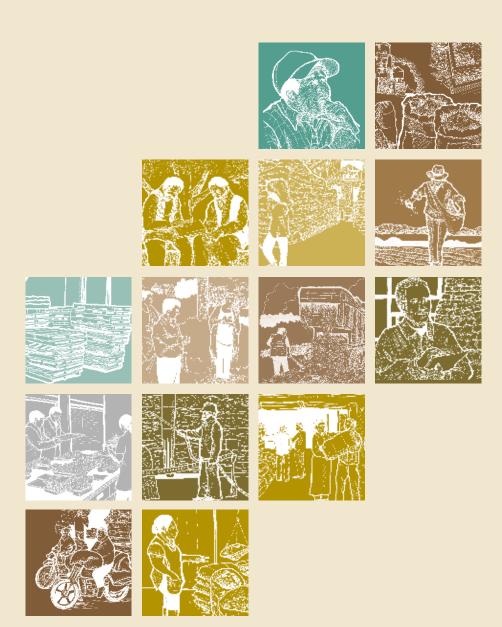




SEEDS TOOLKIT

Module 4: Seed Sector Regulatory Framework





SEEDS TOOLKIT

Module 4: Seed Sector Regulatory Framework

Published by: The Food and Agriculture Organization of the United Nations and AfricaSeeds Rome, 2018

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO), or of AfricaSeeds concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO, or AfricaSeeds in preference to others of a similar nature that are not mentioned. The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO, or AfricaSeeds.

ISBN 978-92-5-130952-0 (FAO) © FAO, 2018

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via HYPERLINK "http://www.fao.org/contact-us/licence-request" www.fao.org/contact-us/licence-request or addressed to HYPERLINK "mailto:copyright@fao.org" copyright@fao.org.

FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org.

Contents

FOF	REWORD	V
ACH	(NOWLEDGEMENTS	VII
INT	RODUCTION	1
1	WHAT IS THE SEED REGULATORY FRAMEWORK?	3
÷	Section 1: Essential characteristics of seed	<u></u>
	Section 2: Key elements of seed regulatory systems	8
	Section 3: The seed regulatory framework	10
	Section 4: Challenges associated with the regulation of the seed sector	11
	Section 5: Benefits of effective regulation of the seed legislation	11
2	SEED LAWS	13
	Section 1: Introduction	15
	Section 2: Formulation of the seed law	16
	Section 3: Enactment and implementation of the law	17
	Section 4: Main elements of the seed law	19
	Section 5: Other legal areas that influence the regulatory framework of seeds	22
	Section 6: International organizations and treaties affecting seed laws	24
3	SEED REGULATIONS	27
	Section 1: Seed regulations in general	29
	Section 2: Formulation and approval of regulations	29
	Section 3: Content of regulations	31
	Section 4: Testing and registration of varieties	32
	Section 5: Sampling and testing of seed lots	36
	Section 6: Seed certification	37
	Section 7: Seed marketing	39
	Section 8: Import and export of seeds	42
	Section 9: Regulation of fees	42
	Section 10: Phytosanitary regulations	42
4	HARMONIZATION OF THE SEED REGULATORY FRAMEWORK	45
	Section 1: Targets for harmonization	47
	Section 2: Experiences and challenges of harmonization	49
	Section 3: Harmonization of policies	51
5	NATIONAL SEED POLICY	53
	Section 1: Relationship between policy and law	55
	Section 2: Formulation of the policy	56
	Section 3: Approval and implementation of the policy	58
	Section 4: Content of the seed policy	59



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

This module was produced by the Seeds and Plant Genetic Resources Team of FAO's Plant Production and Protection Division under the direction of Chikelu Mba (Team Leader).

AUTHORS

Michael Turner (international consultant) and Cristina Leria (international legal consultant)

TECHNICAL REVIEWERS

The manuscript was peer reviewed by Juan Fajardo (international consultant), Carmen Bullon (FAO) and Wilson Hugo (FAO). It has also benefitted from the inputs and feedback by experts from African countries who attended a workshop organized by AfricaSeeds in Abidjan, Côte d'Ivoire.

EDITORIAL SUPPORT

Hamza Bahri and Diana Gutiérrez Méndez (FAO) coordinated the language editing, illustrations and layout. Ruth Duffy edited the document, Shalis Stevens drew the illustrations and Davide Moretti (Art&Design) undertook the overall design and layout of the publication.



Introduction

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.



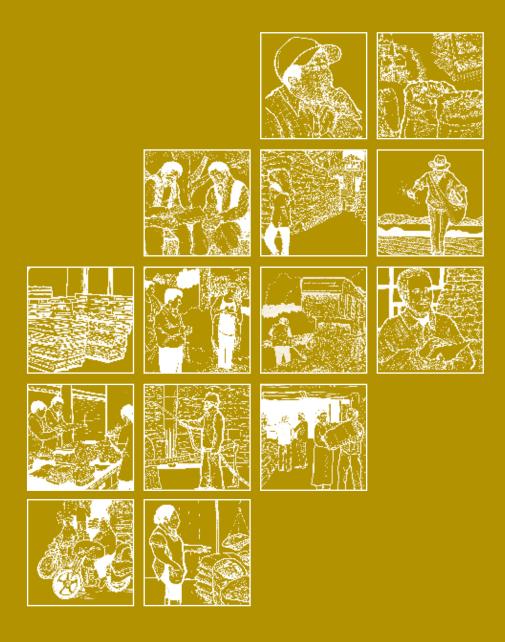
Samples of seed law and other related laws such as phytosanitary or plant protection law, PVP law, and bio-safety law

<u>INTRODUCTION</u>

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.

1) What is the seed regulatory framework?





What is the seed regulatory framework?



SECTION 1

notes

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

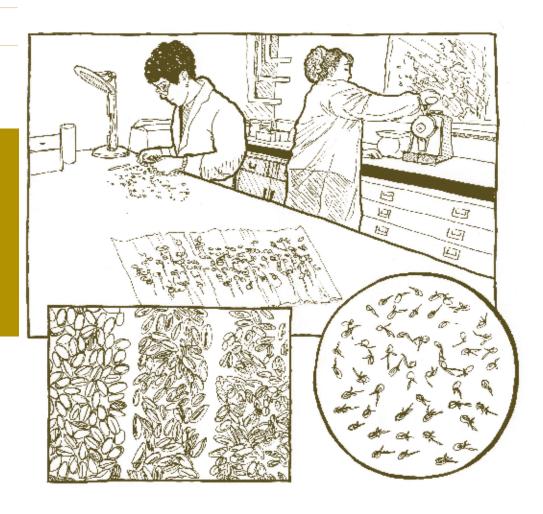
notes

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



1

vation at the time of purchase. Seeds of high or low quality and of different varieties can all look identical; the only quality attribute easily recognized is the presence of large physical impurities like chaff, sticks or stones, and these can be removed without difficulty. Farmers really need to be sure that seed is a good variety and will grow well. There are two main ways to do that: either they must know and trust the person who sells the seed, or they must rely on some token of quality assurance, such as an official label or a branded package from a well-known company.

Through the design of legislation and regulations, government authorities prepare legal documents to regulate particular activities Within this very broad remit, the regulation of seeds is a highly specific and technical aspect, but one which can have a profound impact on the well-being of farmers.

The purpose of designing a seed sector regulatory framework is to strengthen the seed supply system, so that (i) those who sell seeds are aware of the quality issues and conduct their business in a responsible way; and (ii) farmers have more confidence when they make a purchase and are protected from fraudulent actions regarding seed quality. This chapter describes the seed regulatory system overall, the principles behind it, and the key processes involved in its implementation.





notes

notes

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".





In addition to testing seeds prior to their sale, it is also necessary to check that seed retailed in shops and stores really does comply with the legal requirements, because seeds are subject to deterioration depending on the conditions in which they are stored. This activity may be referred to as market control or market enforcement.

Establishing the identity and genetic purity of the seed lot is rarely possible in the laboratory, except by relatively sophisticated techniques that are expensive for routine use. For this reason, it is necessary to inspect the growing crop before it is harvested, and ideally, to grow a sample of the seed lot after harvest in a "control plot". These practices form part of the more comprehensive system of quality control known as certification, which is discussed in Chapter 3, as well as in Module 3 of the toolkit.

Another quite separate element in the regulatory framework is the testing and registration of varieties allowed to be marketed. It requires that those who breed new varieties, or introduce them from other countries, must first have them tested under a standard protocol that has been established for each crop. Because of the considerable resources involved in variety testing, this requirement is normally applied only to major food crops or industrial crops. Moreover, some countries do not apply this system at all; any variety can be introduced to the market and its success depends on the demand from farmers. Deciding on the scope of seed regulation is a matter of national policy and is discussed in Chapter 5.

To support the above components of the regulatory framework, some other players in the seed supply chain may be subject to control; for example, those who process, import or market seed may have to be officially registered and are therefore subject to inspection.

SECTION 3: The seed regulatory framework

The seed regulatory framework refers to all documents, instruments and procedures that regulate the seed sector, including seed policies, legislation, standards and procedures. In order to understand the seed regulatory framework as a whole, it is necessary to underscore the difference between seed legislation and seed policy.

National seed policy generally sets out, in broad terms, the goals, targets and objectives of the government for the seed sector, and identifies the guiding principles, institutional arrangements and mechanisms to achieve those targets. A seed law, on the other hand, establishes the specific principles, standards and procedures that must be adhered to. While the policy sets out the aims and desired activities, the law is the rule that is enforced by an institution. In effect, national seed policy and seed law are complementary. The institutional and legal frameworks, which the legislation provides, are necessary for policy objectives to be achieved.

n	n	t	Δ	C

-	
_	
a	
a	
4	
d	

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
	Agricultural extensionSeed 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 indi- vidual 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 effec-
	tively. 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



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.

notes

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.

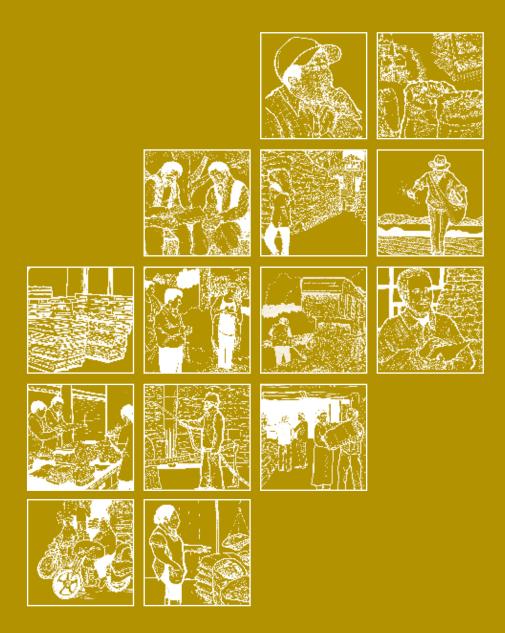
The main beneficiaries of seed legislation are farmers, who are assured of seed quality and therefore have greater confidence when they make a purchase because of the controls that have been applied to the production and marketing process. Although this may appear to be a "policing" operation, it should 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?



2 Seed laws





Seed Laws

SECTION 1: Introduction

Imost all countries have some form of seed legislation. In some cases, the first seed law was enacted about 100 years ago when the seed trade was starting to develop in an organized way. This coincided with the emergence of systematic plant breeding, which made new improved varieties available and provided an incentive for farmers to purchase seed.

This chapter explains key elements of a seed law, starting with the most basic content and then elaborating to present other aspects to provide a comprehensive regulatory framework for the seed sector.

The Seed Law or Seed Act is referred to as **primary seed legislation**. Primary legislation is usually approved by a parliament, assembly or other entity representing the legislative branch of the government, with some exceptions. In some jurisdictions, laws can recognize the power to approve secondary legislation to the executive branch of the government (the minister, the council of ministers). Regulations made under the law are referred to as **secondary legislation** and these are discussed in Chapter 3.

Diagram of constitution and primary seed law	NATIONAL	
	NATIONAL CONSTITUTIONAL	
PRII	MARY SEEDS L	_AW
	+	
Seed implementing regulation	Seed implementing regulation	Seed implementing regulation

Other implementing documents: Guidelines, manuals of procedure

notes

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



SEED LAWS 17

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.

n	١t	ρ	(

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.

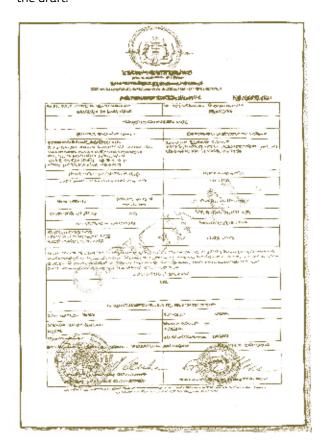
notes

- 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

SEED LAWS

2

Finalization of the draft seed legislation and approval

The government entity leading the drafting will, once the draft seed legislation has been appropriately consulted, follow the national legal process for adoption, either by the legislative branch, or by the executive branch exercising either its delegated power from the legislative branch or its executive power under a national constitution.

The law may come into force immediately or at a specified date afterwards. If there is an existing seed law, it will normally be necessary to make some transitional arrangements so that, for example, regulations made under the previous law remain in force until new ones are made. In practice, there may be some delay in this process and laws sometimes remain "dormant" for several years until the necessary regulations are prepared and approved.

It is helpful if the law allows some flexibility in implementation. For example, the law may state that certain sections may be implemented separately or in accordance with recommendations of the national seed council.

SECTION 4: Main elements of the seed law

The presentation and format of the law depends entirely on the established legal tradition of each country.

There is normally an introductory chapter in the law that includes matters such as the following:

- The legal basis for the law under the constitution of the country.
- The objective of the law. Typical elements of the overall objectives may include: regulating seed production and marketing; facilitating farmers' access to high-quality seeds of a wide range of varieties; 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; and promoting food security and sustainable rural livelihoods as well as sustainable management of plant genetic resources. Where a country has a formally articulated seed policy, it may be desirable for this to be specifically referenced in the law, as a way of providing some legal recognition and status for the policy that it would not otherwise have.
- The scope of the law, defining the types of seeds and other products (such as seedlings) to which the law applies and the seed management activities that are subject to regulation. The scope of the law may cover only selected plant species or varieties of species registered in the national catalogue of a country, may incorporate seedlings or not, and may cover only seed of a particular quality category (e.g. certified seed) or all types of seed including uncertified seed categories.

-		.+	$\overline{}$	_
ш	ш	ш	\boldsymbol{H}	۰,

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 under- stood 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

SEED LAWS 2

2

make specific reference to acts relating to "fake seed", which are potentially much more serious than selling seed below the minimum standard. The term "fake seed" implies a deliberate effort to misrepresent the identity of seed, for example by packing ordinary grain as seeds or by printing packages that imitate those of reputable seed companies.

• Fees that may be charged for services arising from the law. This may apply particularly to labour-intensive activities such as seed certification.

The technical aspects of these different elements are discussed in more detail in Chapter 3.

notes		

notes	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

2

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.

notes

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



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



SEED LAWS 25

2

follow this directive. On the other hand, the seed policy should certainly say something about linkages to international organizations such as ISTA and the desirability of following international procedures.	notes		
The Organization for Economic Co-operation and Development (OECD) devises seed schemes that provide a mechanism for the certification of seed lots moving in international trade. This includes definition of the procedures for related activities, such as isolation of seed crops, crop inspection procedures and labelling of containers. Regardless of whether a country wishes to join or use the OECD schemes, these procedures provide a good basis for national certification schemes.			
The International Union for the Protection of New Varieties of Plants (UPOV) provides a framework for plant breeders to protect their varieties and for protected varieties to move between member countries.			
Some other international agreements, such as the Convention on Biological Diversity (CBD), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the Nagoya Protocol, relate primarily to the use of genetic resources. They do not directly regulate seed production, quality control and marketing system, but they may have an indirect effect on seed laws.			
EXERCISES AND DISCUSSION POINTS			
 Explain whether you think the present seed law of your country achieves its objective of protecting farmers from poor quality seed or inferior varieties. 			
2. Do the responsible authorities have the resources to implement the key controls contained in the seed law, particularly for monitoring the quality of seed offered in the market? If not, how could this situation be improved?			
3. Do you think there is much unofficial trade (smuggling) of seed into or			
out of your country? If so, why and how does this happen? 4. How should "marketing" be defined for the purposes of the seed law? Should the seed law be enforced in a local market where traders are selling seed obtained from informal sources?			

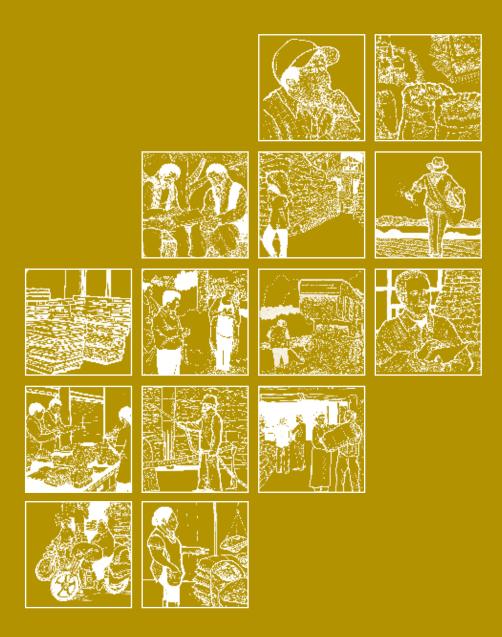
5. Do you think there is "fake seed" being sold in your area or country? If so, what measures are being taken, or could be taken, to stop this

6. What do you think should be the role of the national standards organization in your country in setting the standards for seed quality?

dangerous practice?



3 Seed regulations





Seed regulations



SECTION 1: Seed regulations in general

egulations provide the tools for implementing the seed law; they contain the details on each of the technical sections of the law that need to be elaborated. As noted in the previous chapter, it is better to put these details in the regulations, as they can be changed more easily than the law itself – normally requiring only the approval of a minister or other official to which this power has been delegated – whereas amendments to the law would need to go to the legislative branch.

It is a fundamental principle of law that the secondary legislation contained in regulations must be based on and derived from the primary legislation as set out in the law. This may seem an obvious statement. However, if the law is too brief or has gaps, the regulations may attempt to fill those gaps and then there is a risk that they go beyond what the law provides for. It could be said that if the overall purpose or objective of the law is to improve the quality of seed, any regulations that contribute to that objective are within the spirit of the law, even if the precise actions are not specified in the law.

This section explains the technical issues covered in regulations and, where appropriate, the options that may be available. While the law establishes the general principles, regulations must spell out the details that are required for effective implementation of the law. To achieve this goal requires an understanding of the technical issues relating to seeds and varieties and designing an administrative system that can work effectively.

representatives, brand loyalty is declining with many commercial hybrids replaced after only 2–3 years. To remain competitive, seed companies must adopt aggressive marketing strategies – including product diversification – and many companies now market seed in combination with a growing package of complementary products and services or they routinely offer seed on credit.

SECTION 2: Formulation and approval of regulations

The number of regulations that have to be prepared to implement the law varies according to the regulatory practices of the country. There may be a few regulations covering broad areas, or a larger number, each addressing specific topics. Given the potentially different kinds of work involved in implementation and enforcement, it is helpful to divide the regulations into various sections, for example:

- Registration of seed companies
- Testing and registration of varieties
- Sampling, testing and marketing of seeds (including quality standards)
- Seed certification
- Import and export of seeds

n	റ	т	$^{\circ}$	c
	U	u	ᆫ	

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.





SEED REGULATIONS 31

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.

notes

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.

	a Wallett august Sign aufbre einfage
March 10 To and a state of the	
will have make the property and the same with the same	
grafic introduction the Color States (1986) which can be according to a color of the Color of th	20 (20 to place) Le constituent de la place de la pla

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

notes

T: -1-1	 - £ DI	10 1	11/611	4



notes	(schedu "manua matter
	ent doc ments l regulat
	Manual the res
	is not a
	Several must b the cro
	- Iden
	few rarel
	ties a note
	testi type
	• Use
	regis repe
	proc tion
	• Shar
	work ————and
	seas tion
	poss as no
	then
	Verif that
	of th • Onli i
	prod larly
	com
	Althoug should
	for extended the nate

(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

3

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.

Sample document of National Variety List

Wheat Gultivars	10/10/20		14.00	11/11/11
General Characteristics		Var 1	Var 2	Var3
± 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 a	nd Qualit	y Characte	ristics	L. H. Hillie
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

notes

SECTION 5: Sampling and testing of seed lots

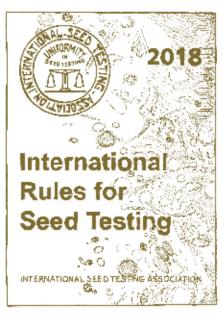
This topic takes us back to the original purpose of seed laws, which was to assure the quality of seed offered to farmers in the market. The actual seed quality standards that are applied must be specified somewhere in the regulations and they fit most comfortably in the marketing regulations requiring 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.

SEED REGULATIONS 37



SECTION 6: Seed certification

Certification is a comprehensive quality assurance system that links together the control of seed production in the field and the laboratory testing of seed lots as described above. Field control enables the identity and purity of variety to be checked and this cannot be easily assessed in the laboratory; as further confirmation, a post-control plot may be grown after the seed lot has been certified to check the varietal purity. A number of steps and conditions are required to certify a seed lot and these are reflected in a series of forms used by the certifying agency, for example:

- Application to enter a crop for certification (submitted by the company or grower).
- Acceptance of the application and issue of a reference number for the crop.
- Crop inspection report form indicating acceptance or rejection.
- Application for sampling the seed lot after harvest and/or form submitted with the sample sent for testing.
- Report of the laboratory test, confirming that the seed lot complies with the seed standards.
- Certificate confirming that the seed lot is certified and giving its reference number (to appear on labels).
- Label format as attached to sacks when certified seed is put on sale.

The regulations define the key activities in the certification process with cross-reference to the forms, which are included as annexes with their reference number. There may be additional forms for special activities, such as re-inspection of a seed crop that fails or when certified seed lots are bulked together and given a new reference number.

The certification scheme has direct links to other activities covered by the regulations, in particular:

- Only varieties that are on the national list can be certified because the variety must have a recognized name and description.
- Companies and processors that handle and sell certified seed must be registered so that their records of certified seed production and processing can be inspected. There may also be issues with a quota of official labels to be attached to the sacks they sell.
- Only official or accredited seed-testing laboratories can test samples of certified seed lots.

From the above points, it can be seen that certification is a kind of net that draws together, and depends on, several different aspects of the regulatory framework. Moreover, because successive generations of seed multiplication are linked together and monitored, certification provides traceability in case of failures in quality control.

n	$^{\circ}$	•	\sim	_
	u	U	$\overline{}$	

r			
ď			

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 if 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



SEED REGULATIONS 39

3

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)¹. 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.

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

notes

notes

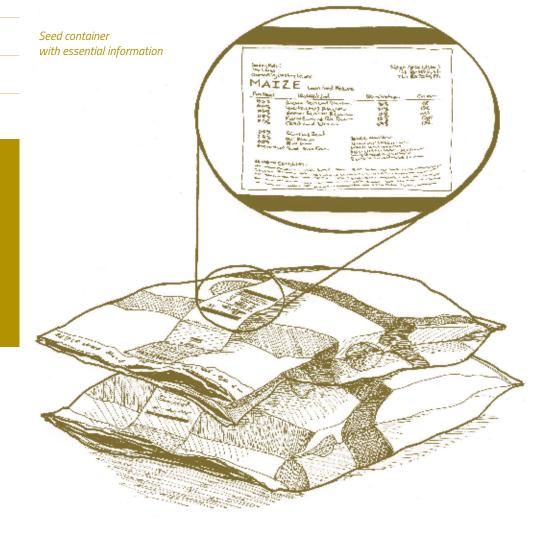
 Minimum quality standards for purity, germination and (possibly) moisture content must be specified for all commercially important species, usually in an annex to the regulations. An alternative approach is known as "truth in labelling" and this is discussed below.

• 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 REGULATIONS 41



notes

- the name of the crop and variety;
- the weight of the package;
- the date of packing or sealing;
- the date of quality test;
- a statement about the quality of the seed;

Regulations implementing the seed law should specify the validity of a seed quality control over time, especially for germination results.

The first six points are relatively straightforward, while the last one requires further discussion. If the germination, purity and moisture content have to be included, printing becomes more complex and, perhaps more seriously, customers will consequently demand the highest possible standards, making it more difficult for the company to sell seed that has, say, 88% germination, even though this figure is well within the legal requirement. If even more details are required – for example, about freedom from weed seeds – the label becomes very complicated.

An alternative approach is to print a general statement on the label saying, "This seed complies with the national minimum quality standards". Likewise, if the seed is certified, the format of the label is specified in the certification regulations and the very fact that it is certified confirms that it complies with the minimum quality standards. As explained above, the reference number of a certified seed lot provides traceability – should a problem arise.

Truth in labelling is a different approach to seed quality control and is based on the principle that any seed can be sold provided the declaration of quality on the label is correct. This can clearly increase the amount of seed on the market and it can enable sellers to offer a lower price for lower quality seed. However, it does not offer the same incentive for producers to aim for higher quality and there is a significant risk that seed declared to have 65% germination is already deteriorating rapidly and the figure may be even lower by the time it is actually sown.

If a chemical treatment has been applied to the seed, this must be mentioned clearly on the seed container, preferably on a separate label and with a health warning because there would be insufficient space on the certification label to provide this information.

SECTION 8: Import and export of seeds

This is a standard item in seed laws and regulations; it requires importers to comply with specific conditions such as obtaining an import permit and/or a phytosanitary certificate (according to the applicable phytosanitary legislation), not importing anything illegal or harmful, and ensuring that imported seeds comply with the minimum quality standards as set out in other regulations. This obliges the importer to obtain evidence of seed quality from the

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.

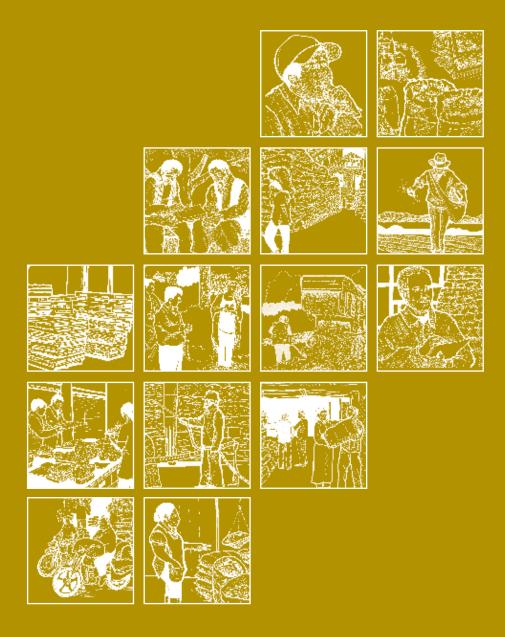
SEED REGULATIONS 43



EXERCISES AND DISCUSSION POINTS	notes
1. Which crops, if any, do you think should be subject to compulsory certification in your country? Is certification really necessary when large companies are selling high quality seed guaranteed by their own brand name?	
Can you prepare a short list of traditional varieties of major crops that would require special treatment in registration and listing?	
3. What proportion of the seed used by farmers for the major crops is certified?	
4. Are the extension services in your country aware of the seed regulations and do they make an effort to promote the use of certified seed?	
5. The brother of a farmer who is working in another country brings home 10 kg of (maize, for example) seed in his baggage because he has heard it is a new variety that is producing record yields. The farmer grows it and is delighted with the results. An extension officer sees the crop and asks questions then tells this story to the local office of the ministry. Do you think someone should be prosecuted for breaking the law?	



4 Harmonization of seed regulatory framework





Harmonization of seed regulatory framework



notes

he 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.



A regional certification scheme facilitates the movement of seeds within a region because standards are the same in all countries and – importantly – the label format is the same, so the label on a sack of seed from country A is immediately recognized and understood in country B. To implement a scheme of this kind requires that the same standards and procedures are applied in all participating countries and this might seem to be a challenge. However, in practice, the quality standards for the major crops are remarkably similar and the OECD scheme provides a uniform framework for certification. Therefore, if technical staff from the countries meet, it should not be difficult to harmonize these issues with a minimum of compromise.

Import and export procedures may fall partially under trade agreements between the customs authorities of participating countries to reduce (or eliminate) tariffs and use standardized documents for all consignments of goods. Phytosanitary requirements can be more complicated because there are often old regulations in place that have not been updated to reflect valid pest risk assessments. However, the reality is that countries with shared borders and similar farming systems probably also share the same pests and diseases on their crops, so it is unlikely that there is some specific organism that poses a serious threat and must be excluded. The regional plant protection organizations should also have information on the current status of pests and they could contribute an expert opinion in any discussion of these matters.

Members of the World Trade Organization (WTO) are supposed to respect the provisions of the agreement on Sanitary and Phytosanitary Measures (SPS) that allows countries to set their own level of protection on the basis of analysis and assessment of objective and accurate scientific data and encourages member countries to apply international standards where they exist, identifying the IPPC as the source of internationally agreed standards on phytosanitary measures.

SECTION 2: Experiences and challenges of harmonization

From what has been said, it would seem that harmonization is a desirable goal for countries that have similar crops and agro-ecological conditions to pursue. A working example is the European Union (EU) where most seed activities have been harmonized since the early 1970s. Certification is compulsory for almost all agricultural crops, and uniform standards for seed quality and labelling are applied in all countries. For variety registration also, inclusion in a national list leads to inclusion in the "common catalogue" of varieties that enables marketing across all countries of the EU unless there are any specific objections. Of course, Member States present wide diversity in terms of climate and agriculture, so in practice a variety registered in southern Europe would be unlikely to find a market in the north of the continent. Other examples are the Common Market of the South (Mercosur) in South America and the movement of seeds across states in the United States of America.

n	۱t	C

1	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



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.

notes

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

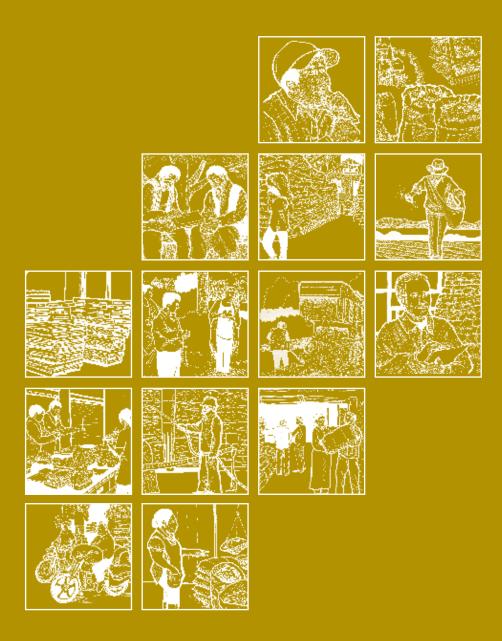
Although the main effort has been directed towards harmonization of regulations in order to facilitate trade, there is a case for promoting the alignment of national seed policies, since these should eventually influence the laws and regulations when they are revised. Furthermore, since discussions about 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.

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?



Solution (5) National seed policy





National seed policy



uring the past two decades, the role of national seed policy has come into focus in response to the diversification of seed industries witnessed in many countries. When the seed sector was mainly in the hands of official or parastatal organizations, key decisions could be made and implemented directly by the government. As the private sector was encouraged to play a more active role in seed supply, more stakeholders became involved and this required a mechanism for planning and coordination.

The policy can be regarded as a "declaration of intent" by the government about how the seed sector or industry should develop and the roles of the various actors. It is therefore particularly useful for countries where the seed sector is in transition to a more diverse and commercial model. The role of government is then to create a favourable environment within which other actors can contribute to the goal of supplying good quality seed and varieties to farmers. The seed laws and regulations discussed in the earlier chapters are a key part of that environment. If they are very restrictive or demanding, then new players will be reluctant to enter the seed business.

However, this does **not** mean that the government withdraws completely from involvement in seed supply – there may be some crops where official support is still needed. The fundamental principle is that if the private sector, including cooperatives and farmer associations, can engage successfully in this business, then they should be allowed and encouraged to do so. In this way, the policy should set out the general principles of "who does what" in the seed sector. Regulatory functions remain with the government, although – as described in earlier chapters – specific tasks can be carried out by individuals or entities that have been assessed as being competent for these tasks.

SECTION 1: Relationship between policy and law

It is essential to understand the relationship between the policy and the law; they are separate but complementary documents. During discussions in different countries, people have said, "We already have a seed law so why do we need a policy as well?" This assumes that the only role of government is regulation and enforcement. As economies liberalize and become more competitive, the government cannot control everything, but it still has an interest in promoting the supply of good seed to farmers. The policy should provide guidance on how to achieve this in the context of a more open market.

This leads us to consider the scope of the policy. In principle, this should be as broad as possible, embracing all those institutions and activities that can impact on seed supply. For example, it should refer to public and private sector roles, the formal and informal sectors, institutions involved at local, national and international levels, different types of agriculture practised within the country and the problems of particular crops or locations. In short, it provides a holistic view of the seed sector.

n	\sim	+	$\overline{}$	-
11	()	ш	\vdash	5

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.

NATIONAL SEED POLICY

5

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

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 Formulation²". 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.

2. FAO. 2015. Voluntary Guide for National Seed Policy Formulation. Rome.

notes

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 consulta- tion 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 discus- sion 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.

Financing the seed sector. All commercial activities undertaken by the
private sector are, by definition, financed by themselves as part of their
business, except in cases where they receive government funding for special
projects or programmes. The more the private sector can do, the less the
burden on government. However, there will still be some activities of a
social nature requiring government support, for example: multiplication and
release of new varieties of crops not attractive to companies; and quality
control activities, whether free or charged. The fundamental question about
funding is: How should the government (or ministry) allocate its overall
budget for seeds to achieve greatest impact? This is not an easy question
to answer, but large subsidies to reduce the cost of seeds are certainly not
an efficient use of government funds and they distort the market making it
harder for the private sector! This is a policy issue. Government may consider
tax relief for capital investment in seed processing equipment.

- Environmental aspects. In general, seeds are not a threat to the environment but the safe use of seed treatments could be mentioned. Agrobiodiversity issues should also be highlighted.
- International cooperation. The policy should emphasize the importance of participation in regional and international organizations and events, both official and commercial, in order to achieve closer collaboration.
- Monitoring and evaluation. As already mentioned, implementation of the
 policy should be subject to regular monitoring by the national seed council
 and there should be a formal review of the document after four or five years.
 This should be stated in one of the final sections of the document.
- Priority actions. It may be helpful to have a follow-up document a strategy
 or action plan setting out specific actions. To start this process, a onepage summary table could be included as an annex.

EXERCISES AND DISCUSSION POINTS

- 1. If your country has a national seed policy, how do you think it compares with the issues raised in this chapter and which aspects of the policy do you think should be improved?
- 2. If your country has not developed a national seed policy, do you think it is necessary to develop one having gone through this module? If so, which aspects of this module do you consider most useful in creating your national seed policy?

n		÷.	Δ	c
ш	ı	u	ᆮ	9



Conclusions

Laws are important to help reach and sustain national policy objectives and to clarify the roles and responsibilities of the different stakeholders. However, to effectively meet their purpose, laws must be implementable; if they are too complicated or create too much of a burden, they will not be implemented properly or they will be avoided. This leads to more unofficial trade, which brings greater risks because there is no supervision of quality. Laws and regulations should be framed to **encourage compliance** rather than avoidance, so that as much seed as possible passes through legal channels.

The law is both "carrot and stick" – it is desirable that legitimate seed companies raise their quality standards, not just to comply with the law but to enhance their reputation in the market. Likewise all legitimate companies have an interest in eliminating competitors who regularly sell poor quality seed. The goal is not to put those people in prison, but to remove their registration. One key function of a national seed association is to promote high standards among members, given their collective interest in promoting the use of quality seed and identifying those who have other objectives.

As markets become more competitive, established companies may adopt a branding approach in which they guarantee the quality standards of the seed they sell. They have robust internal facilities for quality assurance and can manage the supply chain to ensure that quality is maintained. In this situation, certification may be less important as a token of quality.

The rise of "fake seed" in recent years creates a special challenge for regulatory authorities because it often involves criminals who deliberately defraud farmers. They may use fake packages imitating those of reputable companies or they may apply a coloured liquid to ordinary grain to feign chemical treatment. This is a far more serious threat than the sale of "low quality seed" – once the main risk – because, for example, it would take time to confirm the identity of the grain sold as seed.

Among all the discussion and regulation about seeds, it is important not to overlook the need for improved planting materials of vegetatively propagated crops. While it is more difficult to implement certification schemes for those crops — since intensive disease management is often required — this area should nevertheless be addressed.

The overall partition of material within the regulatory framework requires care, especially when the documents are being revised. The law should contain all essential provisions but not too much detail since these will be elaborated in the regulations. Likewise, the regulations contain the legal details and procedures but should not be cluttered with technical matters like the procedures for sampling, seed testing or crop inspection. Those should be in a "manual" issued by the responsible ministry and carrying official status. Regulations should not be used to fill gaps in the primary law, as those elements without sufficient legal basis in law would be invalid. The policy of course has no legal authority but it can provide clear direction for changes that are needed in the law or its regulations when they are reviewed.

	1	$\overline{}$	+	$\overline{}$	d
- 1	п	U	···	ㄷ	Ē

64 CONCLUSIONS

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

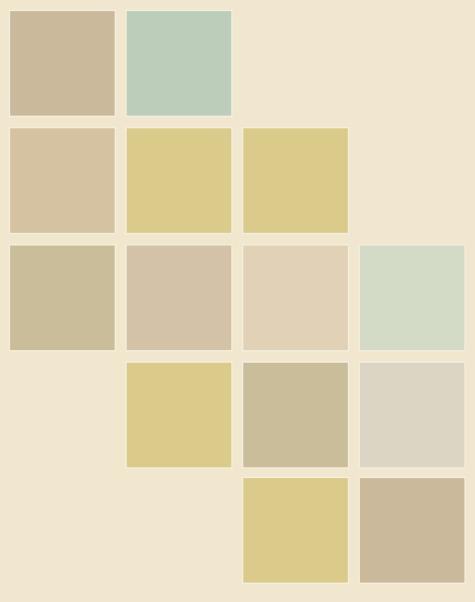
Seeds are the vehicle for delivering the improvements in a crop to the farmer's field. They are therefore a critical input in agricultural production. Seeds are unique in that they must remain alive and healthy when they are used and they are also the input that farmers can produce by themselves.

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

- 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.



This module 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.



ISBN 978-92-5-130952-0

