

Opinions on intellectual property protection divided

Can sector manage with current plant breeders' and patent rights?



The European Patent Office (EPO) ruled last year that no more patents would be awarded on plants with characteristics that are “the product of essentially biological processes”.

In 2017, the European Patent Office decided to stop awarding patents on plant characteristics obtained using traditional breeding techniques. As a result, applying for plant breeders' rights is now the only option left in many cases. But these offer less protection. Some breeders are happy with this change, while others view the erosion of these intellectual property rights as a bad thing and would like to see plant breeders' rights tightened up.

Plant breeders' rights and patent rights are terms that regularly cause confusion. This is something that Lennard Van Vliet of Hortis Legal, a Dutch legal consultancy specialising in intellectual property law, has also noticed. “They are two fundamentally different things,” he stresses. “You can apply for plant breeders'

rights on new varieties that differ from other varieties by one or more botanical characteristics. They give breeders the exclusive right to propagate a new variety for a certain period of time. But other parties can still use these protected varieties for crossing purposes and can then apply for their own plant breeders' rights on their new hybrids. We call this the “breeder's exemption”.

According to Van Vliet, this exemption does not make plant breeders' rights particularly strong. “It means that anyone can use your varieties for breeding purposes. That's why major breeders in particular have been trying to obtain patent rights in recent years. But you can't use patents to protect plant varieties. Breeders have tried to circumvent this by applying for patents on specific plant characteristics, such as resistance to a certain disease, or methods of introducing those

plant characteristics into plant cells. In some cases, patents have in fact been awarded for these.”

More protection

According to Van Vliet, a patent right offers more protection than a plant breeders' right: plants with patented characteristics can't be used by other parties for cross-breeding or propagation. “Let's say your company has developed a plant characteristic that protects against Phytophthora. If you have taken out a patent on this, it means that no other party can breed with a plant containing this patented characteristic. So you can essentially block a whole breeding direction and strengthen your market position as a breeder. The fact that it is mainly larger breeders that have concentrated on obtaining patents is partly because they are very expensive to apply for.”

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“CRISPR-Cas could have increased scope for patent rights”

The European Court of Justice recently ruled that innovative genetic engineering techniques such as CRISPR-Cas should be classified as genetic modification.

Aad van der Knaap believes that since this area is subject to strict rules in Europe, this will make it difficult for breeders to use these techniques. “The ruling surprised us,” he says. “Genetic engineering techniques enable breeders to change DNA in a very targeted way, by switching genes off and modifying them without the need to introduce foreign genes. This allows you to produce varieties with certain characteristics much faster than with natural breeding techniques. What is particularly hard to swallow is that the use of genetic engineering techniques is permitted in other parts of the world.”

Patent justified

Axia’s Hessel Deinum also calls the ruling a missed opportunity: “Especially in view of the challenges we in the breeding sector face in developing new varieties: climate change, a growing world population, and so on.”



Because the CRISPR-Cas method involves making changes to the genes, the result can effectively be described as an “invention”.

According to van der Knaap, plant characteristics that have been created using genetic engineering techniques could potentially lend themselves to a patent application. “This is a good example of a method that involves using non-traditional breeding to change or improve a plant species. And because you’re making changes to the genes, it is actually an ‘invention’. In my opinion, a patent is more justified in that case. In other words, a positive ruling could have increased the scope for patent rights.”

to large-scale R&D projects as they are simply less profitable. That’s a pity, not least because of the major challenges that lie ahead of us in solving the problem of how to feed the world.”

Not impossible

Ornamentals breeder Dümme Orange is pleased that after many years there is finally clarity about when plant characteristics can or can’t be patented. However, according to Managing Director R&D Hans van den Heuvel, the impact of the ruling should not be overstated. “It is undoubtedly more difficult now to obtain a patent on naturally bred plant characteristics in Europe, but it is not impossible. New characteristics that have been created through a technical process such as mutagenesis are in theory patentable. Mutagenesis leads to changes in a plant’s DNA. These changes can be introduced using new technologies and in a conventional way, with natural radiation and chemicals. Conventional mutagenesis methods have been used in breeding for decades and are safe for people and the environment. That is also why they are not viewed as genetic modification. New methods of mutagenesis, such as CRISPR-Cas, are unlikely to be used in ornamentals because the products would then be seen as genetically modified organisms.”

However, according to van den Heuvel this means that applying for patents is becoming even more of a “thing” for larger breeders since they have the technological capability and budgets for such processes. “For us at Dümme Orange, the impact of the ruling is less significant anyway, as we operate worldwide. Different rules apply to the patenting of plant characteristics in major markets outside Europe,” he says.

Step in the right direction

There is also a camp that is happy with the European Patent Office ruling. Among them is Niels Louwaars, director of Plantum, the Dutch trade association of breeders and propagators. “We raised the alarm about 12 years ago when we became aware of the effects of

Patent rights restricted

Last year a major change was introduced in European patent law. The European Patent Office (EPO) ruled that as of 1 July 2017, no more patents would be awarded on plants with characteristics that are “the product of essentially biological processes”. This ruling was the result of years of discussion about whether or not the awarding of patents on plants was desirable. Van Vliet again: “This may sound complicated, but basically it means that patents will no longer be awarded on plant characteristics that occur in nature and are introduced by traditional breeding methods. They will only be awarded on plant characteristics that are created via laboratory

techniques.” As a result of this EPO ruling, therefore, far fewer plants with unique characteristics are eligible for patenting. “This was a huge setback for some major breeders,” says Van Vliet. “It gives them less opportunity to monopolise an entire breeding direction. For plants that are the result of natural crossing and breeding, they now have to rely on plant breeders’ rights, which offer less protection. This is a disadvantage for breeders who invest a lot of time and money in developing new plants and, logically, are unwilling to throw that away.” He therefore believes that the EPO ruling puts the brake on developments in breeding in some cases. “Breeders will take their foot off the gas when it comes



Lennard Van Vliet: “Plant breeders’ rights need to be tightened up on several fronts.”



Hans van den Heuvel: “Applying for patents is becoming a ‘thing’ for larger breeders.”



Niels Louwaars: “A ruling by the European Patent Office is a step in the right direction.”

patents on plant characteristics. You see, the legislation was not originally intended for patenting natural characteristics. As a result, our members could no longer breed freely with patented plant characteristics. This severely limited the opportunities for breeders and therefore also put a brake on genetic progress in crops.”

Louwaars therefore calls last year’s ruling “a step in the right direction”. And most Plantum members – particularly ornamental breeders – are also positive about the recent ruling, he says. “On the other hand, this wasn’t good news for biotech companies, who are mainly focused on making money through patent licensing and protecting their market position.”

In his own circles Louwrens even knows major breeders who think it is more important to have access to other breeders’ plant characteristics than to be able to protect their own plants with specific characteristics by patenting them. “The fact that some large vegetable seed companies have agreed among themselves never to say ‘no’ to a licence application for a patented plant characteristic underlines this.”

Fair

KP Holland director Aad van der Knaap is also pleased that the possibilities for applying for patents on plant characteristics have been restricted. The advent of patent rights in the breeding industry had been a thorn in his side for many years. “Patents originate from industry. When you start applying a system from one sector to another, things go wrong,” he says.

A striking example cited by Van der Knaap is the double flowering characteristic in kalanchoe. This came about as a result of a spontaneous mutation. A Danish breeder then dissected the method for achieving these double flowers and applied for a patent on it. “It worked to begin with, which meant that anyone who wanted to breed with double-flowered kalanchoes had to apply for a licence. That sort of thing isn’t fair, as the breeder had made no effort to add a characteristic himself,” says van der Knaap. Following a European



When a party makes risky investments to introduce a new characteristic into a plant, it is only natural that if others want to make use of it, they should receive fair remuneration.

Patent Office ruling, this patent was then reversed. “We are very pleased that patents are no longer being awarded on traditionally bred plant characteristics, not least because this enables us to maintain access to material from other parties. Awarding patents is only useful when there is evidence of a significant innovation in plant characteristics that a party has developed themselves.”

Pull out all the stops

Louwaars and Van der Knaap are not worried about innovation being nipped in the bud by the fact that plants that are the result of traditional breeding are now “condemned” to plant breeders’ rights. “Based on the protection afforded by plant breeders’ rights, we see growers spending an average of 15 or even as much as 30 percent of their turnover on developing new varieties. That is much more than in industrial sectors that depend on patent law,” says Louwaars.

Van der Knaap believes that the recent changes in the law are actually increasing the need to innovate. “As anyone can now breed with material that is the product of natural breeding processes, breeders need to pull out all the stops to stay ahead.”

Plant breeders’ rights in balance

All in all, most Plantum members can manage very well with the current plant breeders’ rights. They believe that they provide their innovations with sufficient protection. Louwaars: “As I said, we don’t want rights that are too strong because we also don’t want to restrict the availability of breeding material.”

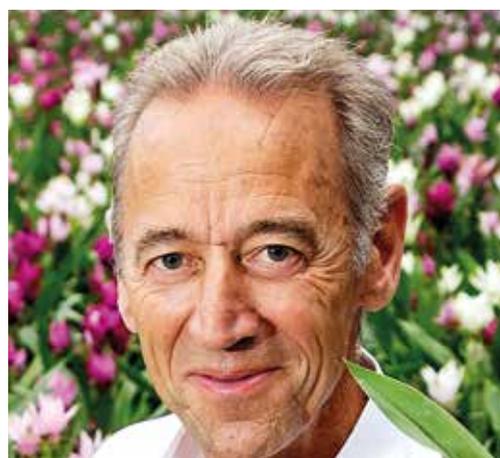
Van Vliet believes that this mainly represents the opinions of smaller breeders and that it may still be desirable to amend plant breeders’ rights, particularly for larger breeders of food crops. “We must ask ourselves whether it is still appropriate today for everyone to be able to cross-breed freely with

varieties protected by plant breeders’ rights. In some cases it is unfair that anyone can simply breed with varieties that have had a huge amount of money and energy invested in their development. That’s why tightening up plant breeders’ rights is important on several fronts.”

Fair remuneration

Dümmen Orange shares this view, as does vegetable breeding company Axia Vegetable Seeds. Although both parties are in favour of making genetic material freely available to everyone, they do believe that plant breeders’ rights should be brought more into balance. “When a party makes large and risky investments to introduce a new characteristic into a plant, it is only natural that if others want to make use of it, they should receive fair remuneration in return,” van den Heuvel points out.

Hessel Deinum, legal counsel at Axia, maintains that this aspect of plant breeders’ rights should be changed. “This would encourage innovation in the breeding world in a positive way.”



Aad van der Knaap: “Breeders need to pull out all the stops to stay ahead.”

Summary

Since last year, plant characteristics that occur in nature and are introduced using traditional breeding methods can no longer be patented. As a result, breeders are dependent on plant breeders’ rights, which provide less protection of intellectual property. Opinions are divided on this. Some parties want to see more balance in plant breeders’ rights: they believe that breeders who want to work with a variety resulting from an intensive and expensive process should pay a fair fee for the privilege.