

Farmers' Knowledge at Risk: Are Intellectual Property Rights the Solution?

Local varieties and farmers' knowledge are an important means of improving smallholders' livelihoods. But researchers and politicians also increasingly

acknowledge that farmers' knowledge and in-situ conservation of plant genetic resources for food and agriculture are cornerstones of food security in the long term. However, both farmers' knowledge and the diversity of crop germplasm are disappearing at a rate that is even more alarmingly rapid than the loss rate of non-domesticated biodiversity. Are intellectual property rights (IPR) an adequate means of protecting this kind of information, safeguarding its inherent value and creating a legal basis for trade and additional income?

Susette Biber-Klemm



Food security and traditional farming systems

According to the World Food Summit Plan of Action, «food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life». Thus, food security not only consists of secure and sufficient food supply in the present and in the future, but also depends on physical and economic access to food. Traditional subsistence farmers in marginalized areas have frequently bred, nurtured and maintained a great diversity of crops. These so-called landraces are characterized by high diversity, leading to adaptability to environmental stress and thus to high yield stability – though frequently at the cost of higher productivity. They mirror small-scale farmers' need to guarantee a minimal level of production and prevent food shortage.

On-farm cultivation of native landraces depends to a great extent on male and female farmers' knowledge. Farmers have

a profound knowledge of the local ecosystem and of breeding techniques adapted to local conditions, including selection strategies to improve tolerance or resistance to biotic and abiotic stress factors. They also know about the properties contained in the genotypes that have been selected and conserved.

In pursuing their own interests and needs, local farmers also serve the common good by maintaining crop diversity for the future. Farmers' knowledge and their crop varieties are thus a valuable asset for present and future generations' food security. Farmers are instrumental in conserving an important gene pool for future challenges in plant breeding.

Moreover, if supported and developed using a partnership approach, subsistence farming systems have the potential of increasing food production in areas unsuitable for intensified production and thus improving food self-sufficiency and accessibility in remote areas.

These insights lead to the conclusion that endeavours to ensure food security and preserve the diversity of plant genetic

resources for food and agriculture (PGRFA) ought to focus not only on (static) conservation of currently existing varieties in *ex-situ* gene banks, but also – and prominently – on maintenance of the underlying evolutionary processes by supporting *in-situ, on-farm* conservation.

The loss of crop diversity and farmers' knowledge

The problem of biodiversity loss is a cross-cutting issue, driven by complex and diffuse causes that involve many different sectors and forms of economic activity, such as patterns of consumption and production, population growth and economic failure. The loss of agrobiodiversity, which depends on continuous active human management, is caused by even more complex mechanisms, including ecological, demographic, and cultural developments.

According to economic theories, loss of knowledge and diversity is due to the fact that the actual value of knowledge of, and

information contained in, landraces is not taken account of in the price of the plant resources that are sold as foodstuff or fodder. Therefore, if farmers cannot ensure their survival or if they have alternative means of improving their economic condition, they will abandon production of low-output landraces. As a result of this «profitability gap», decision-making regarding land use thus (unwittingly) goes against the common good.

Securing the informational value of plant breeding achievements

In industrial plant breeding, the valuable information contained in the crops can be protected by specifically designed intellectual property rights – Plant Breeders Rights – and increasingly also by patents. Landraces as a rule can not be protected by those rights, although they serve as input in the formal breeding process.

This asymmetric treatment given to those who provide germplasm and those who provide technology triggered debates at FAO that finally led to the establishment of the – legally non-binding – International Undertaking (IU) on Plant Genetic Resources (PGR), in which so-called Farmers' Rights were also established. According to the IU, the Farmers' Rights were to ensure full benefits to farmers, in particular to assist in the protection and conservation of their PGR and to allow their participation in the benefits derived from their improved use.

Legal Sources

- ◆ Convention on Biological Diversity, adopted June 5, 1992, reprinted in 31 I.L.M. 818 (1992); www.biodiv.org.
- ◆ International Undertaking on Plant Genetic Resources, adopted at the 22nd Session of the FAO Conference on Nov. 23, 1983. www.fao.org/ag/cgrfa/IU.htm#documents
- ◆ International Treaty on Plant Genetic Resources for Food and Agriculture, adopted at the 31st Session of the FAO Conference on Nov. 3, 2001. www.fao.org/ag/cgrfa/IU.htm#documents
- ◆ World Food Summit, 13–17 November 1996, Rome, Italy: Rome Declaration on World Food Security and World Food Summit Plan of Action. www.fao.org/DOCREP/003/W3613E/W3613E00.htm

The conclusion of the Convention on Biological Diversity initiated the revision of the IU: In November 2001 the (binding) International Treaty on Plant Genetic Resources for Food and Agriculture was adopted by the FAO Conference. The Treaty includes a regulation on Farmers Rights. However, responsibility for upholding these rights rests with national governments. They are obliged to take measures to protect and promote Farmers' Rights «in accordance with their needs and priorities». Measures must include protection of traditional knowledge, the right to an equitable share of benefits arising from the utilization of PGRFA and the right to participate in decision-making at the national level regarding matters related to conservation and sustainable use of genetic resources.

Open questions, discussion

Thus, the implementation of measures to protect Farmers' Rights still remains largely open. One of the main problems is to close the «profitability gap» in order to make conservation and development of traditional PGRFA worthwhile options.

As the prospect of increasing public funding in the North-South context is limited, some propositions focus on the means of generating funds within a trade context. For example, one proposal is to implement Farmers Rights in analogy to Plant Breeders Rights, i.e. as intellectual property rights adapted to the specific protective needs of PGRFA and related knowledge. This could be achieved, for example, by limiting the scope of the right to commercialisation of information in the case of its being used in industrial breeding. The advantage of such a solution is that benefits would go to those farmers or farming communities who generated the information. However, because the traditional breeding process is based on exchange of seeds, it is questionable whether the authorship of landraces can be determined. Moreover, it has been argued that even where allocation of authorship is possible, the creation of such a system would be too complicated and the cost-benefit ratio negative. The alternative proposed is the creation of a funding system into which stakeholders who have an interest in the maintenance of PGRFA would pay in contributions, e.g. through specific taxation of the seed industry, but also through governmental contributions. (Such a system is – to some extent – included in the treaty on PGRFA.)

Further Reading

- ◆ Grieder Christina E. (2000) Plant Genetic Resources and Intellectual Property. In: *InfoAgrarNews* No. 8.
- ◆ Biber-Klemm Susette (2002) Community-based Management of Genetic Diversity in Agorecosystems: the Role and Function of Law. In: Engels J.M.M et.al. (eds.) *Managing Plant Genetic Diversity*. IPGRI Rome and CABI Publishing Oxon and New York.
- ◆ The Crucible II Group (2000) *Seeding Solutions Vol 1. Policy options for genetic resources*. International Plant Genetic Resources Institute and Dag Hammarskjöld Foundation, Rome and Uppsala.

Funds would be distributed on the basis of project proposals to entities engaged in furthering the maintenance of agrobiodiversity.

It can be argued that such a system is more cost efficient and allows the concentration and effective utilisation of the restricted funds. However, only a selected part of the farmers engaged in the conservation and maintenance of germplasm would benefit.

To conclude, I would like to contribute two further and more general questions to the debate:

First: As maintaining germplasm is a task that also benefits the common good, delegating the generation of financial means entirely or in a large part to the private sector seems questionable, all the more so as it is highly improbable that in doing so enough means can be generated in due time.

And second: The debate about the creation of specific IPRs to protect (traditional) farmers' knowledge raises the basic question whether the prevailing tendency to increasingly privatise information will prove to be advantageous for society (worldwide) in the long run.

The Author

Susette Biber-Klemm is a doctor of law, lecturer for interdisciplinary environmental law at Basel University and senior research fellow at the World Trade Institute of the University of Bern, where she coordinates a research project on legal instruments for the protection of traditional knowledge at the interface with world trade.
E-mail: Susette.Biber-Klemm@unibas.ch