





# SEEDS TOOLKIT

## **Module 4:** Seed Sector Regulatory Framework

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## Foreword

The global community, through the Sustainable Development Goals, has committed to achieving a world free of hunger by 2030. This will require the sustained production of about 60 percent more food than at present, food that is both nutritious and safe, and produced in ways that do not damage the environment. Under most scenarios, there are no surplus land or water resources to deploy to increase agricultural production. In fact, the most sustainable path to this goal is through enhanced productivity in a sustainable way. That means producing more yield with fewer external inputs. To support this, farmers need to use well-adapted crop varieties.

FAO and partners work with countries to increase farmers' use of quality seed and planting material of well-adapted varieties, particularly for the rural dwelling resource poor small-scale and family farmers who produce most of the food consumed in vulnerable communities of developing countries.

A country's seed delivery system is best conceived as a value chain composed of interrelated components – from the development of well-adapted and nutritious crop varieties and their adoption by farmers, through the production and distribution, including sales, of quality seeds and planting materials, to on-farm utilization of these inputs by farmers. The effective functioning of the value chain, enabled by the applicable national seed laws, policies, strategies, action plans and regulations, depends largely on the extent to which the stakeholders are able to put into practical use the relevant knowledge and skills required for producing quality seeds and planting materials.

This Seeds Toolkit has been developed to support practitioners along the entire seed value chain to acquire the knowledge and skills they need in order to deliver quality seeds and planting materials of well-adapted crop varieties to farmers. The Toolkit is designed primarily for capacity building activities, especially for small-scale farmers and small and medium-scale entrepreneurs, and contains six interrelated modules. These modules address: the setting up of small-scale seed enterprises; the processing of seeds; quality control; and the storage and marketing of seeds. There is also a module on seed regulatory matters. These easy-to-read modules of the Toolkit should also be useful for policy-makers and other practitioners interested in better understanding the workings of effective seed delivery systems.

**Hans Dreyer**

*Director Plant Protection and Production Division*



# Acknowledgements

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## Introduction

**M**ost countries have some elements of seed control, often governed by a seed law dating back many years, but practical implementation and effectiveness vary widely. Moreover, many countries do not have complete policies regarding the seed sector. Appropriate policies and adequate and up-to-date national seed legislation are essential elements for creating an enabling environment for seed sector development. To achieve seed sector development and to ensure appropriate availability and affordability of quality seeds, governments need a policy to guide decision-making and resource allocation across all the relevant activities and institutions. Seed legislation is a critical mechanism for implementing such a policy and enshrining its most important features in law.

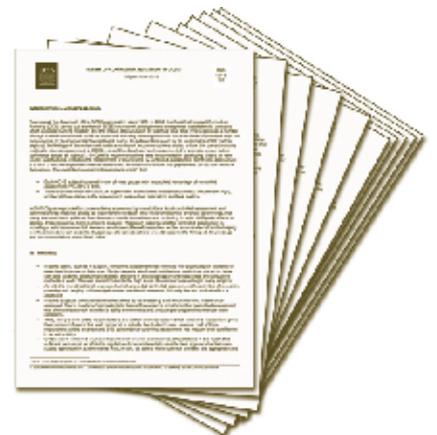
This module has been prepared to help readers, including farmers and other stakeholders, understand and guide discussions on the seed sector regulatory framework that may be applied within a country. It links the concepts of law and policy and emphasizes the roles that each can play to achieve maximum impact. It distinguishes between national seed policy that guides government actions and seed legislation, which is a body of legal provisions that specifically regulates seeds.

Seed legislation should also be distinguished from other legal areas that do not directly regulate the seed production, quality control and marketing system, but that otherwise influence the regulatory framework for seeds, such as plant variety protection (PVP), phytosanitary protection, food security and consumer protection laws.

There is also now greater awareness among governments and development agencies about the benefits of an overall seed sector strategy for meeting the diverse requirements of farmers in the most efficient way. This has led to greater emphasis on the concepts of formal and informal seed systems that may be analysed and addressed at local and national level.

The term “seed sector regulatory framework” – as in the title of this module – is used as an umbrella concept to cover all policy and legislative measures that may be adopted to guide and coordinate the actions of government and stakeholders to improve seed supply to farmers.

Unlike the other technical modules in this series, it is not possible to design a model seed law that could be used in all countries, since national legislation needs to reflect a country’s specific characteristics and legal systems, the different policy choices that guide government action relating to the seed sector, and the different roles of stakeholders in the coordination, structure, function and development of the seed sector. As a result, this module focuses on those aspects that are of general application and, when appropriate, makes recommendations that can be adapted to specific institutional contexts.



*Samples of seed law and other related laws such as phytosanitary or plant protection law, PVP law, and bio-safety law*

Finally, this module is intended for countries in which the seed sector is still evolving and often in transition to a more diverse competitive model. Different conditions would apply to those countries with a mature and stable seed industry.

This module is organized as follows: **Chapter 1** defines the seed regulatory framework, **Chapter 2** is dedicated to seed laws, **Chapter 3** is devoted to seed regulations, **Chapter 4** addresses harmonization of the seed regulatory framework and, finally, **Chapter 5** focuses on national seed policy.

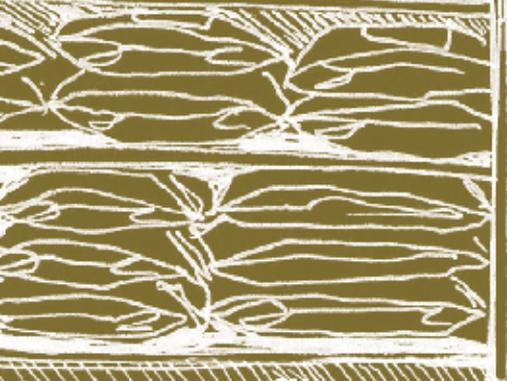




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Kudu, W...  
Kudu, W...



# SEEDS



# What is the seed regulatory framework?



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## SECTION 1

**S**eeds are recognized as a key input to crop production. Ensuring the availability of improved varieties and high quality seeds to farmers is one of the main tools in agricultural development. However, unlike other inputs, seeds are a living material and this introduces many risks in the production and marketing chain. Consequently, the expected benefits of supplying “improved seed” have not always been achieved in practice. This has led to a reappraisal of the role of seeds, with a broader view of “seed systems” at national level.

The fundamental justification for improving the quality of seeds used by farmers is that by starting with good seeds, farmers increase their chances of harvesting a good crop. It was for this reason that seed laws were first introduced in some countries early in the twentieth century. They were intended to provide a measure of protection for farmers and the seed industry from fraudulent sales of low-quality seeds and to facilitate farmers’ access to high-quality seeds of a wide range of varieties. Later on, seed law grew in complexity to focus on issues such as stimulating research and innovation; fostering a fair seed market in which farmers have access to seeds of the varieties they need, at a price they can afford; promoting food security and sustainable rural livelihoods; and sustainable management of plant genetic resources.

When farmers purchase seed, they are hoping to acquire two different benefits, namely:

- Good planting value (seed quality): seed that is pure and will germinate well and develop into a good healthy crop. This may be referred to as the “planting value” of the seed, or perhaps more easily as “seed quality” – it is a combination of several different attributes as explained later in this module. Seed quality is a characteristic of an individual seed lot, which has a known production history.
- Good genetic value (varietal purity): a variety that will perform well under the particular conditions in which the crop is to be grown. This may depend on many agronomic factors, on the season of production and on the intended use for the final harvested crop. This can be regarded as the genetic quality of the seed and it results from the efforts of plant breeders who put together the combination of genes (the genotype) that represent the variety.

It is essential to understand and recognize these two separate components, because the seed regulatory framework can address them both, albeit in different ways.

The term “improved seed” can be confusing because it joins these two elements. Seed can be improved if it has a high planting value as a result of good practices throughout the production process or it can be a new improved variety, and these two components are independent. Seed of a poor variety could still

## notes

have a high planting value if produced under good conditions and, likewise, seed of an excellent new variety could perform badly due to careless management and storage prior to sowing. The relative importance of these two components varies according to the needs of individual farmers. They often have a loyalty to a variety that they know and trust even though it may not be the highest yielding.

In many crops, especially the staple cereals and grain legumes, farmers have traditionally saved seed from their own harvest to sow in the next season, so the decision to spend money on purchasing new seed is a big step. They must be sure that this investment is worthwhile and will bring clear benefits during the growing season or at harvest. It requires confidence and trust in the product for a farmer with limited resources to spend money on seeds that they may be able to save themselves.

This brings us to the most fundamental problem of seeds as a product: it is rarely possible to tell the quality or the identity (variety) of seed by simple visual obser-

*Seed being tested for germination, purity and moisture content*





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## SECTION 2: Key elements of seed regulatory systems

The previous section discussed the two main elements that are subject to regulation, namely the quality of the seed and the identity and purity of the variety. The first of these is the easiest to deal with because the quality of the seed can be assessed on the basis of a laboratory test. Tests can normally be completed within two weeks, so there is sufficient time during the period that the seed is held in store after processing and before marketing.

The main components of quality that are routinely assessed in the laboratory are:

- physical purity (absence of inert materials other than seeds);
- freedom from particular weed seeds that may cause a problem in the growing crop;
- germination;
- moisture content; and
- health – absence of particular diseases that may be transmitted on/in the seed.

These are discussed in more detail in Module 3 “Seed Quality Assurance”.





## notes

Although not strictly speaking legally binding, the seed policy normally serves as the overall framework within which regulatory instruments such as the seed law and various related legislation are contained. The seed policy ensures that the government's vision is adequately reflected in day-to-day operations taking place in the seed sector. This link is important because well-prepared seed policies can allow stakeholders to understand their roles, responsibilities and contributions within defined boundaries, thus facilitating smooth operation of the sector.

There are various elements within the national seed policy, which can contribute to an environment that fosters participation of both the formal (public and private) and informal (small farmers) sectors and that enhances the benefits of seed sector investment and development of the entire farming community.

The following elements reflect the functional and structural dimensions of the seed sector and therefore cover a broad spectrum of the seed supply chain processes and activities:

- Crop variety development
- Seed production
- Seed quality assurance
- Agricultural extension
- Seed marketing
- Seed import and export
- Seed enterprise development
- Seed value chain
- Seed security
- Capacity building
- Seed legislation

The quality of national seed policy should not be seen simply as the sum of the individual elements outlined above but should also consider the interlinkages between these elements. Each country should define, depending on the individual circumstances, the relative roles and overall importance of the various elements. It needs to be underscored that seed legislation is an essential tool for implementing and operationalizing all the other key policy elements. A policy is legitimized, in a broad sense, by widespread social acceptance. In a narrower interpretation, policy legitimization is official sanction or recognition, frequently through enactment of legislation.

## SECTION 4: Challenges associated with the regulation of the seed sector

In principle, regulation of the seed sector may be seen as an entirely beneficial intervention. However, we do need to consider some challenges.

First among these is the question of resources required to run the system effectively. The total cost of implementing all the activities may be considerable and sometimes, if this work depends solely on the government budget, there is a risk

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that it will not be done properly. Another possible negative effect of regulations is that they may make it more difficult for new participants to engage in seed activities because they cannot comply with all the requirements. For example, seed producer groups and local seed associations may be keen to enter the market as low-cost suppliers within a defined area, but they may find it difficult or expensive to obtain germination test results on all their seeds. Devising a regulatory framework that addresses the needs of different stakeholders depends on having a policy that takes account of these special needs and circumstances.

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## SECTION 5: Benefits of effective regulation of seed legislation

Seed legislation seeks to regulate performance evaluation of varieties, seed production and marketing; define the roles and responsibilities of the different actors in the seed production chain, including public and private stakeholders; establish a system for seed quality control; regulate international trade; and ensure sustainability and enforceability of seed policy objectives. Seed legislation may also serve to improve international and regional seed trade.

The main beneficiaries of seed legislation are farmers, who are assured of seed quality and therefore have greater confidence when they make a purchase because of the controls that have been applied to the production and marketing process. Although this may appear to be a “policing” operation, it should also benefit reputable seed suppliers by increasing the demand for seed from the formal sector.

## EXERCISES AND DISCUSSION POINTS

1. When was the present seed law passed in your country and how well does it meet the needs of farmers? How widely known is the seed law among farmers?
2. What proportion of seed used by farmers is purchased from the formal sector and what proportion comes from other informal sources at community/local level? Consider this for the, say, five most important crops in the country.
3. Prepare a list of the different stakeholder groups in your country who would be interested in taking part in seed sector regulation.
4. What would be the reaction of seed companies if the burden of regulation was removed and they could simply compete on the basis of their reputation for selling high quality products under a brand name?









## notes

**SECTION 2: Formulation of the seed law**

The process for elaborating laws varies from country to country depending on each country's legal tradition. Seed laws define the framework and essential principles required for seeds to be produced, marketed and used, and set the quality standards, procedures and principles that must be followed. In general, seed laws define basic rights and establish basic duties of individuals and legal entities. They define the competence of public authorities and the limits within which they can act. They also establish the scope of subsidiary legislation that may be enacted within the framework of the primary legislation – for example, government decrees and regulations.

Generally, it is preferable for the seed law to establish broad principles while leaving the more detailed aspects to regulations. It is usually easier to make changes to regulations because, with some exceptions, this can be done via ministerial or other administrative action, without submitting the regulations for legislative approval. Seed law should not contain general statements or plans for the government to manage the seed sector or industry. Those matters should be dealt with in the seed policy.

The process for making a seed law reflects a country's specific characteristics and legal system, the different policy choices that guide government action relating to the seed sector, and the different roles of stakeholders in the coordination, structure, function and development of the seed sector. The long-term value and effectiveness of seed legislation depends on the process that leads to its design and formulation, and the extent to which that process adequately balances the interests of different stakeholders.

*Seed consultation meeting*

## 2

In some countries the process of enacting new laws is very slow, which may contribute to the continued existence of laws that are very out of date. In this situation, minor amendments to existing laws may be easier to enact than a major overhaul. Such a piecemeal approach can be used to respond to specific needs; however, this should only be done to a limited extent to avoid the law becoming difficult to understand as a unified document. At a certain stage, a new law should be prepared that incorporates all amendments and any other changes that are considered necessary. This is very important because seed industries are evolving all the time, particularly in the private sector, and a law made 30 years ago cannot be expected to be “fit for purpose” today. As noted in the introduction, this is precisely the reason why many countries feel a need to update their legislation.

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## SECTION 3: Enactment and implementation of the law

### Assessment of the existing legal framework

In order to prepare the draft law, an assessment of the legal framework should be conducted to assess the appropriateness of the existing legislation and potential regulatory failures. This assessment may reveal that legislation is sufficient and comprehensive but not appropriately enforced, in which case, the focus of the regulatory action should be on improving the enforcement of the existing legislation, rather than enacting further legislative reforms.

The legal review assesses the effectiveness of the existing legal framework in fulfilling the goals, targets and objectives of the government for the seed sector. This entails a review of the existing national seed legislation as well as other legal areas that influence the regulatory framework of seeds.

### Establishment of a working group to develop the draft seed legislation

Under the coordination and leadership of the government entity in charge of seed quality control and certification, commonly a ministry of agriculture or the equivalent, and in cooperation and consultation with other relevant ministries, a working group should be established to develop the draft seed legislation. This working group could be composed only of public entities or include also the private sector and civil society, depending on the legislative process in a given country.

The working group will use the following documents to prepare the draft seed legislation:

- a) Assessment of the existing legal framework.
- b) National seed policy as well as the findings and recommendations arising from the elaboration of the seed policy, for example the recommendations from a “Seed Forum” or similar consultative meeting.

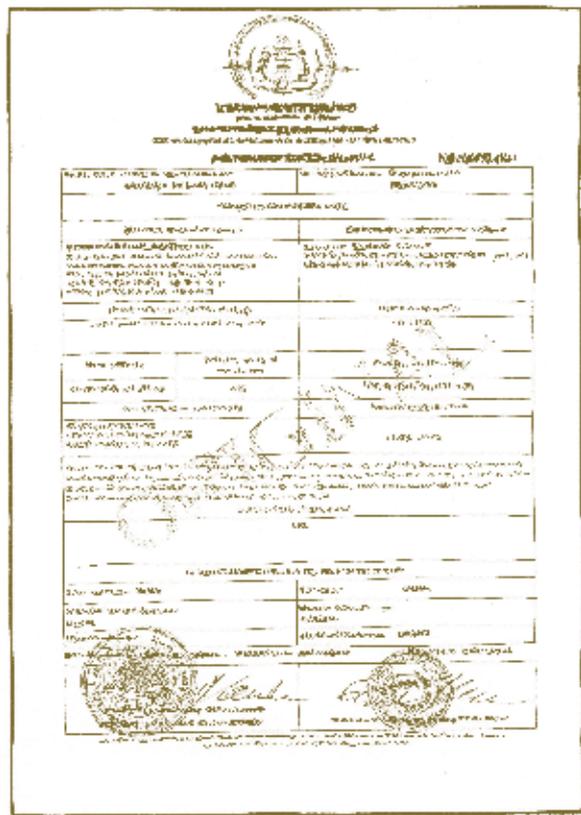
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- c) National agricultural policy or plan and any other relevant policies, such as the national food security policy, poverty reduction strategy document, and national plant genetic resource use and conservation policy.
- d) International agreements, treaties and conventions ratified by the country including international human rights instruments.

The draft seed legislation should be written in plain language that is understandable to the public, and should avoid complex syntax, terms with definitions that differ greatly from their common meanings, and confusing chains of cross-references. When possible, legislation should be translated into the local language and dialects. The legislation should also follow a logical structure, with general rules preceding specific ones.

### Consultation with stakeholders

Once a draft of the seed law has been prepared, a process of consultation should be conducted, in accordance with national legislation, to bring together key stakeholders from across the sector, including representatives of farmers, seed companies, national seed associations, NGOs/civil society organizations, agro-industry, institutions involved in research on and conservation of plant genetic resources for food and agriculture, and relevant ministries (e.g. agriculture, research, finance, environment), to exchange views and to reflect on the draft.



*A signed and stamped page of approved Seed Law*



## notes

- Definitions of key terms to facilitate interpretation and implementation of the law. Terms such as “seed”, “local variety”, “certification”, “marketing”, “labelling” and “inspection” should be clearly defined so that they are understood in the same way by all stakeholders.

The law will also include final, derogatory and transitory provisions, indicating when the law enters into force, which other laws are superseded by this new law and how the sector will be regulated before the law enters into force.

Other elements that the seed law should include are the following:

- Designation of the official body or agencies responsible for implementation of the institutional framework. These are normally ministries of agriculture but may include other executing agencies that should have legal power and mandate to effectively implement or enforce different aspects of the seed law. Some countries may also wish to establish other bodies that can support the seed sector in some way, for example through a research and development fund or a mechanism for training. These can be included in the law to provide legal basis and authority for their work, and details can be elaborated in regulations.
- Registration of companies and other entities involved in the production, processing and marketing of seeds.
- Registration of varieties, usually in a “national list”. This may include reference to a “variety release committee.”
- Procedures for sampling and testing seeds, including identification of officials or institutions responsible for this work.
- Quality standards that seeds must comply with when marketed, including the information that must be provided on labels.
- Key features of the certification scheme.
- Licensing standards for private entities or individuals to carry out certain activities, such as seed sampling, testing or even the whole certification process.
- Requirements for the import and export of seeds.
- Powers of inspectors to enforce the law.
- Offences, penalties and appeals procedures for disputes arising from implementation of the law. These matters will need to be harmonized with a country’s more general laws on criminal, civil and administrative matters, and are not discussed in detail in this module. However, there are aspects that may need special attention in a seed law. For example, such a law may



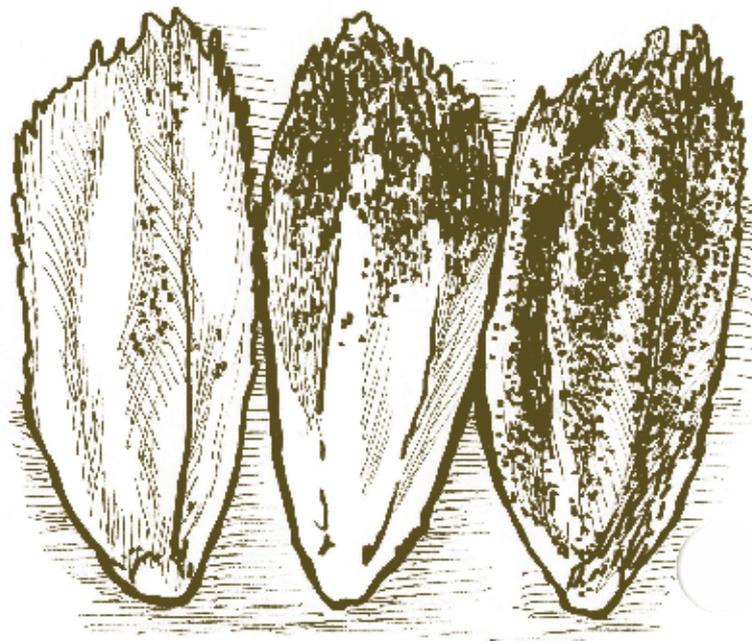
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## SECTION 5: Other legal areas that influence the regulatory framework of seeds

As already noted, there are other legal areas that do not regulate seed production, quality control and marketing system, but that otherwise influence the regulatory framework for seeds. It is important to understand how these relate to the seed law and how they could overlap or interact during implementation of the seed law.

**Phytosanitary laws** provide a basis for the control of pests and diseases that may threaten crops, particularly in the context of import and export although they may be part of a wider “Plant Protection Law”. The main interaction with the seed law arises from the procedures and documentation relating to imports, and efforts should be made to have a unified system in order to minimize the work required for importation.

Most countries have signed the International Plant Protection Convention (IPPC) and are members of the International Plant Protection Organization (IPPO) and its various regional organizations. These bodies have supported countries in the preparation of their national laws, because the movement of plants and plant products between countries generally requires a “phytosanitary certificate”, which has a standardized format. It should be emphasized that phytosanitary controls apply to all plant materials, including fruits and vegeta-



*Seed showing different levels of disease present*

bles for consumption and cut flowers for decoration. Seeds and planting materials are only a part of that work, but of course they present a much greater threat if the subsequent crop provides a vehicle for spreading a new pest or pathogen in a country.

**Plant Variety Protection (PVP) laws** provide a basis for breeders to obtain property rights in their varieties and charge a royalty for use of these varieties by farmers. Most countries that have a PVP law are members of the International Union for the Protection of New Varieties of Plants (UPOV) (see below) and have adopted that model in preparing their national law. It should, however, be emphasized that PVP is different from seed law, since PVP focuses on ensuring that breeders receive adequate remuneration when they market the propagating material of those improved varieties.

Figure 15: Photo of plant breeder in a breeder seed plot

**Biosafety laws** were introduced in many countries when genetically modified (GM) varieties first entered commercial trade some two decades ago. In practice, there are still relatively few GM traits in use in a small number of crops (notably maize, cotton and soybean). Moreover, the regulations required to implement the law are complicated and have often not been prepared or used. This is a topic where regional collaboration would be beneficial, because the protocols for testing GM varieties are standardized and it should not be necessary to repeat them in each country.

*Plant breeder in a breeder seed plot*



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**notes**

A country's decision to allow (or not) GM varieties to be grown is highly political and often rests with the ministry of environment rather than the ministry of agriculture because of the perceived risks to the natural environment. The main point of impact on seed legislation is whether GM varieties can be included in the national list and this would surely be a decision taken above the level of the ministry of agriculture. Once the decision is made, there is no difference in the testing procedures required and the VCU (value for cultivation and use) attributes of a GM variety would be assessed as for any other candidate.

**SECTION 6: International organizations and treaties affecting seed laws**

The organizations listed below have activities relating to seeds and varieties and it is important to understand how these might affect – or be reflected in – the seed legislation of a country. There can sometimes be confusion in this regard. In all cases, more detailed information can be found on their respective Web sites. The **International Seed Testing Association (ISTA)** publishes "Rules for Seed Testing" on a regular basis and these are used in seed-testing laboratories throughout the world. They cover virtually all the species that are likely to be tested for seed quality and related procedures such as sampling. However, these rules do not contain the actual quality standards established under the law – that is a matter for individual countries to decide.

The law could state that the procedures described in the ISTA Rules are to be followed in seed-testing laboratories in the country in order to encourage this to be done, but it would be unusual to prosecute a laboratory that did not

*Variety trial plot*











## notes

- Powers and duties of inspectors
- Fees charged for services arising from the law
- Penalties imposed for non-compliance

For each regulation, some forms will probably be required in order to carry out the key activities. For example, when registering seed companies or other entities, there should be (at least) an application form that has to be completed and submitted to the relevant agency and a certificate of registration issued to the company on approval. These forms should be given a reference number and they should be attached to the regulations as annexes to give them official status. It may be necessary to make minor adjustments to these forms once in use; therefore, the regulation could make provision for the approving agency to make any necessary adjustments to annexes without having to go back through the full approval process.

Regulations are normally drafted within the ministry of agriculture or equivalent because the staff there are aware of the technical issues involved and have the necessary in-house expertise. It is common practice to convene a working group or task force to undertake the drafting work and to consult with stakeholders as required. It is good practice to establish a deadline for completion of this task so that the work does not get delayed and become a burden.

Once a good technical draft regulation has been prepared, this is shared with the government legal draftspersons for finalization. Alternatively, the ministry of agriculture may have its own legal department, in which case they would participate in the working group and ensure that legal aspects are kept in good order. Finally, the draft regulations are passed to the government office responsible for approval and the responsible minister can then sign them. Clearly, the precise sequence of these events and the departments involved will be well established within each country. For example, in some cases regulations may be presented to the council of ministers for formal approval.

*Regulations signed at Ministerial level*



## 3

One key principle that should guide the drafting of regulations is that sufficient resources be available to implement them. It is not helpful if the regulations place very heavy burdens on stakeholders (e.g. companies) or government officers who lack the financial or technical capacity to comply, so that in practice the necessary work does not get done. There may be a tendency to over-regulate and to try to control everything, with the result that a law is ineffective and brought into disrepute.

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## SECTION 3: Content of regulations

### Registration of seed companies

Registration is necessary to know who is engaged in the physical and commercial activities relating to seeds, including production, processing, storage, import, export and marketing. To achieve registration, a company must provide certain basic information about its business such as location(s), contact details, crops handled and main activities. It then receives a certificate of registration, valid for a certain period and a registration number, which could appear on the labels attached to seed sacks. Registered companies are normally required to maintain certain basic records of their seed stocks, particularly in relation to seed quality and these records should be available for inspection by the ministry on demand.



*Display of seed company registration certificate*

## notes

Registration should be a quite straightforward process for the majority of companies comprising the seed industry, but there are issues about definition: for example, does the registration process apply to general trading companies who import seed occasionally (probably yes) or to retail shops who sell packeted seeds (probably no)? It is not necessary to register individual farmers who produce seed on contract because they would be growing for a registered company. On the other hand, a large farm that has a seed processing and storage facility should be registered and be liable to inspection. These examples show that there are decisions to be made about the scope of registration and it is not helpful to include every possible entity because that would create too much work for the regulatory authority.

Registration intrinsically provides a means of sanction against companies that regularly fail to comply with the law because their certificate can be withdrawn. The regulation must specify how this would be done and provide an appeal procedure.

#### SECTION 4: Testing and registration of varieties

This is a major topic and one that has become much more prominent in seed legislation in the past 30–40 years. It is a response to the intensive breeding taking place in some crops and the introduction of many new varieties to the market. Many governments believe that there should be some objective evaluation of varieties so that farmers can have information on the most suitable varieties and/or be protected from inferior ones. At the same time, it is necessary to define varieties so that their names are clearly related to a description.

These two objectives are reflected in two separate procedures for registration, namely:

- “DUS testing” to determine the “distinctness, uniformity and stability” of the variety by means of a detailed examination of the plants on small plots.
- “VCU trials” to establish the “value for cultivation and use” by means of more extensive replicated trials, usually performed at several locations and over two or three seasons. This is the conventional variety trial, carried out for many years by different organizations. However, a more formalized procedure is required once it becomes part of the legal requirement for releasing a variety.

Varieties that satisfy the criteria for DUS and VCU will normally be added to a “national variety list” and become eligible for marketing and certification.

The procedures for DUS testing are well known and based on a list of morphological characters or “descriptors” for each species; most testing authorities use the technical guidelines prepared by UPOV or a modified version. DUS tests are normally carried out at only two or perhaps three locations because the characters used should not be greatly affected by environment. Uniformity

## 3

of a variety is assessed by examining a sufficient number of plants within the test plots and stability is assessed by saving seed from the test plot and growing another generation to confirm that the variety remains unchanged and uniform. For this reason, a DUS test always takes two years (or seasons) to complete. Hybrid varieties are not genetically stable and do not have to meet this requirement.

The regulations for variety testing and registration normally specify the following:

- crops for which DUS and VCU are required;
- testing authority (not necessarily the ministry);
- procedure for submitting a new variety for testing and registration, including who can make such an application;
- general parameters of the testing system (e.g. the number of years of testing);
- means by which data is reviewed – typically by a variety release committee;
- procedure for recommending the registration and release of a variety, including its inclusion in the national list;
- certificate of registration issued for a variety; and
- overall management of the national list, including the frequency of its publication and the requirement for a variety to be retested after a certain period of time.

It is clear that there are a lot of technical and procedural details relating to variety testing, for example the amount of seed that must be submitted, latest dates for submission, the actual protocols for DUS examination and especially for field trials. Some of these details can be accommodated in annexes

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#### *Field plots of DUS and VCU trials*



## notes

(schedules) attached to the regulation, while others need to be set out in a “manual of procedures” published under the authority of the ministry. It is a matter of judgement how best to divide this information between these different documents. The regulations should stipulate the most important requirements but they should not become too cluttered with details. It is helpful if the regulations include a statement, such as, “The Ministry will publish an official Manual of Procedures on the Testing and Registration of Varieties”, for use by the responsible authorities. This gives authority to the manual even though it is not actually part of the law.

Several key issues arise in connection with variety testing legislation and these must be defined within the regulations, taking account of the importance of the crops and the resources available to do the work. For example:

- **Identification of crops subject to DUS and VCU testing.** In general, only a few major field crops need full testing of this kind and vegetable crops are rarely subject to VCU testing because of the large number of crops, varieties and consumer requirements (e.g. shape, colour and flavour). As already noted, the national variety list can be subdivided into groups according to the testing and registration requirements considered appropriate for different types of crops.
- **Use of information available from other sources.** If a variety is already registered or in general use in another country, it should not be necessary to repeat the full testing process. In these cases, there could be a “fast track” procedure or a smaller-scale verification trial carried out for just one production season. This issue is discussed in Chapter 4 on harmonization.
- **Sharing of testing responsibilities.** Carrying out full DUS and VCU procedures, even on a limited range of crops, places a considerable burden of work on the testing authority. They have to process applications, receive and distribute materials, arrange test sites, manage plots throughout the season, collect and analyse reliable data and finally organize this information for presentation to the variety release committee, or similar body. It is possible to reduce this burden by accepting information from other sources as noted above, or requiring applicants to complete the first stage of testing themselves and submit a factsheet about the variety with the application. Verification trials on imported varieties could be carried out by companies that import varieties, since it is they who benefit from the subsequent sales of the variety.
- **Online registration.** For varieties already in use elsewhere and with a production history, an online registration system could be adopted, particularly for vegetable crops; the applicant could pay a small fee and then complete an online factsheet describing key attributes of the variety.

Although variety testing is discussed here in the context of regulation, we should not forget that the information gained from this process is also useful for extension staff and others who may be assisting farmers. Inclusion in the national variety list essentially grants permission to release and market a variety, but it may be elaborated to include some key agronomic advice

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and recommendations. The list should also be reviewed on a regular basis to confirm which varieties are actually being used and delete those that are obsolete. There is a strong case for putting the list online so that it can be easily updated and become an active tool for stakeholders; it should be a useful "living document".

One practical issue arising from variety registration is how to deal with varieties that are already in common use when the national list is established. "Retrospective" testing of these varieties would require a lot of work and be of little value if they are already well known. In practice, therefore, it is best if companies are given a fixed period within which to submit varieties that are in regular trade so these can be added to the list. If there is a national seed association representing private companies, it could coordinate the responses of their members.

Another more sensitive issue is how to deal with local varieties and "landraces" that have been cultivated by farmers for many years but do not have any known origin or breeder. It would be unfortunate to exclude these varieties from the regulatory framework, for example, if they do not comply with DUS requirements. Ideally, there should be a separate section of the list in which these varieties can be included, although it may still require some consultation to decide on their status, because there may be many local names relating to similar materials.

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*Sample document of National Variety List*

Wheat Cultivars				
General Characteristics		Var 1	Var 2	Var 3
± Days to 50% Flowering*	Warm	94	99	101
	Cool	104	109	111
± Days to Physiological Maturity*	Warm	144	149	151
	Cool	154	159	161
± Days to Harvest (<15% moisture)*	Warm	154	159	161
	Cool	164	169	171
Agronomic, Disease and Quality Characteristics				
Hectolitre Mass		3	2	3
Pre-harvest Sprouting Tolerance**		6	6	4
Leaf Rust***		5	3	7
Stem Rust***		5	5	5
Stripe Rust***		2	2	2
Standability		1	2	3

\*Planting date/climate may influence data

\*\*Data obtained from ARC-Small Grains Institute

\*\*\*Screened for response to prevailing pathotypes

1 - Excellent/Quick

9 - Poor/Slow

## notes

**SECTION 5: Sampling and testing of seed lots**

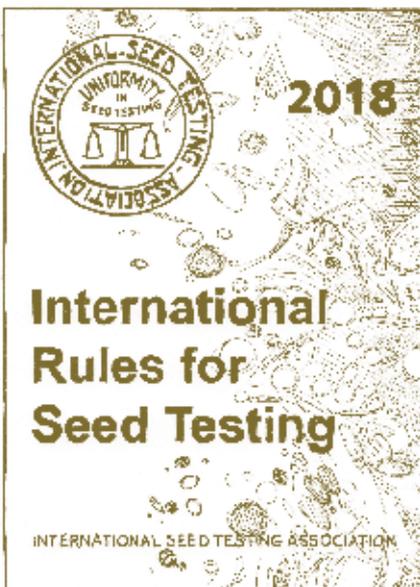
This topic takes us back to the original purpose of seed laws, which was to assure the quality of seed offered to farmers in the market. The actual seed quality standards that are applied must be specified somewhere in the regulations and they fit most comfortably in the marketing regulations requiring those who sell seed to comply with the law. These standards must also be incorporated in the seed certification scheme.

Regulations on sampling and testing should mention the following **key points**:

- Organizations or individual laboratories authorized to carry out tests considered as valid under the law.
- Organizations or individuals authorized to take seed samples for testing.
- Requirement to assign seed lots a unique reference number that will appear on the label, and usually following a standardized format.
- Maximum size of a seed lot that can be covered by one reference number.
- Format used for reporting results of seed testing.

Traditionally only official seed-testing laboratories run by the ministry or a subsidiary agency were recognized. However, with the trend towards privatization and decentralization, private laboratories are now being licensed in many countries so that seed companies can do their own testing. To allow for this, the regulations also need to refer to the mechanism for recognizing such laboratories and for monitoring their performance, normally by a random checking of samples by the national (or central) seed-testing laboratory. There is normally a requirement for every laboratory to have one person designated as the senior seed analyst who has ultimate responsibility for – and would normally sign – the reports of tests carried out.

*ISTA Rules document*



As noted above, seed-testing laboratories should use the procedures set out in the ISTA Rules since these are based on many years of experience; this could be specified as a requirement in the regulations. The same applies to sampling for which very precise regimes have been developed by ISTA according to the size and type of seed lots. As with variety testing, the technical details required to carry out sampling and laboratory analysis in a standardized way cannot be accommodated in the regulations. A manual of sampling and testing procedures should be prepared based on the ISTA Rules and issued by the ministry as a formal document.



## notes

As with variety registration, there are many technical details that must be specified to operate a certification scheme, particularly for the selection of seed production fields and the procedures for crop inspection during the growing season. These should be set out in a manual of procedures issued by the responsible ministry. This document may also be used in training courses since it is often necessary to recruit additional (licensed) crop inspectors because of the seasonal nature of the work. Because certification involves the sampling of seed lots after harvest and the results of the seed laboratory test, it may be practical to prepare a single "manual of seed quality control" covering all these activities.

Certification is a comprehensive quality control system and as a result considerable resources are required to implement it properly. In addition to the physical activities as outlined above, there must be a good record-keeping system that tracks each stage of the process for each seed crop, from accepting the production field to issuing the certificate and printing labels. Fortunately, computers can make this task much easier and software programmes have been developed for this purpose. If insufficient resources are available, there is a real risk that the work is not done properly, poor quality seed is sold with certification labels attached, and the whole system is brought into disrepute. This raises a number of issues that must be reflected in the law and regulations, for example:

- **Certification requirement.** Should certification be compulsory or voluntary? If compulsory, this should be limited to a small number of the staple food crops to avoid an excessive workload.
- **Fees.** It is possible to charge fees for the main activities involved, such as entering the seed production field, inspecting the crop during the growing

*Licensed seed  
inspector in the field*



season, carrying out the laboratory tests, and finally issuing the certificate and labels. These costs are initially paid by the company producing the seed crops and no doubt passed on to the farmer in the seed price. To charge such fees adds an additional administrative burden, but should make the scheme more sustainable, providing that the implementing agency is able to retain the income and manage its own budget. In general, it is difficult to do this if the scheme is run directly by the ministry because government rules may require all income to be returned to the treasury. This justifies the establishment of a semi-autonomous "seed certification agency" with its own bank account.

- Licensing of inspectors.** The inspection of certified crops in the field is the most demanding activity in terms of resources, because the crops may be spread across many different locations and the windows available for these inspections depend on the development of the crop itself. Certification staff may lack the means of transport to reach all crops or they may depend on the seed company to provide transport, which can compromise their independence as inspectors. One solution is to use authorized trained inspectors who may be based closer to the areas where seed crops are growing. It is of course essential to monitor the performance of these temporary staff by having a certain percentage of the crops checked by official inspectors.

Considering the implications of operating a full certification process as outlined above, FAO developed an alternative model known as quality declared seed (QDS)<sup>1</sup>. This requires that seed production and marketing entities take on a greater share of the work themselves and are then subject to monitoring by the regulatory authority. If the name of the supplier is clearly shown on the label attached to seed sacks, QDS effectively replaces part of the regulatory control with the concerns of the supplier to maintain and promote their reputation.

This approach is particularly relevant to crop inspections because company staff would be visiting their crops on a regular basis during the season. They would also supervise post-harvest handling when samples need to be taken. Likewise, the "in house" seed laboratory could be accredited for carrying out tests on certified seed lots, as already mentioned. QDS can be regarded as a "step on the road" towards certification, or as a permanent long-term alternative.

## SECTION 7: Seed marketing

Giving **confidence to farmers when purchasing seed** is the most important function of the seed law and its regulations. All the activities described in this chapter, with regard to both varieties and seeds, should ultimately contribute to this one key objective. The main points that must be covered by marketing regulations include the following:

- Companies need to be registered, as described above. This requires that they maintain adequate records of their seed stocks and ensure that information on seed quality is updated.

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<sup>1</sup> FAO. 2016. *Quality declared seed system. Plant Production and Protection Paper 185*. Rome

## notes

- Minimum quality standards for purity, germination and (possibly) moisture content must be specified for all commercially important species, usually in an annex to the regulations. An alternative approach is known as “truth in labelling” and this is discussed below.
- The minimum information provided on labels attached to seed sacks should be specified.

In practice, these points are all closely linked because the companies are responsible for the seed they produce and/or sell, so they have to know the quality of that seed. This is not difficult for an established company because they will have a small seed-testing laboratory linked to the processing plant and will regularly monitor their seed stocks. For smaller or newly established companies, it is more of a challenge and they would have to send samples elsewhere for testing, or devise very simple test methods for the main species they sell.

The requirements stipulated for labelling of seed containers need careful consideration. There may be a tendency to require too much information, which can in practice make the label difficult to print – or read, if the printing quality is not good. The essential details are:

- the name of the seller;
- the reference number of the seed lot;

*Seed container  
with essential information*





**notes**

exporter/supplier, which they should do anyway if they are making a commercial transaction. The regulations may also state that any variety imported must be on the national list, in which case it is necessary to make an exception for materials imported for research or testing, otherwise it would be impossible to import any new variety. A special category of “seed for research and testing purposes” could be included in the regulations, with the maximum quantities permitted for import under this heading.

**SECTION 9: Regulation of fees**

As already noted, fees may be charged for various activities arising from the implementation of the seed regulations. The main examples are:

- registering a seed company;
- testing and registering a new variety in the national list;
- testing a seed sample in a laboratory and related activities; and
- various activities involved in the production of certified seeds.

Legislation normally states that “fees may be charged for these services”, thus providing the legal basis for charging, but without stipulating the actual level of fees applied. The reason for this is that the scale of fees must be revised from time to time and it is more convenient if the fees for all services under the seed law are placed in a separate regulation, or in an annex to a regulation, so that this can be easily re-issued when necessary.

**SECTION 10: Phytosanitary regulations**

These should also be mentioned here because they impact on seed importation, despite the fact that they are always made under a separate law. The key document for trade between countries is the international phytosanitary certificate issued by the exporting country to confirm that the seed lot complies with the requirements of the importing country.









# Harmonization of seed regulatory framework

## 4

### notes

The seed industry is composed of many segments depending mostly on the characteristics of different groups of crops. Factors determining the way the industry functions include the value of the seed, the sowing rate, the type and ownership of the variety and the environmental conditions required for seed production. Seed of crops such as cereal and grain legumes are bulky and are normally grown and marketed within a limited area, whereas others, notably seeds of vegetable crops, are produced in locations around the world and pass through a complex global trade. The development of hybrids in many crops encourages the owner of a variety to concentrate production in the most favourable areas in order to optimize yields and reduce costs. The seed trade has been part of the wider trend towards globalization, which has been a key driver of economic development for the past 30 years or so, although it began much earlier in some specific crops.

Given that seeds have been subject to national legislation for many years, the key issue to address is the harmonization of the regulatory framework in order to facilitate bulk movement across borders. In practice, this mostly affects seeds of cereals, legumes and some oil crops that are moved in relatively large quantities within a defined geographical region. Being truly global, the vegetable seed trade works in a different way and without the same level of control.

## SECTION 1: Targets for harmonization

Harmonization of seed legislation is difficult because the elaboration and revision of legislation by national governments is a slow process and synchronization across several countries takes time. Furthermore, the parliaments and governments of each country will always have their own particular priorities and agendas and they may be reluctant to abandon these for a wider regional goal. It follows that the better point of entry for harmonization is at the regulatory level, where, as explained in Chapter 3, most of the technical details are prescribed and there are often broad similarities between countries.

In practice, these objectives might be pursued among a group of countries that form a coherent geographical region and are normally members of a political grouping that has been established to promote economic cooperation. Consequently, harmonization of seed regulations does not take place in isolation but within a wider political framework. There is normally a central secretariat for the regional organization and they may designate a coordination office for seed-related activities. This would normally be the relevant technical office or agency in one of the countries and the choice of location could be a sensitive issue among members.

## notes

The three main topics to consider for harmonization derive directly from the topics covered by seed regulations described in Chapter 3 and they are:

- Variety registration and listing – the goal is to develop a regional variety list.
- Seed standards and certification – the goal is to establish a regional certification scheme.
- Import and export procedures – the goals are to have a standard format for all the documents required and agree on phytosanitary requirements.

The concept of a regional variety list is very clear. It is based on the assumption that national borders do not correspond with agro-ecological zones. Therefore, varieties already registered and used in one country will almost certainly perform well in a nearby or similar area across the border. This situation exists in many parts of the world where similar cropping patterns may extend for hundreds of kilometres. Once a variety is on the regional list it does not have to be tested again and can be imported, marketed and, if necessary, produced in any country in the region.

The mechanism for establishing such a list is equally clear – a variety that has completed the testing and registration process in one country can progress to the regional list and be grown in other countries.

The simplest arrangement is for varieties to progress automatically from the national list to the regional list after, say, one year, unless there is a specific objection raised by another country. The regional list could become quite large as a consequence, although it would often be limited to a few major crops in which there is significant regional trade. A more restrictive arrangement would be that an application has to be made for regional listing with additional criteria, which could include:

- completion of at least one or two seasons of production with no adverse observations;
- completion of a data sheet about the performance and adaptation of the variety based on experience in the country of first registration;
- submission of the DUS test report to the registration authority of the other country/ies; and
- provision of a specified quantity of seed if required for verification trials – but this should not be necessary if the data sheet is reasonably detailed.

The benefit of a regional list is that it avoids the need to re-test varieties in each individual country, saving both time and money. Farmers have access to a wider choice of varieties and they are more quickly available. The existence of a legitimate procedure for the movement of varieties should reduce the unofficial trade (i.e. smuggling) of material from one country to another. Once a variety is on the regional list, it can also be produced in the other countries under their own certification schemes, provided the breeder or agent wishes to follow this course of action. This avoids the need for regular importation and should reduce the cost of seed to farmers. Certification would of course require that a reliable description of the variety is available.



## notes

Experience in other parts of the world is less encouraging. Despite many years of discussion, regional schemes (e.g. those proposed for East, West and Southern Africa) are still not fully operational. In these regions, there is a very clear justification in terms of agro-ecology and variety use, so it is unfortunate that these efforts have moved so slowly. Central Asia is another area where harmonization would be very beneficial, particularly as countries were members of the former Soviet Union and their complicated national borders can make the transit of goods difficult.

The reasons for slow progress in harmonization can be both political and technical. Clearly, the conclusion of regional agreements ultimately depends on goodwill among the parties; if there are underlying political tensions, the final signing by senior officials can be difficult, regardless of the potential benefits to farmers. The greater the number of countries involved, the more difficult this becomes, particularly if there are changes of government in member states.

On the technical side, difficulties may arise if the member countries have different capabilities for seed quality control or variety testing. The authorities in country A may be reluctant to accept a seed lot certified in country B if they do not have confidence in the system there. There are clearly examples of this where a number of countries with seed industries at very different stages of development become joined in an economic union. However, there can be a positive side to this situation, because if there is a strong secretariat, training and exchanges can be arranged among the relevant technical staff to bring all countries to an acceptable level.

A similar problem arises when one or two countries, for historical reasons, are the leaders in terms of plant breeding or seed production. This leads to a situation in which the flow of varieties and seeds is only in one direction, leading to the feeling that the parties are not equal and one is dependent on another. This may not present any real technical risks, if farmers have access to the best varieties within the region, but it may still be uncomfortable for politicians.

Behind all these different scenarios, there is the opportunity for "nationalism", particularly concerning the registration and release of varieties. In the past, it was not uncommon for testing authorities to favour their own research institutes or be strongly influenced by them. Varieties from other countries were simply "unwelcome" regardless of their merit or value for farmers. It is hoped that these tendencies will decrease as competitive breeding increases, particularly in the private sector. However, officials can still be heard to say that "we must test varieties in our country in case they pose a threat to our farmers", even though the variety is in regular use elsewhere and information is available. This simply delays farmers' access to new varieties.

The conclusion from these experiences should be that in general regional harmonization can bring real benefits to farmers by increasing choice and competition in the market. Those who oppose these moves normally have

## 4

some vested interest. Moreover, attempts to restrict access commonly lead to unofficial or illegal trade that poses a greater threat to farmers because it is outside the regulatory system.

Finally, it should be mentioned that if it is difficult to conclude full regional agreements, or progress is slow, then it is still possible for countries to conclude bilateral agreements for the movement of seeds and varieties where there is a clear mutual benefit.

### SECTION 3: Harmonization of policies

Although the main effort has been directed towards harmonization of regulations in order to facilitate trade, there is a case for promoting the alignment of national seed policies, since these should eventually influence the laws and regulations when they are revised. Furthermore, since discussions about policies do automatically raise the key issues or constraints in a country, bringing that discussion to a regional level should enable the sharing of positive experiences. Although it would be impossible to devise a "regional seed policy" because of the different conditions and institutions in each country, an agreement on the content and objectives of national policies should facilitate a gradual convergence.

notes

### EXERCISES AND DISCUSSION POINTS

1. What are the origins of the most widely used varieties of the major crops in your country?
2. What varieties available in nearby countries do you think could be useful to your farmers?
3. Should the government require that seeds of varieties from other countries be produced domestically under your own certification scheme?



# ⑤ National seed policy







## notes

Under this wide umbrella, the law and its regulations address a few important topics that can be enforced, such as the registration of companies, the standards of seed quality and the labelling of sacks, as described in earlier chapters. Many other key areas, such as investment, subsidies and international dimensions, need to be promoted and monitored but cannot be enforced. Furthermore, the law and regulations apply only to the formal sector, while in many countries the informal sector accounts for the majority of the seed supply, especially in cereals and legumes. Figure 1 represents this relationship.

Ideally, the overall framework provided by the policy should be in place before the law, but in practice this is seldom possible because most countries already have a seed law and they develop the policy much later. The policy cannot fill gaps in the law, but any weaknesses or problems identified can be specifically mentioned and addressed during the revision process. If these are serious matters, then the policy could state as one of its main conclusions or recommendations that the law should be reviewed and revised as a priority for the government. As noted earlier (see also Figure 1), it is helpful if the law makes specific reference to the policy in order to give it recognition and authority. For example, there could be a statement in the law such as “The National Seed Council will prepare and oversee a Seed Policy to guide and monitor the development of the seed sector.”

## SECTION 2: Formulation of the policy

Preparation of a seed policy should be a participatory process involving all those stakeholders who will be affected by its implementation. In fact, the process of preparing the policy is to some extent just as important as the final document because it provides an opportunity to raise all issues affecting the seed sector in a formal context. How to launch this consultation process requires some thought because stakeholder meetings need to be structured to be effective. One option would be to start with a brainstorming session among key representatives to agree the main topics to be discussed. Alternatively, a draft document could be prepared by consultants to provide a basis for discussion and this could then be presented in a series of workshops around the country. To oversee and coordinate the formulation process, it may be helpful to establish a small task force or working group.

The consultation process should not be limited to those currently involved in the seed sector. For example, rural financial institutions, cooperative organizations, education and training establishments, millers and food processors could all have their own perspective on the policy and it may be helpful to have separate meetings with those “interest groups”. Throughout this process, there should be one or two facilitators who understand the subject matter and are able to prepare and revise the document on a regular basis, making it more inclusive. Difficult issues that need to be resolved should be highlighted at this stage.

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## notes

Farmers are the main beneficiaries of the seed policy so it is important to find a mechanism that gathers their real opinions. Although a national farmer association may be in existence, it will often represent the interests of the larger commercial units in the more productive regions of the country. Smaller, household farmers may have different problems and they could perhaps be accessed by the extension service or by NGOs working at community level.

It is important to recognize that a policy can never be perfect because it inevitably involves compromises between different interests and objectives. There is a risk that the document never gets finalized and approved because there are always different opinions. For this reason, the responsible minister should provide a deadline for submission of a final draft. Another risk during the formulation process is that the document becomes simply a statement of the ideal situation – “a wish list” – that cannot be achieved in practice. It is not helpful to say that there will be more funds for breeding, more extension officers, more certified seed produced unless it is clear how those goals are to be achieved. For example, if the certification agency is lacking in resources, should fees be charged to increase their income? The policy is a “living document” and should be reviewed and updated at regular intervals based on experience. It is better to publish the policy and then test it in practice.

The format and style of the policy is an important topic. Unlike laws, there is usually no standard format based on the legal tradition of the country, although there may be some other recent policy documents in related sectors that can provide useful examples. The language used and style of writing should be easily understood because this document should be accessible to all and easily available in the public domain. It should not be written in complicated legal style or contain too many technical terms. Any intelligent person ought to be able to read the policy and understand what action is required to make the seed sector more effective in meeting the needs of farmers. For this reason also, the policy should not contain a detailed analysis of the seed sector because it will then become a large unwieldy document. However, such a study could be carried out as a “baseline” before the policy is prepared.

Although the policy “belongs” to the responsible ministry, it may be helpful – or necessary – to obtain the comments of other ministries that may be concerned. One example would be the ministry of planning, since the policy effectively provides an outline plan for the seed sector. The ministry of finance would likewise have a view on issues such as charging of fees for services. Without causing delays in the process, it is good if the policy is known and endorsed at high levels in the government, since seeds are often a sensitive issue for farmers. It should reflect well on the ministry of agriculture if they have prepared a comprehensive and forward-looking policy.

## notes

**SECTION 3: Approval and implementation of the policy**

The process for approving a policy varies between countries and is not formalized in the same way that laws are examined by the national legislature. Once approved, the policy should be published, preferably in a convenient booklet form so it can be widely distributed. The addition of an introductory statement by the minister and one or two good photographs enhances the status and appeal of the document. If possible, the policy should be formally launched at an event organized by the ministry in order to obtain media coverage and raise awareness.

Besides making printed copies available, the policy should be put on the ministry Web site somewhere where it can be easily located. Although written for domestic use, the policy can also provide a means to inform interested persons in other countries about the seed sector. In the case of countries receiving development assistance from official sources or NGOs, the policy is an opportunity to demonstrate that the government has a clear view about the seed sector: this can help attract funding and ensures correct adoption of the policy. Likewise, the activities of these interventions should be properly aligned with the policy and they should report their actions to the national seed council. There have been many occasions where donors pursued their own short-term objectives without concern for sustainability or coordination with others working in the same field.

Formal approval and public release are followed by implementation. The policy document should include a section on how it is to be implemented and monitored and this task is best undertaken by a so-called "apex body" such as the national seed council (NSC), as mentioned earlier. A body such as the NSC, with general oversight of the seed sector, would use the policy as a guideline, therefore establishment of the seed council and approval of the policy should be closely linked activities. To support its work, the council should have a small secretariat, which could also act as the focal point in the ministry for all matters and information related to seeds and varieties. This would include regulatory responsibilities, such as registering seed companies and maintaining the national variety list, as described in earlier sections. The secretariat would also receive all reports that are required for the council to carry out its monitoring work, for example from projects engaged in seed activities.

While the policy provides the general principles and objectives for seed sector development, there may be a need for a more focused document – for example, a strategy or action plan – to set out some specific activities and timelines for achieving the key objectives of the policy. However, much of the benefit of a policy is achieved simply by providing coordination between stakeholders and ensuring that decisions made are all consistent and in harmony with the policy. The national seed council should meet on a regular basis, at least three times each year, to receive updates and discuss issues arising. Ideally, there should be an open meeting or "forum" once a year to which key stakeholders are invited. The policy should specifically state that it will be subject to review every four or five years and it could then be revised if necessary in the light of progress made.

## SECTION 4: Content of the seed policy

Finally, there is the question of what the policy should actually say. Of course, the detail depends on the current problems in developing the seed sector – as identified by stakeholders during the consultation process. However, a suggested framework for the policy can be found in FAO's publication "Voluntary Guidelines for Seed Policy Formulation<sup>2</sup>". Key topics that may need to be addressed are summarized below.

- **Management of the seed sector.** It is necessary to determine whether the ministry – especially the national seed council – should act as a high-level advisory body or have an executive role. A secretariat is required within the ministry to handle all matters related to seeds. Development projects (official and NGO) must submit a short report on their activities each year.
- **Research and development.** It is important to establish priorities and targets for breeding work, while maintaining and strengthening collaboration with international centres. Breeders must undertake maintenance of their varieties and private sector investment in R&D is welcome. The role of traditional varieties should not be overlooked, as possible niche markets exist.
- **Variety testing and registration.** The emphasis must be on the need for an efficient system and there must be a maximum period for completion of the process using existing information from other sources. It is essential to ensure that the national list is reviewed regularly to ensure that it is up to date and useful – not a mere historical record of all the varieties that have ever been released in the country. A mechanism is required to list traditional and local varieties and include them in the certification scheme.
- **Plant variety protection and genetically modified varieties.** As these are potentially sensitive issues, the policy should explain the intentions and objectives of the ministry/government. If a position has been taken, this should be stated clearly; otherwise, it is necessary to emphasize the "need to monitor developments".
- **Seed production and supply.** It is vital to stress the need for a diverse seed system in which different types of entities can supply different types of farmers on a sustainable basis. New entrants are welcome and they should not face any regulatory barriers. It is important to encourage local enterprises and semi-formal groups that can produce seed at low cost, and it is necessary to consider how to give official recognition and support to these initiatives without providing large subsidies. The key contribution of grain legumes to household nutrition should be mentioned, even though they often receive little attention from national seed programmes. It is also important to highlight the benefits of stronger linkages between seed producers and processors (millers etc.) and support contract growing to involve farmers in seed production.

notes

2. FAO. 2015. *Voluntary Guide for National Seed Policy Formulation*. Rome. [www.fao.org/3/a-i4916e.pdf](http://www.fao.org/3/a-i4916e.pdf)

## notes

- **Seed/planting material supply.** Attention should be given to certain crop groups, for example, vegetable crops (including indigenous vegetables), roots and tubers, fruit trees and cash crops. Certification of fruit trees is a neglected topic that has great potential benefit when new varieties become available.
- **Seed security and emergency seed supply.** These needs must be addressed in the most efficient way. Holding large reserve stocks can be costly and wasteful. Furthermore, it is essential to avoid creating dependency by supplying free or highly subsidized seed on a regular basis, as this is incompatible with the goal of a financially viable seed industry.
- **Informal seed sector.** The sector should be recognized as a significant contributor to seed supply, particularly for certain localities and specific crops in which the formal sector is not very active. It is important to encourage mechanisms to organize low-cost production systems at a semi-formal level, gathering information and documenting experiences of such activities.
- **Import and export of seeds.** While mostly covered in the law and regulations, it should nevertheless be stressed that official procedures must work smoothly and without administrative delays. There should be a “single window” approach for submitting documents and receiving approval. Special conditions should apply to small quantities of seed for research and variety testing.
- **Regulation of the seed sector.** This should address any problem areas in the law and regulations that have been mentioned in the stakeholder consultation and relating to any of the areas covered by the law. Charging for services is a potentially contentious issue: should services such as seed testing and certification be subject to charges or should they be seen as a subsidy from the government to support the seed sector? There may be a lot of discussion on this!
- **Training and extension.** Although not covered by law, these topics may have a profound impact on the development of seed activities and should be considered carefully. For example, do academic and vocational training courses in the country include material about the seed industry? Are extension staff fully informed with regard to the certification scheme or the national variety list? Could the national list be a more useful source of information for them?
- **Establishment of a national seed association.** While not necessarily a matter for the law, development of the private sector increases the need for interaction with the government and this must take place through a representative body: a national seed association, which should be formally constituted, independent and self-funded. It should be mentioned in the policy and represented on the national seed council.







## notes

Not all aspects of a policy can be implemented in the same way as a law but they should be followed and respected as good practice for all those engaged in or contributing to the development of the seed sector. Ensuring consistent decision-making is a key function of the policy and it is the duty of the national seed council to monitor that. The unfortunate reality is that many policies over the years have not been fully implemented. However, **a good policy, effectively managed, can have a profound effect on economic development.**

Finally, regulatory authorities should keep in mind the opportunities created by **modern technology**. Some routine quality control tasks that involve a lot of administrative work, notably certification, can be effectively managed on a computer system and information collected at each stage can be directly entered. Likewise, the national list of varieties can be expanded to include additional information on varieties so it becomes a useful tool for extension staff and others who are advising farmers. The registration of varieties could also be simplified if applications can be submitted online together with essential information about the variety.



# The Seeds Toolkit

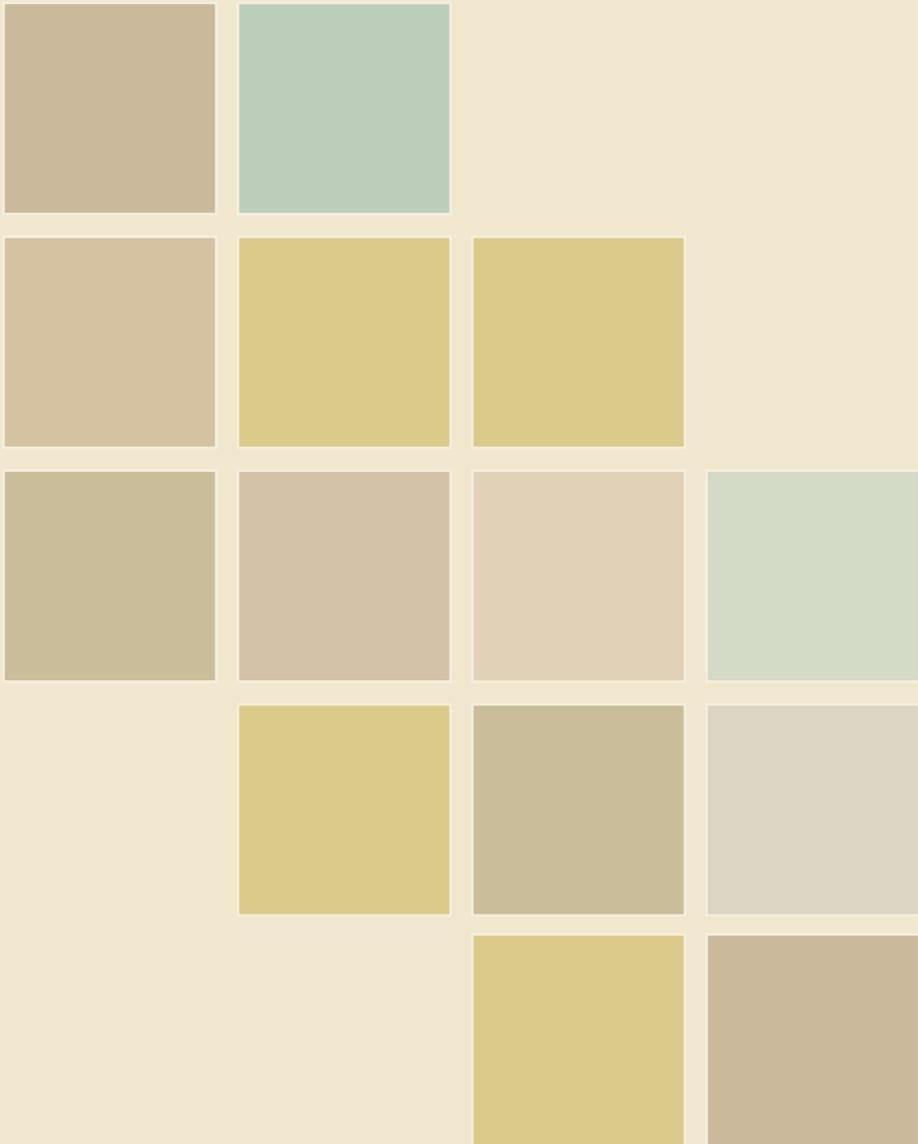
Seeds are the vehicle for delivering the improvements in a crop to the farmer's field. They are therefore a critical input in agricultural production. Seeds are unique in that they must remain alive and healthy when they are used and they are also the input that farmers can produce by themselves.

These factors were borne in mind in preparing the Seed Toolkit that comprises the following six interrelated modules:

1. **Development of Small-Scale Seed Enterprises.** This provides a stepwise guide for the establishment of commercially viable seed enterprises in farmers' communities. It covers the critical steps from the business plan to the production of seeds for sale.
2. **Seed Processing.** This presents the underlying principles of seed processing, the equipment used and the overall best practices from reception through conditioning to final delivery to customers. This module focuses on the use of affordable small-scale equipment for seed processing and sowing that may also be fabricated locally.
3. **Seed Quality Control.** This assists seed practitioners and other stakeholders in meeting the set quality standards for seeds and in implementing procedures for certification. The topics covered include field inspections and seed conditioning, packaging and tagging, storage, sampling/testing, and distribution.
4. **Seed Sector Regulatory Framework.** This provides information on the elements of the regulations that govern the seed value chain – from variety registration through quality seed production to distribution and marketing. The materials covered include information about national seed policy, seed law and regulations, their definitions, purpose and interactions.
5. **Seed Marketing.** This presents the underlying principles for valuing and exchanging seeds. This module describes all the activities that are undertaken in getting seeds from the producers to the end-users or farmers. The reader is provided with guidance on how to conduct relevant research of the market for seeds, develop effective marketing strategies, articulate a marketing plan and manage the associated risks.
6. **Seed Storage.** It is estimated that 25–33 percent of the world grain crop, including seeds, is lost each year during storage. To avert this obvious drawback to food security and nutrition, this module provides the underlying principles for effective seed storage and the associated practices. The module provides guidance on the preservation of seeds under controlled environmental conditions to maximize seed viability for the long periods that may be required from harvesting through processing to planting.



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