Intellectual properties in agriculture

Razieh Hassankhani¹*, Roya Hassankhani²

¹:M.Sc. of private law, Bu - Ali Sina University, Hamedan, Iran
²:M.Sc. of agricultural Mechanization of Tabriz-Tabriz-Iran

*Corresponding author: rzhassankhani@gmail.com

ABSTRACT: The importance of the agricultural sector in developing countries as a source of food, incomes, employment and often foreign exchange cannot be overstated. Intellectual property rights have been defined as “the rights given to people over the creations of their minds. Intellectual property right is a broad term used to cover patents, trademarks, plant breeder's rights, copyright, trade secrets and other types of rights that the law gives for the protection of investment in creative effort and knowledge creation. Knowledge, unlike a physical object, can be used by others. In this article some of these regulations such as agreements on agriculture related aspects of intellectual property rights are reviewed.

Keywords: agriculture, intellectual property, protection

Introduction

The importance of the agricultural sector in developing countries as a source of food, incomes, employment and often foreign exchange cannot be overstated. As much as good health, a productive and sustainable agricultural sector is critical to achieving economic growth and poverty reduction. (Report of the Commission on Intellectual Property Rights, executive summary, 2002)

Intellectual property right is a broad term used to cover patents, trademarks, plant breeder's rights, copyright, trade secrets and other types of rights that the law gives for the protection of investment in creative effort and knowledge creation.

The legal protection of intellectual property (IP) has allowed private persons and enterprises to assert exclusive rights in relation to certain agricultural innovations.

Intellectual Property

Intellectual property rights have been defined as “the rights given to people over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creations for a certain period of time” (WTO) Rights are not much use unless they are enforced. Intellectual property rights therefore allow the state to help producers of intellectual products to maintain some control over the products of their efforts after the products have been made public. Intellectual property rights have a long history. In England, patents can be traced back to the 15th century (UK Patent Office 2000). Copyright is a more recent institutional innovation which has its main roots in the French revolution of 1789 (Hesse 2002). In order to understand the current evolution of IPR (Intellectual property rights) we have to be familiar with key characteristics of IPR in general and of patents and copyright in particular. (Mueller, 2003)

Important Intellectual Property in agriculture

Intellectual property right is a broad term used to cover patents, trademarks, plant breeder's rights, copyright, trade secrets and other types of rights that the law gives for the protection of investment in creative effort and knowledge creation. Knowledge, unlike a physical object, can be used by others. The greatest level of economic efficiency occurs with the widest possible dissemination of new knowledge.
But if everybody is free to access new knowledge, inventors have little incentive to commit resources to producing it (Maredia, 2001)

About three quarters of the world’s poor people live and work in rural areas. Apart from its direct role in sustaining incomes and employment, the role of agriculture, and in particular technological change in agriculture, in stimulating overall economic growth has been much discussed by economists and policymakers. Raising productivity in agriculture can directly increase the incomes and employment levels of the majority of poor people dependent on agriculture. It can also help to reduce food prices (relatively or absolutely) for poor people in both rural and urban sectors. (Report of the Commission on Intellectual Property Rights, executive summary, 2002)

The agricultural sector of many countries is changing in response to new market opportunities and productivity requirements, new resource management problems, and new roles assumed by public, private, and civil society actors. In this context, the pace of change and level of uncertainty can be considerable. Support to agricultural research and extension systems is necessary but not sufficient to expand the capacity for innovation in agriculture. New ways of enabling innovation are required to deliver economic growth and reduce poverty. (The World Bank, 2006)

The global proliferation of intellectual property protection

In developed countries the degree of patent protection available to plants and animals per se and other life forms varies from country to country, and is usually less strong than in the USA. Indeed, the UPOV (the International Union for the Protection of New Varieties of Plants) Convention initially prohibited ‘double protection’, and until recently plants and animals have not been patentable in most countries. Though patent protection is strictly national in scope, international treaties and conventions govern various aspects of patenting. The World Intellectual Property Organization (WIPO) has a lead role in coordination and information collection. It offers an important service in assisting developing countries with implementation of patent systems.

Applications in multiple countries are facilitated by the Patent Cooperation Treaty, and by the European Patent Office, the Eurasian Patent Organization, and African Regional Industrial Property Office and the Organization Africaine de la Propriété Intellectuelle(Wright, 2006)

Technological change has been a major factor shaping agriculture in the last 100 years (Schultz (1964); Cochrane (1979)). A comparison of agricultural production patterns in the United States at the beginning (1920) and end of the century (1995) shows that harvested cropland has declined (from 350 to 320 million acres), the share of the agricultural labor force has decreased substantially (from 26 to 2.6 percent), and the number of people now employed in agriculture has declined (Sunding and Zilberman, 2000)

Intellectual Property Rights in Agriculture

The names of agricultural products may be protected by intellectual property rights. This can include trademarks used by producers to brand their particular crop for market, using the farm or farmer’s name. Other associated IPRs are geographical indications that are similar to trademarks in that Strategy for developing countries to make the most of IPRs

Given the importance of agriculture for most developing countries, how can developing countries make the most of IPRs in the agriculture sector? They face a range of challenges, given the limits of their human and financial resources. For example, the IPR regimes in many developing countries are based on colonial-era laws and do not include recent developments such as plant breeders’ rights, protection of traditional knowledge and geographical indications. Domestic change may be driven by international legal requirements in related areas such as trade (the WTO) (World Trade Organization) or the environment (the CBD) (the Convention on Biological Diversity). Governments may face difficulties when undertaking policy development and legal reform in what is a complex area. (Fauvao, 2003)

TRIPS and agriculture

There are seven forms of intellectual property rights recognized in the TRIPs Agreement. These include:

- 1- Copyright and related rights
- 2- Trademarks
- 3- Geographical
- 4- Indications
- 5- Industrial Designs Patents
- 6- Layout-Designs (topographies) of integrated circuits
- 7- Protection of undisclosed information.
This agreement also covers provisions related to control of anti-competitive practices in contractual licenses, although, it does not directly relate to IPR. In days to come, when application of various forms of IPR in different areas of agriculture is put to practice, we may face serious problems unless timely remedial measures are taken, awareness is brought out and also due emphasis is given on IPR literacy, higher education and capacity building in the country. (National academy of agricultural sciences India, 2003)

However, Article 27.3(b) of TRIPs allows for certain exclusions from patent protection. According to this provision, “Members may also exclude from patentability plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provision of this sub paragraph shall be reviewed four years after the date of entry into force of the WTO Agreement”.

Thus, the TRIPS Agreement [Article 27.3(b)] sets out clear-cut options for Member countries on protection of plant varieties. This may be achieved by any one of the following, (a) patent for plant varieties, (b) an effective sui generis system of protection for plant varieties, and (c) a combination of patent and effective sui generis system for protecting plant varieties. It may be noted that no definition of an effective sui generis system has been provided in the TRIPs Agreement. Therefore, the options (b) and (c) offer flexibility to Members for providing different type of protection system for plant varieties, in their jurisdictions according to their own choice For example, by exercising such choice countries might allow only one or both forms of protection for varieties of all plant species. Or, alternately, there may be one form of protection for varieties of certain group of species and a different form of protection for other group of species. (Pandey)

The TRIPS Agreement is one of the 3 pillars of the WTO the others being trade in goods (GATT) and trade in services (GATS). The TRIPS Agreement includes for the first time in any area of international law rules on domestic enforcement procedures and remedies. A major reason for placing IPRs in the WTO and for tying the three agreements together was to allow retaliation across agreements. Under this institutional arrangement, IPRs are subject to the binding dispute 15 resolution procedure of WTO. A non-compliant WTO member can face trade sanctions in any area if they fail to live up to the TRIPS Agreement.1

As a legally binding part of the WTO, the TRIPS Agreement provides minimum national standards for levels of protection to the creators of intellectual property.

It covers: copyright and related rights, trademarks, geographical indications, industrial designs, patents (and plant variety protection or PVP), layout designs (topographies) of integrated circuits, protection of undisclosed information, and control of anti-competitive practices in contractual licenses (WTO legal textsp.370-386). Areas which are relevant for agriculture and for which TRIPS mandates a minimum level of protection are patents, plant variety protection, commercial marks such as trademarks and geographical indications, and trade secrets.2

A salient feature about geographical indications used on wines and spirits is that they are given an absolute level of protection where use is prohibited. Similarly, trade secrets are, for the first time in international law, accorded the status of IPR.

Agreement considerably strengthens the trade secret law by extending the liability to third parties that induced breach of a trade secret. Furthermore, under the TRIPS Agreement, “test data submitted for obtaining marketing approvals of new pharmaceutical and agricultural chemical products is protected against unfair commercial use” (Watal 2000).1

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1 Without a means of settling disputes, the WTO would be worthless because the rules could not be enforced. The WTO’s dispute resolution procedure underscores the rule of law, and it makes the trading system more secure and predictable. The system is based on clearly-defined rules, with timetables for completing a case. For more information on the rules and procedures for settling disputes as agreed upon at the Uruguay Round, the readers can visit the following web site: http://www.wto.org/english/thewto_e/whatis_e/tif_e/displ1_e.htm

2 One of the products in which trade secrets are applied in agriculture relates to hybrids. With the PVP, the trend is to protect the parental lines by trade secrets and the hybrid seed itself by PBR. Geographical indications also have important applications as it relates to agriculture in developing countries. This is evident from the recent controversies on the use of the word “basmati” for protection of a rice variety, and the use of the word “Darjeeling” for tea products.
Article 27.1 of this Agreement requires members to provide for patents "for all inventions, whether products or processes, in all fields of technology"

Article 27.3(b) allows the exclusion from patentability of plants and animals but not microorganisms. It also requires member countries to provide for the protection of new plant varieties using patents, or an effective *sui generis* system, or a combination of both. (Maredia, 2001) The TRIPS agreement represents the existing global state of IPR standards and legally binds all its member countries. It is the only agreement amongst several multilateral agreements under WTO which have significant impacts on global trade (Maskus, 2000). TRIPS has a direct impact on agricultural trade and development, particularly agricultural biotechnology (WIPO, 2009), and its impact on agricultural trade is comparatively more important for developing countries as agriculture is still a significant stakeholder in many of these countries’ GDP, especially in Asian countries. In addition, many of the poor in Asia depend on agriculture for their livelihood. The key element of the TRIPS agreement for the agricultural sector is the requirement for WTO members to make patents available for any inventions in the sector. The most important article in the agreement when considering the agricultural sector is Article 27, which reads as follows:

*Definitions and norms for main forms of IPRs:*

- IPRs (temporarily) transform knowledge from a public good into a private good.
- Through enhanced market power conferred by the IPRs, owners of intellectual property can recoup their expenditure in creating new knowledge. Creative minds and innovative firms thus have an incentive to engage in inventive activities.
- IPRs are thus a "compromise between preserving the incentive to create knowledge and the desirability of disseminating knowledge at little or no cost" (World Bank, 1999).
- This utilitarian argument provides the main rationale for the protection given by patents, copyright, plant breeders' rights, trademarks, and several other types of IPRs. The various forms of intellectual property differ in terms of the subject matter that may be eligible for protection, the scope and duration of protection, and possible exemptions to exclusive rights—reflecting society’s objective to balance the interests of producers and users of intellectual works.

In a global, knowledge-based economy, IPRs are key to the international competitiveness of both nations and firms (Langford, 1997). International competition in traded goods increasingly contains a high degree of innovation.

- IPRs have thus become a trade issue and a major component of WTO.
- Adequate IP protection at an international scale has become essential for appropriating global revenue streams to support investments in developing state-of-the-art technology. (Maredia, 2001)

*Definitions and norms for main forms of IPRs:*

- Plant variety rights provide exclusive rights for developers of genetically stable and new strains of plants. These rights exist for fixed time periods and may be limited by farmer’s privileges and research exemptions (reverse engineering rights). Relate legal protection to effects of hybridization.
- Patents in biotechnology and life forms provide 20-year exclusive production, sale, and use rights for new forms of plants, animals, and genetic technologies. There may be a research exemption but this is of questionable scope. Issues of public interest in access to basic genomic inventions
- Geographical indications provide exclusive rights to market a product under a mark designating the good as having come (in some essential way) from a specific region.

The scope of required standards under TRIPS and ongoing debates at WTO

- Plant variety rights and adherence to UPOV
- Patents under TRIPS Article 27.3 regarding protection of cellular organisms and life-based technologies. Particular questions arise in Context of genetically modified organisms.
- Geographical indications protection required for wines and spirits and may be used more widely for food products.
- Relationship of these IPRs to SPS agreement and to Convention on Biodiversity (Cartagena Protocol on biosafety).

Brief overview of main policy approaches to IPRs in each of the major Countries: US, Canada, Australia, Japan, Korea, and China. Analysis of significant differences in these approaches and prospects for harmonization

Briefly mention movements in this regard from bilateral and regional agreements. (Maskus, 2004)

*5-3- Other documents on Intellectual Property Rights in Agriculture*
The main challenge to developing countries is to coordinate policy and legal developments across a number of areas, both within government and the community, in view of the crosscutting nature of many of these issues. It is important for developing countries to have mechanisms in place to coordinate policy developments, such as a government focal points to coordinate IPR matters. A focal point could make dialogue easier between ministries dealing with agriculture, trade, development, culture, justice and commerce, as well as enabling contributions from the community and the private sector. It could also play an important role in relation to regional and international development and cooperation.

Other strategies that could be adopted include:
• developing national policies relating to IPR issues that identify and promote the national interest;
• ensuring that the national implementation of international IPR standards takes account of flexibilities in international agreements, such as non-mandatory provisions;
• ensuring that IPR implementation is appropriate for the country in the light of its national interest and development priorities;
• increasing awareness and understanding of IPRs amongst farmers, industry and government officials through training and education campaigns;
• enhancing negotiation skills to enable greater participation in various international forums; and
• initiating and participating in regional initiatives for developing countries to work together to implement these strategies. (Fuavao, 2003)

Progress towards sustainable development basis of the approach Institutions supported:

Activity based National agricultural research systems (NARS)
Output based Agricultural knowledge and information systems (AKIS)
Outcome based National agricultural innovation system (NAIS)

The case studies show that even when competitive incentives to innovate are very strong, they are not always sufficient to bring together all of the actors needed for innovation to function or to reach sufficient scale. The public sector’s role is important in four ways:
1. To improve patterns of interaction between all relevant players.
2. To provide and enforce an enabling regulatory framework for the differentiated product markets.
3. To support small-scale farmers in becoming partners in innovation systems and adding value to their assets and skills (for example, through public-private partnerships).
4. To provide financing and infrastructure to bring inventions to market (science parks) or to reach a sufficient share of the global market.

Table 1 - Innovation systems and rural poverty reduction, by type of farmer and framing system

<table>
<thead>
<tr>
<th>Farmer and system type</th>
<th>Innovation system framework</th>
<th>Major actors in the initiation stage</th>
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<tbody>
<tr>
<td>Commercial Farmers</td>
<td>- Intensive production systems for non-tradable food staples</td>
<td>- Private agribusiness</td>
</tr>
<tr>
<td></td>
<td>- High-value industries</td>
<td>- Public regulatory framework</td>
</tr>
<tr>
<td>Small-scale, market oriented</td>
<td>- Diversifying production systems</td>
<td>- Producer/trade organizations</td>
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<tr>
<td>farmers</td>
<td>- Intensive production of staples to leave land for high-value</td>
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<td>products</td>
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<tr>
<td></td>
<td>- Production systems of high-value, low volume products</td>
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<tr>
<td>Subsistence oriented Farmers</td>
<td>- Staple crops production systems</td>
<td>- Public research</td>
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<td></td>
<td>- Human and social capital building to address a range of livelihood opportunities</td>
<td>- Producer and community organizations</td>
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<td>- Women’s groups</td>
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<td>- NGOs</td>
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Source: Adapted from Berdegue and Escobar 2002 (The World Bank, 2006)
Number of ways which Intellectual property protection can be conferred in relation to plant materials in a number of ways:

- Through allowing normal patents on plants or parts thereof, such as cells
- **The US model of plant patents, which are distinct from normal (utility) patents**
  - Through allowing normal patents on plants or parts thereof, such as cells
  - Through patenting plant varieties as is the practice in the US and in few other countries (for example, not in the EU)
  - Through applying a *sui generis* form of plant variety protection (PVP), such as plant breeders’ rights (as in the EU or the US) or other modalities
- Through allowing patents on DNA sequences, and gene constructs including the gene, plants transformed with those constructs, the seed and progeny of those plants.

Thus developing countries have possibly three options for meeting their obligation to protect plant varieties under TRIPS. They may adopt one or a combination of the following:

- UPOV style legislation based on the 1978 or 1991 Convention (although they may now only join the 1991 Convention)
- Another form of *sui generis* system, including or not landraces
- Patents on plant varieties


A new Green Revolution is required to deal with the current food security crisis. (Spillane, 1999) reported that by 2020 “cereal production will need to increase by 41%, meat by 63% and roots and tubers by 40% without any significant expansion of agricultural area.” However, (Shiva, 1991) counsels that it is important to bear the negative results of that revolution in mind, particularly the decline of soil fertility resulting from the excessive use of fertilizers, pollution caused by the excessive use of pesticides, as well as the growth of salinity and the water logging of soils. Even if these environmental impacts can be circumvented, the economic impacts must also be born in mind. Increases in yields were accompanied by reductions in farm income, through the expense for farmers of purchasing chemical inputs and the reduction of selling prices in glutted markets. (Blakeney, 2010) Making became obvious with its inclusion in the intergovernmental negotiations for the General Agreement on Tariffs and Trade (GATT) for the first time in the Uruguay Round (1986-1994). this round led to the establishment of the World Trade Organization (WTO) in January 1995. Now, the WTO has at least half a dozen intergovernmental agreements that directly affect agriculture. These are, Agreements on Agriculture (AoA), Applications of Sanitary and Phytosanitary Measures (SPS), Technical Barriers to Trade (TBT), Anti-Dumping, Subsidies and Countervailing Measures, Safeguards, and Trade Related Aspects of Intellectual Property Rights (TRIPs)

An understanding of the implications and the application of these agreements, particularly the TRIPs, has become more important than ever before at every stage of planning, research, up scaling and commercialization of agricultural technologies. The TRIPs Agreement is covered in an elaborate document—comprising 73 articles in 7 parts, namely, (i) General provisions and basic principles, (ii) Standards concerning availability, scope, and use of IPRs (iii) Enforcement of IPRs, (iv) Acquisition and maintenance of IPRs and related *inter partes* procedures, (v) Dispute prevention and settlement, (vi) Transitional arrangements, and (vii) Institutional arrangements. (National academy of agricultural sciences India, 2003)

Following establishment of the international institutional mechanisms, such as, the Convention on Biological Diversity (CBD) and the WTO, and further, signing of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), the growing importance and the global scope of IPR in agriculture are well realized and Recognized. The IPR, after long debate, is recognized as an asset and means of rewarding and harvesting the fruit of agricultural research and development. Recognition of intellectual property rights provides an effective means of protecting and rewarding innovators. This acts as a catalyst in technological and economic development. The essence of regulation of IPR by law is to balance private and public interests. At the same time, equitable benefit sharing is, although, agreed upon under the CBD, is yet to be realized in effective terms. (National academy of agricultural sciences India, 2003)

Significant dispute exists over whether (genetically modified organisms) GMOs should be eligible for patent protection at all. Article 27 of the World Trade Organization (WTO) Agreement on Trade-Related
Aspects of Intellectual Property Rights (TRIPS) mandates that member countries offer patent protection for inventions arising in all fields of technology, though exceptions are allowed for plants and animals (including genetically engineered varieties). Jurisdictions in the developed world have tended to offer patent protection for GMOs, including GM (genetically modified) plants and animals, with the United States having pioneered such protection, and Europe having later followed suit. However, Canada has been a notable exception to this pattern, refusing patent protection for GM animals and plants. (Torrance, 2007)

As early as the 1883 Paris Convention for the Protection of Industrial Property, agriculture was envisaged as an area of enterprise in respect of which property rights could be secured, thus Article 1(3) of the Convention had declared that Industrial property shall be included within the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example, wines, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers and flour.

Given the state of technology in 1883, the inclusion of these agricultural subjects within the Paris Convention was probably in the context of the protection of trade marks and indications of source. The importance of the latter was reflected in the Second Conference of Revision of the Paris Convention, held at Madrid in 1890-91, which proposed a special agreement for the repression of false indications of origin.

As is indicated below, the first significant application of intellectual property to agriculture occurred with the evolution on the initiative of associations of horticulturalists and plant breeders of the UPOV Convention for the protection for plant varieties. The traditional practice of farmers in replanting, exchange and sale of seed from the previous harvests impacted upon the capacity of breeders in recouping investments through repeat sales of improved varieties. Consequently, the UPOV convention was amended to permit limitations to the extent of seed saving. These limitations have had an impact on food security in circumscribing the availability of saved seed to farming communities.

In any event, the development of the modern biotechnology, which has led to the patenting of the genetic composition of new varieties, provides on the threat of a patent infringement action an effective bar to the capacity of farmers to save seed.

Although the patent laws and UPOV recognize and reward the contribution made to agricultural innovation by plant breeders and agricultural biotechnologists, they ignored the contribution of traditional farmers to the conservation and development of plant genetic resources from which some of these new varieties derived. The FAO International Treaty on Plant Genetic Resources for Food and Agriculture seeks to establish principles for facilitating access to plant genetic resources and establishing fair and equitable mechanisms of benefit sharing.

A recent suggestion for the protection of the contribution of traditional farmers, both to the conservation of genetic resources and to the preservation of traditional varieties, is through the application of geographical indications protection. (Queen Mary Intellectual Property Research Institute, 2004)

**Challenges regarding intellectual property protection**

The following challenges regarding intellectual property protection were identified:

*Implementing an internal intellectual property policy that requires legal support.*

Embrapa has been implementing an internal policy, in conjunction with Congress approving the necessary legal framework.

*Raising awareness of intellectual property.*

The institute has launched an internal awareness- raising campaign through lectures, courses, and workshops to promote and diffuse the new intellectual property policy.

This campaign would also help researchers understand that they should have their research results prescreened for possible intellectual property protection before publication.

*Creating assets from intellectual property.*

Embrapa should protect all assets coming from its research programs. Thus, revenues can be obtained through licensing, or the institute can allow a third (resource-poor) party to use an asset free.
Establishing regulatory infrastructure.
Embrapa hired and trained personnel to manage the implementation of its policies and intellectual property laws. It took into account that this includes a learning curve for preparing and filing patents and negotiating and licensing a protected technology.

Modifying licensing system.
Embrapa is in the process of modifying its cultivar licensing system and its basic seed production program to suit the IPR legislation and the growing presence of a much stronger and competitive private seed industry in the country.

The role of intellectual property rights (IPRs) has lately become a key issue in agricultural and resource economics. As the scope and power of IPRs in biotechnology have grown, their international reach has expanded. These developments raise many fascinating and important issues: optimal patent design and licensing; the implications of IPRs under cumulative innovation, typical of agriculture and biotechnology; the effects of the TRIPS agreement on developing countries; etc.

The original 1961 version of UPOV (the International Union for the Protection of New Varieties of Plants) was revised in 1972, 1978, and 1991. The 1991 version has come into force in most of the countries and a few others are about to implement it. Originally, the scope of PVR (plant variety rights) concerned ‘the production for purposes of commercial marketing, the offering for sale, the marketing of the reproductive or vegetative propagating material, of the variety’ (UPOV, 1978). This has been broadened under UPOV 1991

Under UPOV 1991, a plant breeder is conferred the exclusive right to do or to license the following acts in relation to propagating material of the variety:
- Produce or reproduce the material;
- Condition the material for the purpose of propagation;
- Offer the material for sale;
- Sell the material;
- Import the material;
- Export the material;
- Stock the material for the purposes described above.

The general duration of PVR is 25 years in the case of trees and vines and 20 years for any other variety.

Diamond vs. Chakravarty laid the foundation for granting intellectual property protection for products of modern biotechnology. Relying on this decision, the United States Patent Office was prepared to grant broad patents for hybridized and genetically engineered organisms. This was part of a major but invisible cultural change, expressed by a senior UK patent expert, R. S. Crespi: Historically, the patent system came to birth to meet industrial needs. Industry was perceived as activities carried on inside factories… Manufacture was the key word. Agriculture was felt to be outside the realm of patent law. Living things were also assumed to be excluded as being products of nature rather than products of manufacture… This restricted view no longer persists in most industrialized countries. Thus the European Patent Convention of 1973 declares agriculture to be a kind of industry (Das, 2011)

Conclusion

Intellectual property right is a broad term used to cover patents, trademarks, plant breeder’s rights, copyright, trade secrets and other types of rights that the law gives for the protection of investment in creative effort and knowledge creation. Knowledge, unlike a physical object, can be used by others. The greatest level of economic efficiency occurs with the widest possible dissemination of new knowledge. But if everybody is free to access new knowledge, inventors have little incentive to commit resources to producing it.

Intellectual property rights have been defined as “the rights given to people over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creations for a certain period of time”

The impact of intellectual property on food prices and availability has not been subject to any sustained empirical analysis. At a theoretical level, it is unlikely, however, to have any significant effect on the price of food or the production of traditional crops. On the other hand, intellectual property is likely to affect the choice of which genetic modifications are made to crops as well as the identity of those making and selling those modifications.
The names of agricultural products may be protected by intellectual property rights. This can include trademarks used by producers to brand their particular crop for market, using the farm or farmer’s name.

References


Fuavao A (2003) intellectual property and agriculture, November-December 2003 the Courier ACP-EU.


Queen Mary Intellectual Property Research Institute (2004) the relationship between intellectual Property Rights (TRIPS) and food security.


Schultz TW (1964) Transforming Traditional Agriculture (Yale University Press, New Haven, CT).


Spillane C (1999) ‘Recent Developments in Biotechnology as they Relate to Plant Genetic Resources for Food and Agriculture’, FAO Commission on Genetic Resources for Food and Agriculture, Background Paper No. 9.


