BIAC THE VOICE OF BUSINESS AT THE OECD

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Innovations in Plant Breeding

Recommendations to Enhance Food Security through Innovation

The world today faces challenges from increasing population, changing food demands, and climate change. Innovative and sustainable agricultural solutions are needed to address these challenges in the near and distant future. The plant science industry invests in technology research and development to sustainably address these challenges, thus contributing to food security globally.

Every day the world population increases by 200,000 people. By 2050 the world's population is estimated to reach more than 9 billion (OECD 2012). Due to the limited amount of arable land that can support global food production, growing more from less is necessary, not only to address the growing population's food needs, but to prevent further conversion of natural areas and wildlife habitats to farmland. In addition to land constraints, unpredictable weather conditions, coupled with pest pressures, greatly impact the agriculture industry's ability to meet the increased demand for food. Various environmental stressors, biotic and abiotic, can alter the quantity, quality, and availability of agricultural commodities and therefore have downstream impacts on trade and global food security, which can intensify inequitable distribution of the global food supply. To increase global food production, while keeping the amount of land dedicated to farming unchanged, a global shift in the promotion, adoption, and acceptance of agricultural technologies is needed.

In order to increase productivity, yield gains must come from a combination of improved farm- and land-management practices, advances in plant breeding, genetics, biotechnology, information technologies, and farm equipment, among others.
Innovation is essential to the development of an economically viable and sustainable agricultural sector and so plays an important role in contributing to global food security and reducing the effects of external factors, such as climate change, on food production.
Advances in plant sciences have contributed to increases in yield, however, further innovation and technology adoption will be required to take the agricultural industry to the next level.

This paper provides BIAC recommendations on five important issues related to innovation in agriculture, as it applies to plant sciences, – not necessarily presented in order of importance – for the OECD's priorities in advancing agricultural policies based on the experiences and perspectives of agricultural technology developers.

1) Harmonization of Oversight of Regulated Technologies

Variability in national standards and regulations for agricultural biotechnology products (e.g. genetically modified (GM) crops) has created an unpredictable regulatory landscape. Continuous changes to regulatory requirements, as well as contradictory requirements between nations, deter innovators from investing in new technologies. Inability to obtain registrations in a timely manner results in asynchronous approvals, leading to increased likelihood of low level presence (see recommendation below on Synchronization of Approvals for Regulated Technologies), and delays or prevents access to new agricultural solutions at the farm and consumer level.

BIAC Recommendation to OECD:

- Endpoints required in risk assessments should be as similar as possible amongst countries and a weight of evidence approach should be followed.
- Risk assessments should be appropriate for the intended use (i.e. cultivation or import) and the degree of familiarity of the product being assessed (e.g. two or more GM events combined through conventional crossing).
- OECD should support the continuation of efforts made by governments to recognize history of safe use of products, traits, and technologies thereby facilitating the reduction of regulatory requirements based on these familiarities.
- OECD should sponsor initiatives that foster mutual understanding and recognition of risk assessments and/ or approvals between countries. This effort will increase the efficiency of the risk assessment process and data review by regulatory authorities, limit duplication of effort, improve synchronicity, and reduce the likelihood of low level presence and other barriers to trade.

An Enabling Environment Requires:

- Adherence to science-based risk assessments proportionate to the risk, if any, posed by the product and based on experience with commercial use.
- Mentoring of countries with developing regulations modeled on well-functioning and established systems.

2) Synchronization of Approvals for Regulated Technologies

A growing number of countries have established risk assessment procedures for approving the cultivation and/ or importation of biotechnology products, and derivatives, for food and/or feed use. Asynchronous approvals across countries create situations where a product approved for cultivation in one country could enter another country where that same product is under review by the government for import approval, commonly termed

low level presence (LLP). As the time between approvals in cultivation countries and import markets increases, the likelihood of LLP increases.

BIAC recommendations to the OECD

- Encourage synchronous approvals to avoid LLP.
- Encourage governments to establish thresholds to deal with LLP when synchronous approvals are not possible. It is important to recognize that these thresholds should be based on achievable limits given current production and marketing norms.

An Enabling Environment Requires:

- Functioning regulatory systems capable of consistently and dependably assessing technologies and issuing timely approvals. Where regulatory system functionality is not timely, a risk-based and science-based process for establishing a LLP threshold should be implemented in countries where approval is pending or the regulatory system does not allow for approvals.
- Decoupling of approvals in one country as a prerequisite for regulatory assessment in another country. Raise awareness, among ICT and non-ICT industries, on the importance of data flows for business operations in global value chains (GVCs).
- Implementation of best management practices to minimize LLP in the supply chain.

3) Support Innovation in Plant Breeding

Plant breeders utilize a range of tools in their breeding programs, and continually seek new and accessible methods that enable increased precision and efficiency for introducing beneficial traits in their breeding programs. A range of new precision breeding techniques offer these advantages, including identifying a gene in a plant's wild relative and precisely and efficiently introducing that gene and the desired trait into an existing, high performing commercial variety. Farm level implementation of these techniques in agriculturally important crops, including field, vegetable, and specialty crops, is hampered by regulatory uncertainty.

BIAC recommendations to the OECD

- Encourage governments, when considering regulation of new precision breeding techniques, to view any potential risk in the context of other plant breeding tools that are established as safe and are used to develop comparable products.
- Where regulations are implemented, they should be science-based, proportional to the risk, if any, and re-evaluated as experience is obtained.

An Enabling Environment Requires:

- Clear and globally harmonized regulatory approaches for new precision breeding techniques.
- Recognition of the importance of innovation in plant breeding, as innovation is essential for the development of an economically viable and sustainable agricultural sector.

4) Intellectual Property (IP) Protection to Spur Innovation

In order to foster innovation, developers must be incentivized to invest in innovative products and technologies. Recognition of intellectual property rights is essential to spur innovation and drive the discovery of long-term solutions to address the agricultural needs of a changing world.

BIAC recommendations to the OECD

- Support efforts to shorten 'time to market' for agricultural technologies to allow for maximum IP protection of commercialized products.
- Work with OECD governments and key partners to identify market, regulatory, and stewardship implications for the introduction of generics or discontinuation of products once patent coverage has lapsed.

An Enabling Environment Requires:

- Open dialogue about the role IP protection plays in stimulating research and development of new technologies.
- Confidence that confidential business information submitted in risk assessments will remain as such.
- Ensuring the protection of regulatory information that is not confidential, yet represents intellectual property.

5) Support for Science, Technology, Engineering, and Mathematics Education

Innovation in agriculture and crop production depends on a future workforce prepared to develop new agricultural technologies. The lack of trained professionals in agricultural biotechnology, and across the wider agricultural sector, is a key issue facing the industry. This is an issue that requires action today to ensure the agricultural sector can continue to grow into the future.

BIAC recommendations to the OECD

- Work with OECD governments to strengthen education in areas important for agricultural technologies.
- Explore opportunities in the program of work of the OECD Directorate of Education and Skills to prepare individuals for opportunities in agricultural technology.

References:

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