



‘Invented’ and patented: from ‘seed to meat’; from ‘maize to milk’

Increasing number of patent applications claiming farm animal production

Recent research has revealed a new strategy for acquiring patents on animals used in food production. The European patent laws prohibit patents on animal varieties and conventional breeding. To circumvent these prohibitions, companies are claiming patents on animal feed for cows, pigs, poultry and fish as their ‘invention’. These patent monopolies cover food products such as meat and milk derived from the animals.

Increasing opposition against patents on conventional breeding

For many years, companies such as Bayer (Monsanto), DowDuPont and Syngenta built up their dominance in seed markets by filing more and more patents on plant breeding. The European Patent Office (EPO) has already granted around 3000 patents on genetically engineered plants. In recent years, a patent ‘war’ has been going on due to companies pushing for the extension of seed patents to conventional plant breeding. More than 1500 patent applications on conventional plant breeding were filed at the EPO, around 200 have already been granted. Opposition to these patents on conventional breeding has been increasing strongly. All contracting states of the EPO as well as all institutions of the EU and many civil society organizations, including breeders’ and farmers’ organizations have spoken up against this practice. They point out that according to European law, patents on “essentially biological processes for the production of plants and animals” are prohibited.

At the same time, a similar development is happening in animal breeding. For several years now, patents have been filed claiming farm animals derived from conventional breeding. The most widely known patent in this respect was originally filed by Monsanto on pig breeding (EP1651777), it was granted in 2008. The patent described the selection of pigs for breeding animals with leaner meat. Pigs derived from the process and their offspring were also covered by the patent. A broad coalition of farmers, environmental organizations and individuals filed an opposition against the patent, and it was revoked in 2010. But now, the EPO is once more granting similar patents.

Companies are claiming ‘seed to meat’

Increasing criticism has led companies to try new ways of gaining control of food production. They no longer just claim the breeding of animals, but claim all the steps in food production, starting with the feeding of the animals. Already in 2010, the EPO granted one of these patents to US company Dupont (now DowDupont): patent EP 1208203 concerns genetically engineered plants with a change in the composition of fatty acids. The seeds, plants and harvest of the plants together with the animal feed have been patented, including the process of meat production through using the plants as feed. Claim 24 reads: “A method of improving the carcass quality of an animal by supplementing a diet of the animal with the feed (...)”.

Similarly, Monsanto has been applying for patents on feeding poultry, aquatic organisms, pigs and cattle. Even products such as eggs, meat and fish fingers are listed in the patent applications (WO 2010/107422, WO 2010/027788, WO2009/097403, WO2009/102558). They all follow a similar pattern: starting with the feed, all food products derived from the animals are claimed as an invention. For example, in Monsanto patent application WO 2009097403 it reads: “a pork product

for human consumption ...” (claim 1), “(...) consisting of bacon, ham, pork loin, pork ribs, pork steaks (...)“. These patent applications were brought to public attention by CSOs and triggered many public protests. In response, the EPO did not grant any of the patents.

In 2016, it became known that the EPO wanted to grant a patent on salmon and trout fed with specific plants (EP1965658). The patent claims the fish and the fish oil. Food derived from these fishes supposedly has a higher content of Omega 3 fatty acids, which are often described as being healthy. As described in the patent, it does not matter if the plants fed to the fishes are transgenic or conventional if the content of fatty acids is enhanced in muscle and fat, the fish is a patented invention. The idea behind the patent is not new: for example, it is known that grass-fed cattle have a higher concentration of these fatty acids in their milk. In 2016, the EPO informed the Australian applicant that the patent would be granted within the weeks. After public protests, the process was stopped at last minute. However, in October 2018, the EPO did grant the patent on salmon and trout. This patent may now become a precedent for all other similar patent applications.

More patent applications on the horizon

After becoming aware of this particular case, *No Patents on Seeds!* researched similar patent applications. This research came to some alarming conclusions: a look at European patent applications filed at the World Patent Institute (WIPO) in 2018 and 2019 revealed several other such patents that had been recently filed, they all followed a similar strategy: starting with seed and feed, all further food products derived from farm animals are claimed as an invention (see Table). As with the salmon and trout, the feed used can, according to the patents, be derived from a variety of sources. For example, Syngenta not only claims genetically engineered maize as its ‘invention’ but also the production of milk and meat simply by using such plants as feed. In patent WO2018204245 “a harvested cattle carcass” is part of the invention; patent WO2019075028 claims a “method of increasing the amount of milk produced by a dairy animal”.

As the patent on salmon and trout shows, the EPO is willing to grant at least some of the patents. This means that companies such as Syngenta will have a great deal of control over animal food production: farmers using the patented feed will need permission from the company to sell products such as milk and meat. And, furthermore, every one of these patents that is granted will lead to other companies claiming similar food monopolies in the near future.

Table: Overview of some recent European patent applications claiming animal feed and the subsequent steps in food production

Application number	Applicant	Content
WO2018102674	Agrigenetics (US)	A method for increasing meat quantity (cattle) through using special feed composition.
WO2018099610	Avocet Infinite PC (UK)	A method for enhancing omega 3 oil content in animal food products through feed.
WO2018145779	Novaplot (Cy)	Meat produced using a special feed composition.
WO2018204245	Syngenta	Whole “harvested” cattle carcass from cattle fed with transgenic plants.
WO2019075028	Syngenta	A method of increasing the amount of milk by feeding transgenic plants.

Close the loopholes in European Patent law!

The examples above show how companies can escape the current prohibitions in granting patents on conventional animal breeding. Other strategies are also being used: for example, methods for selecting animals by specific genotypes (occasionally occurring genetic variations) can be used to claim animals for agricultural purposes (see WO2018176124 or WO2019075577). This approach is very similar to the one observed in plant breeding, where claims on occasionally mutated genes can turn a conventionally bred plant into an 'invention'.

These loopholes can only be closed if patents are no longer granted on specific steps in conventional breeding, such as the selection of plants, or animals based on specific genes. Furthermore, all animals derived from conventional breeding and all their usage for breeding and food production have to be excluded. 'Fake inventions' such as using plants to produce meat or milk should no longer be rewarded with a European patent.

No Patents on Seeds! is demanding a change in the rules for interpretation of patent law in order to close these loopholes, and to implement current prohibitions more effectively. However, if a change in the interpretation of current law does not provide sufficient legal certainty and clarity, the European patent law itself needs to be changed accordingly.

No Patents on seeds! is warning that if patents on plants and animals used in food production are granted, it will allow big companies such as Bayer, DowDupont and Syngenta to increasingly take control of agriculture, breeding and food production.

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