Do patents hold up progress in food security?

Joerg Boethling/Still Pictures

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Sometimes straight questions deserve straight answers: patents do not hold up progress in food security. Progress in food security will come from improvements in many areas, including infrastructure, governance, the regulatory regime, the rule of law and the local and global economy – and also from advances in agriculture, in agronomy, in fertiliser and in seed, many of which have been improved significantly because of innovations and inventions in which the patent system plays an important enabling role.

Patents are part of the wider field of 'intellectual property', a branch of the law that recognises works of intellectual effort, and grants limited ownership for that effort. It exists to protect inventions through patents, plant varieties through plant variety rights (PVR, sometimes called plant breeders' rights, PBR), and music and literature through copyright. In the case of patents and PVR they represent a contract between society and an inventor, under which an inventor

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or breeder is given an exclusive right to produce their invention (plant variety) for some 20 years. In return society benefits from having access to information about the invention itself, the opportunity to use it with consent, and the right to develop new inventions by inventing around it. The result is that successful inventions can be commercialised profitably.

A basic principle of business is that commercial activity is unlikely in the absence of the opportunity for commercial gain. The financial rewards from patents in turn both deliver commercial gain and provide a commercial rationale for investment to develop more inventions. Especially in R&D-intensive industries, of which plant breeding and plant biotechnology is certainly one, the cost of the research needs to be recovered in the price of the commercial product. By obtaining patents on a product a company is able both to charge a premium (keeping competitors away by the threat of a patent infringement action) and to make available much of the underpinning knowledge. The corollary is that products in the public domain are less likely to be commercialised than those which are privately owned.

Innovations in agriculture, including new plant varieties – and especially plants with advantages that can only be delivered by genetic modification – can contribute to improved food security for smallholder farmers, but only where patents and plant variety rights can provide a reward to justify and return the cost of investment. This is, however, just the start: a more important question is not whether patents do contribute, but whether they can do so more effectively.

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Intellectual property has some interesting characteristics – of which a main one is that the specific rules are social constructs with limited underlying moral or physical principles. Unlike real or personal property, which has some intrinsic, physical boundaries (if I own a car the extent of the property itself, and the extent of my rights over the property, are fairly clear), the boundaries of intellectual property are not at all clear. Of course many of the rules have a long history, many are reflected in treaties that are respected internationally, and within broad limits we can accurately describe the rules of, say, patents or plant variety rights. But only within broad limits, because decade by decade the details of the rules change, by treaty revision, by new treaties, by patent office policies and guidelines, and by judgements in legal cases. For example, the duration of intellectual property rights is often changing, usually becoming longer.

To put it another way, the rules and principles of intellectual property are dynamic, responding to commercial and technical need – for example, early patents granted in a new field of research tend to be broader, reflecting the greater risk of the inventor in exploring new avenues, whereas later patents in a more mature field tend to be narrower. Similarly there needs to be adjustment to the rules to maintain a commercial balance between patent owners and the public, so that the patents don't confer an exclusivity that is too wide and provides excessive reward, or too narrow and fails to justify the cost of research.

Which is where countries and stakeholders can play their part in working with the patent system to ensure that the *precise* rules of intellectual property

properly meet the needs of the country and (with reference to the theme of this essay) of smallholder farmers. That means understanding very clearly how patent rules affect them, whether the balance between patent owners and patent users (or society as whole) is about right, and what needs to change. It means engaging in treaty revisions and negotiating for exceptions and derogations, and for changes to the patent rules so that there is proper benefit on both sides – which is the essence of the patent system, and one of its strengths: that it is a dynamic system capable of adapting to changing technical and commercial need.

It is not a trivial nor an easy process, of course, and one in which the developed countries have a strong history and long lead. There are examples of success for both sides: the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), for example, arguably places an inappropriate set of obligations on some developing countries too early in their economic progress, when they would have benefited from a reduced set of intellectual property rules which expanded as commercial and research resources developed. On the other hand the balance in PVR compared to patents is much more towards open use and freedom by breeders (inventors) – what is protected is the variety itself, and not the underlying germplasm, and it is an express feature of PVR that protected varieties can be used freely to breed new varieties (which will then be owned by the breeder of the new variety). Nevertheless, PVR has been adapted by some countries to allow much greater freedom for farmers to save and use their own seed – to the detriment of breeders but the

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benefit of farmers, which is a sensible response to the role of farmers in many countries in distributing seed. On the whole the recognition of the important work of farmers and their involvement in plant breeding is developing slowly.

Which comes back to the start: patents don't hold up progress, and can improve progress, but the patent system needs to operate efficiently – both the precise rules under which patents are granted and rights exercised, and the effectiveness of the rule of law to give those rights teeth and therefore meaning: where a patent is infringed, there must be an effective legal system to judge the case and enforce the judgement. Governments and other stakeholders need to participate actively in the ongoing development of patents and other forms of intellectual property, to ensure that the best interests of their countries and farmers are being served.

Innovation – and progress in food security – will both flourish when companies are able to justify the cost of R&D by the rewards that patenting can provide, for which the system overall needs to be attractive enough, and reliable enough – enough, but no more.

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