Comprehensive information/discussion points

Q&A patents and plant breeding

Key statements

- **Is it permitted to breed a variety even further if a patent exists?** Yes! The use of plants for further breeding remains permitted for breeders under Swiss law even if patents exist. However, it may only be marketed without a license if the new variety no longer contains the patent-protected material, otherwise a license must be obtained.
- **There is a CRISPR patent flood, is that a problem?** In the longer term, a slight increase in the number of patents can be expected, simply due to the increase in the pace of innovation. However, patents only concern novel properties and are not easy to obtain because of this claim. An increased number of patents and patent disputes on CRISPR is not a problem for breeders who do not want to use these techniques at all. They still use traditional methods and properties that are not patentable. Only those who want to use the new methods or a new feature developed biotechnologically are affected.
- **How can small businesses compete when more and more patents are being issued?** Patents are limited to 20 years and are published publicly. The Institute of Intellectual property provides support in the search for patents. The seed industry has also initiated and co-developed new approaches such as patent search platforms and patent pools, which increase transparency and facilitate the licensing of patented properties and technologies. This benefits small businesses.

WHAT IS A PATENT?

A patent is a 20-year-long right to market an invention. In exchange for this right, the patent holder must publish the invention and describe it in great detail so that everyone can study and develop the technology. After the 20 years the invention then belongs to the general public (*public domain*), there is no longer a monopoly on marketing and copies are allowed. It is only through this temporary protection of inventions that companies will be drawn to invest in new technologies.

In order to obtain a patent, the invention must first and foremost be novel and based on an inventive step. A patentable invention must contain a technical solution to a technical problem. Something that is already known or that occurs in nature is not a patentable invention! Animal breeds and plant varieties are also explicitly excluded.

Criteria for patents on the site of the Institute of Intellectual property: *https://www.ige.ch/de/uebersicht-geistiges-eigentum/die-schutzrechte-im-ueberblick/patentschutz*
Breeder's exemption in Article 9 para. 1 e) of the Swiss Patent Act:
https://www.fedlex.admin.ch/eli/cc/1955/871_893_899/de#art_9

ARE THERE SPECIAL RIGHTS FOR BREEDERS?

Yes, there are special rights for breeders in Switzerland and the EU, the so-called plant variety protection right. Breeders invest a lot in the breeding of new varieties and can protect their variety from unwanted commercial use through the plant variety protection right. At the same time, it remains allowed to continue breeding any variety without obtaining a permit. Even protected biological material may be used freely for the development of new varieties.

This ensures that breeders can fall back on the highest possible genetic diversity. As soon as a new breed is sufficiently different from the previous one, the seed can be protected again. This is how protection for new varieties has been working for almost a hundred years.

Patent law and plant variety protection law are two different mechanisms and they do not get in each other's way, because no patents are granted in Switzerland for animal breeds and plant varieties. Whereas plant variety protection protects a plant variety as a whole, but not its individual parts, a patent protects new and innovative parts of a plant (e.g. a genetic property created by man with new techniques), but not the plant variety as a whole.

Both the Patent Act (Art. 9 para. 1 e) of the Patent Act, SR 232.14) as well as the plant variety Protection Act (Art. 6 c) plant variety Protection Act, SR 232.16) recognize a breeder's privilege. Although the breeder's privilege in the Patent Act goes less far than in the plant variety Protection Act, there are no known cases in which the marketing of new plant varieties in Switzerland would have been impossible due to patented properties.

On plant variety protection: *https://www.blw.admin.ch/blw/de/home/nachhaltige-produktion/pflanzliche-produktion/sortenschutz.html*
Breeder's exemption in Article 9 para. 1 e) of the Swiss Patent Act:
https://www.fedlex.admin.ch/eli/cc/1955/871_893_899/de#art_9
Breeder's exemption in Art. 6 c) of the Swiss plant variety Protection Act:
https://www.fedlex.admin.ch/eli/cc/1977/862_862_862/de#art_6

ARE THERE PATENTS ON PLANT VARIETIES?

No, no patents are granted in the EU and Switzerland for animal breeds and plant varieties! Nor can properties of a plant be patented, provided that they are the result of traditional breeding methods (legal term: «*Essentially biological processes"*).

However, patents may be related to seeds and the sale of seeds may therefore be subject to a license. If human-made mutations («essentially technical processes") in a plant produce new characteristics that are novel and did not arise through conventional breeding, then these can be patented. This is the case, for example, when changes in seeds are due to genetic modification and produce novel properties in a way that is sufficiently inventive to meet the criterion for obtaining a patent.

In the past, patents were also granted for essentially "natural" characteristics, since the EU Patent Office only made a final decision on the matter in 2020. Under certain circumstances, these few patents may remain valid until the expiry of the patent term. However, it is important to note: No new patents are granted today on conventionally bred varieties and their characteristics.

Final decision of the European Patent Office on the exemption of plants and animals from patentability:
https://www.epo.org/news-events/news/2020/20200514a.html
Criteria for patents on the site of the Institute of Intellectual property: *https://www.ige.ch/de/uebersicht-geistiges-eigentum/die-schutzrechte-im-ueberblick/patentschutz*
Breeder's exemption in Article 9 para. 1 e) of the Swiss Patent Act:
https://www.fedlex.admin.ch/eli/cc/1955/871_893_899/de#art_9

DOES THE FINAL DECISION OF THE EU PATENT OFFICE OF 2020 ALSO APPLY TO SWITZERLAND?

Yes, *de facto* the decision applies: Plants bred using conventional breeding methods (legal term: "Essentially biological processes") are not patentable under the European Patent Convention (EPC 2000, SR 0.232.142.2). De facto, the final decision of the European Patent Office of 2020 also applies in Switzerland. The rules of the Patent Convention EPC 2000 and the Swiss Patent Act are to be interpreted uniformly in the light of the EU Biotech

Directive in order to ensure European compatibility (BBI 2006 29, 63). This means that the latest developments in the field of plant patents are also de facto taken into account in Switzerland - all the more so since the seed industry generally fully protects its patents in Europe and therefore chooses the path through the European Patent Office (EPO).

Final decision of the European Patent Office on the exemption of plants and animals from patentability:
https://www.epo.org/news-events/news/2020/20200514a.html

CAN WE CONTINUE TO FURTHER BREED PLANTS IF PATENTS EXIST?

It is often said that breeders cannot continue to breed with varieties if patents exist on certain properties of the variety – even if the breeders would not be interested in the patent-protected area at all. This statement is false. There is a specific breeder's exemption in Article 9 paragraph 1 e) of the Swiss Patent Act. This states that breeders may use patented material for the breeding of new plant varieties and freely market the resulting new variety, provided that the new variety does not contain the patented material. If the new variety contains the patent-protected material, a license is required (as in any other innovative field) or the property protected by a patent must be bred out of the new variety.

Breeder's exemption in Article 9 para. 1 e) of the Swiss Patent Act:
https://www.fedlex.admin.ch/eli/cc/1955/871_893_899/de#art_9
Breeder's exemption in Art. 6 c) of the Swiss plant variety Protection Act:
https://www.fedlex.admin.ch/eli/cc/1977/862_862_862/de#art_6

DO THE NEW BREEDING TECHNOLOGIES (NBT) HINDER TRADITIONAL BREEDERS IN THE FURTHER BREEDING OF EXISTING VARIETIES?

Since novelty compared to the state of the art is a prerequisite for patentability, no patent can prevent a breeder or farmer from using existing plants or traditional methods. The use of plant material remains permissible for breeders in Switzerland under plant variety law even if patents exist. However, it may only be marketed without a license, provided that the new variety no longer contains the material protected by the patent.

In the longer term, a slight increase in the number of patents can be expected, simply due to the increase in the pace of innovation. However, patents only concern novel properties and are not easy to obtain because of this claim. They do not stand in the way of breeders who continue to breed local or traditional varieties.

Final decision of the European Patent Office on the exemption of plants and animals from patentability:
https://www.epo.org/news-events/news/2020/20200514a.html
Criteria for patents on the site of the Institute of Intellectual property: *https://www.ige.ch/de/uebersicht-geistiges-eigentum/die-schutzrechte-im-ueberblick/patentschutz*
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THERE IS A FLOOD OF PATENTS AND PATENT DISPUTES REGARDING CRISPR/CAS, ISN'T THAT A PROBLEM?

Various universities and other institutions (Berkeley vs. Broad Institute) are in dispute in court over patents on the basis of new technologies for targeted mutagenesis. It is also

undisputed that there have been a large number of patent applications for new methods of genomediation in recent years.

However, this is at most a problem for companies that want to use CRISPR and similar new mutagenesis technologies themselves. On the other hand, patents concerning CRISPR are no problem for traditional breeders! They do not need access to the patents, as they apply traditional methods that are not patentable for breeding and continue to breed with existing characteristics.

Article on the patent dispute: https://www.transgen.de/recht/2721.crispr-streit-patent.html

DO PATENTS HELP LARGE COMPANIES EXPLOIT THEIR MARKET POWER?

There are no current examples showing that a small Swiss breeder has been prevented from commercializing one of his breeds due to a patent dispute. There are no known claims by holders of seed patents in Switzerland for possible patent violations. In the future, too, no restrictions on action are to be expected due to claims: Compared to other economic sectors, the field of plant breeding is changing only slowly, so it is hardly to be expected that a sudden wave of lawsuits will erupt in the next ten years.

HOW ACUTE IS THE PROBLEM WITH PATENTS ON PLANTS?

Only a very small number of plant varieties have patented properties. The «no patents on seeds" movement and similar actors drew attention to a possible problem in the future and, in this sense, preventive interventions in the legislation are proposed. These fears are related to the goal of preventing the global spread of genetic engineering and the shock effect of court rulings and lawsuits in other jurisdictions (such as the US, where plant varieties are usually protected by patents). However, there are no practical problems that justify a preventive intervention in Swiss patent law.

CAN SMALL BUSINESSES DEAL WITH PATENTS WITHOUT EXPENSIVE LEGAL EXPERTISE? IS THERE ENOUGH 'TRANSPARENCY'?

In principle, patents are an alternative to the secrecy of inventions, in this sense transparency is an important element of patent law: Each invention is registered and made publicly available.

However, transparency can also be further increased in the field of seed patents. Such solutions are already in place and are constantly being expanded – through industry agreements such as the «Patent information and transparency Online" (PINTO) database. In the vegetable seed sector, family and large companies have also jointly created the «International Licensing Platform Vegetable" (ILP-Vegetable). A patent overview as well as a license can be obtained there. These industry solutions are constantly evolving: The «Agricultural crops Licensing Platform" (ACLP) for arable farming only became operational at the beginning of 2022. It aims to advance innovation in plant breeding by providing tailor-made solutions to the challenges of access to patented features and securing access to genetic material for breeding purposes. Each member of the Platform undertakes to enter data into the PINTO database of EUROSEEDS in order to ensure the transparency of

commercial varieties available on the free market, which contain characteristics patented in Europe. Like the ILP for vegetables, this platform will also cover Switzerland and is open to patent holders and users alike. These solutions are particularly beneficial for small enterprises in the breeding industry.

In patent law, the principle also applies that, if you want to commercialize something, it is necessary to clarify whether a third party patent is opposed to this project. For this purpose, a so-called patent search must be carried out. This can be done either by yourself or by a service provider. IN Switzerland, THE IGE can support the search as a state service provider and thus strengthen Swiss breeders in international competition.

In contrast to other industrial sectors, there are functional industry solutions for seeds: The seed industry has initiated and co-developed new approaches, such as patent search platforms and patent pools, that facilitate the licensing of patented properties and technologies. Because each actor is also dependent on transparency and simple licensing. However, innovation only works if the inventor can amortize his research investments by means of income. The patent law in its current form reliably ensures this.

Patent information and transparency Online: *https://euroseeds.eu/pinto-patent-information-and-transparency-on-line/*
International Licensing Platform Vegetable: https://www.ilp-vegetable.org/
Agricultural crops Licensing Platform (ACLP): *https://aclp.eu/*
IGI Information on patent search: *https://www.ige.ch/de/uebersicht-dienstleistungen/recherchen/patentrecherchen/selbst-recherchieren*

WHY DO MANY NGOS OPPOSE PATENTS?

In our opinion, the concerns expressed by various political groups are not aimed at practical problems in plant breeding that exist in Switzerland, but at undermining patent protection with an intended beacon effect outside Switzerland. It is no coincidence that behind the current political initiatives there are the same organizations that, with the alliance «No patents on seeds", are also mobilizing from Europe against the worldwide use of genetic engineering in plants.

WHY IS THERE CURRENTLY NO NEED TO CHANGE PATENT LAW IN THE FIELD OF BREEDING?

Changes to Swiss patent law should crucially be consistent with European rules. Special rules in Switzerland must be avoided. Changes in Swiss patent law should only be made if there is a problem that cannot be effectively solved by milder measures. This is clearly not the case at the moment.

Solutions such as industry agreements and low-threshold, extended offers, such as the offer of patent searches by the Institute for Intellectual property, also improve transparency today – without revising the patent law. These solutions can be implemented, have the desired effect, are in line with the European patent regulations and strengthen the competitiveness of Swiss companies, research institutions and institutions active in the seed sector. Interventions in the freedom and responsibility of companies are not appropriate.

In addition, patent law is economically important for the survival of Switzerland as a small country: A strong and balanced framework for intellectual property is crucial to generate sustainable and recurring R&D investments from universities and companies in Switzerland and thus to promote innovation. Intellectual property rights create an incentive and a fair return on the Innovator's investments, while third parties also benefit from the innovations

through licensing agreements. In this way, intellectual property is an instrument for promoting the dissemination, integration and adoption of new technologies.