GRAIN

Girona 25, pral., Barcelona E-08010, Spain
Tel: +34 933 011 381
Fax: +34 933 011 627
Email: seedling@grain.org
Web: www.grain.org

GRAIN is an international non-profit organisation which promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge. To find out more about GRAIN, visit our website at www.grain.org.

Seedling

Seedling is GRAIN's quarterly magazine, published in January, April, July and October. It provides background articles, news, interviews and much more on the issues GRAIN is working on. *Seedling* is available free both in paper format and on GRAIN's *Seedling* website (www.grain.org/seedling). To receive *Seedling* in paper format or to inform us of a change of address, please contact GRAIN at the address or email above.

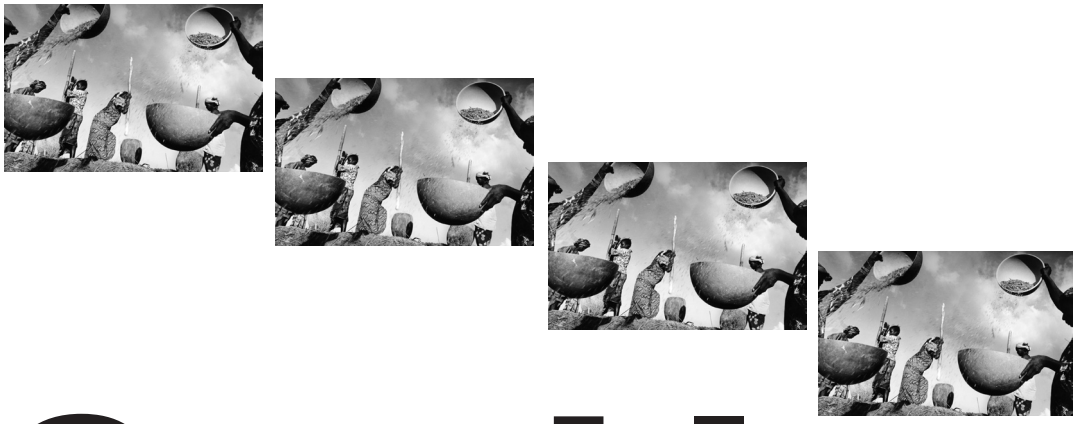
Seedling is published as a collective effort of GRAIN staff. Janet Bell is the editor. If you would like to contribute an article or other information to *Seedling*, please contact us. Outside contributions are attributed to their respective authors.

Printed on recycled paper
Deposito Legal No. B-25.166.92, Spain
ISSN: 1002-5154

Contents

Front cover picture: © Mikkel Ostergaard/Panos Pictures. Denmark: Farmer holding a handful of wheat.

Back cover picture: © Heldur Netocny/Panos Pictures. Bosnia Hercegovina: An elderly farmer starting to rebuild his farm after the war, in which his village was totally destroyed.



Seed laws:

Imposing agricultural apartheid

GRAIN

"Seed laws" is a very vague term. But if you worked at the UN Food and Agriculture Organisation (FAO) or in the Ministry of Agriculture of any so-called 'developing' country in the late 1960s, it probably had a fairly clear meaning for you. Back then, seed laws referred to rules governing the commercialisation of seeds: what materials could be sold on the market under what conditions. From the 1960s through the 1980s, agencies like FAO and the World Bank played a very strong role in getting developing countries to adopt seed laws. The main idea, officially speaking, was to ensure that only "good quality" planting materials reach farmers in order to raise productivity and therefore feed growing populations. However, the marketing rules, that the FAO and the World Bank effectively pushed, came from Europe and North America, the very place where the seed industry is in place. And the seed industry produces seeds by specialised professionals and no longer on the farm by farmers themselves. In no time, it should have been clear to anyone that these seed laws had very little to do with protecting farmers at all and a lot to do with creating conditions for the private seed industry to gain and control markets worldwide.

If we look at them today, seed laws are all about repression. They're about what farmers can't do. They dictate what kind of seeds can't be sold, can't be exchanged and in some cases can't even be used. All in the name of regulating trade and protecting food growers! In this sense, seeds laws go hand in hand with intellectual property rights (IPR) regimes like plant variety protection and patents. The two kinds of laws – marketing regulations and property rights – reinforce each other. In fact, depending on the situation, seed laws can be a lot worse. They ban farmers' seeds from the market thereby creating a kind of agricultural apartheid in countries where they are strongly enforced. IPR-protected seeds already can't be marketed except by those who own them. Seed laws tend to ensure that traditional varieties – seeds not produced by the seed industry and not protected by IPR – can't freely circulate either. All you can officially buy are a few government-sanctioned ideotypes.

As you might guess, seed laws and IPRs were to a large extent borne of the same process, entwined together like a helical twist of DNA. In Europe, seed marketing rules drawn up after World War I were the origin of what became the Union for the Protection of New Plant Varieties (UPOV) Convention in 1961. In the US, the process was similar except that the US were much quicker to set up a plant patenting system in 1930. In both

cases, seeds were becoming a new business and a new "science" and the new class of plant breeders wanted legal ramparts to protect their profits and regulatory interests. That's where you got the clamour for property rights, so they could stop other people from taking their newly bred roses and multiplying them on their own. And that's where you got the push to set up marketing rules for the seed trade, which meant knocking out competition from farmers and agreeing on strict criteria to only allow the sale of so-called 'improved' or 'high-yielding' varieties.

Beyond that, Europe and the US diverged a bit. Europe took the path of state control, creating mandatory rules and checks and police forces to dictate every last detail about seed marketing, even if many of the operations have since been handed over to the private sector. In the EU, the system is obligatory. If you want to sell seeds at all, you must register your variety on a national list and get it certified. Certification involves proving that your variety is distinct, uniform and stable (yes, DUS, the same criteria as for plant breeders' rights) and that it presents a real agronomic or technological advance over current varieties (except for vegetables). If you don't do this, you're not allowed to sell seeds of whatever variety you're holding. The US adopted the same criteria and operations to enforce quality controls, but they left the system voluntary. That means that you don't have to register and get certification if you don't want to. The divergence ends there, however. Seed laws and plant breeders' rights are so intimately entangled that often the same government agency and the same field technicians take care of both. It's rare to find certified crop varieties that are not locked up with plant breeders' monopoly rights as well.

The outcome of all of this has been a huge wipe-out of genetic diversity on the market and on the farm. It has also meant a gradual but steady disempowerment of farmers. Traditional varieties, traditional knowledge and traditional skills in breeding, selection and seed saving are all but gone from many farms of the industrialised world. Despite that, developing countries for the past 40 years have been pushed down the same path. A parade of lobbyists, consultants and development agencies have talked most of them into adopting either the European or the US system or some combination of the two.

Today's horizon

Seed laws exist in most countries of the world today. In half the cases, varietal registration and certification are mandatory (the EU model) for seed commercialisation. The DUS criteria are everywhere, and there are several international systems in place to facilitate and harmonise seed trade worldwide. However, commercial seed only represents a portion of what farmers actually sow. In developing countries, farmers – not the market, nor the state – directly supply about 70% of their seed needs. In Africa, it's 90%. In Europe, it's as low as 5% in Switzerland and as high as 50% in Germany. So despite the rules, farmers are still the world's biggest seed suppliers. That doesn't mean that seed laws are ineffective. But it does underscore how much further damage they can do.

Right now, seed laws are undergoing change in many parts of the world. That is why we decided to have a look at the situation for this issue of *Seedling*.

- In Asia and Latin America, the laws are being rewritten to accommodate new trends in the seed industry and the seed trade. This translates to increased integration with IPR legislation, new linkages to biosafety regulations to facilitate the marketing of genetically modified (GM) seeds and, in some countries, a scary shift towards Europe's mandatory approach. In numerous countries, from Bolivia to India, farmers groups, social movements and NGOs are trying to get a grip on these new legal changes and sort out appropriate strategies to work around them.

- In Africa, seed industry hacks plus the US and some European governments are working hard to construct new regional seed markets based on new regional seed laws. Africa has perhaps least been hit by seed laws up to now, but these new regional systems could make life very tough for small scale farmers trying to build or reinforce local seed autonomy.

- In Eastern Europe, many countries are adopting the EU system in the name of harmonisation and eventual integration in the Union. In Western Europe, countries are struggling on the one hand to accommodate the biotech industry and the new policy of coexistence (between conventional, organic and GM agriculture) and on the other hand, ironically, pressure to create new legal space for traditional and local varieties. In many respects, Europe has been hardest hit by seed laws all these years and there are a lot of groups and activists working to pull crop diversity out of its economic and legal ghetto and into daily farming and food markets again.

The battlegrounds

In all of this, there are two main trends. For the most part, seed laws are going from bad to worse as governments and industry double their efforts to generate a captive clientele for corporate seeds. But there is also an emerging crack to loosen things up a bit and leave some space for farmers' seeds, meaning traditional varieties and farmers' selections. Often it boils down to proposals for separate catalogues or registration lists, an exemption from the DUS criteria and a waiving of the normal fees. In Europe, this is a big battle front right now. But Brazil has also legislated an opening for farmers' seeds, Malawi and Mozambique have been trying to give space to the results of participatory plant breeding with farmers or local varieties, Algeria is working in this direction, China has decided to leave farmers' seeds out of its new law, and India is facing a huge outcry against its current draft Seed Bill in terms of what it offers for farmers' materials.

What does all this mean? It depends on where you're coming from. From a general perspective, farmers would be a lot better off if official seed registration and certification were never mandatory in the first place, so that people could access the material they want and a much more meaningful supply as well. Also, too many of these laws prohibit the exchange among farmers of their own seeds. Whether or not such rules are implemented, this is an incredible denial of what should be a basic right. Then we come to the marketing issue and that is where it gets tricky.

Opening up official seed markets to traditional varieties and farmer seeds where they're currently closed could take us in two very different directions. One the one hand, it can provide an opportunity to strengthen local, farmer-controlled agriculture without the hassle of state repression and the systematic biases currently pushing farmers into one agricultural model controlled by big business and a small elite. However, for this to succeed, it requires some powerful political strategy work on the side of farmers about how to develop local seed supplies, how to work with consumers, traders and local government officials to really integrate local diversity into the food system, and how to defend these systems against both genetic contamination and the big corporate monopolists who may easily take advantage. It's not impossible, and there's a huge reservoir of interest and resources to move forward in this direction. But it does require a sophisticated strategy and good organising, since the keys to success will surely revolve around decentralisation, real autonomy, local control, collective rights and strong cultural integrity of the food systems being supported this way.

On the other hand, opening official seed markets to local varieties could also open the floodgates to the mass destruction of local diversity, especially if people take on a highly capitalistic approach to setting up farmers' seed markets. This is a very real danger and it would go smack against any pretension of strengthening community livelihoods, community rights or farmer control. It amounts to creating farmer seed industries along the model of the conventional corporate seed industry. It doesn't take much to foresee the risk of further privatisation, monopolies and, ultimately, genetic uniformity that such an approach would lead to. The temptation to go down this path – whether by small entrepreneurs, farmers' associations, NGOs, cooperatives or why not Syngenta itself – is high, especially considering the growing worldwide demand for organic products, GM-free agriculture and community-supported local markets.

Farmer-controlled seed systems have to thrive if we are to have any hopes for autonomous, culturally meaningful and socially-supported forms of agriculture in our different countries. It may seem a given, with a whopping 70% of the developing world's seed supply coming from farmers today. Not at all. That 70% is increasingly vulnerable to full-scale absorption by the global seed industry as we've seen already happen in Europe, North America, Japan and Australia. That is the very agenda of the seed laws. At the end of the day, we can fight to support and build farmers' seed systems within or outside the laws, but we will never win within. The laws are made for the industry and at most can be relaxed to give farmers some legal breathing space. The real struggle, however, is the one on the ground, working to strengthen farmers' seeds systems and autonomy in action.

This Seedling takes us through a number of experiences and brutal shifts going on with seed laws in different parts of the world today, in the hope of raising further debate and new ideas about how we can support truly autonomous and farmer-controlled seed supply systems. As a complement, we plan to upload many seed laws from the South to the GRAIN website. Visit www.grain.org/go/seedlaws.

Most countries of the world have some kind of seed law or seed regulatory system in place. In the countries of the South, these have been largely patterned on the US or European models. Niels Louwaars offers some background to how these systems work, discusses the implications of imposing such models on developing countries, and points out the complexities of developing seed laws in an arena of such diversified seed production.

Biases and bottlenecks

Time to reform the South's inherited seed laws?

NEILS LOUWAARS

Seed laws aim to promote varietal and seed quality, thereby 'protecting' farmers from planting substandard seed. At the same time, they set the rules of the market for different seed suppliers thus intending to create a 'level playing field'. Seed laws therefore establish the institutional framework of national seed councils and certification agencies and regulate the procedures and standards for:

- **Variety release systems** aim to make only those varieties of proven value available to farmers through the formal seed system.[1]
- **Seed certification** aims to control the varietal identity and purity throughout the seed chain.
- **Seed quality control** checks on other seed characteristics such as viability, purity and seed health.[2] Seed quality control also aims at protecting *bona fide* seed producers from competition by less scrupulous colleagues.

Different national systems

The regulatory frameworks that have been developed in various countries reflect different levels of state involvement. In North America, for example, certification is often a voluntary service, and variety release is fully the responsibility of the company. This reflects a general confidence in the regulatory effects of the market. The idea is that suppliers of poor quality seed will be punished by customers through declining demand for their products, and customers will demand a certification seal if that seal has proven its value. In various European countries, on the other hand, public institutions have developed a significant mandate and legal backing for 'policing' seed quality, i.e. for checking all seed in the market and banning substandard seed lots. In some countries, such as the Netherlands, certification agencies have developed as independent foundations managed by farmers', seed producers' and breeders' organisations,

[1] NP Louwaars (2002), "Variety Controls", in: NP Louwaars (Ed), *Seed Policy, Legislation and Law; widening a narrow focus*. Binghamtom NY, Food Products Press, The Haworth Press, pp 131-153.

[2] R Tripp (1997), *New seeds and old laws*. London: Intermediate Technology Publications.

but these operate strictly within a national legal framework just like the public agencies in other countries. A trend is visible in different countries to certify the internal quality control procedures rather than checking each seed lot.

In most developing countries, formal seed production has developed as part of a top-down strategic paradigm for agricultural development in which plant breeding is believed to increase the potential yield of crops, and seed production is considered a necessary vehicle for technology transfer. Under the 'Green Revolution' approach, seeds and other inputs are subsidised in order to facilitate adoption of new varieties and associated technologies. Within this paradigm, centralised seed production units have been built in many countries as public institutions or enterprises to resemble the private European and North American seed industries. These formal seed systems subsequently developed specialised seed quality control institutions to create a quality-awareness with both seed producers and customers, and to safeguard the interests of farmers, similar to the official seed certification agencies in the North. In the era of privatisation of public institutions at the end of the 1980s, following structural adjustment policies, these seed quality control institutions became the driving force behind the development of seed legislation in the South.[3] Such legislation was meant to provide these institutions with a legal backing, which was thought necessary to perform its police tasks especially with the new, private seed producers. As a result, many seed laws in the South strongly resemble those in the North. However, whereas in the North, the farmers' interest was often represented by a strong voice in the seed quality control systems, in several countries in the South this was not the case.[4] The seed regulations were tacked onto existing bureaucratic structures and imposed upon both seed producers and users.

Registration and testing: typical biases

A variety release system commonly incorporates the following steps[5]:

- Application with a formal variety release committee and variety registration, including a variety description;
- Testing for the Value for Cultivation and Use (VCU) of the variety, involving a prescribed number of sites and seasons;
- Testing for Distinctiveness, Uniformity and Stability (DUS);
- Analysis of test results by the committee, leading to approval or rejection for formal release.

In each of these stages there can be a bias favouring particular types of varieties.[6]

Application for variety release commonly includes payment of a fee. The global trend of reducing public spending has meant that in most countries today, the applicant has to fund the testing system through fees. The result is that both public and private breeders limit the number of varieties submitted for official release to those that are likely to perform well in all test locations. Varieties with specific adaptation to particular agro-ecological niches or uses are less likely to be presented. This tends to contribute to a shift in breeding priorities to widely adapted varieties instead of varieties that suit the diverse characteristics of most small-scale farmers' conditions.[7]

The management of many variety testing systems further reduces the number of approved varieties. High input levels are often used to improve the trial from a statistical point of view. Sometimes this is also a deliberate policy to represent the conditions of the 'better farmers' and motivate other farmers to follow their example. Also, high input levels give 'beautiful crops' that make a trial presentable to visitors. But the liberal application of fertilisers and pesticides conceal environmental variations in the trial, thus reducing residual variance that could otherwise delay release or obstruct it altogether. However, high input levels are a major reason for poor relevance of trial results for farmers, and thus for the application of the results of public breeding. For example, it is unlikely that the official sorghum trial results in India are valuable for the majority of farmers where average yields in the 1989/1990 trials were three times the farmers' average yields.[8]

The evaluation of trials using simple statistical analysis methods leads to a bias in favour of breeding approaches for wide adaptation. Since trials are pooled in one calculation, the variety having the highest average yield is considered the best. However, this may not be the best variety in any of the testing sites. Standard variety release procedures rarely accept a variety that is specifically adapted to particular conditions, even though national variety lists may contain regional recommendations. The trial system is also biased against breeding for partial (horizontal) resistance, which is in most cases polygenic and more durable. Such varieties are resistant, but not immune to disease and thus they commonly carry disease symptoms, and for this reason are liable to be rejected in a release system, even if uniform. Additionally, the small size of the research plots make it difficult to identify horizontal resistance.

[3] NP Louwaars and GAM van Marrewijk, 1996. *Seed Supply Systems in Developing Countries*. Wageningen: CTA.

[4] R Tripp (1997), *New seeds and old laws*. London: Intermediate Technology Publications

[5] NP Louwaars (2002), "Variety Controls", in: NP Louwaars (Ed), *Seed Policy, Legislation and Law; widening a narrow focus*. Binghamtom NY, Food Products Press, The Haworth Press, pp 131-153.

[6] NP Louwaars (1997), "Regulatory aspects of breeding for field resistance in crops", *Biotechnology and Development Monitor* 33, pp 6-8.

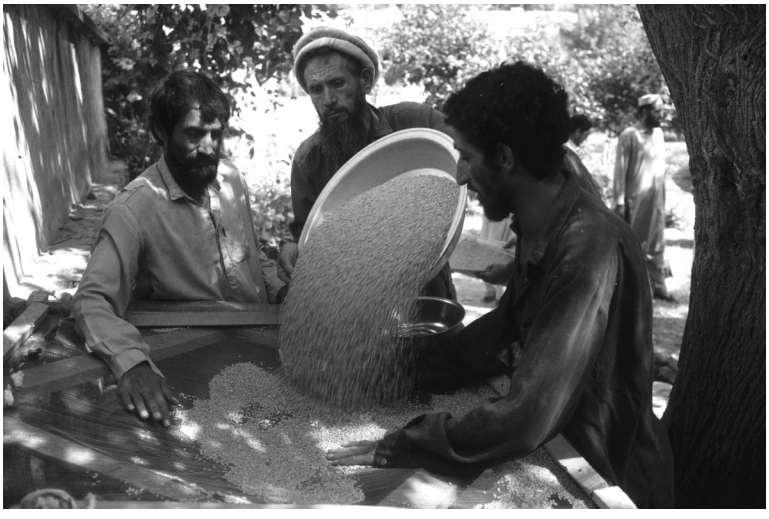
[7] S Ceccarelli (1989), "Wide adaptation: how wide?" *Euphytica* 40, pp 197-205.

[8] DS Virk *et al* (1996), *Varietal Testing and Popularisation and Research Linkages*. Discussion papers series. Centre for Arid Zone Studies, Bangor, UK.

Evaluation of variety trials by release committees is usually totally fixated on numbers, with the result that only yield becomes the decisive characteristic. Important characteristics for smaller scale farmers may not be taken into account. These include, for example, aptitude to intercropping, shattering (e.g. soya bean), lodging when harvesting is delayed (e.g. maize), cooking time of the produce (e.g. beans), and the yield and quality of secondary products (straw for construction or fodder). Breeding thus tends to concentrate on yield alone, without considering the diverse needs of farmers.

Variety release committees commonly consider the appropriateness for the production of certified seed as an important criterion. A variety needs to be morphologically identifiable and thus 'distinct' from existing varieties and 'stable'. Both factors contribute to the need of a certain level of genetic uniformity. The uniformity standards of seed certification systems are commonly very high, allowing only one or few dozens off-type plants per hectare. Releasing varieties to a seed certification system thus implies breeding for uniformity, even where this has no agronomic advantage.

Finally, lack of participation and transparency in the closed system of formal variety release leads to conservative trial designs and management. Parallel demonstration trials by the extension service, non governmental organisations (NGOs) or private seed companies have been taken into account in the release decision in many countries only recently. Official on-farm variety trials are becoming increasingly popular with variety release systems. But this development hardly ever contributes to releasing more adapted varieties because such on-farm trials are either completely researcher-managed, and thus similar to station trials, or the results cannot be easily analysed statistically, often leading to a denial of their results. The non-quantitative observations of farmers can certainly be taken into account, but are difficult to include in statistical reports. In developing countries, farmers are rarely well-represented in variety release committees or in the evaluation of varieties.



In Afghanistan, farmers' seeds that are not sold commercially are exempted from registration and certification

Variety release may become a goal in itself when regulatory systems are too rigid. Release is the yardstick on which the effectiveness of public plant breeding programmes are measured. The reward system for breeders is commonly based on the number of varieties released, not on their widespread use by farmers. So the objectives of plant breeders are likely to be adapted to the variety release procedure rather than to farmers' needs.

In short, standard variety release procedures commonly result in the approval of few uniform and widely adapted varieties that do not respond to the diverse needs of farmers.

Seed certification and quality control

Seed certification and quality control are meant to help farmers who purchase seed, since both the variety and the quality of the seed can rarely be observed from a visual inspection of the seed itself. Seed certification follows a kind of chain-control system, where the variety's identity and purity are checked from the very first generation (commonly called 'breeder's seed') through a prescribed number of generations to arrive at sufficient quantities of final seed that can be distributed to farmers. Every generation of seed has its own procedures and standards, which are monitored through checks, documents and seed production fields. Standards include, for instance, the distance to neighbouring fields with the same crop or to weeds that may cross with the seed crop, the number of allowable off-types, and so on. Certification also involves strict procedures for labelling and sealing seed packs. Seed certification thus requires a very organised formal system, and is normally reserved for well-described and stable varieties.

Certification goes hand in hand with seed quality control in which the most important seed qualities - viability, purity and health - are tested in a laboratory, commonly using internationally harmonised procedures of the Organisation for Economic Cooperation and Development (OECD) or International Seed Testing Association .

All of this has a marked effect on breeding strategies. According to the certification rules, varieties have to be stable in order to ascertain their varietal identity. Only uniform varieties can provide that level of stability. Seed certification and quality control are also quite expensive and time consuming. Both the level of administration required and the cost involved make it very difficult for countries to control all the seed that is produced and used. In developing countries, very often not more than 10% of the seed used is actually certified, while the bulk is produced by farmers themselves.

Seed laws

Seed laws, at the apex of all these activities, regulate the procedures and standards for variety release, seed certification and quality control. Many of them are meant to organise the formal seed system but have effects that go well beyond. Many seed laws of the former Soviet Republics, for example, prescribe that all seed (that is used for planting) has to be certified, which in fact outlaws the saving of seed on-farm.

More common, however, is the rule that only seed that is commercialised has to be registered and certified. This is the case in the seed laws of Cameroon, Niger, Senegal and many others. In most of these laws, however, the term 'commercialised' is not defined. The seed laws of South Africa and Malawi do specify that exchange and barter are included under the term 'sell'. This means that even the informal exchange of seed among farmers is illegal there.

In most of the more far-reaching seed laws, such as those cited above, the term 'seed' is used in a broad way, meaning any part of any plant species. Yet not all these countries have operational facilities for variety testing and release, seed certification and controls. Some countries therefore further regulate that the rules only apply to a certain number of crops and/or varieties which they call 'prescribed' (Zambia, Malawi), 'notified' (India, Bangladesh) or 'regulated' (Indonesia). In practice, this means that the seed laws only apply to certain crops in these countries. However, since all major food crops are commonly listed, significant problems are bound to arise with grassroots seed initiatives using local varieties or non-certified seed.

In some cases, however, the formal seed sector is regulated while avoiding interference with farmers' seed systems. Indonesia has a specific exemption for farm-produced seed that is marketed within the village, providing at least an opening for local seed production and dissemination. In some countries, the laws applies to packed and certified seed only, leaving the farmers' seed system untouched. They basically protect the seed label and reserve it to truly controlled seed: seed should not be sold as 'government-certified seed' (Korea) or 'government-tested seed' (Botswana). In fact, the Morocco law reserves the word 'seed' for controlled seed only.

One solution to the dilemma of controlling marketed seed while allowing farmers' seed systems to thrive is to adopt a voluntary system of variety and seed controls instead of compulsory variety release and seed certification and testing. The voluntary system can support the private sector while leaving room for local initiatives. In this way, seed producers have the choice to have their varieties officially recommended and their seed lots certified and tested or not, while farmers have the choice to buy seed with or without an official certification label. This system operates in several parts of the United States, where the seed laws merely regulate the labelling requirements in the seed trade ('truth-in-labelling'), whereas in other areas seed association rules 'de facto' introduce a kind of compulsory quality control system. Farmers may rely on branded seed and thus on the information and trustworthiness of the seed company. Opponents of this approach point to the lack of competition in the seed market in most developing countries. This leads to a lack of incentive to provide quality seed. Also, illiterate farmers may not be able to understand the information on the label and be misled. Voluntary seed controls may thus facilitate fly-by-night seed suppliers.

An alternative is to include non-certified seed classes in an otherwise compulsory system. For example, the UN Food and Agriculture Organisation (FAO) tries to facilitate this through the concept of 'quality-declared seed', which requires less burdensome controls. Also, some countries establish different lists or categories of marketable seed, with lower requirements and controls for certain kinds of varieties.

The impact of these seed laws

The conventional seed regulatory frameworks that currently operate in many developing countries have a range of effects on different actors in the seed sector. These include farmers who produce and exchange seed of both local and so-called improved varieties, and public and private actors in different stages of the whole formal seed chain.

Several commonplace activities in diversified seed systems become illegal under strict conventional seed laws, such as:

Problems with how registered varieties are chosen

Variety release systems select, through field testing, those varieties of proven value. However, the field tests usually mean that farmers will not get suitable varieties:

1 - A **fee** tends to select varieties which will do well across many agro-ecological environments

2 - **High inputs** (fertiliser and pesticide) are used to provide perfect conditions, which are unrealistic. Also used as wish to encourage farmers to adopt such high input use

3 - **Simple statistical analysis** leads to average high yield across many environments, even though might not be the best

4 - Varieties with **partial resistance** to pests and disease which is often more sustainable are commonly not identified in such trials.

5 - Only **yield** is used for selecting the best varieties and not the multiple criteria that farmers' needs.

6 - Varieties are chosen for being **uniform**, even where this has no agronomic advantage

7 - **Lack of participation by farmers** and transparency and therefore varieties chosen by researchers, not farmers.

8 - Breeders are rewarded based on the **number** of new varieties, not on their success with farmers (area planted to them)

- Farmers' seed systems, when they involve the production and local exchange of non-tested seed of, in many cases, non-released varieties
- The restocking of genetic diversity after a disaster
- Participatory plant breeding, which relies on informal dissemination of new (non-released) selections
- The organisation of seed fairs, which aim at sharing locally adapted or selected materials.

Few cases have been documented where the seed law has actually been used to stop traditional practices in farmers' seed systems or seed-related initiatives among civil society organisations. One is in Zimbabwe, where an NGO was forced to cease production of a non-hybrid maize seed for emergency use in war-struck Mozambique. Zimbabwean farmers started to appreciate the maize, but the Zimbabwean seed law prohibits the marketing of open-pollinated maize seed. So the NGO was forced by the government to cease the operation. Another is in Indonesia. During the Suharto regime, Indonesian farmers in Java were obliged under the seed law to plant only 'high-yielding varieties' of rice of very particular classes. The argument was to reduce the level of brown plant hopper incidence through the management of resistance genes. Development workers have reported that government officials went and burned down or uprooted fields where farmers persisted in planting their traditional varieties.

Quite often, it is the implementation rather than the letter of the law that causes problems. The most important factor may be the inefficiency of the institutions. Their procedures can lead to excessive delays in the release of varieties or seed lots. For example, no varieties have been released in Yemen for several years because the members of the variety release committee cannot agree on their agenda. In Indonesia, the production of certified soybean seed is hardly possible because the time required for sampling, testing and reporting is such that seed quality deteriorates beyond acceptable limits.

Another problem can be found with the setting of seed standards. High seed quality standards may result in high rejection levels that are sometimes suspended at will in order to meet the requirements of government development projects.

Finally, transparency is lacking in many national seed control systems. Mandatory seed certification may invite rent-seeking, especially where inspections have to be done by under-paid public servants.

Seed regulatory reform?

Diversified seed systems call for a re-examination of seed regulatory frameworks in developing countries. From a government perspective, these have to accommodate different and at times conflicting national policies, such as:

- Promoting investments by the private sector[9], including a push towards international harmonisation;
- Promoting the active participation of NGOs and farmer groups[10];
- Reducing on-farm loss of genetic diversity[11];
- Reducing public expenditure in breeding, seed production and control, and marketing[12];
- Maintaining minimum levels of consumer protection.

But reforms can be quite difficult. Seed certification services or authorities may find it hard to deal with different ways of producing seed or of managing seed quality. Even though seed regulations are meant to assure the quality of seed, many inspectors see it as their role to 'police' seed producers and traders in order to keep certain seeds off the market. In some countries however, the certification agencies

[9] W Jaffé and J Srivastava (1994), "The roles of the private and public sectors in enhancing the performance of seed systems", *The World Bank Research Observer* 9, pp 97-117.

[10] S Wiggins and E Cromwell (1995), "NGOs and seed provision to smallholders in developing countries", *World Development* **23**, pp 413-422.

[11] W de Boef *et al* (Eds, 1993), *Cultivating Knowledge; Genetic diversity, farmer experimentation and crop research*. London, Intermediate Technology Publications.

[12] C Thirtle and R Echeverria (1994), "Privatisation and the roles of public and private institutions in agricultural research in sub-Saharaan Africa". *Food Policy* 19, pp 31-44.

take a stand that their role to promote seed quality prevails over their control functions. The Seed Certification and Control Institute in Zambia, for instance, promoted the introduction of 'quality declared seed' in its regulations. This allows them to relax the certification procedures and interpret the seed quality standards more flexibly. Unfotunately many countries stick to the rules they have been given and do not promote new initiatives, but the Zambian example has been followed in other counties, such as Sri Lanka and Thailand.

At the variety release level, the committees are mandated to choose appropriate varieties to plant within the frame of national food security and agricultural modernisation policies. They are often dominated by senior officials from research institutes and government agencies, and are commonly guided by strict procedures and standards, including the results of variety trials. Problems may arise when small seed initiatives try to produce seed of varieties that are adapted to specific conditions and tastes of a particular village or region. Such varieties may not outperform the standard 'check' varieties in nationwide trials or they may be developed for characteristics that the committee is not instructed to account for.

At the broader policy level, more and more countries are acknowledging the importance of the farmers' seed systems. However, the international pressures to introduce intellectual property rights (IPR) may counteract the impact of more open seed laws. IPR laws, such as patents or plant breeder's rights (usually based on one of the UPOV Conventions) intend to stop farmers from sharing seed of protected varieties, even where open seed laws designed to support farmers' seed systems, provide farmers with some liberty to do this.

Conclusion

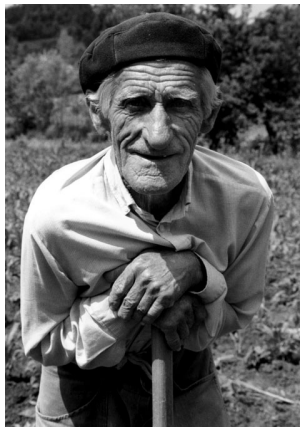
Farmers' seed systems and formal seed systems have complementary tasks in supporting agricultural development and the management of plant genetic resources. Seed regulatory frameworks provide legal boundaries in which both systems operate even though in most countries these have been designed to regulate the formal system only.

The scope of these laws determines, to a large extent, the degree of freedom farmers have in handling their own seed, i.e. the crops for which the laws apply and the types of seed that are regulated. In addition, the level of implementation of the laws differs significantly between countries, sometimes providing NGOs, and even official institutions (such as those which certify seed), the space to support diverse ways to produce seeds. However, reforms of formal institutions can be cumbersome and will meet with opposition from within. Furthermore, the push to implement new international policies, such as those promoting the introduction of intellectual property rights, will also impact any reform of these seed laws.

Niels Louwaars is a researcher with the Centre for Genetic Resources at the University of Wageningen in the Netherlands. Originally a plant breeder, he has been studying and analysing seed laws in developing countries since 1992.

In Europe, the commercial seed supply system is highly organised and controlled. European law on seed marketing has evolved over the years to ensure that only uniform seeds for industrial farming can be sold on the market, condemning farmers' seeds and traditional varieties to the black market if not complete illegality. Together with strong intellectual property rules and technologies like hybridisation, European seed laws lock farmers out of the seed system. This article is an extract from a longer work by Guy Kästler. The article focuses on France which has taken the strictest approach to implementing seed laws in Europe, and perhaps the world.

Europe's seed laws: locking out farmers



GUY KÄSTLER

Since the beginning of agriculture, the selection and reproduction of seeds, as well as the conservation and renewing of agricultural biodiversity, have never left farmers' fields. Of course, farmers' work with seeds has been influenced by many things such as local culture, traditional medicinal systems, religion and the birth of modern science, but these never took varietal development away from agricultural production. The breeding and production of seeds as a profession started in Europe and then in the US towards the end of the 19th century, first within specialised farms, and then among specialised companies. This was the beginning of the separation of seed production from farming.

The growth of markets, first at the national level and then at the international level, is what drove this separation. A local market supports and even produces local diversity. However, the spread and concentration of the agribusiness chain (providers of seeds and farm inputs, processors and distributors) within large markets has encouraged economies of scale on a few of the most important crops, leading to uniform products at the cheapest price possible. Getting all farmers to plant the same seeds and varieties is an excellent way to achieve the same standardised product. And for the farmers to produce more for the same amount of work is the best way to reduce prices. But this is difficult as long as their harvest is dependent on an array of different agro-ecological and climatic conditions. Therefore the homogenisation of lands is important to produce homogeneous seeds and food. Through the use of pesticides and fertilisers, and often unlimited irrigation, farming has become more and more detached from its environment. Farmers have slowly become dependent on the industrial agricultural model encouraged by seed producers.

Production costs continue to decline, while the real costs are borne by the pollution of our soils, water and air, global warming, unemployment and the loss of small farms. These rising costs, which will be paid for by future generations, oblige us to abandon this agricultural model and the laws that support them.

Seed exchange between farmers at the local level is based on honesty and the basic rules of being a good neighbour. Everyone knows the farmer providing the seed and how good his or her seeds are. It's more risky to mislead your neighbour than a farmer who lives at the other end of the country who will never be seen again. As we increase the area of seed exchange, risk increases. The quality of seed is not visible to the naked eye and the market is soon invaded by fraudsters who sell any old seed. Industrial seed producers who want to control markets have used the excuse that the anonymous consumer needs protecting and that fraudsters need to be kept at bay. It is in the name of these objectives that the state, together with the corporate seed producers, put in place seed laws to ensure that the corporates can get, and maintain, an absolute monopoly on seed production (see table below).

Locked varieties

Since the beginning of the 20th century in the US, industrial seed producers have looked for ways to strengthen their monopoly over the production of seeds by stopping farmers from re-sowing harvested seeds. Their first offensive was with cross-pollinating plants which cannot reproduce themselves sustainably without receiving pollen from another plant of the same species which has slightly different genetic makeup. As soon as a cross-pollinating plant is self-fertilised to fix its characteristics, its descendants express a depressive effect from inbreeding which makes the crop unsellable.

With the technique of hybridisation a breeder will get a seed with fixed characteristics and a good commercial value. Hybridisation involves crossing two inbred plants with characteristics of interest which are fixed yet weakened from depressive inbreeding. A farmer planting hybrid seed will get a field of identical plants, and any seed produced from this field will suffer from the same depressive inbreeding as from pure inbred plants. For these locked varieties, the farmer becomes indefinitely dependent on the seed producers and agroindustrial companies. Today, the majority of commercialised cross-pollinating species (beet, sunflower, most horticultural crops) are hybrid clones.

Farmers' varieties

It is impossible to fulfill the criteria of distinctiveness, uniformity and stability (DUS), plus value for cultivation and use (VCU), required for registration on the national seed catalogue, without using breeding techniques which have become more and more sophisticated and are not available to farmers. (See box over page). From the first hybrids to modern biotechnology, the plant breeder has left the field for the laboratory. In this way, the plant breeder is imposing on farmers standardised crops which have been perfected in the laboratory and at research stations. A plant breeder cannot meet DUS and VCU criteria without the use of fertiliser, pesticides, mechanisation and irrigation to ensure conditions are stable and to evermore increase yield. Therefore today's commercial varieties are selected for and by these techniques for industrial agriculture, without which farmers cannot produce crops from these seeds.

Yet there are many farmers who wish, for a variety of reasons, to grow crops not listed in the official seed catalogue. They may not have the money to pay all the costs of the industrial production system that the seeds were bred for. They may be against buying these seeds or they may be attached to a traditional

The evolution of seed laws in France

1884	The seed producers of France created the first National Centre for Seed Research (Station National d'Essais de Semences), with the aim of analysing the quality of commercial seeds (already differentiated from farmers' seeds).
1905	The first law on seed quality control was created.
1922	A committee on seed control drew up a list of wheat varieties and defined standards of quality for wheat seed in terms of varietal purity and germination rate.
1932	An official French seed catalogue was created for approved species and varieties, first for wheat, and then rapidly oats, potatoes, barley, fodder beet and maize. With the exception of ornamental plants, which are still not listed, the last plants to be added to the catalogue were horticultural vegetables at the start of the 1960s.
1942	The Permanent Technical Committee on Seeds (Comité Technique Permanent des Semences), made up of seed industry representatives and government scientists, started managing the seed catalogue. They determine the criteria for defining the varieties listed in the catalogue.
1949	A decree outlawed any commercialisation – whether free or for a payment – of seeds not listed in the national catalogue. Only certified seed producers are allowed to sell seeds.
Post-war years	In France, farmers' varieties soon started disappearing after World War II. Cooperatives, which buy all harvested crops, also started making more money by selling seeds, fertiliser and pesticides to farmers each year, and started selling hybrid seeds.
1966	The European Community created the Common Catalogue.
1998	France created an annex to its national catalogue for amateur vegetable varieties (non-commercial use). The EU adopted a directive opening the possibility of a separate list for conservation varieties.
2005	European Commission proposed a directive on conservation varieties.

The EU seed catalogue system

Each member state of the European Union is required to maintain a national catalogue (or "list" as it is called in some countries) of officially recognised varieties which may be freely marketed in its territory. The national catalogues are then collated together by the European Commission into what is known as the EU Common Catalogue. Varieties which are not listed in a national or the Common Catalogue are, technically speaking, not allowed to be marketed in the EU.

All varieties submitted to be registered need to be tested for DUS (distinctiveness, uniformity and stablility) and, for some crops, VCU (value for cultivation and use) over a minimum two-year period. Distinctiveness means that the variety is distinguishable by one or more characteristics from all other registered varieties. Uniformity means that all plants from the same batch of seed are the same. Stability means that the plant is the same after successive generations. VCU means that compared to other registered varieties, the variety being registered offers a qualitative or technological advance (either when grown or processed).

In Europe, there is a strong relation between this catalogue system and intellectual property rights. In both cases, the same DUS testing is required and it is often done by the same technical services. Most varieties registered for sale on a national catalogue or list are also protected by PBR.

way of doing things. They may be looking for more autonomy or to develop alternative farming systems (organic, peasant, low-input, regional, etc). Or they may simply not find what they need in the official seed supply system. In all these cases, farmers may be tempted to grow traditional, local or peasant seeds. Consumer demand for better food quality together with society's demand for farming systems that are environment-friendly and disconnected from agricultural subsidies are pushing more and more farmers in this direction.

For this, farmers need to use traditional peasant techniques of seed conservation and selection. These methods adapt crops to the diversity of terroirs[1] and climates and to how the crop is used after harvest. Such crops are not necessarily stable outside of their terroirs, nor are they uniform due to the natural diversity within the crop, and they are constantly evolving. They will not meet the criteria for VCU as they are not adapted to industrial processing or widespread distribution. For this reason, these seeds do not correspond, in legal terms, to varieties - they are "non-varieties". Therefore, plants selected for diversified, organic or low-input agricultural systems, as well as nearby marketing systems, fall outside the trade-driven definition of "varieties". Even when farmers' materials can respond to the strict marketing criteria, it is impossible to pay the registration costs (which can be as much as 5,000 Euros for a vegetable variety and 15,000 Euros for a cereal) as such varieties would only be produced in small amounts for local farming. Finally, a registered variety is not allowed to evolve or adapt. It would have to be re-registered as a different variety.

Even faced with all these problems, farmers still cannot register their "non-variety" on the seed catalogue. They therefore cannot sell, or even give away for free, their seeds and even exchanging seeds with a neighbouring farmer is illegal. The European law only allows for farmers to produce seed from their own harvest which can only be used on the same farm.

Even if a farmer could reproduce seeds for his or her own use, individuals are often unable to maintain a variety. Varieties are very much dependent on the collective work not based on a market, but on regular exchanges. Such varieties need to be crossed with other varieties and continuously renewed so that the plant can continue to express diversity and genetic variability. In each terroir, certain fields or plots from certain farmers produce better seeds of one species, whereas for another species, it will be other farmers and other plots of land. A farmer with diverse production cannot produce all the seed required for planting the next year. A market gardener cannot simultaneously reproduce several cross-pollinating varieties from one species and at the same time produce more seed from one variety than is needed (for cabbage, at least 50 plants are needed to produce seed and keep the diversity, which produces about one to two kilos of seed, yet a market gardener needs between 50 and 100 grammes). Finally, nobody is safe from the loss of all seed from crop failure.

If certain stages in seed production can temporarily be skipped, the exchange and sale of restricted quantities of farmer seed is the key to the dynamic and collective management of agricultural biodiversity which is at the base of their existence. To forbid exchange is to forbid farmers' seeds.

Farm-saved seed

One of the problems that corporate seed producers continue to face is self-pollinating crops, such as wheat. With these crops, farmers can harvest, save and replant seed the following year. Farm-saved seed is free seed and this is not tolerated by commercial seed producers. Of course, it is illegal to sell or exchange seeds which are not on the European seed catalogues, and seeds cannot be used without the permission of the Plant Breeders' Rights (PBR) owner when they are proprietary. But physically speaking, nothing stops farmers from saving, exchanging or to selling their seed

[1] "Terroir" is a French word that has no real equivalent in English. It refers to soil or land, but it encompasses elements of geography, pedology and culture all at once. Terroir is a source of identity. It is often used to explain the characteristics of a given wine.

harvest for re-sowing. Therefore varieties deleted from the catalogue can actually be reused for many years. Farmers select their own "local" varieties and become again completely autonomous from seed producers. Farm-saved seed therefore allows for the renaissance of "farmers' seeds" which the catalogue system has tried to eradicate. Farm-saved seed is still used widely in Europe, for example in France accounting for 50% of self-pollinating crops.

So the seed industry along with government has come up with a raft of other measures meant to suppress the use of farm-saved seed.

1) PBR

Most seeds are PBR protected, and plant breeders are now extending their influence around the world by coaxing countries into joining UPOV. The latest revision of the UPOV Convention (1991) increased the protection given to PBR holders so that all varieties which are "essentially derived" from an initial protected variety are also covered. This new step was aimed at preparing the legal ground for new genetically modified varieties which had been "essentially derived" from PBR varieties. However, it also allows the plant breeder to get legal rights over all farm-saved seed which is "essentially derived" from a protected variety. In 1994, EU regulation 2100/94/EC was adopted to implement UPOV 1991 in the EU member states. It allows farmers to sow, for certain crops, farm-saved seeds of PBR-protected varieties on their own farm but only if they pay a royalty each year to the breeder. Small farmers (those with a cereal harvest of less than 92 tonnes) are exempted from this provision. As it is difficult to monitor which varieties are being saved on the farm, several European countries, such as Belgium and France, have developed a Mandatory and Voluntary Contribution (MVC) scheme. Under the MVC, a payment is collected from all farmers growing bread wheat. It is then reimbursed to small farmers, who are exempt from the royalty on farm-saved seed, and to farmers who bought certified seed. The fee is even collected from farmers who are not growing PBR-protected varieties. This scheme has been challenged several times in the courts and the cases are still on-going. If allowed to continue, these MVC payments may effectively and legally end the existence of farmer-saved seeds.

In Germany, the seed companies have written letters to all "farmers" (including dead farmers and people who were not farmers) demanding a full inventory each year of what seed they are growing, to determine the royalty on farm-saved seed that the companies should collect. Since 1998, more than 4,000 German farmers have refused to fill out the questionnaire, believing that it is their right to save and use their own seeds on the farm, and have been taken to court. Three of these cases so far have gone all the way to the European Court of Justice. In the first case, the ECJ ruled that the seed companies cannot indiscriminately wrestle such information out of the farmers. In another case it ruled that an 80% royalty on farm-saved seed, as eyed by the companies, was way too high; it said that 50% should be the maximum (see box):

The Linda potato controversy in Germany

Linda is a potato variety that was bred by plant breeder Friedrich Böhm. In 1974, it was registered and certified for sale in Germany and protected with plant breeders' rights (PBR) for 30 years. Europlant was assigned the rights to maintain and collect royalties on marketing Linda. One month prior to the expiration of the PBR certificate in December 2004, Europlant ceased maintenance of the variety, even though its registration on the national list was valid until 2009. This meant that no one else could take over maintenance because the variety was still under PBR. So Linda was marked for deletion from the German potato market.

Europlant claimed to stop maintenance because there are other potato varieties now available that are similar but superior to Linda. But the move was constructed in such a way that Linda was de-listed and may not get re-listed because it may be difficult for it pass the VCU tests of today. Various groups in Germany have called it foul play, saying that Europlant just wants to control the market.

Organic farmers and small farmers organisations are upset that Linda is being taken off the market because it is a very popular variety. But Europlant says Linda only commanded 0.5% of the market between 1974 and 2004). Critics also say that Europlant is improperly playing a role of monopolist, deciding what is good for German consumers. Europlant responds that Linda was a quality potato because seed production was licensed out to a few highly controlled seed producers and that if it goes into the open market, seed quality will decline, harming both farmers and consumers.

The large German farmers' organisation, Deutcher Bauernverband, shares some of the criticism of Europlant's handling of the situation. It says that production of Linda seed potatoes will now have to be handled in private – on the farm, off the market – and commercialisation of the final produce will be restricted to direct marketing between farmers and consumers. This will have the effect of creating greater distance, or even distrust and disruption, between farmers and breeders in Germany. Europlant has retorted that people are making a lot of noise not because they want to keep Linda alive but because they want to grow potatoes without paying royalties on seeds.

Indeed, the popularity of Linda potato is such that a lot of noise has been generated in the media. And at the last minute (the deadline was the 30 June 2005), the German authorities have given Linda a two-year extension on its use following a request from organic farmer Karsten Ellenberg's farm. Ellenberg, who has also applied to re-register the variety, successfully argued that there was still a lot of Linda potato seed in stock to be used, which should be used up. But thereafter?

For more information visit: www.kartoffelvielfalt.de/linda.htm

2) Patents

As a result of GM crops, Europe adopted a directive on patenting plants and animals (98/44/EC - the legal protection of biotechnological inventions). Protection has been provided with a patent on genetic information (a gene plus a function) which includes all biological derivatives from its reproduction and multiplication. A variety already covered by a PBR cannot be patented, though a variety which includes a patented gene can be protected with a PBR. Despite the opposition of the seed industry, all new GM varieties need to be registered in the seed catalogue, even if the same variety is not GM is already registered. The patent only covers the gene when it is knowingly used. Therefore a farmer can re-sow harvested seed that has been accidentally contaminated, but as soon as the contamination becomes publicly endemic, as with oilseed rape in Canada, the farmer can no longer be ignorant of the contamination and use the contaminated varieties (see box below).

3) Seed cleaners

Farmers wishing to use farm-saved seed will invariably send their seed to a seed cleaner. Seed cleaners, who are often mobile, remove poor quality seeds and weed seeds, chaff and awns, and treat the seeds against pests and diseases. This requires substantial equipment which is not available to small- and medium-sized farms. This is why entrepreneurs with mobile equipment clean seed for farmers as a service. At the end of the 1980s, the French seed companies tried to ban such seed cleaning, known as triage à façon. The National Coordination for the Defense of Farm-Saved Seeds (CNDSF) brings together farmers and farm-seed cleaners fought this attempt to ban seed cleaners and continues to champion the rights of farmers to use farm-saved seed. A 1994 European Community directive recognises the right to clean harvested seed "by the farmer or by a service provider" for replanting.

4) Agricultural subsidies

Agricultural subsidies have also been used to reinforce the monopoly that seed companies enjoy. In France, for example, subsidies paid to encourage farmers to grow durum wheat are only available for those buying certified seeds. On the other hand in Italy, where the terroirs and local growing conditions are just as important the certified variety, subsidies are given for all durum wheat varieties grown. However, the European Commission is trying to get Italy into line.

5) Pest and disease control rules

Health regulations also reinforce the seed companies' monopoly. Subsidies in France for fruit trees or vines are only provided for certified plants bought from certified nurseries and from certified vine stock without viral contamination, all held in public centres. The planting of all vine stock which is not cloned from a certified type is completely illegal. The struggle against viral disease provoked by industrial agriculture practices, by and large manageable under small farmer and agroecological practices, is the basis for this rule. However, when the contamination is from the nursery, little appears to be done. This shows that the disease regulations are more about protecting nurseries than the prevention of disease.

The rules for the protection of quality production also have the same aim: farmers can only plant a few certified vines; farmers are stopped from growing other vines which are grown around the world. Seed treatment, which farmers cannot do themselves, can also be made obligatory, as with the case of sunflowers. Illicit industry agreements also have the same aim. For example, pesticide companies were taken to court and found guilty when they refused to sell their seed chemicals to farmers or certain seed cleaners.

6) Production contracts

Finally, when the law isn't enough, the companies themselves impose contracts on farmers in which a harvest will only be bought if certified seed is used.

Coexistence

In the case of GM crops being grown within Europe, all seed laws will have to face the inevitable consequences of patented genetic pollution. In a 2001 directive (2001/18/EC Deliberate Release of GMOs) the EU established a new right, the right to coexistence, whilst allowing member countries to define (if they wished) national laws to manage coexistence. According to the EU, coexistence means that all crops can be grown next to each other without any being banned. This means that farmers can choose to grow GM crops, but can also choose to grow crops that have not been contaminated with GMOs. But with the inevitable contamination coming from GM crops, the right to grow GM crops is also a right to destroy non-GM agriculture.

Discussions on coexistence are continuing throughout Europe in 2005. The Italian 2001 seed law establishes the right to protect traditional farming practices. This right goes beyond "risk" to health and the environment and introduces the concept of "risk to agricultural systems". Legally, such risks need to be evaluated before any EU-authorised GM crop can be grown. The same law only allows for the government minister to approve the growing of GM crops which therefore places the government as liable for any contamination.

Conservation varieties

The extreme position taken by the seed industry in France, which cuts the very branch of biodiversity that they sit on, is not found all over in Europe. Most countries tolerate informal exchanges of seeds between farmers and some countries allow the marketing of small quantities of seeds of varieties not listed on the catalogue. In 1998, the EU member states agreed to make special provisions to allow the marketing of "conservation varieties" under Directive 98/95/EC. Within this directive, EU countries can optionally implement these laws, as was done by the Italians in 2001 (Law 212/2001) which recognised the right of regions to establish a catalogue of conservation varieties.

That same year in 1998, the Swiss, who are not a member of the EU but who are part of the European seed area, adopted a law authorising the commercialisation of limited quantities of seeds not listed in the catalogue (see box). Also in 1998, France created an annex to its national catalogue for amateur horticultural varieties. Seeds of the varieties can only be sold to non-professional gardeners who don't commercialise their harvest.

In March 2005, the European Commission came up with a proposed directive on "conservation varieties" which deviates from the standard DUS criteria and replaces testing with "the knowledge gained from practical experience during growing, reproduction and use".

If it is adopted, this directive will have to be implemented by member states by 1 June 2006. The proposed definition of conservation varieties is limited to local varieties at risk from genetic erosion, which makes it clear that this is only about saving, at a low cost, what is at risk of disappearing and which could tomorrow be used as a resource for the seed industry. The recognition of the possible evolution of a variety (from repeated growing) introduces implicitly the continued creativity in dynamic farmers' seed selection. Seed mixtures are not recognised unless associated with a natural or semi-natural habitat, which excludes mixtures selected for associated crops outside of the defined zones in the national scheme of classification of natural or semi-natural vegetation.

Within this directive, conservation varieties could be commercialised in very limited quantities, without an indication of whether this is a global quantity for each variety or a quantity for each harvest commercialised, nor are there details of who can commercialise these quantities. Without more details there is a risk that a government will

Opening up the seed system in Switzerland

(with collaboration from Francois Meienberg of Berne Declaration)

In Switzerland, as in the EU, seeds cannot be marketed or exchanged unless they are registered and certified with the government. But in 1998 the Swiss government amended its seed law to allow for the circulation of local varieties, traditional ('obsolete') varieties and landraces ('ecotypes'). It did this through a special derogation from the main law. The derogation states that seeds of local varieties can be sold or given away for free without being registered or certified in the conventional way, as long as they satisfy regular quality controls (germination, purity, etc) and bear a special label. In addition, the government has the right to limit the quantity of seeds of local varieties that can be circulated.

This means that planting material of traditional varieties can legally be marketed without fulfilling the DUS and VCU criteria. But clearance is necessary from the government, which maintains a list of traditional varieties cleared for marketing, and the quantities are restricted. The quantitative ceiling at present is the amount of seed needed to cultivate 5-10 hectares of the variety per year, for the whole country – which the government translates into a weight measure. For example, if someone wants to produce and sell a locally adapted potato variety for growing in Switzerland (where one tonne of seed potato is needed for one hectare), 5-10 tonnes of this seed potato will be permitted for circulation in a given year. In the six years since it was signed into law, the government has given authorisation for 64 cereal and 67 potato varieties under this derogation. Although welcome, this new provision raises a few questions:

- Who has the right to sell the seed if this variety gets clearance: one person or 50 people? If only one person, the first to register that year, then this is a monopoly on that potato variety. There is normally only one registrant per variety, in Switzerland, 'the breeder'. But who is 'the breeder' of a traditional variety? The government says it never considered this matter. The thinking is that if someone else wants to produce seed of a listed traditional variety, that person should contact the registrant and they can sort it out.
- How can or does the government control the quantitative limits? At present, there seems to be no system for this.
- What does the quantitative limits apply to: sale or exchange or both? Circulation, in the law, covers both sale and exchange.

Pro Specie Rara (PSR) is one organisation making use of this new legal provision. Since 1982, PSR has been maintaining and producing seed of traditional plant varieties as well as threatened animal breeds and final produce for consumers. With the change in the Swiss seed law in 1998, it can now go into marketing traditional seeds, which it started doing in 2001. But the quantitative limit is turning into a problem. PSR has recently gained authorisation to market a blue potato variety, off the mainstream catalogue, called Blue Swede. It produced 10 tonnes, within the government's restriction, and are marketing the seed material through Coop, a huge retailer. But now, the Swiss organisation of potato growers and seed potato producers, is complaining that at 10 tonnes, Blue Swede is gaining a noticeable market and is not fulfilling a 'conservation' role anymore.

Negotiations are now starting up to find a solution. The government thinks that the Blue Swede should just be entered into the regular catalogue, so that there is no more quantitative limit. But then it's not clear if it would need to go through DUS and VCU testing. PSR might need to appeal to have it registered under one of the seed law derogations to avoid the DUS and VCU testing.

The EFTA Convention establishes a common seed market among the four EFTA member states (Iceland, Liechtenstein, Norway and Switzerland), allowing the free circulation of seeds accepted for marketing in one state among all four states, with the specific exclusion of local varieties accepted for circulation in Switzerland. In other words, local materials (at least from Switzerland) are excluded from the EFTA common seed market.

allocate the quantity to one seed producer. Finally, nothing is said about the inalienable right of farmers and gardeners to freely exchange outside of the seed market, whatever they have harvested themselves. In countries where this exchange is strongly suppressed, this directive does provide a slight improvement. However, in countries where this exchange is largely tolerated, particularly in the new member states in Eastern Europe, this could be used as an excuse to restrict seed exchange.

European organic farmers, since 2003, can use conventional certified seeds but only for varieties that are not already available as organic seed. As official organic seed is subject to the same rules for all commercial varieties, these seeds are not necessarily adapted to local conditions, which is essential for organic production. In 2004, Germany put in place specific criteria for the registration of organic varieties. Since early 2005, France is looking into specific VCU criteria for low-input crop production.

What now?

There are still a number of options available to farmers in Europe to give them more flexibility in using their own seeds. Several countries have asked for the directive on biotechnology patents (98/44/EC), which allows patenting on life, to be re-negotiated. Evidence since 1998 now questions the science upon which this patent law was based. In Italy, a country which takes a far more flexible view on European seed laws, some interesting developments are underway. The growing use of "conservation varieties", especially by organic agriculture, provides ground to implement a law for their registration. The discussion around conservation varieties could also be used to reintroduce the concept of collective rights within seed-related legislation, including to protect farmers' seeds against biopiracy. The Swiss law allows for the exchange of limited quantities of seed from non-registered varieties. This should be the opportunity to state unambiguously the absolute right of farmers to freely exchange their seed outside of all commercial regulations.

nature & progrès

Guy Kästler is a French farmer and cheese maker that heads the campaign to save farmers' seeds known as the Réseau Semences Paysannes. He is a member of the Confédération Paysanne and Nature et Progrès (an international federation of organic farmers). Guy can be contacted by email at guy.kastler@wanadoo.fr

Confédération Paysanne

In Italy, eight of the 18 administrative regions have adopted their own laws on local genetic resources since 1997. These aim to protect and promote traditional plant varieties and animal breeds in local farming systems as the heritage of the region. Since 2000, when the regional law of Latium was adopted, they also establish collective rights over the local genetic heritage. Here *Seedling* interviews Antonio Onorati about this movement towards collective rights and strategy ideas for protecting farmers' seeds in Europe.

Collective rights over farmers' seeds in Italy

GRAIN: Tell us how the issue of collective rights was incorporated into Italy's regional laws on genetic resources.

Social organisations, including NGOs, pushed for these regional laws. We negotiated them with the regional parliaments and with regional ministers and all of that. But once adopted, they get managed and administered by the institutional machinery. It's the civil servant who takes the law and applies it, not us. And there's a whole range of problems that have come up with collective rights, because the bureaucrats don't understand them. When it comes to rights, they think "private property".

The law of Latium talks at the same time about genetic resources as heritage and property. Can you explain this?

The law is making a distinction between material goods and immaterial information. It's clear that this sheep belongs to this fellow. And that pear tree to some other fellow. But the immaterial part, that is under collective rights. That means that the wood of the pear tree, it belongs to the owner, but the genetic information which gives the pear tree its characteristics, that belongs to the group.

You could translate the law as saying "While confirming the existence of private property rights over the registered plants and animals" – in other words, the wood of the pear tree in your backyard – "the heritage of these genetic resources belongs to the indigneous and local communities."

So when you say, "I have a pear tree that's 150 years old," that's fine, it fully belongs to you. And you can decide to cut it down. But the heritage – the information, the overall value of the genetic material – that doesn't belong to you. So before you cut it down, I can say, "Hang on, you can't cut it when you want because I need to take a cutting

first to multiply it and make a security backup." That's exactly how it works. This happened in my area. That's what we mean by the genetic heritage being a collective right.

So the physical part is private property while genetic resources - the information, as you put it, the software - that belongs to the collectivity as a collective heritage. What does this amount to?

It amounts to two things. First of all, you can go to court if someone tries to patent anything using this material, for example a GMO. Secondly, you can go to court if someone tries to get a plant breeders' right, like UPOV, on a variety. That means you block biopiracy and you block patents. Third, in fact, if you apply it well, you can establish an overall system of collective heritage rights over local farmer varieties in Italy. In this way, you create a possibility of access to genetic resources that is totally different from the privatisation way.

The fact that it's a collective heritage means that access to the information is socially negotiated. That means it's not free. It doesn't belong to humanity, it belongs to someone. And that someone is a plural, collective someone. So if other farmers, or anyone else, want to access the material, they have to negotiate with these people.

Who are these collective rights attributed to?

That is a question we're still working through. Where are these rights vested? In the mayorship? Among all the mayorships? In other public authorities? We're saying, "No. Since there are organised local communities, you have to attribute the collective rights to them." But then the civil servants say, "OK, but what form of organisation? We don't have tribes in Italy!"

In Italian law, it is best to give the mayorship some kind of responsibility regarding collective rights, because collective rights that are placed in the hands of the mayorship cannot be annulled by any mayor. Because mayors do not make law. Only the sovereign State can define and take away rights in Italy. The regional authorities can intervene, but only in a limited way since they can be blocked. And since mayorships can't make laws, they have no authority to sell or destroy what is protected by collective rights.

Italy has a range of collective rights on what is called *usi civi*, "civil use". These are laws from the the Middle Ages and the mayors can't do anything about them. It's only the regional and national administration which can define and annul these rights. Even the case law in Italy says that these collective rights are permanent, because they were established in favour of "present and future generations". Once the State recognises them, it cannot withdraw them because you can't nullify the rights of people who at the moment don't exist.

But you say the question of whom these rights belong to is not settled yet?

For the bureaucrats who have to implement this, it's not. But there is very strong battle front led by NGOs and some political organisations, to get this settled, including with the support of a broader reference law at the national level. Even the industrialists seem to be in agreement with us in wanting to clarify, within the frame of Italian law, that farmer seeds are under collective rights and not intellectual property rights (IPR). As they put it, "Traditional varieties do not constitute a market for us and if we want the genes from those seeds, we can get them from the genebanks." So it will be up to us to lead the fight if they start applying UPOV or any other kind of monopoly on these materials.

Having said that, under the law of Latium, from a formal legal viewpoint, it is clear: they belong to the collectivity. So Mr So-and-So, he has the beans and he sells his beans. But the immaterial part, "the genetic information", that belongs to the collectivity. That means, very explicitly, that he cannot sell the information. It's very clear.

Do these collective rights on the region's genetic heritage constitute a collective monopoly right? Because you say that to get access, you have to discuss with the collectivity, negotiate. So the collectivity seems to have a monopoly.

No. Monopoly is a private right, it excludes others. Collective rights, by definition, are rights which don't prevent or exclude. I'll give you an example. You want to go and collect mushrooms on collective lands. The mushrooms belong to everyone, which means that anyone can ask if they want to pick some. The collectivity cannot say, "No, you, you're not allowed because you're not from around here." The collectivity has to say what are the rules to pick mushrooms. Or take land itself. If a land area is under collective rights, then before building a hospital you have to negotiate with the collectivity that's in possession of the land and is managing the rights. The collectivity can say, "Here, no hospital. Because we want to benefit from the woods and to build a hospital you'll have to cut them down." Or

The pros and cons of commercialising farmer seeds

How is the issue of the commercialisation of farmer seeds viewed and treated in Italy?

We don't have a big problem with this issue. Even the Italian Seed Industry Association and the Seed Bureau within the Ministry of Agriculture agree that there is no need stop the commercialisation of traditional seeds as long as these transactions never involve any kind of fiscal document. I cannot sell you 50 kilos of traditional durum wheat seed and give you a receipt for it. But I can go to my neighbour's house, get 50 kilos of durum wheat seed and give him two of my lambs, or pay him under the table, or give him seeds back from what I harvest. In Italy, you can do that, people are doing it, and no one has been stopped from doing it. At the European level a lot of people are saying "Oh, the small farmers! They're banned from exchanging seeds!" In Italy, that makes no sense.

The question we really need to confront is not who does farmer-to-farmer seed exchange, but whether we want to open up the possibility of a farmer seed market. What are we talking about there? What seeds? What market? You cannot go creating a market for farmer seeds within a context of liberalisation because you're going to take on a capitalist logic which we in Italy will not accept. We say, "Let us share things properly. It's fine that there are farmer breeders and farmer seed producers and that they can make a market with that. But that market needs to be defined apart from the mainstream market. It has to keep a local dimension and it should not hide a market of any semi-industrial nature."

And you achieve this with the notion of restricted quantities for commercialising farmer seeds?

Yes. And via the notion of territoriality: setting limits in terms of territories, for example at the level of the region or the province. The idea of setting restricted quantities is established in the national seed law of 2001, following the EU Directive 98/95/EC. You'll also find it in some of the regional laws. It's not a ceiling per crop per region, but a ceiling that limits each exchange. We cannot allow a person to sell 200 tonnes of seed, because that's an industry. We don't want traditional seeds to become the next business opportunity for the seed industry, like organic farming has become. The risk is there. We have to avoid monopolies at all cost. But we won't succeed if we just liberalise the market. But we will succeed if we set rules and negotiate in order to control the supply.

Are there any downsides to this approach?

One problem cropping up in Italy right now is that almost anything risks being called a "traditional" variety or a "farmer" seed or a "local" breed. And there can be negative ramifications of awarding these labels to products. For example, local sheep are valuable, especially for producing cheese. In my region, you'll find mini-herds of an old breed called *Sopravvissana* here and there. Forty-five years ago, there were 250,000 of these sheep and now there are only 2,000. This breed makes a particular milk with a fat content of 9%. With 2,000 heads, what are you going to do? You need at least 45-50,000 to undertake any serious cheese production within a regional economy. Otherwise, you're just running a zoo. And there we have a problem. The four men who own the 2,000 sheep say, "You pay us 350 Euros a head". Seven times the normal price! This is crazy. With the movement to take serious our genetic resources in the regions, we've created an added value for traditional breeds, we've created a market for their produce, and now we've created a monster. So we need some kind of public intervention to multiply the reproductive material. We can't leave this entirely in the hands of the farmer-to-farmer approach. I'm one of the people who wants to buy some of these sheep. I have 15 already, but the price is just out of this world. People are interested, even the corporations are interested, there's a geographic denomination supposedly available that could be used to market the products of this animal, and yet we're not getting anywhere. The 2,000 are not going to become 20,000 unless we spread them out to 20 herders who will multiply them and restabilise the breed.

But the herders need some kind of public support. "I can't make a gift of these sheep" they say. Which is true. The most productive sheep in Italy now - the *Sarda* - can give up to one litre of milk per day, while the *Sopravvissana* produces only one-fifth of a litre. The herders have made a conscious decision to keep the traditional sheep and they have a right to some kind of non-monetary compensation.

Sopravvissana sheep - in demand, but out of reach for farmers

a football field, that's the most common example. The collectivity will say, "Sure, make the football field. But we give you the land, you pay for it, you make money with it, and with the money you make you build a public garden for the children, near the nursery school." These are real examples.

With collective rights, there are administrators who take care of all this. They have to enforce these rights. Normally, it's the mayor's office. But sometimes the mayor is the first one to attack these rights. Say the mayor wants to build a football field for his buddies who voted him in. The first thing he does when he takes office is, instead of trying to get land from some private individual who might have voted for him, he looks at the collective lands and declares he's going to build a football field there. And people react and organise themselves again. There's a special court for all of these proceedings.

So under this collective rights regime for genetic resources, you can't prohibit access but you negotiate it, you make it conditional on something.

You can go so far as prohibiting, but it's not automatic. With collective rights, you must negotiate. Maybe yes, maybe no, but there has to be a negotiation. So there's no free or automatic access like you have under this "heritage of mankind" thing, where people can just come and take. Nor is there an automatic right to exclude, as you'd have with a monopoly right.

But can people exclude in the end?

It is possible. For instance, if you want access to make a genetically modified organism (GMO), the answer is no, full stop. This is foreseen in certain laws, such as the Ministry of Agriculture's Ministerial Decree of 5 March 2001.

What do you appeal to in order to do that? A collective interest against GMOs?

You appeal either to a collective interest or to an institution. So to really prevent access to collective lands, you have to prove that it's in the interest of the collectivity to prevent access. It's not gratuitous. You can't say, "No, because I say so." You have to arrive at something like, "No, because we want to keep and enjoy the woods."

And what if there is a conflict?

There is a special judge called the commissioner for collective rights to lands.

Is there an appeals procedure?

You can appeal at a higher level if there is a national framework law in place. But the commissioner has the same status as a final judge, so it's something that can take 20 years to resolve.

So it doesn't stop at the region? It can go all the way to the State?

You can appeal to the State Council under the law on civil use, but this matter is also handled by the commissioner. But right now Prime Minister Berlusconi is changing the national law on civil use because he wants to privatise, so he's presently removing powers from the commissioners. This is an example of the State intervening, as I was talking about earlier.

All of this sounds highly particular to Italy - your legal customs, traditions, organisation, etc.

No. The collective rights that we have in Italy also exist in Spain. There are some remnants in France, in Switzerland, in Belgium and even on the waters in the Netherlands. So that's not true. It's just that people have never worked seriously enough on this for ideological reasons. As it reeks of communism, people don't want to go near it. It's really a form of self-censureship to say that it's difficult or that it won't pass and then take all sorts of shortcuts like "common heritage" or "free access", just letting it go and not organising anything. That's how you fall in line with the government position of Germany and UK. In the Seeds Committee of the European Union, they say, "This farmer-to-farmer stuff, farmer seeds, it's just tinkering and we don't need rules for this." This is very dangerous.

We have to be extremely careful about all proposals at the European level that end up taking us into the mainstream, like "genetic resources, heritage of humanity". Calling for the free circulation of seeds among small farmers in the EU, that's also dangerous if there is no negotiated framework. That hides the potential to build a farmer seed industry. Establish rules? Yes. But we must develop rules that do not take us into conformist solutions, including the slightest form of IPR. If we create registers, it's not any kind of register. We have to be precise. In building the European movement, I think everyone has to work, look in their own countries, see how it functions there, try to develop an appropriate legal base for local genetic resources. If we do this across Europe, it would be a huge step forward. Because we'd get rid of this stupid notion of "heritage of humanity". We'll get a lot further with the logic of collective rights, and the

underlying distinction between the material and the immaterial. And then we would find a lot of allies among indigenous peoples and among other countries where collective rights still exist.

But in practice, what happens when someone - be it a civil servant or a member of the collectivity - wants to sell, wants to destabilise the system?

It's written into the laws that in all cases there can be no patenting. You have to put up barriers. And you have to do it in the legislation, in a legal framework. That is why I am saying that the farmer-to-farmer approach has its limits. Because you have to intervene with a piece of legislation. You have to lay down that in all cases farmers' seeds cannot be privatised, that in all cases they must remain outside of any IPR system, that in all cases population dynamics must be maintained. This is much clearer for us now in Italy compared to when we first started with these laws - that this is a battle front. Even a system of collective rights has to confront these issues. A local community cannot do with collectively-held lands something that is against some other law at the national level.

But in so far as the public administration manages all of this, someone can come along and delete the law.

Of course. That's why we have to engage in institutional guerrilla work. The legal front of the battle should never be the exclusive front. Never. We have to be in the streets. We have to implement and develop our alternatives on the ground. But it's really fundamental that the institutional guerilla work is part of the battles we lead, too. Otherwise, we're lost. We have to build fortresses with which we can defend ourselves when we get hit too hard. That's why I call this a guerrilla approach, this legal work. You occupy a legal territory, one on which you have some advantage and can take them by surprise. We have a capacity to do this that the administration doesn't have. That is precisely why in France the reaction from the government and the industry is so ferocious. They're in a state of hysteria about farmers' seeds in France. They send out controllers in charge of repressing fraud, they send out fiscal agents, they hide papers, they withhold information, it's just amazing. You don't see that in Italy.

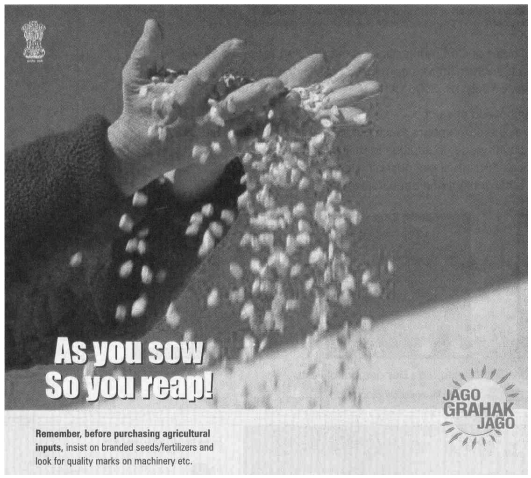
We have to consolidate all these fronts and broaden our practices. In my view, the fundamental approach has to be population dynamics and widening our practices. That means bringing traditional varieties more and more into farming systems. That's why I get fed up with organic farmers who use organic seeds that are not traditional varieties. When they use organic industrial seeds to get their organic certification, I find that ridiculous. To be certified organic, I would say that you have to first use appropriate genetic material, preferably produced on the farm and preferably a traditional variety or a population. If you can't do that, but only if you can't do that, then I would think that organic industrial seeds are okay. But they are in the process of the doing quite the opposite, because they want to build an organic seed industry. As if Novartis is not going to come along and buy them out. As soon as they establish a niche market for biodynamic or organic seeds of any size, the industrialists will come and eat them up.

Would you say then that these regional systems of collective rights over genetic heritage in Italy constitute IPR-free zones? Just like so many of Italy's regions have established GM-free zones?

Yes. That's the institutional guerrilla front tactics. You occupy a space, you create this IPR-free zone, you try to maintain it, to manage it, and you give yourself tools to defend yourself. It's quite like the GM-free zones. Of course, they can come and contaminate you. But if you do nothing, they will come and contaminate you even worse. And the regions, they evolve. Look, right now there are 11 regions out of the 18 in Italy that have some type of GM-free laws. Now that we have coexistence coming in, we'll see how they defend themselves. It's going to be a hell of a fight.

Antonio Onorati is the President of Crocevia, an Italian development NGO that has long been supporting initiatives related to community control over plant and animal genetic resources in developing countries. Crocevia has been very much involved in the movement for collective rights in Italy. Apart from his day job, Antonio lives and works on his family's farm outside of Rome. He is also a founding member of the Board of GRAIN. The full interview can be accessed on the web at www.grain.org/seedling/?id=336

A new Indian Seeds Bill has been circulated by the government to overhaul the seed regulatory system. The stated objective of the proposed law is to regulate the seed market and ensure seeds of "quality". With the proposed changes the seed law would be harmonised with other seed laws around the world and ensure the Indian seed market is open to big business. The losers will be the millions of Indian small-scale farmers, while the winners will once again be transnational corporations. There is enormous pressure on the Indian government to embrace this new law, and voices of protest are crucial.



Recent government advertisement in Indian newspapers telling consumers ("Grahak") to wake up ("Jago") to the importance of branded seeds

India's new seed bill

GRAIN, with DEVINDER SHARMA*

In 1998, a Seed Policy Review Group[1] in India recommended a long-awaited shake-up and reform of the Indian seed laws; a new seed law would need to be passed that would replace the current 1966 Seeds Act (see box on p 26). In 2004, a new Seed Bill[2] was announced. Why the need for change? Proponents of the new Seeds Bill list a number of supposed deficiencies in the 1996 Seeds Act, including:

- Making the registration of varieties obligatory (previously voluntary)
- Creating a National Register of Seeds
- Regulating (make easier) the importing and exporting of seeds
- Accommodating new regulations on GM crops
- Improving market conditions for private seed companies

Ringing in the changes

The proposed new seed law introduces the concept of mandatory registration of all seeds for sale.[3] In other words, all marketed seed and planting material, whether domestic or foreign, will have to be registered. This is a significant change from the existing law, which sought to regulate the quality of only a limited number of varieties notified under the law. Now, however, any seed for sowing or planting cannot be sold unless it is registered.

All registered varieties will be recorded in a National Register of Seeds database. Registration will be granted for new varieties for a period of 15 years in the case of annual and biennial crops and 18 years for long duration perennials. As with registered varieties in other parts of the world, varieties need to be field-tested to determine their VCU (Value for Cultivation and Use). In addition, seeds

* Devinder Sharma is a New Delhi-based food and trade policy analyst

[1] The Seed Policy Review Group was an initiative of the Ministry of Agriculture. The Seed Association of India (SAI) is one of the major seed industry associations, and represents medium to large foreign and domestic firms. SAI actively engaged in debates with the Ministry on the new seed law.

[2] www.agricoop.nic.in/seeds/seeds_bill.htm

[3] Section 13(1) of the Seeds Bill, 2004.

[4] National Biotechnology Development Strategy http://dbtindia.nic.in/biotechstrategy.htm

[5] Terminator Seeds - Plants genetically engineered to produce sterile seeds, forcing farmers to buy new seeds each year from a company.

need to be correctly labelled on their containers, including genetically modified seeds. Furthermore, seed producers, seed processing units, seed dealers and horticulture nurseries all have to be registered with the State government where they operate.

The regulatory system governing GM crops is in the process of being revamped with the National Biotechnology Development Strategy.[4] It is clear from the draft strategy that the government will be supporting the further introduction of GM crops. The new Seeds Bill does not prohibit the registration of GM seeds, though they are subject to environmental clearance under the Environment Protection law. However, in a gesture to keep critics quiet, the Seeds Bill does ban the use of Terminator[5] seeds.

Pressure for seed-potato imports

For several years now, the private seed industry with the support of the World Bank, have been exerting tremendous pressure on the Indian government to allow the bulk import of potato varieties, from the EU and US, for seed production. To this day such imports have been banned to protect India's own potato market from pests and diseases. Although the government was on the brink of caving in to the seed industry's demands to allow the imports of potato seed, the timely intervention from the Director General of the Indian Council of Agricultural Research (ICAR) has so far prevented such imports. The Director General had opposed such imports based on a committee report that concluded that potato imports would substantially increase pest and disease amongst local varieties of potatoes.

Source: D Sharma (2000): Diversity No. 3

Under the new Seed Bill all imported seeds will also need to be registered[6], though the government may allow the import of an unregistered seed for research purposes[7]. Apart from the registration of imported seeds, the new Bill does not make any other provisions, such as for phytosanitary standards, which still rely on other existing legislation (see box over page). However, the main basis for the registration of imported seeds is to support larger companies importing seed[8], which has been increasing substantially recently (see box on this page). For example in 2001 to 2002, imports were around 860 tonnes, but within one year, this had increased to 1,766 tonnes, with a value of US$ 18 million, 20% of which comes from the US. Exports of seed are even more valuable at around US$ 21 million for the same year (2002-2003)[9].

Does the Seed Bill benefit the farmer?

The official government line, when arguing in favour of this bill, is that "*if we don't know who is selling the seeds, we cannot control their quality*". This, of course, is the same argument used by the seed industry around the world. So this new law is being presented as a "consumer protection" act for farmers. In the light of several reports of farmers' suicides and crop failure this has found favour with many unsuspecting civil society groups. So will this law be good news for farmers? What protection do farmers get if their legally-bought registered-varieties fail? Interestingly, farmers at this point can only turn to the Consumer Protection Act of 1986, an option which is available today without any new legislation. Meanwhile, the Indian Seed Industry is lobbying for the removal of seeds from the Consumer Protection Act[10].

A cotton farmer from the state of Andhra Pradesh is currently fighting a case to get compensation for very poor yields in the District Consumer Court, an option which is by its very nature a tedious one without any guarantee of success. His struggle has inspired activists to put together a legal manual for farmers seeking compensation for failed yields[12]. Often, even if a government recognises that farmers' need to be compensated, the company might not be ready to pay up. In the State of Andhra Pradesh when farmers suffered losses from cultivating Monsanto's Bt cotton, Monsanto was only willing to pay for failure to germinate and for absence of the genetic purity promised by the company, and not for yield losses[13]. The Plant Variety Protection (PVP)[14] law of India does make provision for farmers to claim, via a PVP Authority, compensation from the breeder of a variety if it does not perform as expected[15], though such a body has not yet been set up. Such a body, when formed, would only rule on varieties which are PVP registered and such decisions would be on a discretionary basis.

The bill is essentially about seed registration and certification, but in mandating that only registered seed will be sold, it is not only about what it regulates but about what it does not. By mandating what the market will offer, it determines what it excludes. So what is in the Bill for the small farmer? Once again the proponents of the Seed Bill come rushing with their answer: "*Exemption for farmers to save, use, exchange, share or sell their seed without registration*". Indeed the law does state that:[16] "[nothing] *shall restrict the right of the farmer to save, use, exchange, share or sell his farm seeds and planting material*".

But it continues with: *"except that he shall not sell such seed or planting material under a brand name or which does not conform to the minimum*

[6] Section 36(1)(c) of Seeds Bill, 2004.

[7] Section 36(2) of above.

[8] The public notice issued by the Parliamentary Committee inviting suggestions on the Seeds Bill states that "(t)he proposed legislation aims to liberalise import of seeds and planting materials compatible with the World Trade Organisation (WTO) commitments". http://pib.nic.in/release/release.asp?relid=8963.

[9] www.statpub.com/open/65830.html; www.fas.usda.gov/gainfiles/200410/146117690.pdf; see also www.fas.usda.gov/gainfiles/200312/146085513.pdf

[10] Seed industry seeks infrastructure status, www.thehindubusinessline.com/2005/03/16/stories/2005031600941000.htm

[11] Of the Farmers' Commission of Experts on Agriculture in Andhra Pradesh, see *Done in by cash crops*, www.frontlineonnet.com/fl1926/stories/20030103004611200.htm

[12] How to sue a corporation, Greenpeace India's legal manual for farmers - www.greenpeace.org/india/press/reports/how-to-sue-a-corporation

[13] *A lesson from the field* http://flonnet.com/fl2011/stories/20030606005912300.htm

[14] In this issue of *Seedling*, we have used both PVP and PBR (Plant Breeder's Rights) to mean the same thing.

[15] Section 39 (2) of the PVP Act, 2001.

[16] Section 43(1) of the Seeds Bill, 2004.

Registering and certifying a seed

A distinction needs to be made between registering a seed and certifying a seed under the Seed Bill in India:

Registering a seed: This is compulsory for all seed sold. The criteria for registering a seed are the Value for Cultivation and Use (VCU). This would involve growing the variety over a number of seasons (three seasons in the Seed Bill) and testing for their ability to be of commercial use.

Certifying a seed: This is an optional extra to the registering of a seed and the criteria are established in the "Indian Minimum Seed Certification Standards" from 1988. There are six phases of seed certification:

1. Receipt and scrutiny of application.
2. Verification of seed source, class and other requirements of the seed used for raising the seed crop.
3. Field inspections to verify conformity to prescribed field standards.
4. Post-harvest supervision, including processing and packing.
5. Seed sampling and analysis, including genetic purity test and/or seed health test, if any, to verity conformity to the prescribed standards.
6. Grant of certificate and certification tags, tagging and sealing.

limit of germination, physical purity, genetic purity prescribed..." There is the catch - farmers cannot sell their seeds if they do not meet the standards of registration. Nor can farmers use a brand name[17] and enter the seed trade.[18] For the seed industry this is music to their ears; with this small piece of legislation all competition from non-registered seeds is done away with. Although farmer-to-farmer seed exchange can continue despite the proposed law, the ambiguity in the exception clause, coupled with wide powers given to Seed Inspectors, makes farmers anxious about how their small local sales, for instance in the village fairs, would be regulated. Even though today farmers produce around 80% of India's seed, selling their own seed is now being restricted. In reality, only formal breeders and big businesses can get their seeds registered.

So why don't farmers simply get their seeds registered? In this way, they could legally sell their home-grown varieties of seeds. However, under the proposed system it makes it impossible for farmers to register varieties. The process takes a long time, is extremely expensive for a farmer, and anyway farmers' seeds would probably fail to pass the required standards. A farmers' breeding criteria are very broad, incorporating ecological and social factors, rather than only yield; what is exchanged between farmers is determined by local needs and therefore farmers' varieties are best regulated by farmers themselves. As a result, there are some in India advocating for a community certification process by, and for, small-scale farmers.[19] So farmers can sell harvested seed which is a registered variety. But the problem here is that if the registered seed is also PVP-protected then the farmer is again prohibited by the PVP legislation from selling branded seed in the market[20].

As for farmers' varieties, the crops that they have been growing, exchanging and selling for many generations, evidence from around the world shows that these will die out. By following the letter of the law, there will be little incentive to grow and use farmer varieties and farmers will have no choice but to buy and use registered seed from a private company. On the other hand, stopping the sale of farmers' seeds will be very difficult to enforce. Indeed, the very survival of farmers' varieties may be very dependent on farmers simply ignoring this aspect of the law and continuing to sell and buy their own farmer varieties.

The Bill has come under severe criticism countrywide from all sectors of society, including farmers' groups and numerous non-governmental organisations. The demands range from a complete withdrawal of the proposed Seed Bill 2004[21] to the recognition of farmers' absolute rights to indigenous seeds.[22] Widespread campaigns and mass actions continue to be planned at the village and district levels.[23] Farmers are directing their ire at what they regard as restrictions on their time-honoured freedom to grow and sow as they please. They also see the Bill as an erosion of their rights to sell seeds and are dissatisfied with the lack of provision for corporate liability, be it for Indian or foreign seed companies. Other problems cited with the Bill include:

1. **Consolidation of the private sector:** Many fear that the Bill will hand over the seed business to seed transnational corporations.[24]
2. **Introduction of GMOs:** There is growing concern that the Bill will ease entry of GM crops with the possible contamination of traditional varieties with GM agriculture.
3. **Prices:** Many believe that seed prices will go up. Private companies would pass on the costs of registration to farmers.
4. **Centralising power:** Many are concerned that the Seed Bill will move decision-making away from the state level. Under the Indian constitution, agriculture is under the jurisdiction of the state, with the exception of cotton and oil seeds,[25] and tradable commodities[26]. The central government treats seeds as a "tradable commodity" to constitutionally justify its lawmaking on the subject.

[17] A brand name is a name or symbol or design used to identify a manufacturer's or seller's goods, e.g. Monsanto's Bt cotton is marketed under the brand name 'Bollgard'.

[18] The Seeds Bill differentiates farmers from those engaged in commercial seed activities. In Section 2(9) "Farmer" means any person who cultivates crops but does not include any individual, company, trader or dealer who engages in the procurement of seeds on a commercial basis.

[19] www.ddsindia.com/anotherorganics.htm; www.masipag.org/news_india.htm

[20] Section 39(1) Proviso of the PVP law

[21] For example, see Navdanya's "Alternative Agriculture Policy": www.navdanya.org/news/110305-1.php

[22] www.organicconsumers.org/ge/indiawomen32505.cfm

[23] http://economictimes.indiatimes.com/articleshow/1056293.cms

[24] www.thehindubusinessline.com/2005/03/30/stories/2005033000240900.htm

[25] On the Concurrent List of the Constitution of India on which both State & Centre can make laws.

[26] On the Union List on which only the Centre has the power to make laws.

A Seed Bill for the private sector

The main beneficiaries of this new law are clearly the private seed sector. With the opening up of the seed market only to those who are able to certify and register seeds, coupled with the suppression of the sale of farmer's varieties, it is in particular the transnational corporations that will benefit. Such corporations make up an estimated 30% share of the market (see table below).

Big Indian companies will also benefit through sales of exported seed. With an extensive and rich agricultural genetic resource base, coupled with the associated knowledge and cheap labour provides a fertile ground for seed production. Asia is becoming the largest seed market in the world and is the biggest agricultural trading partner for the US[27]. The US Department of Commerce has identified India as one of the world's top ten "*Big Emerging Markets*". With China the largest seed producer, India is in second place. The US government is taking special interest in the economic and legislative "reforms" in this part of the world[28], as in India it is keen to encourage conformity to US standards[29] and to simplify seed trade[30].

Seed legislation was originally meant to be about government being able to ensure good quality seed and safeguard farmers from bad seed distributed

Transnational seed companies in India

1	Monsanto
2	Bayer Crop Science
3	Syngenta
4	Advanta India Ltd (formerly ITC Zeneca Ltd)
5	Hicks-Muse-Tate Inc.
6	Emergent Genetics
7	Dow Agro
8	Novartis
9	Bioseed Genetics International Inc.
10	Tokita Seed Co.

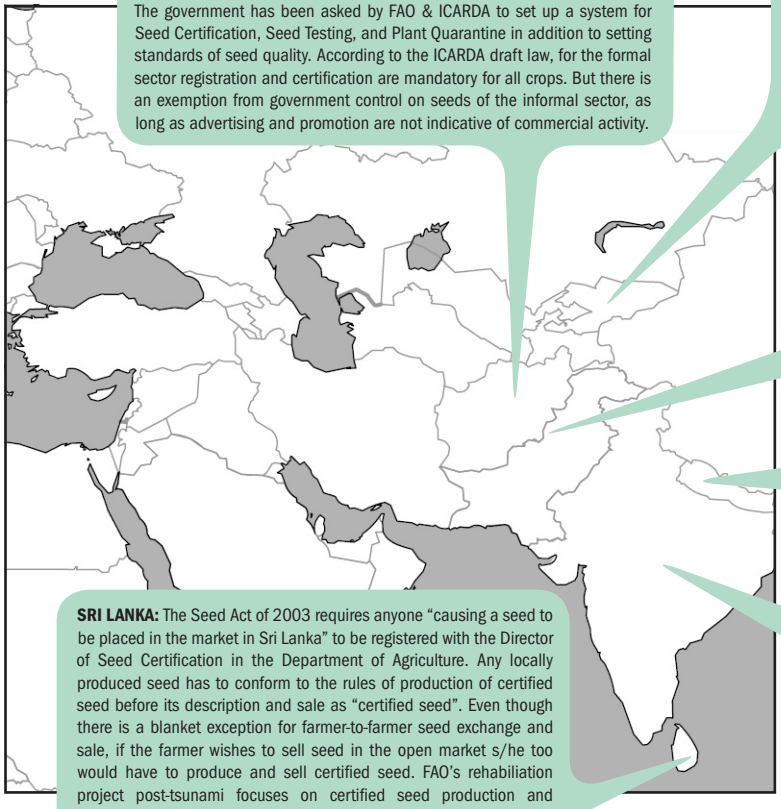
[27] www.fb.org/views/com/boost_exports.html

[28] China's Food Import Standards Often Unclear, U.S. Officials Say, *Washington File*, http://cayupply.notlong.com

[29] E.g. pushing for amendments to India's patent law to allow patenting of GM seed.

[30] www.financialexpress.com/fe_full_story.php?content_id=59335

Seed regulation and certification in some South Asian countries



AFGHANISTAN: The National Law on "Seed and Plant Quality" is being finalised by the Afghan Ministry of Agriculture, Animal Husbandry and Food. The government has been asked by FAO & ICARDA to set up a system for Seed Certification, Seed Testing, and Plant Quarantine in addition to setting standards of seed quality. According to the ICARDA draft law, for the formal sector registration and certification are mandatory for all crops. But there is an exemption from government control on seeds of the informal sector, as long as advertising and promotion are not indicative of commercial activity.

KYRGYZTAN: As in other CIS countries, new seed laws are in the process of being drafted often with foreign aid and assistance. For example the Regulation on certification of cereals seeds in Kyrgyz Republic, 2002; the USDA with funding through USAID programmes encouraged adoption of seed certification standards and the FAO also implemented a Technical Cooperation Programme project on Seed Legislation and Plant Variety Protection.

PAKISTAN: As per the Seeds Act, 1976 notified varieties of crops have to be registered and their sale, exchange & barter is subject to regulation. For all other varieties certification is optional. The registration of varieties with DUS testing is done by the Federal Seed Certification and Registration Department. Over 350 crop varieties have been registered and released as of now. The seed law is currently under revision.

NEPAL: The Seeds Act of 1988 notified in 1989 & Seed Rules, 1996 prescribes limits of germination, purity, etc. for "listed" seeds and deal with the registration and release of 153 varieties of crops, vegetables, pulses and oil plants. The government can require minimum procedures for the barter, sale and exchange of seeds of specific varieties and species, just like Pakistan. Otherwise, people are free to do what they want. Amendments to the seed law are under discussion.

SRI LANKA: The Seed Act of 2003 requires anyone "causing a seed to be placed in the market in Sri Lanka" to be registered with the Director of Seed Certification in the Department of Agriculture. Any locally produced seed has to conform to the rules of production of certified seed before its description and sale as "certified seed". Even though there is a blanket exception for farmer-to-farmer seed exchange and sale, if the farmer wishes to sell seed in the open market s/he too would have to produce and sell certified seed. FAO's rehabiliation project post-tsunami focuses on certified seed production and upgradation of seed testing and certification procedures.

INDIA : The Seed Act of 1966, which only regulated notified varieties, is proposed to be replaced by the Seed Bill, 2004; according to the Bill all seed for sale must be registered on VCU criteria. Certification is optional. Transgenic varieties may too be registered subject to environmental clearance but there is a terminator ban. Express mention is made for the farmer's option to invoke consumer protection laws for liability on non-performance of seeds.

A history of Indian seed regulation

The formal seed sector in India throughout the 1960s was dominated by the public sector. In 1961 the National Seeds Corporation (NSC)[31] was established under the Ministry of Agriculture. The NSC was at the centre of seed production of breeders, foundation and certified seeds and their quality control. In 1967 the Indian government put together a *National Seeds Project* (NSP) with the assistance of the World Bank.

The NSP set up huge seed processing plants in 17 states that were supposed to provide 'certified' seeds of food crops, mainly self-pollinating crops, to farmers[32]. These processing plants operated mostly below capacity, and for all practical purposes, turned into white elephants. It was primarily for the lack of demand for the certified seeds that a majority of the seed processing plants were in debt and often burdened with carryover stocks. These seed plants were a classic example of a faulty technology being pushed onto India.[33]

Instead of dismantling the National Seeds Project, the government continued to push certified seeds on to the market. And since there were few takers, the blame was shifted to the inefficient public sector. This also justified the need to bring in the private seed industry. It is however another matter that the so called 'efficient' private seed industry is in the business primarily because of hybrid seeds which need to be purchased every year.

Meanwhile the World Bank continued to fund other seed projects intended to increase the production of Green Revolution varieties,[34] to coordinate the efforts of the State Farms Corporation of India (SFCI) and emerging private companies and in addition to create and modify the infrastructure for seed testing, research and certification. At this time there were relatively few private companies involved with seeds (mainly small enterprises confined to the production of some vegetable and ornamental flower seeds) and government policies focussed on the public sector with limited private-sector participation.

The *New Policy on Seed Development* of 1988 heralded a new era of private enterprise in the seed sector in India. This coincided with the fourth loan the World Bank gave to India's seed sector to make it more 'market responsive'. The US$ 150 million loan aimed to privatise the seed industry and open India to multinational seed corporations.[35] The most significant impact of the new seed policy was an increase in collaboration agreements between domestic and foreign companies, aiming at the import of technology and parental material. Under the 1988 policy, vegetable seeds could be imported freely while seeds of oilseeds, pulses and coarse grains like maize, sorghum and millet could be imported for two years by companies which had technical and financial collaboration agreements for production of seed with companies abroad. Import was allowed subject to the provision that the foreign supplier agreed to supply parent line seeds or breeder seeds to the Indian company within two years of the date of first commercial consignment.

Scientists opposed this policy on the grounds of relatively poor infrastructure available for testing imported seeds. They argued that the country might end up importing plant diseases along with the seeds. Still worse was the fear that the bulk of the seeds used in India would eventually be imported, as was the case with Mexico. This was denied by the government, which insisted that the seeds could only be imported for two years (except for vegetables and fruits). Although the industry first welcomed the seed policy, it later began to object to the two-year limit, saying that this was too short a period for effective production.

But what the designers of the seed policy overlooked at that stage of formulation was that it would, after sometime, raise the demand for more protection for imported varieties. This is exactly what happened. After some time, the seed industry began pressurising the government to provide adequate intellectual property rights protection, either in the form of plant variety protection or patents. The government thus began re-examining its policy on plant variety protection.[36]

In the late 1980s government control on production of hybrids through licenses began to be relaxed. In the late 1990s the total seed market was estimated to be at $500 million (The sector was still very low-tech, with 70% of sales coming from farmer bred seeds, 26% from public bred, and only 4% from hybrids) with expected sales of $1.5 billion by 2001. At that time, out of an estimated 400-odd seed companies in the country, only 18 belonged to the public sector and 10 to the cooperative sector. The remaining units were established in the private sector, of which, about 25 to 30 are in the large private sector, while over 300 are medium and small size units[37]. The Planning Commission of India for the current plan[38] envisages an increase in seed replacement ratio for crops with an increased role of the private sector in the production of certified seeds.

[31] www.indiaseeds.com

[32] Punjab, Haryana, Maharashtra, Andhra Pradesh, Karnataka, Rajasthan, Uttar Pradesh, Bihar and Orissa. Madhya Pradesh, Gujarat, West Bengal, Assam, Meghalaya and Arunachal Pradesh.

[33] D Sharma (1997): *In the Famine Trap,* UK Food Group and the Ecological Foundation, London/New Delhi, pp123-124.

[34] In 1969, the Tarai Seed development Corporation was started by a US $ 13 million World Bank loan. This was followed with two NSPs, for which the WB gave US $ 41 million between 1974-78. www.whirledbank.org/environment/agriculture.html

[35] World Resources Institute (1994): *'Second' India Revisited* .

[36] D Sharma (1994): *GATT and India: The Politics of Agriculture,* Konark Publishers, New Delhi, pp 60-62.

[37] www.indiainbusiness.nic.in/knowledgesociety/biotech.htm

[38] 10th Five Year Plan (2002-2007) http://planningcommission.nic.in/plans/planrel/fiveyr/welcome.html

by industry. The trend however seems to show, among other things, how industry standards are being adopted by the seed laws, which themselves are becoming a means to facilitate the entry of transnational corporations into the seed sector rather than "protecting" the informal seed supply system. While the private sector supports minimal government intervention in their business, they also lobby hard to receive the necessary government protection to maximise and protect their profits: protection of their intellectual property rights over a variety or gene (PVP or patents) and, now with the Seed Bill, protection of their market to trade in seeds on their own terms.

As companies trade across the globe, they seek to harmonise seed laws across the board. This is what the Indian Seed Bill is - yet one more country harmonising its law with the EU and the US.

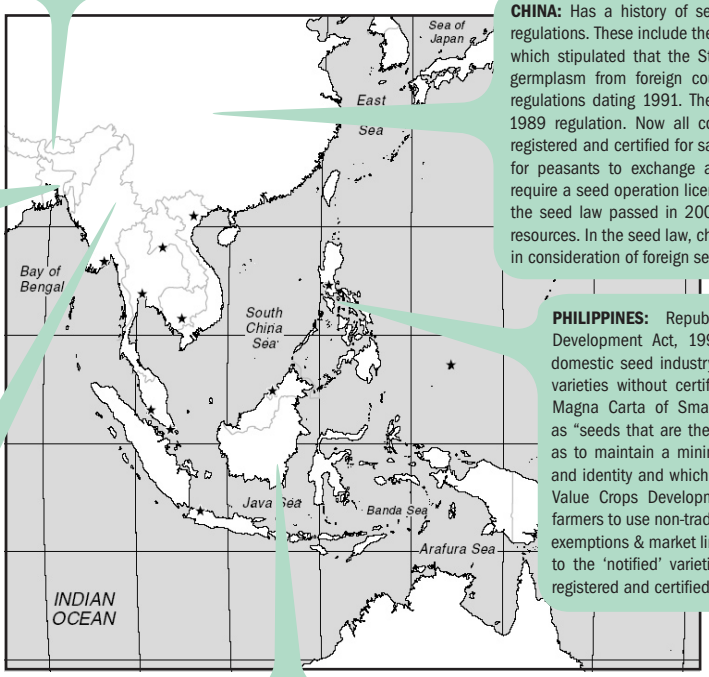
Turning a Bill into an Act

India is seen as one the biggest markets in the world and as a result there is huge pressure on the government to adopt the Seed Bill and turn it into an Act. The Seed Bill is just one of the legislative changes in India to open up its markets and harmonise its laws with rich countries. These include amendments to the country's patent law and the model Agricultural Produce Marketing law. With the ongoing Parliament Session having concluded, the passage of the Bill has now been postponed to the next session (in July 2005). Meanwhile, the report of the Parliamentary Committee reviewing the Bill is awaited. Whenever the Bill is re-tabled, its rejection is unlikely without many voices of protest – the question is whether enough noise can be made about the Seed Bill, and whether these protests will go unheard.

Seed regulation and certification in some Southeast Asian countries

BHUTAN: Under the Seeds Act of Bhutan, 2000, the Royal Government of Bhutan regulates the seeds of notified kinds and varieties and certification is optional. The system is voluntary and there are no DUS criteria.

BANGLADESH: First seed law was passed in 1977. Like India's existing law, Nepal, Pakistan, Sri Lanka and Thailand, only varieties notified by government are subject to regulation. Five notified crops (rice, wheat, sugarcane, potato and jute) are mainly handled by public institutions. Greater participation of the private sector is planned. Under the SAP & ESAP agricultural input markets were substantially liberalised. By the 1997 amendment act and the 1998 Seed Rules the private sector can import and market any non-notified seeds, while seeds of notified crops may be brought in for trials, tested for suitability and then multiplied and sold. More amendments to the seed law are being discussed in the Ministry of Agriculture.



CHINA: Has a history of several national & provincial level seed regulations. These include the regulation of seed management, 1989 which stipulated that the State protect germplasm resources and germplasm from foreign countries be registered, and quarantine regulations dating 1991. The Seed Law of 2000 has annulled the 1989 regulation. Now all commercial seed production has to be registered and certified for sale. Though there is a blanket exception for peasants to exchange and sell their seeds and they do not require a seed operation license to do so.It is important to note that the seed law passed in 2000 asserts State sovereignty over seed resources. In the seed law, changes were issued on August 28, 2004 in consideration of foreign seed companies in China & ASTA.

PHILIPPINES: Republic Act No. 7308 Seed Industry Development Act, 1992 was enacted to help develop the domestic seed industry. Farmers can exchange and sell their varieties without certification. As per Republic Act No.7607 Magna Carta of Small Farmers, "good seeds" are defined as "seeds that are the progeny of certified seeds so handled as to maintain a minimum acceptable level of genetic purity and identity and which is selected at the farm level". The High-Value Crops Development Act of 1995 gives incentives to farmers to use non-traditional crops such as low-cost credit, tax exemptions & market linkages. Recommended varieties (similar to the 'notified' varieties of South Asian countries) must be registered and certified.

THAILAND: The Plant Act, 1992 envisages the regulation of notified kinds and varieties through a licensing system for "controlled seeds", apart from the varieties and species that are controlled the rest are free from government control. Transgenic seeds are dealt with under the Plant Quarantine Law of 1964 amended in 1999, under which the Ministry of Agriculture has prohibited the import of GM seeds for use, import of transgenic material after due approval is only allowed for research & experimental purposes.

INDONESIA: The Government Regulation on Plant Seed Management was passed in 1995. It importantly says that farmers' varieties do not fall under the regulation (they are considered 'natural varieties' and as such not controlled by the government). The commercial use of GM seeds is regulated by Government Regulation No.44 of 1995 on Seeds for Crops dealing with import/export, breeding & release of new varieties, while Decree No.737 of 1998 deals with the testing, evaluation & release of new plant varieties. Biosafety aspects and requirements for the use of transgenics for food & fodder are dealt with under Decrees number 856 of 1997 & 998 of 1998.

Like much of the rest of the world, Africa's seed laws are being changed to suit the agenda of the private sector. Nevertheless, because of Africa's context and history, peasant farmers will continue to supply much of the continent's seeds for some time yet. Increasingly, Africa's seeds systems will be split into two disjointed realities: a privatised, uniform and totally accommodated formal sector and a chaotic, diversified and barely tolerated peasant sector.

Africa's seed laws: red carpet for the corporations

GRAIN

Africa did not miss the Green Revolution as some insist. It came to the continent in the 1960s and 1970s with the same seed specialists and foreign agencies that laid out the master plans for Asia and Latin America. As elsewhere, their basic prescription was to replace 'low-yielding' traditional varieties with 'high-yielding' varieties developed by international agricultural research centres and their national counterparts. With strong backing from the likes of the FAO and the World Bank, national seed systems were set up in many African countries on the foundations of the agricultural research systems of the colonial period to get the 'improved' seeds out to farmers, complete with breeding and multiplication programmes, state seed companies, seed regulations and, of course, generous subsidies and loans.

This was only the initial part of the plan. Once farmers began to adopt the seeds, creating a potential seed market, the next step would be to dismantle the public programmes and make way for the private sector. By the 1980s and 1990s, the state seed companies were to be privatised, the public breeding programmes dismantled and new laws and regulations brought in that would attract private investment in the seed industry. In concrete terms, these new laws would remove trade barriers and, most importantly, encourage or force farmers to buy certified seed every year.[1]

All has not gone according to plan. With donor funding, a number of African countries established the technical capacity and regulatory frameworks for formal seed programmes, but the seeds that these programmes produced have been largely rejected by farmers because they don't correspond to their needs. The FAO estimates that the formal seed sector, public and private combined, accounts for only 5-10% of the seed used in Sub-Saharan Africa, with a similar situation in North Africa.[2] Pretty much all of the food produced for domestic consumption in Africa comes from farmer varieties and farm-saved seed. It doesn't take a 'seed

[1] Niels Louwaars (2003), "Seed Policy: A Widening Area", *WANA Seed Info*, January.

[2] www.fao.org/ag/AGP/AGPS/abidjan/Paper5.htm#Production and www.fao.org/ag/AGP/AGPS/Cyprus/Paper1.htm#Seed

specialist' to understand the critical importance of farmer seed systems for Africa and the wisdom of crafting seed policies that support and strengthen such systems.

It is rather remarkable, then, that African governments are moving rapidly along with the initial blueprint. Privatisation and industry-oriented seed laws are even perversely hailed as the solutions to the blueprint's early problems! Although few people on the continent are aware of it, Africa is being flooded with a wave of new seed laws that undermine the farmer seed systems that the African people depend upon.

Changing seed laws: the regional approach

Up until the 1990s, seed regulations in Africa were generally organised around public seed programmes, with seed laws, where they existed, mostly limited to import and export restrictions. There was little coordination between countries, with regulations often heavily influenced by the respective donors and very little enforcement on the ground. Indeed, with few exceptions, the vast majority of African farmers have hardly been affected by seed laws or regulations. But out of the larger context of structural adjustment programmes, trade liberalisation, and the consolidation of a transnational seed industry desperate to expand markets, processes have sprouted up over the past decade that are fast-forwarding the implementation of industry-friendly regulations and laws, with scant regard for the impacts on farmer seed systems.

Much of the momentum and direction for the implementation and transformation of seed laws comes from regional seed law harmonisation processes established to facilitate trade. Around a dozen such processes were launched recently in different parts of Africa with the support of various donors. Some of the processes are coordinated by centres of the Consultative Group on International Agricultural Research (CGIAR) or regional umbrellas of national agricultural research services, such as the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). Others are coordinated by regional economic bodies or Western donor agencies.

Southern Africa

One of the earliest regional processes was launched by the Southern African Development Community (SADC).[3] In 1994 there was a workshop, some reports from consultants and a general agreement to work towards the harmonisation of seed regulations. The process pretty much died after that until the end of the 1990s, when the World Bank stepped in with its Sub-Saharan African Seed Initiative (SASSI). Malawi, Mozambique, Zambia and Zimbabwe were selected as pilot countries. A Danish consulting firm was hired to provide technical assistance and the American Seed Trade Association (ASTA) and the US Agency for International Development (USAID) carried out regional assessments to serve as the basis for a series of national reports produced by local consultants. These national reports fed into high-level national workshops, which in turn produced a Regional Strategy Document for the harmonisation of seed regulations. With the process once again on the rails, it was then handed back to the SADC to coordinate through the Seed Security Network that it launched in 2002.

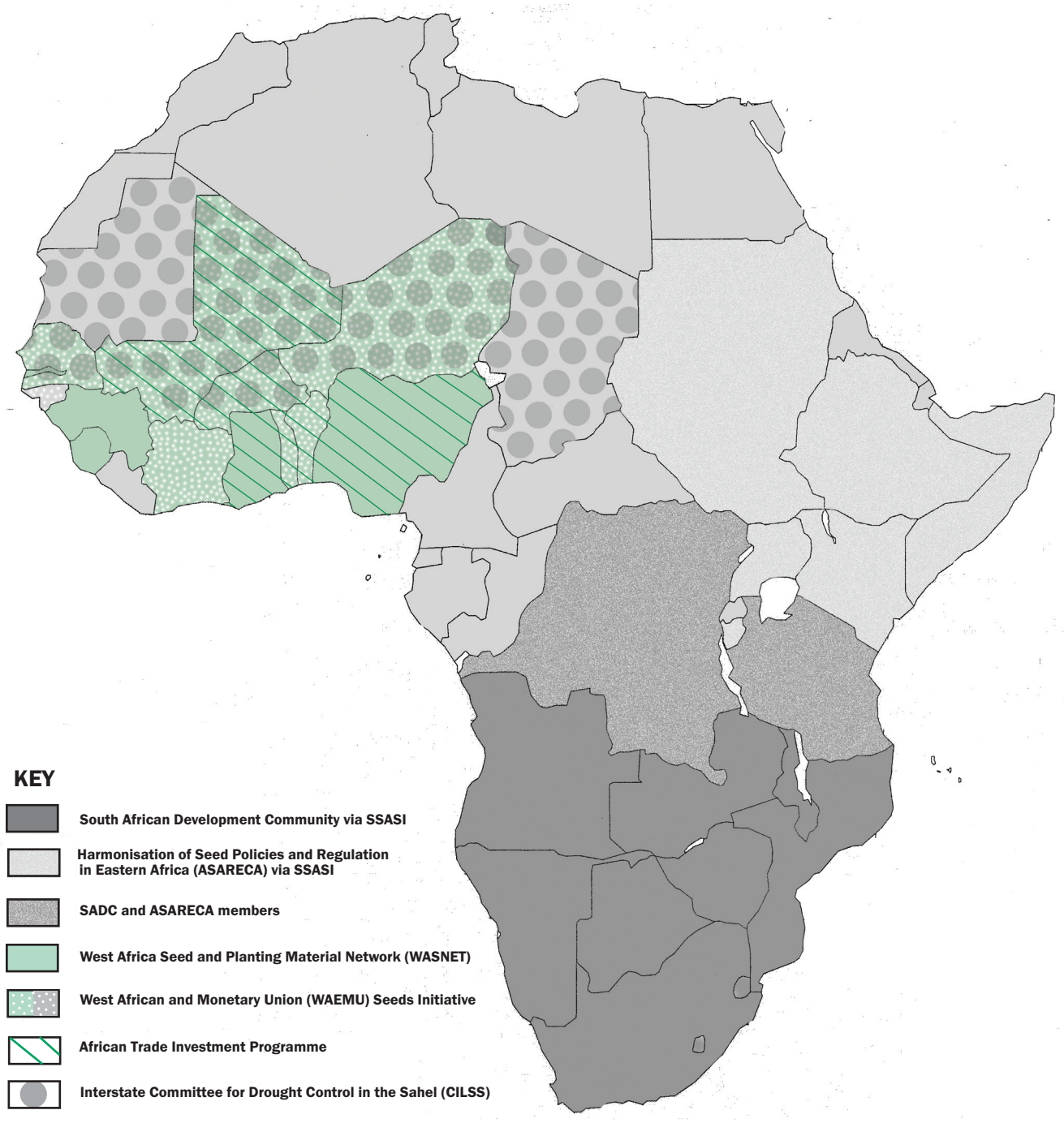
Eastern Africa

A similar process is at work in eastern Africa. The Harmonisation of Seed Policies and Regulations in Eastern Africa project was launched in 1999. It is coordinated by ASARECA, the regional umbrella of the national agricultural research services funded by USAID and part of the World Bank's SSASI project. As in southern Africa, the project began with a few pilot countries: Kenya, Uganda and Tanzania. Country representatives were appointed to produce reports for high-level national workshops, which in turn served as the basis for a regional workshop and the definition of a regional strategy. Other countries were then brought on board (Ethiopia, Eritrea, Burundi, Rwanda and Sudan) and an Eastern Africa Seed Committee was set up, bringing together government officials, plant breeders and national seed trade associations to "*oversee completion of the process of harmonisation*

[3] A regional trade body that brings together Angola, Botswana, the Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe

Farmers still supply about 90% of the seed that is planted on the continent, but a number of regional initiatives are afoot to change all that.

Regional seed law harmonisation processes in Africa



and implement the agreements arrived at by participating member countries".

Western Africa

The regional processes in West Africa are a little more complicated. There are several different, overlapping processes (see map opposite):

• ***The West African Economic and Monetary Union (WAEMU)*** is developing a seed regulations initiative. This could reach more countries if plans go ahead for its merger with the Economic Community of West African States (ECOWAS).

• ***The International Institute for Tropical Agriculture (IITA)*** coordinates a network (known as WASNET) which is developing a model law that participating countries can adopt.

• ***The International Fertiliser Development Centre (IFDC)***[4] just completed a two-year project for the US Department of Agriculture and the American Seed Trade Association that issued national action plans to support the enactment of PVP laws and GMO regulations and the harmonisation of seed regulations in the region.

• ***The Interstate Committee for Drought Control in the Sahel (CILSS)*** has developed a regional seed catalogue and a draft framework for the harmonised regulation of conventional and GM seeds. All of these processes are increasingly integrated in their functioning and policy objectives.

Cultivating a private seed industry in Africa

By now, most of the national seed programmes that were established in the 1970s in Africa have fizzled out and the parastatal[5] seed companies have been closed down or privatised. On their ashes, there's a range of actors trying to articulate a new direction for African seed policy.

Among the more influential actors, the World Bank and the US government (through USAID and USDA) want "competitive markets", i.e. regional markets with minimal regulations when it comes to phytosanitary restrictions on the flow of seeds across national borders, the introduction of GM crops and variety registration, and tough regulations when it comes to intellectual property rights. This position is, by and large, echoed by the other major outside actors—the European donors (notably France and Germany), the FAO and the CGIAR centres involved in seed policy programmes. There is some disagreement when it comes to variety registration, especially whether it should be compulsory or not. But the general consensus is for regional, multi-country systems of registration for plant varieties that are distinct, uniform and stable (DUS), with only minimal consideration of local adaptability and performance.[6] They've been widely successful in pushing the regional harmonisation processes, most originally set up to facilitate trade, in this direction with the active collaboration of the international seed industry.

In 1999, the American Seed Trade Association (ASTA) set up the African Seed Trade Association (AFSTA) as a local lobby for the transnational seed industry. AFSTA is mandated to "promote regional integration and harmonisation of seed policies and regulations supportive of U.S. seed trade" with an explicit target of securing a 5% increase in US seed exports to the region within its first five years. AFSTA and its 18 national seed industry associations are deeply involved in all of the major regional and national seed law processes.

The seed industry's lobbying can't hide the fact that there is no way that the private seed industry could possibly meet today's seed needs in Africa. Even the World Bank acknowledges that, for the foreseeable future, the vast majority of farmers in Africa are going to continue to get their seed from their own or their neighbours' farms.[7] Yet within policy circles, farmer seed systems are rarely recognised as anything but necessary evils that must be overcome in a transition towards the full development of formal seed systems. The little attention farmer seed systems receive in policy discussions tends to focus on ways to regulate them, through Quality Declared Seed schemes for example (see box over page), or to allow for programmes like participatory breeding that integrate elements of farmer systems into formal structures.

The biggest commercial seed markets in Africa

Country	Annual domestic sales (millions of US$)
South Africa	217
Morocco	160
Egypt	140
Nigeria	120
Tunisia	70
Kenya	50
Zimbabwe	30
Zambia	15
Malawi	10
Uganda	6

[4] IFDC also coordinates the Managing Inputs Regionally (MIR) project funded by the Dutch Ministry for Development Cooperation. The MIR project is heavily involved with WAEMU's seed regulations harmonisation initiative.

[5] Parastatal: owned or controlled wholly or partly by the government

[6] The DUS criteria used for varietal marketing clearance are the same as those used for granting plant variety protection certificates.

[7] David Gisselquist (1999), World Bank, "Regional and Competitive Seed Markets Linked to the World Seed Industry" in *Proceedings of the Prepatory Meeting for the Establishment of an African Seed Trade Association*, Lilongwe, Malawi, 8-10 April 1999, International Seed Trade Federation.

The 'lighter' side of seed quality control

The Quality Declared Seed (QDS) system is a seed quality control mechanism developed by the FAO. The idea was to provide a more easy-going approach to seed certification in areas where seed markets are not functional and government resources are too limited to effectively manage comprehensive certification systems. Under QDS, seed producers are responsible for quality control, while government agents check only a very limited portion of seed lots and seed multiplication fields.

QDS is geared towards the production and distribution of 'improved' formal sector seed. In Africa, QDS is most often used within NGO projects as well as relief efforts to multiply and distribute seeds in times of crisis, such as drought or civil conflict. The initial scheme carried the strict VCU (Value for Cultivation and Use) and DUS requirements, leaving little room for farmers' varieties. But a revised approach was developed in 2003 to accommodate "landraces" and crop varieties developed through participatory plant breeding, even though the requirements for formal sector materials remain the same.[8]

Truth-in-labelling is another seed quality control system promoted in poorer countries. Under this scheme, the government says what information has to go on the label of seed packages and the seed producer is responsible for ensuring that the information provided on the label is correct. There is no third party certifier. If the seeds are bad, farmers have to deal with the seed supplier themselves. This market-based approach, which is supported by the World Bank, doesn't afford much protection to farmers, especially poor farmers.

A snapshot of seed laws in Africa

Just what is emerging from the various seed law processes in Africa?

In the west of the continent, the different regional processes are converging towards one mandatory regional catalogue and the harmonisation of standards for certification based on DUS criteria. The WAEMU draft regional policy that is now being circulated calls for a regional common catalogue of 11 species to start with. It foresees two separate lists of certified seed: an A list for varieties that meet DUS criteria and that are comparable, performance wise, to the most popular varieties of their class; and a B list for varieties that only have to meet the DUS criteria. A variety registered in one country would automatically be released in all WAEMU countries, and potentially all of the ECOWAS countries if the merger between the two economic blocs pushes through.

The same is true in eastern Africa, where the three pilot countries of the ASARECA project have or are in the process of harmonising their regulations towards a common catalogue and a system of mandatory registration for the major field crops based on DUS criteria that will set the stage for the rest of the member countries. In Uganda, for instance, the revision of the seeds statute in 1994 gave the private sector more representation on the National Seed Board and National Variety Registration Committee and reduced the number of multi-location performance trials from three years to one, making registration simply a matter of DUS criteria.[9]

Variety registration is also mandatory under the seed laws in Cameroon (2001) and Nigeria, where the International Fertiliser Development Centre worked directly with the Ministry of Agriculture over the past couple of years to re-write the country's 1992 Seed Law. Tunisia's 1999 seed law says that you can only market varieties registered in the official catalogue, which, according to a subsequent ministerial decree in 2000, is based entirely on DUS criteria. The newly adopted law in Algeria is the same, except that it also provides for a secondary list of varieties in the national catalogue that do not meet DUS criteria yet have a particular importance for exports or national production. People producing seed from this secondary list are still subject to the same inspection and registration procedures and the same regulations on packaging and labelling. This effectively shuts the legal door on traditional farmers' seed systems for those species included in the catalogue.

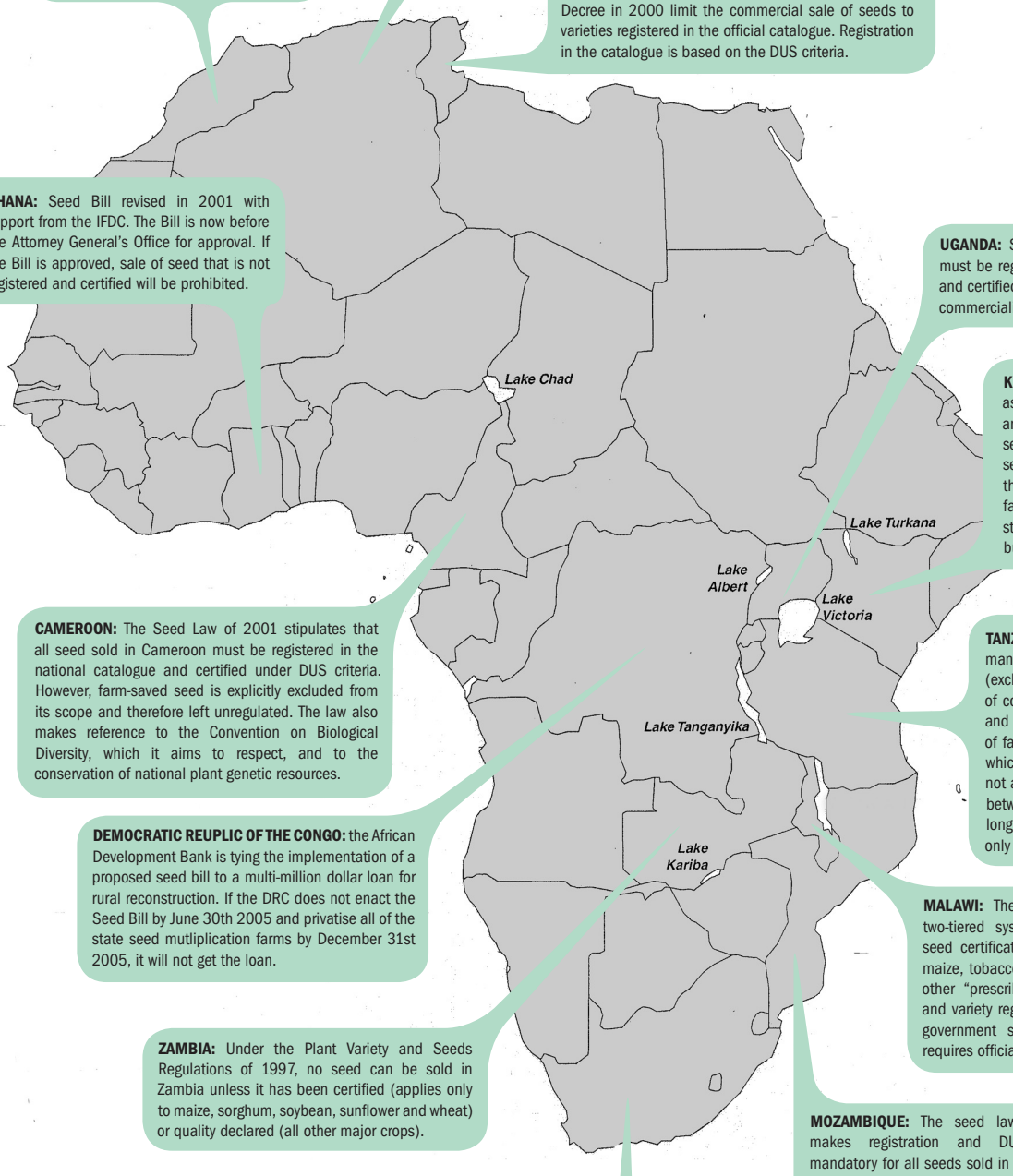
To the south, the situation is mixed. South Africa, with its dominant commercial farming sector and its strong seed industry, highly oriented towards export to the rest of Africa and other continents, has a long history of seed legislation similar to what you find in Europe and North America. The situation is similar in Zimbabwe, where seed certification is mandatory for 10 major crops and where enforcement is particularly heavy-handed for maize. (Open-pollinated varieties of maize and sorghum cannot be sold in Zimbabwe. By law, farmers can only buy hybrid seeds of these crops.) Next door in Zambia, seed for the major field crops cannot be sold unless it is certified or Quality Declared. In Malawi, on the other hand, where there is both an active private seed industry and an active informal seed sector, certification is only mandatory for three crops (hybrid maize, hybrid sunflower and tobacco) and the regulations are fairly loose when it comes to non-certified seeds. The mandatory national seed list in Mozambique is pretty much non-functional, with most commercial seed sales and NGO seed projects by-passing the official system.

Overall, governments in Southern Africa appear to have been more open to tweaking the seed

[8] AJG van Gastel (2003), Seed Unit, ICARDA, *Seed Info No. 25*:www.icarda.org/News/Seed%20Info/SeedInfo_25/news.htm

[9] Fred Muhuku (2002), "Seed Industry Development and Seed Legislation in Uganda." Co-published simultaneously in *Journal of New Seeds* (Food Products Press) Vol.4, No. 1/2, pp. 165-176; and in *Seed Policy, Legislation and Law: Widening a Narrow Focus* (ed: Niels Louwaars) Food Products Press, pp. 165-176.

Seed laws in selected African countries



ALGERIA: The new 2005 seed law creates two seed lists. An A list based on DUS criteria and a B list for varieties that do not meet DUS criteria yet have a particular importance for exports or national agricultural production. People producing seed from both lists are subject to the same inspection and registration procedures and the same regulations on packaging and labelling. This effectively shuts the legal door on traditional farmers' seed systems for those species included in the catalogue.

MOROCCO: Only varieties that are registered in the official catalogue can be certified and commercialised. Varieties must meet the DUS criteria in order to be registered in the official catalogue.

TUNISIA: The 1999 Seed Law and subsequent Ministerial Decree in 2000 limit the commercial sale of seeds to varieties registered in the official catalogue. Registration in the catalogue is based on the DUS criteria.

GHANA: Seed Bill revised in 2001 with support from the IFDC. The Bill is now before the Attorney General's Office for approval. If the Bill is approved, sale of seed that is not registered and certified will be prohibited.

UGANDA: Seeds of major field crops must be registered on the national list and certified, based on DUS testing, for commercialisation.

KENYA: The Seed and Plant Varieties Act, as amended in 2002, requires DUS testing and certification for the sale of most crop seeds. This is even imposed on farm-saved seed if farmers seel the seeds. In future, the government may allow farmers to sell farm-saved bean and sorghum seed as standard seed instead of certified seed, but maize seed will remain restricted.

CAMEROON: The Seed Law of 2001 stipulates that all seed sold in Cameroon must be registered in the national catalogue and certified under DUS criteria. However, farm-saved seed is explicitly excluded from its scope and therefore left unregulated. The law also makes reference to the Convention on Biological Diversity, which it aims to respect, and to the conservation of national plant genetic resources.

TANZANIA: The 2003 Seed Act foresees mandatory registration to produce, distribute (exchange) or sell seed, mandatory registration of commercial varieties for major field crops, and a national catalogue. The only mention of farm-saved seeds is in a small subclause, which says that the provisions of the Act do not affect the sale of Quality Declared Seeds between small scale neighbouring farmers as long as the farmer that purchases the seeds only uses them for his or her own farm.

DEMOCRATIC REUPLIC OF THE CONGO: the African Development Bank is tying the implementation of a proposed seed bill to a multi-million dollar loan for rural reconstruction. If the DRC does not enact the Seed Bill by June 30th 2005 and privatise all of the state seed mutliplication farms by December 31st 2005, it will not get the loan.

MALAWI: The seed legislation sets up a two-tiered system. Variety registration and seed certification are compulsory for hybrid maize, tobacco, and hybrid sunflower. For all other "prescribed" crops, seed certification and variety registration are voluntary, but the government sets minimum standards and requires official laboratory seed tests.

ZAMBIA: Under the Plant Variety and Seeds Regulations of 1997, no seed can be sold in Zambia unless it has been certified (applies only to maize, sorghum, soybean, sunflower and wheat) or quality declared (all other major crops).

MOZAMBIQUE: The seed law of 2001 makes registration and DUS testing mandatory for all seeds sold in the country. This specifically includes the possibility of registering 'traditional' and 'local' varieties using the same criteria.

SOUTH AFRICA: Plant Improvement Act, last amended in 1996, requires official registration, based on DUS testing, for the sale of seeds. "Sale" explicitly includes seed exchange when it is "for a consideration".

law blueprint than those in others parts of the continent, particularly West Africa. There's more sensitivity to social and ecological issues affecting their countries' seed supply systems, such as gender issues, recurring droughts or the impact of HIV/AIDS, and more willingness to take on board the views of NGOs and civil society organisations.

But in practice, this tweaking doesn't add up to much. The South African Development Community has recently decided that given the ongoing lack of coherence in the region it will put the harmonisation of national seed laws on hold and focus instead on the enactment of a separate parallel regional system for variety registration and release. The central element of this system is a regional catalogue for varieties that meet UPOV's DUS criteria and a minimum of performance data. Any variety registered in the regional catalogue will automatically be approved for sale in all member countries, although individual countries can object. There is a plan to develop a second regional catalogue for "landraces" and established popular varieties that don't meet the DUS criteria, but this catalogue will be "for information purposes only" and "would not as such provide market access."[10]

Throughout Africa, the picture of seed laws taking shape is one with very little legal room for farmers' seeds. At most, there are small legal openings for informal seed circuits, but typically only for Quality Declared Seed, relief projects or species not covered by the laws. Tanzania, for instance, has had a stringent Seed Act since 1978. The Act prohibited the sale of seed that was not registered on the national list, certified, packaged and labelled. The law was highly divorced from reality, with less than 30% of the country's farmlands planted to varieties from the formal system. Yet the new Seeds Act that came into force in 2003 maintains the strict registration provisions: mandatory registration to sell or produce seed, mandatory registration of commercial varieties form major field crops and a national catalogue. The only mention of farm-saved seeds is in a small subclause, which says that the provisions of the Act do not affect the sale of Quality Declared Seeds between small scale neighbouring farmers as long as the farmer that purchases the seeds only uses them for his or her own farm.[11] *De facto*, anything else is illegal. Similarly, Mozambique's new Seed Law of 2001 openly welcomes the registration of 'traditional' and 'local' varieties for commercialisation, but only if they satisfy the industrial DUS criteria.

Seeds of repression

There will continue to be a big gap between the law and what happens on the ground. It's unlikely that any national seed agency is going to embark on a massive crackdown on farm-saved seed at any point soon. But the laws will eventually translate into practice in multiple ways. Kenya's seed agency, KEPHIS, does take its laws seriously. Since it was established in 1996, it has been dishing out fines to seed dealers that operate without a licence or that sell non-certified seed. It has even imposed certification rules on small-scale seed projects for local food crops like beans and sorghum. KEPHIS is particularly adamant about not letting farmers sell their uncertified maize seed, currently responsible for over one-half of Kenya's maize seed needs.[12] The Sierra Leone Seed Board is running after NGOs and seed dealers for side-stepping the certification process in distributing rice and groundnut seeds.[13] In Uganda, where over 90% of seeds are farm-saved, access to credit is commonly tied to the mandatory use of certified seed.

Furthermore, these new seed laws have to be seen in the context of the parallel expansion of intellectual property laws and the construction of biosafety rules to accommodate the introduction of genetically modified crops in Africa. In most countries, the seed marketing rules are coordinated with PVP legislation and GMO regulations. In Tunisia, Algeria and Kenya, the seed laws and the PVP legislation are actually contained in the very same Act. In West Africa, the WAEMU seed marketing system will work together with PVP law adopted by the member states of the African Intellectual Property Organisation[14] within the Revised Bangui Agreement of 1999. However, this PVP system has not entered into operation yet because there are no facilities in the member states to identify new plant varieties according to its DUS criteria. This is where WAEMU comes in (with a little help from the US and German governments). Its regional seed marketing system will provide the technical infrastructure for testing since the seed law and the PVP law share the same DUS standards. The French seed industry association[15] is identifying trial centres for DUS testing in Cameroon, Sénégal and Côte d'Ivoire. aAnd, with the financial support of the French government it's also busy in northern Africa where, it runs small bilateral training projects with seed agencies in Morocco, Algeria, Tunisia and Egypt on DUS, certification and "*how to implement the UPOV system*" even though Tunisia is the only one of these countries that is a member of UPOV.[16]

[10] www.sadc-fanr.org.zw/ssn/news/GaboroneProceedingsApril2003.pdf

[11] Art. 19 (2) of the Seeds Act, 2003.

[12] Luke Mulunda (2005), "Govt threatens to deregister companies that have failed to renew," *The East African Standard* (Nairobi), February 13.

[13] http://allafrica.com/stories/200502140612.html; and NP Louwaars *et al*, *Impacts of Strengthened Intellectual Property Rights Regimes on the Plant Breeding Industry in Developing Countries: A synthesis of five case studies*, Report commissioned by the World Bank, Wageningen UR, 176 pp, www.cgn.wageningen-ur.nl/pgr/images/IPR%20in%20breeding%20industry.pdf

[13] *WASNET Newsletter*, No. 14, January 2005: www.wasnet.org/newsletter/archive/index.htm

[14] OAPI - African Intellectual Property Organisation. which has 16 members: Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Cote D'Ivoire, Gabon, Guinea-Bissau, Equatorial Guinea , Guinea, Mali, Mauritania, Niger, Senegal, and Togo. For more information about OAPI and IPRs in Africa, see GRAIN (2002), *Intellectual Property Rights in African Agriculture: Implications for small farmers,* www.grain.org/briefings/?id=3.

[15] GNIS - Groupement National Interprofessionnel des Semences et Plants: www.gnis.fr. A powerful industry lobby which ensures that strict criteria are retained in French seed law, something they are spreading to other Francophone countries.

[16] *WASNET Newsletter*, No. 12, Feb 2004: www.wasnet.org/newsletter/archive/index.htm

In West Africa, the WAEMU catalogue opens the doors to the registration of GM varieties, even as one of its members, Benin, has a moratorium on GM crops and the others are still in the midst of developing their biosafety legislation. Also in West Africa, there is a draft regulatory framework with a regional catalogue that integrates conventional and GM seeds. Once again, the proposed catalogue in Southern Africa, which does not allow the registration of GM crops, is more responsive to diverging national politics of the region.

The balkanisation of Africa's seed supply

The social, environmental and agricultural situation in most of Africa is diverse and fragile and still reeling from a brutal modern history. Policy, for something as vital as seeds, should reflect this complex context. But if we look at the state of seed laws in Africa, we see governments pursuing a blueprint that could well have been drawn up on Wall Street. The old systems may have been misguided, but at least their priority was to improve seed quality for farmers. Today's seed laws are all about rolling out a red carpet for the transnational seed industry—an industry dominated by a few pesticide corporations that are narrowly focused on just a handful of major export crops and GM varieties. These corporations do not produce seeds that meet the needs of small scale African farmers and therefore can only play a limited role.

Realistically, African farmers will continue to supply the bulk of the continent's seed needs for some time to come. But the cruel irony is that the combination of new seed regulations, intellectual property laws and cutting edge technologies like genetic engineering will continue to marginalise them. So increasingly, Africa's seeds systems will be split into two disjointed realities: a privatised, uniform and totally accommodated formal sector and a chaotic, diversified and barely tolerated peasant sector. Public institutions could have provided a bridge, but they are now set to disappear or be absorbed by the private sector, leaving the state to police farmers rather than protect them.

African farmers have a long history of working together. This may be their greatest strength in their bid to keep alive their seed and their farming systems

It will not be easy to build up and strengthen farmers' seed systems in this unfriendly legal and political context. But it won't be easy for governments and industry to implement their laws either. The rules are so disconnected from what's happening on the ground that many farmers and local communities may refuse to comply. They may decide to turn their backs on the formal sector altogether and look to their own local seed systems. In this way, the seed laws could in fact clear the air and help sow the seeds of a terrific new direction for seed systems in Africa.

New seed laws are being introduced throughout Latin America. While government intervention in market processes continues to decline in the region, when it comes to seed legislation the states have been laying down some strict laws. These laws vary considerably between each country, but a universal theme that unites them is to provide better protection of private seed varieties developed by companies and sideline farmers' own seeds. In many cases, farmers' own seeds are, or will become, illegal.

Latin America: the mantra of privatisation

privatisation privatisation

GRAIN

The processes of seed modernisation and commodification have a long history in Latin America. They were one of the many facets of the imposition of the Green Revolution in the region. The driving forces behind them were the national agricultural research systems, which arose and gained strength from the 1960s on, with heavy support from the US government and the Rockefeller Foundation.

A major share of the research programs focused on plant breeding. The role of these programs was to produce modern varieties of each country's most important crops, based on Green Revolution "quality" criteria, and to introduce them and promote their use within those countries. With the official aim of improving production and well-being for peasants, the countries also produced the so-called "seed laws," which

a) laid out rules for seed certification, based on seed production and reproduction requirements controlled by public authorities, and set enforceable quality standards,

b) controlled the entry of new varieties on the markets, by requiring they meet established agronomic criteria.

Seen with hindsight, plant-breeding programs and seed laws were strategic tools for the replacement of local varieties and to turn seeds into commodities which were not part of the farmer-seed exchange systems. Their impact was felt not only because farmers were interested in so-called improved varieties, but above all because governments and banks would only provide technical support and loans if certified seeds were used.

Since the 1980s, national plant-breeding programmes took various different routes. Some, like in Chile, were slowly dismantled. Others, like in Brazil, remained strong. But in all cases, the use and marketing of seeds produced by transnational

[1] See for example, www.cimmyt.cgiar.org/research/economics/map/impact_studies/impactsmaize66_97/impactsla/pdfs/ImpactsLA_adoption.pdf

seed companies expanded progressively and by the late 1990s had become much of the region's major source of seeds.[1]

The prevalence of international seed companies and the advance of intellectual property rights, mainly through the World Trade Organisation (WTO), led to more new seed laws. Since the 1990s, many Latin American countries joined UPOV or adopted UPOV-style legislation. Meanwhile, seed-certification programs enforced in previous decades became weakened, as rules for the marketing of new national and foreign seed varieties were relaxed.

Over the past four to five years, a new wave of seed laws has swept the region. In general, governments in Latin America have been pushing to simplify rules and laws to ensure that private business is able to sell unhindered. However, at least ten Latin American countries have approved laws or introduced bills to create or expand their national seed systems or institutes, which would enforce compulsory seed certification and registration; this is in addition to legislation on seed-related intellectual property rights and biosafety rules. With the partial exception of Brazil and Bolivia, the new laws were passed without any publicity and therefore without any reaction from those in the hardest-hit sectors: peasants, family farmers and indigenous peoples.

This article discusses key features of the new laws and their possible impact.

The regional situation

By March 2005, new seed-certification laws or regulations had been adopted by Peru[2], Paraguay, Uruguay, Brazil[3] and Venezuela[4], while bills or draft regulations are under discussion in Bolivia, El Salvador, Ecuador[5] and Costa Rica. Mexico has had a similar seed law on the books since 1991[6]. In Bolivia, a bill was discussed and finally rejected by Congress due to the strong opposition from social organizations[7]. But a Ministerial Resolution of March 14, 2005 bypassed Congress and imposed compulsory registration. Chile, meanwhile, has begun studies to harmonise its law with those of the European Union.[8]

The form taken by the new laws varies considerably, yet they all share a clear convergence in their content. Peru's law, for example, was drafted in vague and ambiguous terms, but its subsequent regulations very clearly impose compulsory registration of varieties and the privatisation of seed certification. Venezuela put the compulsory registration of seeds in the law itself, though it is rather ambiguous on the privatisation of the certification process. The Ministerial Resolution in Bolivia imposes both registration and privatisation. Our analysis must therefore consider both the laws themselves and their implementing regulations, many of which are still being drafted, meaning that the legal situation is in permanent evolution.

Sloppy work?

But, aside from form, the contents show significant similarities. One curious coincidence which arises upon a close look at all these legal texts is that nearly all of them reveal major gaps and inconsistencies. Venezuela, for example, never spells out which ministry will be responsible for enforcing the law. Peru's law states that seed producers "have the right" to be registered, while the regulation written a year later makes the registration of producers compulsory. Costa Rica's bill of law provides that the Board of Directors of the National Seed Office (to be created by the law), amongst other functions, should issue "plant breeders' rights property certificates," even though Costa Rica does not even recognise the existence of such rights.

The sheer volume of inconsistencies and gaps is too great to go unnoticed in a careful reading. Were they put in on purpose? Or do they merely show the ignorance or incompetence of the officials responsible for drafting these laws?

Seed agencies

Invariably, all the laws approved and bills in parliaments either create or expand a national seed agency. These seed agencies enforce the certification and registration of seeds and the registration of seed producers, breeders and dealers. In most cases, the seed agency can also make decisions on the release of genetically modified (GM) crops, though such decisions would be shared with other agencies. In practice, the new national seed systems decide what is acceptable as a seed and who can produce and market them. At the same time, however, the same laws and regulations provide that the agency must delegate at least part of its certifying and inspection functions to private organisations, whose only requirement is that they possess the technical skills and enough infrastructure to carry out such responsibilities. In many cases, the agency is given an 'autonomous' status, meaning that it must raise its own money and that, even when it carries out all the activities itself, it must charge market prices for the processes of registration and certification. So even when the new agency performs all the functions itself, it must behave like a private company.

[2] www.asesor.com.pe/proapa/leyes/186551.htm

[3] www.uel.br/cca/agro/graduacao/disciplinas/serie4/producao_tecnologia_sementes.htm

[4] http://comunidad.vlex.com/pantin/lsemillas.html

[5] www.sica.gov.ec/censo/contenido/ Semillas%20de%20la%20COSTA%20web.pdf

[6] www.tareaweb.com/data/leyes/leyinfo/227/1.htm

[7] www.semillas.org/documentos/rm04505.pdf and www.semillas.org/documentos/REGISTRO_20DE_20VARIEDADES.pdf

[8] www.sag.gob.cl/saveasdialog.asp?cod_cont=4228&bogus=Profesional_biotecnologia_OGMs.doc.

Brazil – Article 8
§ 1 The Ministry of Agriculture, together with the National Seed Registry, shall accredit natural and legal persons who meet the requirements established in the regulations of this Law, to operate as:
II – certifying agency of seeds and seedlings;
III – certifier of seeds or seedlings produced by said person;

Under the guise of creating a public authority responsible for seed quality, the laws are actually pushing for the privatisation of the state's regulatory and control activities. As a result, seed companies will decide themselves whether their seeds comply with quality standards and certification requirements, as long as they can afford the necessary equipment and staffing. They will even be able to enforce the same controls over other seed producers, an alarming proposition, considering that none of the laws provides the means to handle conflicts of interest within the private sector. So a private seed company could be both the producer of seeds and a certifying body. Here is a clear conflict of interest. Yet the law does not make any reference to how abuses of the system should be handled or monitored.

The obvious concern is what happens if Monsanto or Syngenta are accredited as seed certifiers? Will a government really be able to tell whether all self-certified seed actually complies with quality standards? What assurance will a small farmer have that the seeds he hopes to sell will not be rejected by a private certification laboratory financed by a major seed company? Why do the governments create powerful new institutions, only to turn around and farm out their regulatory functions to the very companies targeted by the regulations?

Whatever the answer, it is clear that the new rules fit precisely the desires of the transnational seed companies, as expressed for example in two motions approved in 1995[9] by the International Seed Trade Federation, whose members include Pioneer, Monsanto, Syngenta and Bayer).

Compulsory registration and certification

Answers to the above questions gain greater relevance as we observe another common trait in the new regulations the compulsory registration of marketed seeds and the compulsory registration of seed producers multipliers and dealers. No one who is not registered may produce or sell seeds, and an unregistered variety may not be marketed. In some cases, this obligation is applied not only to the sale but also to the donation of seeds or even the non-monetary exchange of seeds among farmers. Brazil is the only country that has created partial exceptions to this compulsory registration (see box opposite).

To be registered, the seed producer or dealer must have a university degree or be able to hire someone who does, as well as owning infrastructure. For a variety to be accepted in a seed registry, it must comply with a number of requirements that come with the law. So far, these requirements include a minimum percentage of seed purity and rates of germination, as well as compliance with UPOV-based DUS standard (distinctiveness, uniformity and stability). The first draft of the bill sent to the Bolivian parliament would have required that all seeds also comply with certification requirements, meaning that they are able to assure a specific and homogeneous genetic makeup, and that their production be carried out under extremely controlled conditions.

All seeds must be inspected. Seeds that are not up to standard will be outlawed. In most cases, it will be illegal to plant unregistered seeds, regardless of whether they comply or not with the standards. In some countries it will actually be illegal to transport unregistered seeds or seeds that are not in compliance with certification standards, even when they are exchanged as uncertified seeds.

Paraguay – Article 58
Seeds displayed for public sale or delivered to third parties for whatever purpose must be from a certified and/or inspected seed production system.
Venezuela – Article 21

Bolivia – Article 36 (Bill of law)
It is forbidden to sell, donate, distribute and/or transport seeds that do not comply with this law and its resulting regulations.
Uruguay – Article 43

Directly or indirectly, these laws require that seed users be subject to control and inspections. In practice, this means that all farmers will be under control. In principle, the laws refer exclusively to marketed seed, but the definition of marketing is so broad, it includes donation and other forms of non-monetary exchange. In other words, all seed users can be inspected and, when inspected, must show an invoice of purchase, or prove that, if it was received as a donation, the seed was inspected, or prove that the seeds were produced on the farm. Authorities will also check that proprietary seed is not being used unless it is proved that it was bought in the market. Sanctions for the use of breeder-owned seeds include fines which, in Venezuela,

may be as much as US$7,000. But farmers will also be inspected as potential illegal dealers. That is, if they keep seed for their own use without registering or officially testing it, they will be only be able to keep the seed for their own replanting, and the inspection will verify whether the amount saved is no greater than what the authority deems reasonable.

As we have seen, the region's historical experience is that, although the certification rules or standards created from the 1960s through the 1980s were not compulsory, governments and financial institutions required compliance with them for a farmer to be eligible for economic or technical support, thus turning seed certification into a major force for the substitution and disappearance of local varieties and for the erosion of peasant seed systems. Today the registration and certification of seeds is compulsory, whether a farmer gets support or not, meaning that even those peasants who wish to remain independent from official programs must comply with the new rules, with no way out under the law.

Compulsory registration of varieties, the requirements to be eligible for registration, and the compulsory quality standards for varieties amount to an efficient way to:

- Ignore and outlaw peasants' abilities and rights to produce seeds, since their lack of university degrees will keep them from being officially recognised as seed producers unless they accept and pay for supervision of their work by someone with a university degree. If they continue producing seeds, they will be considered outlaws. A local community will not be able to legally exchange seeds without the previous certification by government officials or a private entity that those seeds comply with the standards set by law;

- Control, outlaw and/or destroy peasant exchange systems, since even the non-monetary exchange of seeds is ruled by the new standards and requirements;

- Forbid the use of local varieties and landraces and even to destroy those varieties. Local varieties and landraces cannot comply with the homogeneity requirement. If they do, they will lose many of the very traits that make them so valuable and they will be considerably weakened. If the law cannot stop their use, the contraction of their genetic pool will no doubt lead to their decline.

Brazil's exemptions

In Brazil, Law Number 10711 (August 5, 2003) created the country's new National Seed and Propagation System. In contrast to seed laws approved in other countries, Brazil's contains some exceptions for local communities, indigenous peoples and their seeds. In particular, Article 8 stipulates that "Family farmers, land-reform settlers and indigenous people who multiply seeds or vegetative reproduction material for distribution, exchange or sale amongst themselves are exempt from enrollment in the National Seed Registry." Article 10 also adds that, "Enrollment in the National Cultivars Registry is not compulsory for any local, traditional or native cultivar used by family farmers, land-reform settlers or indigenous people."

Those exceptions were included in the Law as a result of resistance by peasant and civil-society organisations. No doubt they undermine the destructive potential of the new regulations, but they do not entirely neutralise the damage. First of all, the limited exceptions only apply to exchanges amongst small farmers and indigenous people and they only refer to the use of local seeds. Second, it is the authorities who will decide whether a seed is local or not, based on whether or not it is "substantially similar to commercial cultivars."[9] A strict interpretation of the law implies that local communities, for instance, may not freely exchange seeds they have obtained from public breeding programs or which have been derived or adapted from another commercial variety. Moreover, the law at no point provides that local communities may exchange seeds saved from the harvest of a proprietary commercial variety, meaning that intellectual property laws will continue to be fully enforced on small farmers in Brazil. In other words, the exceptions may be a soothing, but the new law still makes things much worse than the historical absence of restrictions on the right to maintain local seed systems. Brazil has one of the world's largest potential seed markets and is a major target for transnational seed companies. It would therefore be naïve not to realise that they will do all their utmost to assure these limited exceptions are interpreted in the most restrictive manner possible.

Even so, the Brazilian law adds a provision which, particularly in historical terms, is of great interest: it is forbidden to restrict the use of local varieties in publicly-financed programs. If such a clause had been included in seed laws back in the 1960s and 1970s, we might now be seeing quite a different panorama in terms of agricultural diversity and the autonomy of local communities. Yet, once again, the law incorporated this protection in a very restrictive fashion, since it does not forbid private lenders from forcing farmers to use only commercial seed varieties.

[9] The law adopts the following definition: "Local, traditional or native (crioulo) cultivar: a variety that has been developed, adapted or produced by family farmers, land reform settlers or indigenous people, with clearly determined phenotypic traits that are recognised as such by the respective communities and which, in the understanding of the Ministry of Agriculture and also considering socio-cultural and environmental descriptors, are not substantially similar to commercial cultivars."

Peasant seed systems will thus have very few chances for survival. To make things worse, if the enforcement agents are private organisations with a vested interest in selling seeds, the process will no doubt be even more destructive. The only legal recourse will be to actually become seed buyers.

Lorenzo Armendariz

The 'leave nothing out' approach means that Venezuela's seed laws go so far as to include animal species

It is not by chance, therefore, that the law in Paraguay defines "farmers or [seed] users" as if they were synonyms:

> ***Paraguay – Article 2***
> *For the purposes of this law the following definitions shall apply:*
> *a) Farmer or user: a natural or legal person who purchases or obtains seeds to sow or to plant;*

More than just seed quality

All the laws and bills, in their titles and justifications, claim to be aimed at protecting seed quality. The laws of Paraguay and Venezuela also have the explicit objective of protecting breeders' rights, as defined by the UPOV Convention. Although other laws and bills do not explicitly proclaim this objective, they do clearly provide that plant breeders' rights must be respected and some impose additional sanctions beyond those already established by existing plant variety protection laws. The first bill presented in Bolivia even created rules that meant a de facto adoption of UPOV-91 rules, although the members of the Andean Community are all members of UPOV-78. The intimate relationship between the new seed laws and stricter IPR protection is recognised, for example, in studies done by the government of Ecuador with support from the World Bank, which conclude that new seed laws must be approved in order to avoid "the piracy of seeds [owned by companies]."

The protection of IPRs is not the only "extra" to show up amongst provisions of these new laws. Most of them also set rules for the registration and certification of GM seeds. While such rules are expressed as regulations or restrictions upon the release of GM crops, they actually amount to a de facto recognition that those crops may be authorised. The impact that this may have on other biosafety regulations involving GM organisms remains to be seen, but it does open the door for biotech transnationals to allege that the release of GM varieties has already been legally authorised. In other words, the new seed laws may force governments to accept GM crops.

All plants and then some

With the severe restriction (or the outright prohibition of) farmers seed systems coupled with ever-greater powers for transnational corporations, the wide scope of what flora (and fauna) is included in the new seed laws is all the more troubling. The basic principle seems to be "leave nothing out," and in many cases the coverage goes beyond all plant species to include microorganisms and as well. Venezuela goes so far as to include animal species. Paraguay is the only country to set forth a specific list of plant species brought under the control of the law, but this is merely a transitional step, indicating that the government may incorporate further species of its own volition, by decree.

> ***Costa Rica – Article 2 (Bill of law)***
> *The scope of application of this law comprehends seeds of all plant genera and species, including algae and fungi.*

The actual impact of including such a wide scope of flora and fauna, once again, remains to be seen. In countries where the certification or control over seeds (defined in all cases as any reproductive material) is compulsory, the state (or those to whom the state delegates its functions) will have the power to obstruct not only to farming but also the use of medicinal plants, wild fruit and plants, fungi and algae.

This also means that the future not only of peasant seed systems will be left in the hands of the state or delegated companies. Companies and governments will also have the power to decide over many other aspects vital to the lives of rural communities and indigenous peoples such as medicinal plants, as well as other extractive activities.

Sharing power: learning by doing in co-management of natural resources throughout the world

by Grazia Borrini-Feyerabend, Michel Pimbert, M. Taghi Farvar, Ashish Kotari and Yves Renard

When picking up this book, you feel that the authors have really left no stone unturned in their quest to pull together in their quest to unveil the secrets of successful comanagement. The result is impressive, energising ... and just a little bit daunting.

Sharing Power is designed to support people who both wish to understand collaborative management processes better, and develop and enhance them in practice. From an overview of the history of human relationships with nature, the volume moves into a more conceptual analysis of actors, equity and co-management itself. Through a bewildering array of 121 case studies from Finland to the Philippines, the authors show us the impact, tensions, inequalities and opportunities that arise in the field of natural resource management and how they bear such important consequences for the livelihoods and quality of life of rural communities.

Co-management is unpacked and explored in detail, from its roots in local systems of solidarity to the unlikely and very powerful merging of traditional practises and modern conservation expertise. But don't expect blueprints or step-by-step approaches. What emerges are many contradictions and chaotic situations, pointing strongly to the crucial importance of adaptive management styles. Despite its emphasis on how different every situation is and how heavily culture, politics and environment affect individual approaches, this book focuses very heavily on practical advice, lessons learnt and ways forward. And it does successfully spell out important messages and offers many practical tools and much sound advice.

Examples are drawn from agriculture, agriculture research, water management and pastoral societies, forest resources, fisheries and coastal resources, mountain environments, management of wildlife and protected areas. There are 94 case studies from the South and 27 from the North. The book also offers 31 different checklists to help with practical implementation, addressing subjects like "ideas to managing conflict" and "characteristics of effective indicators".

Sharing Power is the product of creative tension between realities and visions, what is and what could be, especially in response to external forces that affect local communities, other actors and the natural environment. As such, it is an inspiring piece of work. The book shows us that that comanagement is all about sharing power. As Juan Mayr Maldonado says in the foreward, "this book invites us to, and equips us for, a dialogue among different cultures in a respectful and equitable search for new forms of natural resource management". He goes on to say, "you will find yourself consulting this book over and over again when you need inspiration and practical help" ... the only tricky part will be uncovering the key gem of information you are seeking.

Available for US$ 52.50 from:
IIED, 3 Endsleigh Street, London WC1H 0DD, UK.
Email: info@iied.org
Web: www.iied.org
Tel: +44 20 7388 2117
Fax: +44 20 7388 2826 *OR*

Centre for Sustainable Development, 5 Lakpour Lane, Langary Street, 16939 Tehran, Iran.
Email: comanagement@cenesta.org
Web: www.cenesta.org
Tel: +98 21 296 4114/5/6
Fax: +98 21 295 4217