

The value of patents for innovators, farmers and consumers

Patents not only promote entrepreneurial risk-taking and innovation by enabling a reasonable return on investment, but also benefit society by ensuring an effective diffusion of innovative products and by allowing scientific knowledge to be shared. In addition, revenues from successful inventions reinvested in new R&D nurture the innovation cycle. Remarkably, most of the social welfare coming from patented innovations in agriculture accrues to farmers. The patented hybridisation technology called Ogura⁵ developed by the French public research institute INRA is used to make Oilseed Rape hybrids with higher yields. A thorough analysis of the socio-economic effects of the patented Ogura technology showed that 75% of the total benefit coming from the patented innovation (estimated at € 1.0 billion) accrues to farmers (50%) and to processors and end consumers of livestock products (25%), as opposed to only 25% for the technology developer.

IP protection for plant-related inventions put into perspective

All innovators need a stable and predictable framework of intellectual property protection which fosters innovation in Europe, benefits SMEs and ensures the availability of high-quality products down the value chain addressing the needs of breeders, farmers and consumers. If investments in innovative plant-related inventions were not to be protected in the EU by the sound legal framework provided by Community Plant Variety Rights Regulation⁶ and the EU Biotech Patent Directive⁷, plant breeding companies in Europe would lose the incentive to innovate. This would contradict the EU's number one priority of "boosting jobs, growth and investment" and its international commitment to pursuing the Sustainable Development Goals of mitigation and adaptation to climate change, which require continuous efforts to develop new plant varieties and new plant breeding technologies to answer to the future challenges.

Want to know more?

→ IP52 <http://ip52.org/> is a website set up by CropLife International, which helps make sense of intellectual property. It features videos with experts in simple language, and infographics in English and several additional languages, including French, Spanish and Portuguese. It also debunks a number of myths related to IP protection.



→ EuropaBio IP brochure: "How intellectual property rights promote innovation and create economic and societal value"

→ EuropaBio on IP: "The Biotech Patent Directive is up to task. Do not open it".



- 1 Steffen Noleppa, The economic, social and environmental value of plant breeding in the European Union, [HFFA Research](#), 2016
- 2 UN: [The Millenium Development Goals Report](#), 2015
- 3 [European Seed Association](#)
- 4 For genetically modified crops the investment can be up to \$150m USD
- 5 Steward Redqueen, [The Case of Ogura Oilseed Rape in France](#)
- 6 Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights
- 7 Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions

INTELLECTUAL PROPERTY FACTSHEET

INNOVATION IN PLANT BREEDING



How IP drives progress in Europe



Innovation in plant breeding has brought society phenomenal benefits, from improved quality of seeds to lower prices and higher productivity, thereby reducing waste, energy consumption and pollution.¹

As our world's population grows and the productivity increase of many crops reaches a plateau, we need to encourage even greater innovation in order to produce enough nutritious food while conserving natural resources and maintaining biodiversity.

Intellectual property protection, including plant variety protection rights and patents, helps drive innovation for more productive and sustainable seeds by providing an incentive to innovators to take entrepreneurial risks that benefit us all.

Without the prospect of a reasonable return on their investments, companies and public research institutions could not bear the immense cost of developing innovative traits. Maintaining a sound IP protection system keeps Europe in the lead in global plant breeding and contributes to attaining EU's number one priority of "boosting jobs, growth and investment".

Global challenges require innovation in agriculture

With 800 million people malnourished today, according to the United Nations², the world needs to produce more affordable food to feed an expected 9.5 billion people, 2 billion more than today, by 2050. To deal with the challenges in agriculture, such as climate change, putting additional stress on crops, shifting growing patterns and resulting in new insect and weed threats that damage harvests, farmers need innovative products. The innovations in agriculture include newly bred plant varieties, as well as specific traits which can provide value in different plant varieties.



Plant breeding R&D is essential

Seeds are at the origin of all our food. Farmers consider carefully which seeds to buy and plant each year based on market dynamics, performance and price. Innovative seeds are developed through plant breeding. The development of such innovative seeds requires substantial investments of time and resources, the outcome of which is uncertain. With up to 20% of the annual turnover invested in R&D, plant breeding companies rank among the top four global industries in terms of percentage of sales re-invested in R&D.³ Intellectual property rights provide the necessary incentive for the highly competitive and specialised plant breeding industry to innovate.⁴

The role of intellectual property

Intellectual property rights, including copyright, patents, plant variety protection rights and trademarks, protect most of the things we see, hear, read and use on a daily basis. Without them there would be no blockbuster films, award-winning books or music, cars, airplanes, trains or smartphones. Many food-related products are also protected by intellectual property rights. All of these goods are the result of innovative creation. Plant-related innovations are no different.

Protecting innovation in plant breeding – two complementary systems

Modern plant breeding needs and benefits from the protection of both plant variety rights and patents. Plant variety rights are a type of intellectual property right designed specifically to solely protect a single plant variety in a particular crop. The variety should be distinct, sufficiently uniform and stable over generations. Plant variety rights cannot, however, protect a specific plant characteristic or a novel trait which can be expressed in various plant varieties. In addition, plant variety rights cannot protect other technical innovations, such as enabling technologies used for the development of new plant varieties or traits. Examples include traits which have been identified and improved making crops resistant to certain harmful insects. These innovations, which are not limited to one single plant variety, but are expressed in various varieties of the same or different crop species, can only be protected by patents. However, plant varieties and essentially biological processes for the production of plants, such as crossing or selection, are *not* patentable.



Strict Patentability Criteria

There are stringent conditions to obtain a patent: the innovation must be **novel** (different from anything else that is currently in the public domain), **inventive or non-obvious** (not easily conceivable by any expert in the relevant discipline), **useful or industrially applicable** (an invention must work and serve some type of technical purpose), and **reproducible** (the essential patent information shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art). A patent on a plant-related invention will be granted only provided that all criteria for patentability are met. This ensures high-quality patents.



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