The open-source licence: A legal approach to securing seed commons in Europe

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Abstract

Open source offers a solution to the increasing privatisation of common goods, or "commons". Since 2012, plant breeders, agricultural scientists, lawyers and commons experts have sought methods and strategies to apply the open-source principle to crop seeds. A working group has created an open-source seed licence that allows the use of seeds unrestricted by plant variety protection or patents on seeds. A newly registered tomato variety has been licensed using this open-source licence.

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Introduction

For thousands of years, crop seeds have been a common good. All over the world, crops have been cultivated, enhanced and bred by farmers, a practice which resulted in a rich diversity of crops and varieties. But since the emergence of scientific plant breeding at the end of the 19th century, plant breeding and plant production have become increasingly separated. Scientific plant breeding has contributed greatly to agricultural development: the yield increases of crops and the intensification of agriculture would have been impossible without a high-performance plant-breeding sector. At the same time, plant genetic resources in agriculture have been increasingly privatised and the market has become concentrated in a few hands with the characteristics of monopolies. But seed monopolies tend to reduce inter- and intraspecific plant genetic diversity. Uniform cropping systems with only a few crops and varieties, spread over large areas are the opposite of what is required (IAASTD 2009). In addition, farmers and society as a whole are becoming dependent on just a few companies. This is a threat to agricultural production and to food security; alternatives are needed.

Material and methods

An interdisciplinary group of agricultural scientists, plant breeders, and lawyers has developed an open-source seed (OSS) Licence for plant genotypes (new varieties, breeding lines and populations). The group was inspired by open-source concepts and related licences developed in computer science. First, the group analysed existing seed laws and searched for possible conflicts with open source. Second, the group compared different strategies towards

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open source, namely the ethical approach using a pledge or commitment and the legal approach using a licence (Kloppenburg 2014). A decision was taken in favour of the licence, because most European countries offer a favourable legal framework for enforcing licences. Based on this, a seed licence was developed and the steps needed for its implementation were defined (Kotschi and Rapf 2016). Finally, a newly released and registered tomato variety was licensed using the OSS Licence.

Results

The task. Instead of uniformity in the seed sector, a rich diversity of crops and their varieties is needed. Only then can the world's innumerable agro-ecological sites and corresponding farming systems be used in an optimal way. Varieties are needed that not only satisfy the needs of high-potential areas but also permit cropping on poorer soils and in difficult climatic conditions. Only then will it be possible to respond adequately to climate change and to achieve food security. Varieties are also needed that produce healthy food with few or no agrochemicals and make use of local agro-ecological potentials, even if they cannot be propagated on a large scale. Last but not least, varieties are needed that are suited to the specific requirements of organic agriculture, which in turn is necessary to maintain landscapes and their ecosystem services.

All this cannot be sufficiently supplied by the private seed sector. Its economic logic, namely economies of scale and decreasing innovation by monopolies, is in conflict with the tasks ahead. Therefore the non-private seed sector has to be strengthened and made a second pillar alongside private plant breeding.

The target group. While public-sector plant breeding has undergone a steady decline in Europe, a new group of stakeholders has evolved: civil society has come in. Within the past 30 years in Germany and Switzerland alone, around 50 breeding initiatives have been established that aim to develop suitable varieties for organic agriculture and horticulture. A second group addresses the conservation of neglected crops and old varieties. Both groups are organised as associations, foundations or informal networks and operate as non-profit organisations. While registering and releasing new varieties, many renounce plant variety protection and make varieties available unconditionally and to everybody. This freedom allows users to privatise further developments. In other words: commons are created but not protected as such.

The strategy. With the OSS Licence, AGRECOL offers plant breeders an opportunity to protect their new developments against privatisation and to maintain them as a commons. Seeds can be made available without any plant variety protection or patents. Therefore, "open-source" differs entirely from "open access", which is entirely free and unlimited.

The licence. The OSS Licence grants the licensee to use the seeds for his or her purposes, to multiply it, to pass it on and to enhance it. In addition, it allows the dissemination of multiplied and enhanced seeds. At the same time, it obliges the licensee to grant the same rights he or she has enjoyed to future owners of the seeds and any enhancements that have been made to them. This obligation is "viral" and is sometimes called "copyleft". Not only the licensed seed itself, but all enhancements to it are included. With the first licensing, a chain of contracts is started, which in principle is endless. Licensees become licensors, who pass on the seed with the same licence. In doing so, the licence protects a commons that can no longer be transferred into the private domain.

The OSS Licence of AGRECOL is a "sui generis contract" and falls under the General Business Terms and Conditions of German Civil Law (§ 305 I BGB), a pre-written contract

for general, multiple and unilateral use by one single party, and not individually negotiated. Any user (licensee/contractee), receives a simple use right on the condition of fulfilling the duty to make available for public use, on the same conditions, any development on or enhancements to the seed/crop that they may have made.

The OSS Licence is, therefore, a material-transfer agreement. It confers use rights together with the material object, in the form of seeds or vegetative parts of plants. When the material is transferred, a contract is entered into that ensures the mutual, reciprocal rights and duties associated with the material in question, as well as all future developments to that material, in perpetuity. As such, the OSS licence – and its contractual nature – implicitly also pertains to the genetic information contained within the given material. The material-transfer agreement can be used to protect the seed of various genotypes: newly developed varieties, breeding lines and populations.

Disclosure of the licence. The OSS licence is a private contract. If you want to sell, give away or exchange seeds under the OSS licence, you must – *unambiguously* – disclose the licence conditions of the transfer. This means that any transfer is valid only if the licensee is fully aware of the terms and conditions of the licence. A so-called "shrink-wrap licence", in which the licence conditions are accepted by tearing the wrapping would probably violate the legal conditions and cannot be recommended. For professional traders, who for instance sell seeds in small quantities in supermarkets or garden centres, it means that an abridged version of the OSS licence must be printed on the wrapping of the seeds with reference to the online, full-text version. For individuals (farmers etc.), the licensors must ensure that a copy of the licence accompanies the materials being transferred; they must explicitly inform the recipient (the licensee) of the materials about the terms and conditions of the OSS licence.

Enforcing the licence. The Nagoya Protocol (CBD 2016), a supplementary agreement to the Convention of Biological Diversity, allows the sovereign-rights holder of a genetic resource to determine the conditions of their use – by prior informed consent and on the basis of mutually agreed terms. Mandatory documentation, when using plant genetic resources, ensures compliance with these terms and conditions. In most EU countries, the sovereign-rights holder is usually the one who is in possession of the resource. At the end of the breeding process that is the breeder.

In Europe, the Nagoya Protocol is a strong lever to enforce the OSS licence. Article 4 of the EU Regulation is crucial: it indicates that the user of a plant genetic resource (seed) must document the time and place of access to that resource, and, where appropriate, also prove "the presence or absence of rights and obligations relating to access and benefit-sharing" (European Union 2014).

Financing OSS-licensed varieties. It is often argued that it would be impossible to finance plant breeding with an open-source licence and without royalties from plant variety protection or patents on seeds. Historically, however, agricultural seeds were primarily developed without a compulsory levy. In many developing countries, plant breeding mostly does not follow a business model based on royalties, and even in developed countries there are private breeding companies that do not rely financially on exclusive intellectual property rights. Another aspect may be more important. If services for society as a whole have a large share in plant breeding, then not only farmers and direct users should be engaged in covering the costs. Processers, traders and consumers, finally the whole value chain, and beyond the government should contribute. If plant breeding aims to create commons it represents a non-profit rather than an economic activity. However, the production and provision of seeds is entirely of an economic nature.

Many organic cereal and vegetable breeders in Europe finance their breeding work partly through "variety development contributions" that are negotiated between breeders, seed producers and farmers. Some have, in cooperation with the food trade, developed a levy on food items and most of them raise funds from government programmes and foundations for their breeding activities (Kotschi and Wirz 2015). The funds for commons based plant breeding are still small but increasing continuously.

The first OSS licensed variety. In April 2017 the cocktail tomato *Sunviva* was released from the Organic Outdoor Tomato Project. The project started in 2003 at the University of Göttingen, Germany, as participatory organic plant breeding programme that involves the entire value chain (Horneburg 2010). It is based on the free exchange of knowledge and tomato genotypes and enhances organic plant breeding (Horneburg and Becker 2011).

Discussion

The laws on securing intellectual property rights on seeds have been strongly developed, whereas seeds as commons receive almost no legal protection. With the OSS Licence a way has been found to redress this imbalance. The idea to license a newly released variety as open-source and with a copyleft clause is new and unfamiliar. Its potential impact is complex and difficult to anticipate. The release of the first OSS-licensed varieties will stimulate discussion. It will also generate valuable experience on the feasibility, acceptance and impact of open-source licences among plant breeders, seed producers and growers and in society as a whole.

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