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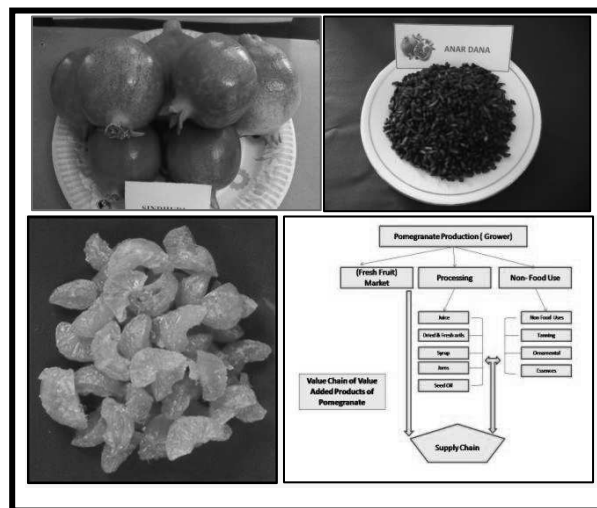
**SUPPLY CHAIN MANAGEMENT AND MARKETING OF CEREALS,  
LEGUMES AND HORTICULTURE PRODUCE IN INDIAN DRY LAND  
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## **IPR and Issues Related to Commercialization of Technologies in Agriculture**

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### **Introduction:**

Intellectual property rights are like any other property right. IPRs refer to the legal ownership by a person or business of an invention/discovery attached to particular product or process which protects the owner against unauthorized copying or imitation. There are seven types of IPRs: Patents, Geographical Indications, Copyright, Trademarks, Trade secrets, Industrial designs and Integrated circuits. All the types of patents are with differing terms of protection, application requirements and benefits. Further, they may be restricted and exclusive and also entail the qualities of ownership, transferability and territoriality.

Some of the general benefits of IP rights are-

#### A) Reward and encouragement

1. Encourage owners to engage in innovative activities that benefit society.
2. Reward the innovator's effort and skills.
3. Provide a set period of protection.
4. Promote wider access to innovations and advance further research and development by others.

#### B) Provide competitive advantage

1. IP rights can provide an extremely valuable bargaining tool and in most cases can be sold for financial gain.
2. Helps the owner to compete on the basis of the reputation associated with a product rather on price alone.
3. IP laws give the owner the right to determine who can use the IP and how it can be used.

However there is need to protect an IP right that allows to:

1. Stop others using what you have created without permission.
2. Charge others for the right to use what you have created.
3. IP protection is a prerequisite for creating the incentives necessary for business growth.
4. IP assets are to be managed strategically and effectively.
5. IP tools patents, industrial designs, trademarks, copyrights, trade secrets etc. can be used either separately, simultaneously or in any combinations as a legal shield.

**1) Patents:** Patents are considered as the strongest among all IPRs because of their strong enforcement.

### **Inventions not patentable in India:**

1. An invention which is frivolous or which claims anything obviously contrary to well established natural laws.
2. An invention, the primary or intended use or commercial exploitation of which would be contrary to public order or morality or which causes serious prejudice to human, animal or plant life or health or to the environment.
3. The mere discovery of a scientific principle or the formulation of an abstract theory or discovery of any living thing or non-living substance occurring in nature.
4. The mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.
5. A substance obtained by a mere admixture resulting only in the aggregation of the properties of the components thereof or a process for producing such substance.
6. The mere arrangement or re-arrangement or duplication of known devices each functioning independently of one another in a known way.

### **A method of agriculture or horticulture not patentable in India:**

1. Any process for the medicinal, surgical, curative, prophylactic, diagnostic, therapeutic or other treatment of human beings or any process for a similar treatment of animals to render them free of disease or to increase their economic value or that of their products.
2. Plants and animals in whole or any part thereof other than micro-organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals.
3. A mathematical or business method or a computer programme per se or algorithms.
4. A literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever including cinematographic works and television productions.
5. A mere scheme or rule or method of performing mental act or method of playing game.
6. A presentation of information.
7. Topography of integrated circuits.
8. An invention which in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.
9. No Patent is granted in respect of an invention relating to atomic energy falling within sub-section (1) of Section 20 of the Atomic Energy Act, 1962.

### **Criteria Of Patentability**

Under the Indian Patent Law, an invention in order to be patented should fulfil the following three conditions –

1) **New:** Novelty is a fundamental requirement and an undisputed condition of patentability. An invention will not be novel if it has been disclosed in the public through any type of publication anywhere in the world. Prior use of invention before filing an application for patent can also destroy novelty. Oral description of the invention in some seminar/conference can spoil novelty if the patent application is not filed within a stipulated time period, which is six months in India.

2) **Useful:** An invention even though it is new as well as non obvious to a person skilled in the art to which it relates cannot be granted a patent unless and until it is of some use to the mankind.

3) **Non Obvious:** The Invention by any person in any field of art shall be of such a nature that a person, who is also skilled in the art to which this invention relates, shall not be able to come to that invention unless he is acquiring some special mental skills.

### **Protection of Plant Varieties and Farmers' Rights Act (PPVFRA), 2001**

Since the Indian Patents Act (1970) excluded agriculture and horticulture from patentability, it needed to put into place a *sui generis* system by evolving legislation on plant variety protection (PVP) by the year 2000 A.D.

The *sui generis* system is a milder/diluted form of a patent and it provides a framework of plant breeders rights (PBR) through which protection is accorded to the breeders, researchers and farmers with regard to use and exchange of seeds and plant genetic material. Crucially, this framework has two important clauses viz., "Farmers' Privilege" and "Researchers' Rights". The (PVP) legislation will give PBR legal status/statutory rights in the country (Source: Business Guide to Uruguay Round, WTO, 1995). To be eligible for protection, varieties have to be:

- Distinct from existing commonly known varieties;
- Sufficiently homogeneous;
- Stable; and
- New in the sense that they must not have been commercialized.

Like all IPRs, the rights of plant breeders are granted for a limited period of time, at the end of which the varieties protected by them pass into public domain. Authorization from the holder of the right is not required for the use of the protected variety in research, including its use in breeding further new varieties (Source: UPOV, 1989).

The Govt. of India enacted “The Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Act, 2001” adopting *sui generis* system. Indian legislation is not only in conformity with International Union for the Protection of New Varieties of Plants (UPOV), 1978, but also have sufficient provisions to protect the interests of public/private sector breeding institutions and the farmers. The legislation recognizes the contributions of both commercial plant breeders and farmers in plant breeding activity and also provides to implement TRIPs in a way that supports the specific socio-economic interests of all the stakeholders including private, public sectors and research institutions, as well as resource-constrained farmers. A total of 140 crop species are eligible for registration under the PPV & FR Act, 2001. The duration of protection of registered plant varieties is different for different type of crops:

- 1) Trees and vines - 18 years.
- 2) For other crops - 15 years.
- 3) For extant varieties notified: 15 years from the date of notification u/s 5 Seeds Act, 1966.

**2) Geographical Indications:** The Geographical Indications of Goods (Registration & Protection) Act, 1999’ (GI Act) and ‘GI Rules, 2002 came into force from September 2003. While registration of Geographical indication is not compulsory, it offers better legal protection for action for infringement. No infringement proceedings can be launched under the act, for an unregistered GI, either to prevent infringement or to recover the damages.

GI Register is divided into two parts. The particulars relating to the registration of the GIs are incorporated in Part A (including **Registered Proprietor**), while the particulars relating to the registration of the **authorized users** are contained in Part B. **Registered Proprietor:** Any association of persons, producers, organization or authority established by or under the law representing the interest of the producers of the concerned goods can be a registered proprietor. **Authorized User:** Any person claiming to be the producer of the goods for which a geographical registration has been registered.

**Registration is required both for a Geographical Indication as well as an Authorized User.** The registered proprietor or authorized users of a registered GI can initiate an infringement action. A suit for infringement of a registered GI is to be instituted in a District Court having jurisdiction to try the suit. The court can grant to the plaintiff relief in the form of injunction and, at the option

of the plaintiff, either damages or account of profits together with any order for destruction or erasure of infringing labels and indications, if necessary.

Examples: Darjeeling Tea (word & logo), Mahabaleshwar strawberry, Kolhapur jaggery, Nagpur orange, Navapur tur dal, Ajara Ghansal rice, Vengurla cashew, Lasalgaon onion, Sangli raisins, Beed custard apple, Jalna sweet orange, Waigon turmeric, Jalgaon brinjal, Solapur pomegranate.

**3) Copyright:** Example: Published articles, softwares.

**4) Trademarks:** Example: CAZRI logo.

**5) Trade secrets:** Example: The ingredients of Coca-Cola are protected under Trade secret.

**6) Industrial designs:** Related to appearance of product, they protect the ornamental or aesthetic aspect of a product (not functional). Example: Writing unit that could store ink = Pen.

**7) Integrated circuits:** Layout designs (topographies) of integrated circuits are a field in the protection of intellectual property and usually related to hardware sector. Semiconductor Integrated Circuit layout Act, 2000 provides for protection of creator or author of Semiconductor IC layout design. The act is in conformity with the TRIPS agreement Example: IC on visa cards, vehicle RC etc.

### **Benefit sharing**

Commonly known as Access and Benefit Sharing or ABS, fair and equitable benefit sharing and access to genetic resources is one of the three fundamental objectives of the Convention on Biological Diversity (CBD). Through articles 8(J), 10 (c) 15 of Convention on Biological Diversity provisions that focuses on respecting traditional knowledge, customary rights of the indigenous local communities, fair and equitable sharing of benefits with prior informed consent (PIC) and mutually agreed terms (MAT) of the holders of resources by the users exists but still many complex issues on the ownership over resources and benefit sharing are yet to be clear. Article 15 of the Convention stipulates that in country where species is found *in situ* has sovereign rights over it. However, same species and associated knowledge can also be found in other country which has their sovereign rights. Therefore when it comes to benefits sharing determining the ownership over associated knowledge becomes difficult. At times even within the same country if knowledge is found within different communities e.g. Kani tribes of Kerala and Tamil Nadu with respect to “arogyapacha” the ownership issues may be

difficult to resolve. Property regime on these complex aspects of traditional knowledge has not been established by any country except the intellectual property rights over inventions under specified criteria of novelty, inventiveness and industrial applicability.

The CBD identified the conservation of biological diversity as “a common concern of humankind”. Destruction of biological diversity would continue unabated unless the custodians of this natural wealth benefit from its conservation. In short, without fair benefit sharing, the conservation and sustainable use of non-human genetic resources will continue to be at risk. The straightforward linguistic definition for benefit sharing could therefore be that benefit sharing is the action of giving a portion of advantages/profits to others. Benefit sharing is related to monetary and non-monetary benefits provided access to a genetic resource has been obtained by respecting legal and ethical guidelines. In the legal field, benefit sharing is a technical term used in the context of access to and use of human and non-human genetic resources (plants, animals and microorganisms). The term describes an exchange between those who grant access to a particular resource and those who provide compensation or rewards for its use.

Benefit-sharing could be manifested as a) support for infrastructure and technologies, b) payment of royalties shared between the provider and the user of genetic resources and associated traditional knowledge, c) preferential access for the provider country to any product derived from the genetic resources and associated traditional knowledge it had provided and d) joint ownership of intellectual property rights.

### **Issues related to ownership of Bioresources**

At the bottom of the biopiracy debates are primarily ownership rights. Who, if anyone, owns the Earth’s biodiversity? Patenting of life-forms marks a significant step towards the “commodification of life” and the “reduction of the value of life and nature to merely economics”. Western IP regimes, as an extension of an individualistic culture, generally have no allowances for the protection of community rights and innovations based on skills developed over the years which are in fact the hallmark of many developing country cultural traditions. Various and sometimes inconsistent regional and international laws and regulations assign ownership rights to many entities. These practices allegedly contribute to inequality between developing countries rich in biodiversity, and developed countries served by international companies, particularly in the pharmaceutical industry, exploiting those resources. Opponents of

this commercialization often refer to it as biopiracy or exploitation of traditional knowledge.

The unique TBGRI-Kani ‘model’ that was post-facto claimed to be the ‘only known case where Article 8(j) and Article 15 of the Convention on Biodiversity (CBD) was fully implemented’ has now turned into a global showcase for biological theft. Customary laws and traditional institutions of governance constitute the basis of biodiversity conservation, sustainable use and preservation, and development of indigenous knowledge. However, precedence of State made laws over customary law has led to ‘commodification’ of natural resources with the State not being able to formulate laws to effectively protect the community perspective of land and resources.

To prevent recurrence of such incidents ‘right of access to bio-diversity and community right to intellectual property and traditional knowledge related to forest biodiversity and cultural diversity’ featured in the law ‘Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006’ in 3(k) under ‘Forest Rights’. India also embarked on an ambitious Traditional Knowledge Digital Library (TKDL) project, to put together a 30 million page electronic encyclopaedia of its rich traditional medical knowledge with the help of software examiners and patent examiners. The Encyclopaedia is in five languages, English, French, Japanese, Spanish and German. It is a mammoth effort on part of India to fight Bio- piracy. Under TKDL access agreement, the patent examiners at the international patent offices can utilize the TKDL database for patent search and examination purposes. The credit for saving ‘Andrographis’ and ‘mint’ from a biotech giant Livzon goes to this digitalization project. The European Patent Office (EPO) has also rejected 15 patent applications of various international companies during the past one year after it found that they had used India's traditional medicinal knowledge to prepare certain products. India has been approached with requests for technical assistance from Malaysia, Thailand, Mongolia, Nigeria, South Africa and the African Regional Property Organization to set up digital libraries of medicinally beneficial local plant species.

### **Rules Governing Exchange Of Germplasm**

The various international and national legislations governing the exchange of germplasm are: Convention on Biological Diversity, 2002; International Treaty on PGR on Food and Agriculture (ITPGRFA), 2004; Sanitary and Phyto-sanitary Agreement (SPS) of WTO: It concerns the application of food safety and animal and plant health regulations; Biological Diversity Act



(BDA)-2002 and Biological Diversity Rules, 2004 (<http://www.nbpgr.ernet.in/www.nbaindia.org>); Plant Quarantine (Regulation of Import into India) Order 2003 or PQ Order 2003.

Within agriculture fruit produce enjoys a preferred market potential both as fresh fruit export and as value added products. Hence it is appropriate to understand its growth over the years besides intricacies involved in its commercialization.

Horticulture Development During Plan Periods (Source: Government of India, Planning Commission, 2001, 2007, 2011)

Over the years, horticulture emerged as one of the potential agricultural enterprise in accelerating the growth of economy for sustaining large number of agro-industries that generated huge employment opportunities. By Tenth Five Year Plan, horticulture was contributing 24.5% of GDP from 8% land area. About 10 per cent of the total budget of Indian Council of Agricultural Research (ICAR) and 17 per cent of the total budget of the Department of Agriculture & Cooperation (DAC) was earmarked for the horticulture. By Eleventh Five Year Plan horticulture accounted for 30% of agricultural GDP. However, the presence of India as an exporter of horticulture products is insignificant. India's share in global horticulture trade was a mere 0.5% in 2004 as per a recent World Bank study.

Since 1994, fruit and vegetable exports have grown at about 8% per year in real terms the segments with the fastest growth are processed vegetables and processed fruits which had growth rate of 10 and 11% per annum respectively. While the basket of India's fresh and processed horticultural export products is very diverse, only a few products account for a large share of total earning. Five commodities namely fresh onions, mango pulp, processed gherkins, fresh grapes and fresh mangoes together account for about half of the total horticultural exports.

With the projected growth rate and after making provision for PHM losses @ 25% and processing @ 5% of horticulture produce, the country's Twelveth Five Year Plan target is to attain the desired availability level of 120 g / capita / day of fruits by the end of year 2015-16 and 280gms / capita / day of vegetables during the year 2016-17. Some concrete measures that are closely related to protection of IP rights are -

1. Putting in place a system of accreditation and rating of horticulture nurseries.

2. Developing General and Specific Guidelines for DUS Testing of horticulture crops. followed by notification of horticulture crops for being eligible for registration under PPV & FR Act, 2001.
3. Introduction of a system of Advance Production planning for Quality Planting Materials.
4. Continuation of on-going schemes promoting setting up of quality Nurseries.
5. Only Accredited Nurseries and TC Labs for Sourcing Planting Materials.
6. Permitting Private Sector Research Seeds after their registration under PVRFR Act. 2001; until then, they may be allowed, subject to general normative cost, if purchased from licensed outlets for sales of seed and planting materials.
7. Continuation of existing Policy regarding Import of Seeds and Planting Materials.
8. Introduction of Transgenic Plant Varieties after getting due statutory approvals.
9. Development of economically viable solutions to scientific fruit ripening for fruits like banana, mangoes, papaya.

Other issues that affect trade in horticulture crops are:

1. Development and Introduction of Long Distance Transport Solutions for fresh horticulture produce.
2. Introduction of Regular Scheme of Crop Insurance on line with Modified Agriculture Insurance Scheme (MAIS) and Weather Based Crop Insurance Scheme (WBCIS) by the concerned Division of DAC. Orchards of other perennial crops like mangoes, dates, apples etc shown may be covered by Insurance scheme on line with Coconut Palm Insurance Scheme (CPIS).

World Trade Organisation (WTO) provides a legal and institutional framework for a multilateral trading system. It is basically committed to establishing an open and liberal global economy, free from any barrier or restriction on trade, and to encourage participation of both developed and developing countries in the multi-lateral trading system. Under this, there is also a desire for making efforts to ensure that the developing countries and least developed countries secure a share in international trade. The basic principles, which are of importance and relevance to horticultural exports under WTO, are-

1. Non Discrimination
2. Reciprocity
3. Market Access
4. Fair Competition

Indian export basket consisting of agro-based products and manufacturing items suffers from considerable supply related problems. So far as the agro-based products are concerned, the question of surplus is most critical. In case of manufacturing products, there are serious problems

of competition relating to high cost, inefficiency in production, out-dated technology, problems related to delivery schedule and product specification.

### **Horticultural Quality Standards**

Indian standards in the agricultural sector have been framed by various organisations of the Government most of which are under Ministry of Agriculture. These organisations are responsible not only for production and product standards, but also for their inspection and quality control.

Presently, for most of the horticulture produce the standards related to physical parameters such as size, colour, appearance, maturity, packaging and labelling requirements are not mandatory for domestic produce, in lieu of which, the imported products are enjoying the liberty of following their own standards as applicable in their country. As a result several of the packaged imported products are having labels which are in foreign languages. However, as per our national legislation on packaged item it should be made incumbent on all packaged products to have labels either in English or Hindi.

There is also multiplicity of standards in several horticultural products. There is, therefore, an urgent need to not only rationalise standards fixed by various organisations but also to harmonise these with ISO standards for different commodities.

### **Factors influencing competitiveness**

1. Lack of range of varieties.
2. Pre- harvest practices to control post harvest losses.
3. Loss of produce at the primary level.
4. Lack of adherence to maturity indices.
5. Lack of facilities for physical and chemical treatment after harvesting.
6. Lack of post harvest infrastructure and logistics.

### **Issues in commercialization of technologies/innovations**

1) **Valuation and pricing of the technology:** Assessing the worth of a technology is an important aspect of commercialization. The worth of an IP/technology will be derived from the likely benefits that would accrue to its end-users, and the price will be determined from the extent of the benefits that the R & D agencies would deem to appropriate. Several methods can be used to value a technology. The valuation of intellectual property tends to be

very complex, since the task of valuation involves determining the present value against a future technology or product. Approaches to technology valuation are generally divided into quantitative and qualitative methods. Quantitative methods attempt to calculate the monetary value of the technology including patents and plant variety protection rights. Quantitative methods are divided into “cost”, “market” and “income” based approaches. On the other hand, qualitative methods provide a value guide through the rating and scoring of an IP asset based on factors that can influence its value.

- 2) **Translation of technology/innovation to business model:** Technology undergoes various stages before it is appropriately modified into an end product suiting the needs of consumers. Such process requires presence/establishment of value/supply chain. If the value chain is not present/well established, it may take lot of policy initiatives, investment and time to develop a viable model. Example: Multi Nutrient Feed Blocks developed by CAZRI.
- 3) **Convergence of stakeholders:** Even if the technology is very useful, the convergence of various stakeholders such as research organizations, government departments, private players, etc. is crucial. For instance, CAZRI has developed MNFBs, which has been appreciated by stakeholders at different level. However, its successful commercialization rests on bringing various partners for large scale production and commercialization, policy support for subsidies and incentives and marketing.
- 4) **Legal approvals and standards:** Products developed out of technologies require legal approval from competent authorities before their final manufacture and sale. For example, nano-based fertilizers require approval as per FCO. Similarly, new edible food products require biosafety tests. Once they are found to be safe for human consumption, further, they need to follow standards as per FSSAI.
- 5) **Government policies/guidelines:** Certain new innovations require enabling policies for post-release monitoring, biosafety and quality control. For example, products such as nano-fertilizers and juli coffee. Policy decisions can also affect the prospect of new technology or an already widely commercialized technology. For instance, government’s decision to regulate sale price of Bt cotton seeds and moratorium on Bt brinjal.
- 6) **Preferences and perceptions of the public/consumers:** Though juli-coffee has been developed by CAZRI and found to be suitable for human consumption, its acceptance is not

only dependant on price competitiveness in market but also consumers' preference of july coffee over existing products and their own perceptions about the biosafety.

- 7) **Enforcement of contracts/agreements between licensor and licensee:** Generally MoUs/MoAs are executed between licensee and licensor for licensing of innovation for its production, marketing and sale. However, enforcement of these contracts/agreements/licensing is a difficult task especially for licensee. Issues such as benefit sharing (including royalty), compliance of government standards by licensor, quality control, etc. are the practical issues. Licensee has no mechanism to directly monitor the implementation of the agreement by its licensor.
- 8) **Attributes of innovation:** The characteristics of an innovation such as its relative advantage (over existing product), complexity (level of difficulty to understand and use), compatibility (with the existing practices and resources), trialability (testability) and observability (visible results) affect its commercialization as well as adoption. Simple and concrete technologies such as MNFBs can be produced by farmers themselves after training. Farmers can also produce the foundation/certified/TL seeds of new varieties on their farm if the source seed are made available to them. However, certain complex technologies such as preparation of bio-fertilizers and nano-fertilizers require high skills and equipped laboratories. Such technologies have to pass through various stages before reaching consumers and hence affect their price in the market.
- 9) **Economic viability of the technology:** However useful an innovation is, its adoption depends on its price and relative advantage over its competing/substituting technology. The availability of raw material and its seasonality used in the preparation of the product also affect the prices and its commercialization. There are various animal feeds already available in the market. Regular availability of vilayati babool (*P. juliflora*) pods and costs in harvesting also affect the success of commercialization of MNFBs.
- 10) **Forecasting of technology market and adoption:** Assessment of the adoption of the technology/innovation requires critical data related to technology, market potential and segments. However, in the situation of absence of market information, such information has to be collected.
- 11) **IP of technology/innovation:** The technology which has been protected under relevant IP laws has a clear edge. For instance, technologies/innovations applied/granted patent, GI,

trademark, etc. will help in its successful licensing, its enforcement and further commercialization.

**Prepared with the help of following:**

1. Bijoy C. K. 2007. 'Access and Benefit Sharing from the Indigenous Peoples' Perspective: The TBGRI-Kani 'Model'', 3/1 Law, Environment and Development Journal, p.1.
2. Revised Draft Manual of Patent Office Practice and Procedure 2010. Published by the Office of Controller General of Patents, Designs and Trademarks, Mumbai, India.
3. WIPO. What is intellectual property (publication no 450 E) pp25.
4. Oli K.P. 2009. Access and benefit sharing from biological resources and associated traditional knowledge in the HKH region - protecting community interests. *International Journal of Biodiversity and Conservation* Vol. 1: 105-118.
5. Potter RH. 2007. Technology Valuation: An Introduction. In *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices* (eds. A Krattiger, RT Mahoney, L Nelsen, et al.). MIHR: Oxford, U.K., and PIPRA: Davis, U.S.A.
6. Mysore S 2015. Technology Commercialization through Licensing: Experiences and Lessons-A Case Study from Indian Horticulture Sector. *Journal of Intellectual Property Rights* Vol 20: 363-374.
7. Manjunatha B L, Rao D U M, Dastagiri M B, Sharma J P and Burman R R. 2016. New Indian Seeds Bill: Stakeholders' policy advocacies to enact. *Journal of Intellectual Property Rights*, **21**(2): 73-78.
8. Manjunatha, B. L., Rao, D. U. M., Dastagiri, M. B., Sharma, J. P. and Burman, R. R. 2015b. Need for government intervention in regulating seed sale price and trait fee: A case of Bt cotton. *Journal of Intellectual Property Rights*, Vol. **20**(6), 375-386.