

GROWERTALKS

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Protecting Plant Genetics

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U.S. plant patents were one of the first forms of intellectual property protection developed in the world. Going back over 80 years, the drafters of the U.S. Plant Patent Act wanted plant breeders to have the same form of patent rights as other inventors. Now, with the amazing new breeding and mutagenesis technologies, allowing new plants to get on the market in record time, the question has to be asked: Are plant breeders of new varieties still able to experience the same rights they previously enjoyed?

Plant patent history

Discussions of plant protection go back into the 1880s, but it wasn't until the 1930 Plant Patent Act that breeders were able to get protection for their novel varieties. The legislative record shows that the 1930 Act was enacted to "afford agriculture, so far as practicable, the same opportunity to participate in the benefits of the patent system as has been given to industry, and thus assist in placing agriculture on a basis of economic equality with industry." The 1930 Plant Patent Act was supported by many famous inventors, such as Thomas Edison and Luther Burbank. Burbank, a leading plant breeder of the day, was reported to have stated that "until Government made some such provision [for plant patent protection] the incentive to create work with plants was slight and independent research and breeding would be discouraged to the great detriment of horticulture."

Prior to the 1930 Act, two primary factors were thought to remove plants from patent protection. The first was the belief that plants, even those created through plant breeding, were products of nature for purposes of the patent law. Second was the question of how plants would comply with the "written description" requirement of the patent law.

In enacting the 1930 Act, Congress addressed both of these concerns. It explained at length its belief that the work of the plant breeder "in aid of nature" was a patentable invention. Likewise, it relaxed the written description requirement in favor of "a description ... as complete as is reasonably possible."

Under the Act, "whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state, may obtain a patent." This includes many ornamental and fruit plants, trees and vines, providing the owner the right for 20 years to exclude others from making, using, offering for sale or selling the protected plant, or any of its parts, throughout the United States.

Protection for breeders

As discussed above, to obtain a plant patent, a breeder must provide a complete description of the plant and include a single claim to the plant. This single claim limits the ownership of the plant patent holder to just the plant identified in the claim. Moreover, the drafters of the 1930 Act didn't restrict plant breeders from the freedom to continue breeding new plant varieties with the patented plant, providing that plants that are subsequently bred from the patented variety aren't covered by the patent of the parent variety.

In contrast to U.S. plant patent protection, many countries use various forms of Plant Breeders' Rights for plant protection, based on the International Union for the Protection of New Varieties of Plants (UPOV) treaties of 1972, 1978 and 1991.

In 1970, the United States adapted the Plant Variety Protection Act (PVPA) following the UPOV treaty. While similar to the U.S. Plant Patent Act, the PVPA was and still is a completely separate bundle of rights from that of patents. This was confirmed by the U.S. Supreme Court in 2001 when the Court held that patentable subject matter includes newly developed plants, even when plant protection is also available for the same plant under both the U.S. Plant Patent Act and the PVPA. Administered through the U.S. Department of Agriculture, the 1970 PVPA and subsequent 1994 amendment, the PVPA provided breeders and companies 20 years of exclusive control over new seed or tuber propagated varieties. The PVPA does provide exemptions in some circumstances for breeding new varieties and farm-saved seed. However, the PVPA isn't applicable to asexually produced plants.

While both U.S. plant patents and PVPA provide various levels of protection for a novel plant, there's a key difference between the two—the PVPA allows for protection of essentially derived varieties of the protected variety.

An “essentially derived variety” (EDV) is a variety that is 1) predominantly derived from an initial variety, while retaining the expression of the essential characteristics that result from the initial variety; 2) is clearly distinguishable from the initial variety; and 3) except for differences that result from the act of derivation, conforms to the initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety. EDVs are granted so that breeders could have an additional source of remuneration (i.e., breeder royalties) if their plant was “plagiarized.”

Since the addition of EDV protection in the UPOV 1991 amendments, the breeding of new plant varieties using conventional breeding techniques has given way to new breeding techniques, such as CRISPRs or induced mutagenesis. These new techniques mean a company can now take a recently released protected/patented variety, induce a mutation in the new variety and get the new variety to market within a matter of months (as opposed to years with conventional breeding). Such new techniques can dramatically reduce the amount of time of exclusivity a breeder has before a competitive variety with essentially the same characteristics are in the market. This dramatically reduces the breeder's opportunity to participate in the benefits of the U.S. patent system and begs the question: Should the U.S. Plant Patent Act be amended to include EDV protection?

One present-day alternative to the U.S. plant patent protection is the use of utility patents. Utility patents are

another form of protection through the U.S. Patent and Trademark Office, which, depending on the patented claims, can grant breeders of a new variety protection the right to prevent any unauthorized use of the plant, including the power to exclude the use of the protected plant in breeding and asexually reproducing the plant. A downside of a utility patent can be the potential increased cost, due to the information needed for a utility patent with potentially more robust protection.

Since EDV protection is currently not available for U.S. plant patents, why not just amend the U.S. Plant Patent Act to include EDV protection? Unfortunately, there are a number of hurdles involved with including EDV protection in the U.S. Plant Patent Act.

One such hurdle is the one invention, one patent rule. Under the U.S. Patent Law, where two independent inventions are identified in a single application, the applicant must elect only one of the inventions. U.S. patent law defines “independent” as not dependent, or unrelated, and appears to conflict with the definition of an EDV.

History shows that the drafters of the U.S. Plant Patent Act wanted to make sure that plant breeders had the opportunity to enjoy the fruits of their labors. However, with the recent introduction of new breeding and mutagenesis technologies, the length of time breeders are able to reap the benefits of their labor can be dramatically reduced. Therefore, the question remains: Should the U.S. Plant Patent Act be amended to again provide plant breeder the same benefits as other inventors? **GT**

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