

Intellectual Property Rights Basics

with an emphasis on crop biotechnology

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Subject matter protected by intellectual property rights

- literary, artistic and scientific works;
- performances of performing artists, phonograms, and broadcasts;
- inventions in all fields of human endeavour;
- scientific discoveries;
- industrial designs;
- trade marks, service marks, and commercial names and designations;
- protection against unfair competition; and
- “all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.”

Patents

- A limited property right offered by government to inventors in exchange for sharing the details of their inventions with the public (= a social contract).
- Applications are made public and constitute a valuable scientific and technical source of information.
- Not a right to practise or use.
- Right to *exclude others* from making, using, selling, offering for sale, or importing the patented invention.
- Term of patent protection usually 20 years from the date of filing.
- Granted rights may be sold, licensed (exclusively or non-exclusively), mortgaged, assigned or transferred, given away, or simply abandoned.

It's all about trade and commerce

- WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) agreed on the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994 sets down minimum standards for many forms of IP regulation.
- For patents it states that these must be granted in all "fields of technology," although exceptions for certain public interests are allowed, and must be enforceable for at least 20 years. Least developed countries were granted a transition period for implementation of the TRIPS Agreement.
- Plants must be protectable by patents or alternative option, eg plant breeder's rights.

Patentability criteria and scope

- Inventive step (non-obvious)
- Novel (over prior art)
- Innovative (contribute to the working of the invention)
- Industrial application (practical solution to technological problem)
- Certain subject matter excluded, eg 'human beings and the biological processes for their production'

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- One single invention per patent.
- Not something existing in nature as is.
- May be big or small.
- Protection granted to what is spelt out in one or more claims (and not in the body of the patent).

Patents are an incentive to ...

- invent;
- disclose the invention;
- invest in R&D;
- produce and market the invention (expecting a return on previous investment);
- but also to design around and improve upon earlier patents.

Patent protection was enacted already in the Kingdoms of Florence and Venice in the 15th Century and also in England!

Absence of patents does not mean more and cheaper products for consumers

- Non-patented inventions are often not taken up by industry because if product development and marketing are successful, the product may then be copied freely by competitors who have not sunk in the upfront costs (free-riding).
- A case in point are the thousands of patents registered in OECD countries and not in less-developed countries, and which are not taken up by the non-existent local industries.

Harmonization

Paris Convention for the Protection of IP (1883)* establishes national treatment and recognition of priority for foreign patent applications, which is the basis for the Patent Cooperation Treaty (PCT; 1970)*, administered by the World IP Organization (WIPO), that allows a common, simplified entry point for filing and examination (and not the often and falsely believed granting of 'world patents').

*In 2011: Paris Convention, 174 parties; PCT, 144 parties

The ghost that came to haunt us?

- Novel technologies in the 20th Century lead to skyrocketing of patents and often complex minefields for freedom to operate.
- Such situations lead to new rounds of harmonization, tightening of rules (eg more stringent patentability criteria for gene patents), and of course negotiations between owners of substantive patent portfolios (eg cross-licensing).

Example *Golden Rice*

- More than 70 patents involved in respect of a number of technologies behind the making of Golden Rice.
- Very few of them are patents granted in target countries.
- Patent owners waived their rights in target countries for humanitarian use.
- Negotiation position was made possible by one patent granted to the inventors of *Golden Rice* on the final, crucial step of the technology.

Plant Breeder's Rights (PBR) or Plant Variety Protection (PVP)

- PBR criteria: Distinct; Uniform; Stable; and New.
- PBR provides the exclusive right to do, or to license another person to do, the following acts in relation to propagating material of the variety:
 - (a) produce or reproduce the material;
 - (b) condition the material for the purpose of propagation;
 - (c) offer the material for sale;
 - (d) sell the material;
 - (e) import the material;
 - (f) export the material;
 - (g) stock the material for the purposes described above
- PBR granted for 20 years (25 for trees and vines).

Crop Biotech: PBR or Patent?

- Material under PBR may be used by others as parental material in breeding.
- A GM plant will be often an essentially-derived variety containing proprietary gene constructs.
- Few countries allow patents on plants (USA, Australia, and EU do; patentability criteria apply; PBR and patent applicable to same plant), more will come on board with biotechnology becoming more widespread.