain out of reach to most farmers in Africa. By establishing a seed supply chain in Rwanda, we are working to strengthen the private sector's contribution to empowering farmers, especially smallholders, and enhancing their seed choice.

The ISF Seed Resilience project, implemented in partnership with Fair Planet and the Rwandan Agricultural Board, aims to facilitate access to high-quality seeds, together with training on Good Agricultural Practices (GAP), for 84,000 Rwandan farmers. Access to improved varieties will allow farmers to produce and sell significantly higher yields with better produce quality.

The project will address three food and nutrition pillars: fresh vegetables for vitamins and fibres, pulses for proteins and soil fertility improvement, and cereals and potatoes for carbohydrates.

After two years of implementation, 22 vegetable varieties out of 61 tested were found suitable for the market with better yields and quality. In fact, trials of certified carrot seed in Rwanda have shown a nine-fold improvement in yield. Next season, there will be 100 demonstration plots across Rwanda as the project continues.

Call to Action

In light of COP29, ISF calls on global stakeholders to recognize and support the vital contributions of the seed sector in ensuring food security in the face of climate change and building more sustainable and resilient agri-food systems.

- **Support for Science-Based Policies**: We urge governments to adopt and uphold regulations based on robust scientific evidence and consistent with international standards that support innovation and the movement of seed around the world.

- **Foster Public-Private Collaboration** to ensure that farmers all over the world can access seeds they need to adapt to a changing climate, as well as mitigate the environmental impact of agriculture. By leveraging our complementary strengths and expertise, we can improve farmers' access to quality seed and innovation, giving them additional protection against the adverse impacts of climate change.

- **A Unified Commitment to a Resilient Future**: To safeguard our food systems, it is imperative for policies to foster seed sector innovation and empower farmers with climate-resilient crops. Together, we can build sustainable agrifood systems that endure the challenges of climate change and feed generations to come.