Biodiversity Protection, Farmers and Breeders Right

Prof. Padmavati Manchikanti, Prof. Narendran Thiruthy | IIT Kharagpur

Lecture 29 : Plant Variety Protection - Comparative Perspective

Welcome to the lecture 29 on the Comparative Perspectives of Plant Variety Protection. In this lecture, we will deal with the comparative perspectives of plant variety protection, the law and policy related to plant variety, and in certain cases patent information is also provided as a linkage with respect to plant variety protection. Where for breeders it is useful to understand if that the background improvement whether that requires the genes which are also protected under patents. These are the keywords for the lecture. Let us understand why it is important to understand the comparative perspectives. Understanding the comparative aspects of plant variety protection provides a view into the differences and the commonalities with respect to variety protection, procedural aspects, examination requirements, and other aspects.

Understanding cross country plant variety protection is important for breeders to develop a comprehensive approach with respect to filing of plant variety protection. Many countries have several legislations that deal with plant variety protection. In other countries there is a single legislation. In many cases the seed legislation and the plant variety protection legislation need to be considered, because it is not just the protection, but also at some point of time bringing the material to the market.

So, market regulation also becomes another facet of understanding plant variety protection. Therefore, the analysis of the plant variety protection from the point of view of the technical, legal, institutional, as well as the administrative mechanism is interesting from the cross country perspective. For a very effective plant variety protection and the management, it is important to keep into consideration the interest of the plant breeders on one end, policy considerations, and how in certain cases the changes to the policy and law are affected based on international commitments. With this as a backdrop, let us look at the some of the aspects of the plant variety protection in the countries select countries of this particular lecture. From a US perspective protection of plant varieties comes from the perspective of looking at it from plant variety protection on one end, the variety itself.

Plant patents, plant patent legislation goes back into 1930. And for improving plant varieties wherever genes, gene fragments are utilized, then you can also find utility patent protection available. See method of breeding, selection, all these can be part of what we call know how. Hence, trade secret protection is also available for the methods and the protocols. Under 35 USC 161, plant patents are available in the US.

Whoever invents or discovers an egg socially reproduces any distinct and new variety of plant. Plant patent protection is available subject to the conditions. Now, generally what are the asexual reproduction methods? It is important to understand that. For instance, rooting cuttings, grafting, development of epimetric seeds, division aspects, layering, rhizomes, runners, combs, tissue culture based and nucellular embryos. So, if one wants to look at what are the plant patents that have been granted in the US, you will typically go to this particular search tool.

And if you see here, the double capital P number has been given. And if you search, you get details of what is this application about, it is a double impatiens plant named Tioga tangerine. And if you click on the details of it, you will find the patent specification in relation to this particular variety. So, here talks about, so therefore, this is one method of protection that you see. And as I mentioned, utility patents are available for those based on modified genes, method of interventions of genes, how transformation of these has been taken up over expression or under expression of a particular gene for either enhancing the trait or reducing the particular characteristic.

So, that is how we see the and of course, there is a separate protection when it comes to plant varieties. The Plant Protection Act 1970 is relevant. Under the US Department of Agriculture, the Plant Variety Protection Office deals with the aspects of plant variety protection. And new varieties are considered for the protection, whether they are propagated to seeds or vegetatively. The criteria for variety protection, novelty is one characteristic, distinctness, uniformity, stability and appropriate name.

With respect to novelty considerations, there are several aspects of it. Grace period of one year is available prior to the date of PVP application. Similarly, if the variety has been available outside of the US up to 4 years prior to the date of plant variety protection filing. And this is how you see the general term of protection for varieties is 20 years, for vines and trees is 25 years. When we come to the context of plant variety protection, the testing of varieties becomes a consideration.

Now, in the case of the US, testing data is sought from the applicant. Only when there is a concern or when there is a difference is when the office will take up the matter, otherwise the information is actually sourced from the applicant. So, it is an applicant conducted field trial system either by two locations in one year or the testing of a variety at one location for 2 years. And whenever the field data is submitted, the notion of what we call reference variety is called most similar variety. And the traits with respect to the most similar variety are considered with respect to the verification of the details.

The plant variety protection office recognizes DUS reports which are non-US, but UPOF compliant. That means, DUS report from another UPOF authority is accepted. Now, one if you look at the database, you can find the details of application number, variety name, crop, here you can see soybean, rice, then lettuce, corn, tomato, and then who are the applicants and whether a certified seed is available or not. There are exemptions available under the US plant variety protection legislation for private non-commercial use, for research purposes in for using that as a starter material for development of new varieties. The right to save seed exemption is available, but subject to the breeders approval.

That is how we look at the protection the exemptions in relation to the plant variety protection. The right to exclude others from marketing, selling, importing, exporting, or stocking their variety is under section 111 of the PVP Act. So, for those who are practicing in the US companies would obviously, look at protection that is available in all these contexts. The plant variety protection on one end, utility patents for genes and the interventions, and plant patents under the plant patent act. Various variety name conflicts do arise, and there is a variety name clearance service which is provided by the sea grade testing, and hence here is where you see the relevance of the Federal Seed Act that becomes important.

And so, when a variety name is chosen that name continues unchanged through the entire supply chain. Those are the brief details with respect to plant variety protection in the US. Let us examine the context in case of Europe which is a regional system. The office of the community plant variety is the one which is relevant. It manages the European Union system of plant variety rights covering member states.

And when we look at the legislation, the this legislation the EU regulation is relevant, and it is modeled on the 1991 act of the UPOV convention. So, when you apply to the CVPO, we come to the context of the eligibility for a variety. Distinctiveness, novelty, uniformity, stability, and variety denomination are relevant which is covered under article 6 of the regulation. Again the context of novelty is as per the UPOV. CVPO assumes a very important role from the point of view of accepting applications to the entire process of examination and also the aspects of cancellation when it comes to community plant variety rights.

So, you have the formal examination of applications, general application particulars, substantive examination with respect to the criteria, technical examination of candidate varieties from the submitted documented data, refusal of application that do not meet the requirement, starting of a community PV right and variety denominations and where it is revoked the declaration of nullity comes into picture. So, those who are individuals or companies which have domicile or the headquarters located in EU can apply. Member

state to the UPOV can also apply at the CVPO. So, the rights of the holder of a community right are enumerated under article 13, where specifically the rights in relation to the activities in relation to production authorization are covered. So, it shall be a violation if the authorization of the holder is not taken for production or reproduction for purpose of propagation offering for sale selling or other marketing importing to community or stocking up with respect to any of the ones mentioned.

So, the duration of community plant variety rights are covered under article 19 of the regulation and generally speaking it is 25 years and then for vines and tree species until the end of the 30th calendar year following the year of grant. The rights granted under the community system go in hand in hand with those with respect to national laws as well with respect to the UPOV principles. Again exemptions to plant variety right are available in the case of the European Union under article 14, which recognizes experimental purposes, non-commercial private use, the use of plant variety material as an important germplasm for purposes of breeding or discovering or developing other varieties and the form of privilege is also recognized. Now, this is the interface of the CVPO variety finder database, which has information of on registers from more than 70 countries. There is a whole lot of information that one can understand with respect to denominations, information on trademarks available for the plant variety and especially those with respect to class 31 where they are not considered and of course, the plant patents.

Now, when we look at the interface one can search for the type of the plant variety by giving the specific name or generally one can also check with respect to a particular word which is a part of the denomination. So, here I have given the word read just as an example and then chosen all those ones with respect to which are registered. Of course, there are several other filters one can apply. Generally speaking if you go for the search, it searches through the entire registers and you get the information in the form of this particular search report. Now, you can see here there are it is a general term right given.

So, therefore, you are getting all the denominations which are across different species for instance here you have Solanum tuberosum, Pseudovintra, there is a different species, but one can also search by specific species. So, this gives you a view into the what are all the aspects one can search for and a very focused search is also possible. Now, because it also supports the registers of other patent offices one can also search for plant patents utilizing the CVPO variety finder database. And this is where we look at the relevance of the database called PINTO. Pinto in full form means patent information and transparency online.

If you juxtapose the plant variety protection on one end and the information on patents that are available in the background for genes relevant to that species, this can be a very

important information for breeders who are looking at the intellectual property status of the plant varieties other than the PVP protection. So, this database is again very useful as the link between the CVPO to the plant based or plant related inventions. We now come to the context of plant variety protection in Japan which is covered under the plant variety protection and C-DAT. Now, if you look at the purpose of the legislation it is defined under article 1. Article 1 provides the purpose of the legislation from the point of view of promoting breeding and of varieties of plants and rationalization of distribution of the propagating material.

And this is where we see the relevance of the aspects of the labeling regulation and also the linkages with the marketing of it. So, there are provisions in relation to labeling of designated seeds, this is one aspect. And if one looks at the intellectual property strategy of 2025 which is projected for it brings into consideration the overall creation protection and implementation of intellectual property in the realm of looking at bringing together agriculture, forestry, fisheries and the food industry with respect to a whole lot of IP not just the plant variety protection, but GI trademark as well and adequate emphasis to certain resources itself. The idea behind is to really make the industry very competitive with respect to certain resources. The MAFF which is the Ministry of Agriculture and Forestry, Agriculture Forestry and Fisheries is the one which is deals with the application registration of varieties.

And when we look at the breeders right is valid up for 20 years from the date of registration. So, when we look at the conditions for variety of registration, here we see that all cultivated plants and mushrooms which are designated by the cabinet order are available or eligible. The other criteria being distinctness, uniformity, stability and novelty and appropriate denomination. The general flow or the steps involved in the variety registration are provided as what you can see on the left panel and this is the source. So, it begins with the application for registration, informal checks, publication of the application, formal examination, submission of the documentation and if there are certain queries then the applicant will need to submit the statements and either it is allowed or it is rejected.

The so, we see that at the stage of examination there is provisional protection available and many of these countries also recognize compulsory licensing with respect to plant variety protection. Then we go into the context of the registration procedure itself and the effect of the registration of the breeders right. So, there are certain changes to the if you see country wise the procedures. The DUS testing goes into three different aspects. Growing tests are one aspect, on-site inspection by governmental officials and documentary examination.

The national center for seeds and seedlings is the one which is the specific one which

undertakes growing tests. If one way to look at searching for a plant variety in the case of Japan, this is the typical interface that you would go to where you are looking at the registered variety or the publication of an application. So, relevant again to agriculture, forestry and fishery. So, we said that it is a consolidated bringing all that together in one place. So, when it comes to those set of plants the name of the variety can be utilized, you can check by other categories such as applicant name, the date of publication, the name of the breeder and also the other details of it.

When you search for you get details of that particular plant. 30 years is the duration of protection for fruit trees, forest trees and ornamental trees, other plants 25 years is the duration of protection. There are exemptions as recognized in the Japanese law as well when compared to even the other laws that we have just examined. For the purposes of experimentation and research breeders exemption is available, farmer exemption is also available where farmers can actually save seeds for the limited purposes of their livelihood. These are the brief details in relation to Japan.

When we come to the plant variety protection in the case of China, the regulation for protection of new varieties of plants 1997 is relevant. And after joining with the UPOW, we see changes to the regulation. The ministry of agriculture and rural affairs on one hand and the national forestry and grassland administration on the other hand are involved with the plant breeder rights. So, here you have variety registration dealt with multiple authorities. So, new varieties of plants or NBP protection is with respect to those gene gene genera and species which are listed and that listing is under the national catalogue for protected new varieties of plants.

So, it is available only for those. Article 2 of the regulation brings in this particular context of the basic criteria whether it there to be eligible, there to be new, distinct, uniform and stable and with having an appropriate denomination. So, when we look at the novelty characteristics, the novelty characteristics are again in line with the loop UPOW as recognized under the UPOW. Distinctness uniformity and stability are the necessary criteria which need to be provided by the applicant. There are several DUS testing centers which are recognized for the DUS testing. As mentioned the NFGA or the National Forestry Grassland Administration takes up several different aspects of the plant variety protection.

Coming up with technical standards and norms is one, particularly dealing to certification when it comes to forest breeders, organizing the biological safety testing. So, this is another facet of the PVP legislation that you are finding here. Forest certification mechanisms is another aspect. Also looking at the changes with respect to the compliance with respect to international conventions and other duties that it may be taking up time to time. New

variety protection is available for 20 years for trees, the vines, forest trees and fruit trees, ornamental trees and other eligible plants it is 15 years.

So, when we look at the these different countries, some countries are also taking up the later part of UPOV 1991 aspect for amending their legislation. So, there are also revisions that are planned. For instance we are looking at the aspect of the change to regulation announced 2022 by the Ministry of Agriculture and Rural Affairs and these are the several aspects that have been recognized under that. The scope of essentially derived varieties to be expanded, extension of the protection period for variety rights, how the measures for enhancing the aspects of handling infringement and counterpitting cases, the restoration of rights scope of it and adding regulations with respect to punishment for dishonesty. These are some summary of the aspects that are being considered with respect to the changes.

So, while this is only a brief view into only some countries, what is it that we can understand is that comparative perspectives of some of these countries provide us a view into the background policy and the law. International commitments in terms of joining the UPOV have made resulted in the changes to the legislations and so, there thereby you see norms being and standards being changed, procedures being adopted. From the perspective of the number of authorities dealing with different aspects of plant variety protection, we see a difference. In many cases, we also see the crosslinking of other IP information for instance patents for the convenience of the breeder. So, this is where we see changes to legislations, the reciprocal consideration of DUS testing information.

Some of these countries are also part of the East Asia forum of plant varieties. So, we do see developments in relation to plant variety protection, how these changes bring in the context of not only national legislation changes, but also cross country. And for those who are working in this area, for instance plant breeders companies who are looking at protecting plant varieties abroad, understanding of these changes is important to look at a very effective strategy for protection in those countries. These are a few references for the lecture. Thank you.