

# Biotechnology and intellectual property rights

[Technology](#)



Debates over property rights in biotechnology were occasioned by specific legislative proposals such as the US Animal Patent Act of 1986, and by filing of patent applications for DNA sequences and processes in the early sass. While these debates make sporadic petition to philosophical theories of property, moral claims were entwined with questions about filing requirements, tests for worth, and the rules for licensing and defending patents.

The comparative scarcity of discussion on intellectual property at that time dictated the general approach of the chapter: Review basic philosophical approaches to property rights, and speculate on how one might use these approaches in constructing an argument pertinent to agricultural biotechnology. This chapter deals with different approaches to Intellectual property In the field of Plant Sciences especially the Biotechnology. It Incorporate many different types of intellectual property and a variety of incommensurable values play a role in the justification of intellectual property.

Introduction What is Intellectual Property? Property is simply a collection of legal rights to control something (Honoree, 1977; Dressers, 1989). The legal system defines the types of matter that may be treated as Modern Biotechnology and its Applications property as well as the scope of rights with respect to those matters. For example, a proprietor of a house has legal rights to possess, use, modify, destroy, transfer, sell, or rent the house. Various laws and regulations may prohibit the homeowner from painting his house in various colors, operating a business from his home, or keeping a horse in his backyard.

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Since properties are collections of legal rights, the property regime is a social institution that serves particular purposes in society (Feminine, 2000). We are pertinent to think of objects, such as, land, as the properties, but these objects only have their status as property in relation to people in society. If no people mark borders and create deeds to represent the social and legal status of a person's rights and duties with respect to the land. Thus, the concept of property is a three- place relationship between an object, an individual (I. . A person, group of people, or corporation), and society.

Improvement and development of new ideas is primary to the progress of evidence based clinical practice. Intellectual property rights are basic to the protection of bioinformatics and biotechnology but may hamper progress and dispersal of information. At the same time as the application of patents and uprights are common place in companies profiting from information technology, their application in the field of biotechnology is less understood and publicized.

Intellectual property (P) is a term referring to a number of distinct types of creations of the mind for which property rights are documented-? and the corresponding fields of law. Under intellectual property law, owners are granted certain exclusive rights to a variety of indefinable assets, such as musical, literary, and artistic works; discoveries and inventions; and words, phrases, symbols, and designs. Common hypes of intellectual property include copyrights, trademarks, patents, industrial design rights and trade secrets in some Jurisdictions (Marshier 2002).

Although many of the legal principles governing intellectual property have evolved over centuries, it was not until the 19th century that the term <https://assignbuster.com/biotechnology-and-intellectual-property-rights/>

intellectual property began to be used, and not until the late 20th century that it became usual in the United States. The British Statute of Anne 1710 and the Statute of Monopolies 1623 are now seen as the origin of copyright and patent law respectively (Comic, 2002). Modern usage of the term intellectual property goes back at least as far as 1888 with the founding in Bern of the Swiss Federal Office for Intellectual Property.

When the administrative secretariats recognized by the Paris Convention (1883) and the Berne Convention (1886) merged in 1893, they also located in Berne, and also adopted the term intellectual property in their new combined title, the United International Bureaus for the Protection of Intellectual Property. The organization subsequently relocated to Geneva in 1960, and was succeeded in 1967 with the establishment of the World Intellectual Property Organization (WIPO) by treaty as an agency of the United Nations.

It was only at this point that the term really began to be used in the United States (which had not been a party to the Berne Convention), and it did not enter popular usage until passage of the Bayh-Dole Act in 1980. 369

Historical Background “ The history of patents does not begin with inventions, but to a certain extent with royal grants by Queen Elizabeth I (1558-1603) for command constitutional rights.

Approximately 200 years after the end of Elizabethan preeminence, however, a patent presents a legal [right] obtained by an inventor providing for exclusive control over the production and sale of his mechanical or scientific invention the evolution of patents from royal privilege to common-

law doctrine. " In 1818, the French liberal which has been called intellectual. " The term intellectual property can be found used in an October 1845 Massachusetts Circuit Court ruling in the patent case *Oddball et al. V. Brown.* , in which Justice Charles L.

Woodbury wrote that " only in this way can we protect intellectual property, the labors of the mind, productions and interests are as such a man's own... As the wheat he cultivates, or the flocks he rears. " (1 Wood. & M. 53, 3 west. L. J. 151, 7 F. Case. 197, NO. 3662, 2 Rob. Pat. Case. 303, Mere. Pat. Len. 414). The statement that " discoveries are property' goes back earlier. Section 1 of the French law of 1791 stated, " All new discoveries are the property of the author; to assure the inventor the property and temporary enjoyment of his discovery, there shall be delivered to him a patent for five, ten or fifteen years. In Europe, French author A. Onion mentioned property intellectually in his *Droit's civil des auteurs, artistes et inventors*, published in 1846. The concept's origins can potentially be traced back further. Jewish law includes several considerations whose effects are similar to those of modern intellectual property laws, though the notion of intellectual creations as property does not seem to exist - notably the principle of *Washrag Gavel* (unfair encroachment) was used to justify limiting publisher (but not author) copyright in the 16th century.

The Talmud contains the prohibitions against certain mental crimes (further elaborated in the Callahan Arch), which some have interpreted as orbiting theft of ideas, though the doctrine is principally concerned with fraud and deception, not property (Chorea, 2001). Objectives of Intellectual Property

Copyright and its importance Intellectual property (P) protects ideas. There are four main types of Intellectual property (P): 1 . 2. 3. 4.

Patents protect the technical aspect of the product Trademarks protect signs of the trader Copyright protects creative material such as music and literature Design registration protects the visual appearance of the product. 370 Copyright law varies between nations. In the I-J it originated from the Statute of Anne 1709, before the passing of the Copyright Act in 1911. The Copyright, Designs and Patents Act of 1988 was statute until October 2003 when the EX. issued a directive to acknowledge the impact of electronic information and the internet on ' P.

Copyright law acknowledges the creator of a work as the author with the right to govern how the work is disseminated and prevents distortion of the work by third parties. This applies to literary works (such as scientific papers) as well as artistic creations and even computer programs. Copyright is automatic in the UK on creation of an original work. It will protect the work itself but not the idea behind it. Thus the idea of hip resurfacing would not be protected but the Birmingham Hip Resurfacing components would be.

Commissioning or freelancing does not influence ownership which is still exclusive to the original author. For literary works such as scientific papers, computer programs, commercial documents and song lyrics the Copyright, the time the work was written or first published in the public domain. For typographical arrangements of published editions such as magazines, periodicals ND Journals, copyright duration is 25 years from the end of the

calendar year of publication. A scientific paper prior to publication can be registered for copyright that will last for 70 years.

On publication, the author transfers copyright to the journal which then holds the copyright for 25 years. Thus the author has the right to be identified as the author of the work and to object to critical treatment. It is an offence to copy, adapt or show the work in public without the consent of the owner.

However, the work can be copied for the purposes of research or educational purposes without infringing on the copyright. On submission of a manuscript for publication, most publishers require a transfer of copyright agreement.

This allows the publisher to register a single copyright product (if the paper is attributed to multiple authors) and protects the author, editors and publishers from copyright violation due to unlawful duplication once the manuscript has been published as part of a Journal. Authors do not have to sign a transfer of copyright as a condition of publication and may retain copyright of their manuscript but would have to sign a formal statement licensing publication exclusively in the relevant Journal.

Most publishers would also expect authors to acknowledge that their work is original and has not previously been published to ensure no copyright infringement prior to publication (Elliott, 2007). Authors still retain the proprietary right of their work once the transfer of copyright has been signed over to a publisher since 'moral rights' are conferred to authors by the I-J Copyright Act of 1988. Authors are therefore credited whenever the publishing house uses the work. Authors can also reproduce their own

papers provided the publisher is acknowledged and a citation provided to the original publication.

Most publishers would require notification if the paper is to be used in a volume in which the author acts as editor or author. Policies regarding electronic postings on websites vary between publishers with some allowing pre- print postings on the web with a link to the publication and acknowledgement. Most 371 publishers will allow broadcasting of the published article by the author provided it is for educational purposes and not open access to the general public (Scoria and Ores, 2001).

At the same time as copyright is an automatic process on conception of a work of work in the I-J, a copyright notice will formalize this process. The copyright notice takes the form of a copyright symbol ©, the year the work is published or written and the name of the owner, e. G. Copyright © Wing 2007. Additional information such as ' all rights reserved' or ' any unauthorized broadcasting, public performance, copyrighting or re-recording will constitute an infringement of copyright' can also be added but are not a necessity to establish copyright.

In order to support the claim of copyright, the body of work can be registered with the I-J Copyright Service in order to strengthen the claim of ownership in case of dispute. Watermarks or electronic file comments as well as 'footprints' (calculations, mistakes etc. ) (Creeps, 2000). Joint works should include an agreement between co-authors regarding ownership of copyright. The principal author may claim copyright and take the work with them if they leave.



In the event of one author leaving with joint ownership of copyright, the remaining authors must agree what will happen to the copyright (Murphy, 2002). If the work is produced during employment, the employer will own the work. However, if the work is freelance or commissioned, rights will belong to the author of the work. Once copyright has expired, the author loses intellectual property rights to his work and it is freely available in the public domain. The work thus becomes public property and no other individual can claim copyright.

An interesting exception in the I-J is the copyright to 'Peter Pan'. Lord Callaghan amended the 1988 Copyright Designs and Patents Act to allow the copyright for 'Peter Pan' indefinite status such that any royalties are passed on to Great Round Street Hospital. In October 2003, changes were made to the I-J copyright law in response to a European Union directive and the impact of electronic information sharing (Scoria and Ores, 2001). This has meant that copying for commercial purposes where income will be generated is no longer allowed without the consent of the owner of copyright.

However, copying for educational purposes, such as libraries, allows limited amounts of copying without the consent of the author. Thus copying research papers for scientific education would be allowed but copying papers to give to private patients would not as this potentially generates income and is classified as a commercial purpose (Ocular et al., 2007). Intellectual property rights transcend countries and the Berne Convention for the Protection of Literary and Artistic Works was introduced in 1886 as an agreement between countries to uphold this.

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The World Intellectual Property Organization (WIPO) administers the latest version of the convention, the Paris Act of 1971. There are approximately 147 members of the World Trade Organization that have agreed to the act, which protects the intellectual property of individuals' resident to the member countries. Outside of those member countries, protection is afforded by a reciprocal agreement 372 incentive. Consequently the author has rights to protect work from reproduction, adaptation and translation ([http://www. Permission. Org](http://www.Permission.Org)).

**Financial Incentive** These exclusive rights allow owners of intellectual property to benefit from the property they have created, providing a financial incentive for the creation of an investment in intellectual property, and, in case of patents, pay associated research and development costs.

**Economic Growth** Roth. Economists estimate that two-thirds of the value of large businesses in the U. S. Can be traced to intangible assets. " IP-intensive industries" are estimated to generate 72 percent more value added (price minus material cost) per employee than " non-ip-intensive industries".

A combined research project of the WIPO and the United Nations University measuring the impact of IP systems on six Asian countries found " a positive correlation between the strengthening of the IP system and subsequent economic growth. " Other models, such as the Nash equilibrium, would to expect that this correlation necessarily means causation: The Nash equilibrium model predicts that patent holders will prefer to operate in countries with stronger IP laws.

In some of the cases, as was shown for Taiwan after the 1986 reform, the economic growth that comes with a stronger IP system might be due to an increase in stock capital from direct foreign investment (Mooney, 2000). PR in the Field of Plant Sciences Plant breeders' rights (BPR), also known as plant variety rights (PAR), are rights granted to the breeder of a new variety of plant that give them exclusive control over the propagating material (including seed, cuttings, divisions, tissue culture) and harvested material (cut flowers, fruit, foliage) of a new variety for a number of years (Upstanding, 1996).

With these rights, the breeder can choose to become the exclusive marketer of the variety, or to authorize the variety to others. In order to qualify for these exclusive rights by plant breeders' rights, a variety must be new, distinct, uniform and stable. A variety is new if it has not been commercially used for more than one year in the country of protection. A variety is different if it differs from all other known varieties by one or more important botanical characteristics, such as color, height, maturity, etc.

A variety is homogeneous if the plant characteristics are consistent from plant to plant within the variety. A variety is stable if the plant characteristics are genetically fixed and therefore remain the same from generation to generation, or after a cycle of reproduction 373 in the case of hybrid varieties. The breeder must also give the variety an acceptable "denomination," which becomes its generic name and must be used by anyone who markets the variety (Warner, 2001). In general, plant variety rights are granted by national offices, after examination.

Seed is submitted to the plant variety office, which grow it for one or more seasons, to ensure that it is distinct, stable, and uniform. If these tests are passed, exclusive rights are granted for a period of 20 years (or 25 years, for trees and vines). Annual renewal fees are required to maintain the rights (Alter, 2003). Breeders can bring suit to implement their rights and can recover damages for violation. Plant breeders' rights contain exemptions from violation that are not recognized under patent law. Commonly, there is an exemption for farm- saved seed.

Farmers may store the production in their own bins for their own use as for propagation purposes are not allowed without the written approval of the breeder. There is also a breeders' exemption (research exemption in the 1991 Act) that allows breeders to use protected varieties as sources of initial variation to create new varieties of plants (1978 Act), or for other experimental purposes (1991 Act). There is also a provision for compulsory licensing to assure public access to protected varieties if the national interest requires it and the breeder is unable to meet the demand (Viziers et al. 2002). The United States of America passed the Plant Patent Act in 1930 (US) at the urging of such notable figures as Thomas Edison and Luther Burbank widow. Plant patents provided a special form of patent protection, which relaxed certain requirements of the utility patent law as applied to asexually reproduced varieties of plants. In 1957, the French Government held a conference in Paris concerned with the protection of new varieties.

This led to the creation of the Union International pour la Protection des Petitions Vgtales (POOP) and adoption of the first text of the International Convention for the Protection of New Varieties of Plants (POOP Convention)  
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in 1961. The purpose of the Convention was to ensure that the member states party to the Convention acknowledges the achievements of breeders of new plant varieties by making available to them an exclusive property right, on the basis of a set of uniform and clearly defined principles. The Convention was revised in Geneva in 1972, 1978 and 1991.

Both the 1978 and the 1991 Acts set out a minimum scope of protection and offer member States the possibility of taking national situation into account in their legislation. Under the 1978 Act, the minimum scope of the plant breeder's right requires that the holder's prior authorization is essential for the production for purposes of commercial marketing, the offering for sale and the marketing of propagating material of the protected variety. The 1991 Act contains more detailed provisions defining the acts relating to propagating material in relation to which the holder's authorization is required.

The breeder's authorization is also required in relation to any of the specified acts done with harvested material of the variety, unless the breeder has had reasonable opportunity to exercise his right in relation to the propagating material, or if not doing so could constitute an "Omega Threat" situation. Under that provision, for example, a flower breeder who protects his variety in the Netherlands could block importation of cut flowers of that variety into the Netherlands from Egypt, which does not grant plant breeders' rights, because he had no opportunity to exercise any rights in Egypt.

Member countries also have the option to require the breeder's authorization with respect to the specified acts as applied to products directly obtained from the reverted material (such as flour or oil from grain, or Juice from fruit), unless the breeder has had reasonable opportunity to exercise his right in relation to the harvested material (Screech et al. , 2007). The POOP Convention also establishes a are treated as citizens of all member states for the purpose of obtaining plant breeders rights.

It also sets up a multilateral priority filing system, under which an application for protection filed in one member state establishes a filing date for applications filed in all other member states within one year of that original filing date. This allows a breeder to file in any one member country within the one-year period required to preserve the novelty of his variety, and the novelty of the variety will still be recognized when he files in other member countries within one year of his original filing date.

However if the applicant does not wish to make use of priority filing he or she has four years in which to apply in all other member states, excepting the USA, for all species except tree and vine species in which case he or she has six years to make application. See article 10 1 (b) of Council Regulation CE No 2100/94 of 27 July 2004 on the website [www. Vivo. E](http://www.vivo.e). The trigger to start the four or six year period is not actually the date on which the first filing is made but the date on which the variety was first commercialese (whom. Wipe. Into). The POOP Convention is not self- executing.

Each member state must adopt legislation consistent with the requirements of the convention and submit that legislation to the POOP Secretariat for

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review and approval by the POOP Council, which consists of all the POOP member states acting in committee. In compliance with these treaty obligations, the United Kingdom enacted the Plant Variety and Seeds Act 1964. Similar legislation was passed in the Netherlands, Denmark, Germany, and New Zealand. In 1970 the United States followed the lead of seventeen Western European nations and passed the Plant Variety Protection Act 1970 (US).

This legislation provided protection to developers of novel, sexually reproduced plants. However, the United States originally acceded to the POOP Convention on the basis of the Plant Patent Act and did not bring the APP Act into compliance with POOP requirements until 1984 when the Commissioner of Plant Variety Protection promulgated rules to do so. Since the sass, he US Patent Office has granted patents on plants, including plant varieties: this provides a second way of protecting plant varieties in the USA.

Australia passed the Plant Variety Protection Act 1987 (Act) and the Plant Breeders Rights Act 1994 (Act). Australian patent law also permits the patenting of plant varieties. In total, 65 countries have signed the POOP 375 Convention and adopted plant breeders' rights legislation consistent with the requirements of the convention. The Wet's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) requires member states to provide protection for Lana varieties either by patents or by an effective SSI generic (stand alone) system, or a combination of the two.

Most countries meet this requirement through POOP Convention-compliant legislation. India has adopted a plant breeders' rights law that has been

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rejected by the POOP Council as not meeting the requirements of the treaty. Biotechnology constitutes a new promise of great profits as, in the course of genetic engineering, new products or products with new properties can be made. Thus, the attainment of specific biological resources that possess properties of commercial concern becomes precious.

This fact, along with the introduction of patents on biological material, lead pharmaceutical, food, and seed companies in an unprecedented chase around the world for the collection of living organisms that may be of some use, ranging from soil micro-organisms to animals, including human genes. However, the biological material is often removed in great discretion from the country in question, without even its national government's consent (Fowler, 1995). Intellectual property is a form of knowledge that societies have decided can be assigned specific property rights (Commission on Intellectual Property Rights, 2002, p. ). Intellectual property rights (PR) are the rights awarded to individuals or organizations chiefly over creative works: inventions, literary and artistic works, symbols used in commerce. They include patents, trademarks and copyrights, geographical indications, and trade secrets. ' Pre are the rights to make, use, and sell a new product or technology that are granted for a specific period of time (e. G. , 20 years), solely to the inventor or the corporation that files a claim on the inventor's behalf. " Intellectual property rights are either based on originality (lane Appear, 001).

The basic economic argument Justifying the existence of ' Pre is that, unless an industry can ensure the capitalization on its investments in technological development, it will not invest in it in the first place. That would make <https://assignbuster.com/biotechnology-and-intellectual-property-rights/>



technological breakthroughs unachievable. Patents and other 'Pre address this fundamental market failure: if a product takes considerable effort and research but can be easily copied, it is unlikely that there will be sufficient financial incentive to devote resources to invention (Commission on Intellectual Property Rights, 2002, p. ). By conferring temporary market exclusivity, patents allow producers to recoup the costs of investment and reap a profit (Katz, 2005). The first patent on a living organism was granted in the US in June 1980, with the granting of a patent to Amgen Charitably. The organism in question was a bacterium, 376 a Pseudomonas strain, engineered to contain added plasmid DNA, which made it more effective in dispersing oil spills than the naturally occurring precursor strain.

This decision constituted the basis for extending patent application to higher life forms. As Creps (2000) points out, the decision was " a watershed in the development of patent law, as a precedent for extension to cell lines, such as hybridism that produce monoclonal antibodies, and genetically modified plants and animals. " As stated by Earlier and Earlier, 1981; FEB., 2001, some countries are richer than others in terms of biodiversity. This can be calculated through the number of existing species of plants and animals.

Although it is often difficult to distinguish the exact absence of close relatives when a distinctive species is concerned will lead to far less overlap in its functional role. The direct instrumental value of biodiversity is demonstrated in the fact that human societies derive many essential goods from natural ecosystems such as pharmaceuticals, food items, and building material. These numerous natural ecosystems, composed of a diverse

biological base, perform fundamental life-support services, without which life as we know it would cease to exist.

Several authors highlight the existence of direct and indirect economic benefits associated with species preservation and point out that species should be preserved because of their beauty, symbolic value, or intrinsic value. Technological roughhouses including biotechnology and its applications can increase considerably the instrumental value of biodiversity, as new products based on existing natural resources can now be made. Most of the mega-biodiversity countries are developing countries, which could profit substantially in financial terms from their wealth in biodiversity.

It also appears that, in many cases, those extraordinary properties of biological resources that now get commercial interest were already known to indigenous communities and used for centuries. This knowledge, generated, refined, and passed from generation to generation, is often described as rotational knowledge. Following a parallel track, formal plant breeding programs have utilized varieties conserved and developed by farmers, in order to develop improved varieties of higher productivity, or with other desirable characteristics (Creeps, 2000).

It is rather difficult to deliver a precise definition of traditional knowledge. The World Intellectual Property Organization (WIPE) refers to it as “ tradition-based literary, artistic or scientific works; performances, inventions, scientific discoveries, designs, marks, names and symbols, undisclosed information ND all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields” (WIPE, 2001).

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This definition delivers the agony that all forms of traditional knowledge should be included. In addition, traditional knowledge can be codified, that is, formalized in some way (e. G. , textile designs), but in many cases, depending upon geographic origin among other factors, it is non-codified (e. G. , “ tribal” or “ indigenous” medicine) (Chorea, 2000). 377 The question that rises is whether traditional knowledge is an intangible component f the resource itself and thus, should be rewarded.