



A Baseline Survey on the Ethiopian Seed Sector

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1. Executive summary

The purpose of this paper is to provide information on the Ethiopian seed system and existing seed policies and regulations that could provide highlights for EACs harmonization process. Information was collected through a review of available literature and discussions with Federal and Regional Bureau of Agriculture and Rural Development and Public and Private Farms, although obtaining information is very difficult due to frequent restructuring of offices and high turnover of specialists.

The country's seed law is under revision and seed certification body was decentralized to Regional Bureau of Agriculture and Rural Developments. In fact the current structures of certification body of the four major crops producing regional states are differing.

Repeated restructuring of the executing agencies left the responsibilities shared among various departments of the MoARD, which is now also being reorganized. This weak or feeble the enforcement and serious fraudulent practices were reported by some suppliers. Currently the Input and Marketing Directorate that was responsible for seed marketing, demand collection and distribution was disintegrated in to two bodies. The marketing part joined with Ministry of Trade while the input part is still under revision. The seed certification system (variety release mechanism, phyto-sanitary regulation and seed import-export) documents are still under revision at the Animal and Plant Health Directorate of MoARD.

The study includes an executive summary, introduction, together with sections on Performance of Ethiopian Agriculture, current seed systems, seed improvement initiatives, summaries and recommendations and conclusions. In addition, in the annex attached number of released varieties up to 2008, Plant quarantine, import and re-export permit formats, revised draft law that includes the suggested improvements; and law of plant variety protection rights.

2. INTRODUCTION

Agriculture is the main stay of Ethiopian economy, having a lion's share in contributing to the national GDP. The current agricultural policy framework of the country, which is known as "Agricultural Development Led Industrialization (ADLI)", sets out agriculture as a primary stimulus to generate increased output, employment and income for the people. Moreover, agriculture is serving as a springboard for the development of other economic sectors of the country (Keeley and Scoones, 2000).

Transformation of the agricultural sector in the country was started in the mid of 1990s after the formulation of a development strategy centered on agriculture, ADLI. Since then, the sector is leading the overall economic development of the country, and eventually will transform the economic setup to industrialization. The strategy emphasizes on promoting a green revolution in the country through the intensification of smallholder agriculture as best approach to achieve the transformation.

The sector, however, is still characterized largely by small-scale subsistence farming and low productivity. This low productivity is detrimental to the economic development and growth of the country. Low productivity is purely due to limited use of improved seeds and associated technologies. Cognizant of this scenario, the Government of Ethiopia has put great emphasis on increasing the production and productivity of small-scale farmers.

Seed is a key input for improving crop production and productivity. Increasing the quality of seeds can increase the yield potential of the crop by significant folds and thus, is one of the most economical and efficient inputs to agricultural development (FAO, 2006). Generation and transfer of new technologies are critical prerequisites for agricultural development particularly for an agrarian based economy such as Ethiopia. Seed, especially that of improved varieties, is an essential input for increasing crop productivity. This suggests the need to place much emphasis on sustainable and efficient seed production systems.

In Ethiopia, different seed production systems exist parallel to one another: informal seed systems, community-based seed systems, formal seed systems (government supported) and

commercial seed systems. The informal seed systems (self-saved seed or farmer-to-farmer seed exchange) accounts for 80-90% of the seed used by smallholder farmers (Zewdie, *et al*, 2008).

In the formal system, the role of Ministry of Agriculture and Rural Development (MoARD), Ethiopian Institute of Agricultural Research (EIAR), Ethiopian Seed Enterprise (ESE) and Regional Seed Enterprises (Oromiya Seed Enterprise, Amhara Seed Enterprise and Southern Region Seed Enterprise) are crucial in breeding, releasing varieties, production of breeder, pre-basic and basic seeds. In the multiplication of certified seed, the private sector (cooperatives/union, NGOs, etc.) can increasingly play a great role.

The emergence of the seed regulations was a response to evolution of technical and economic changes in the seed industry usually prompted by the desire of the society for government intervention (Tripp, 1997b). The structural changes to traditional agriculture brought by new crop improvement techniques and the arrangements for seed production and marketing required new institutions to regulate the industry. The regulations of particular relevance to seed systems are: (a) variety regulation for testing, release and registration; (b) seed regulation prescribing field and seed standards for certification; (c) plant variety protection to protect breeders of new varieties; (d) seed trade regulation setting specifications for seed import or export; and (e) quarantine regulation for exclusion of exotic pests (insects, diseases and weeds).

The Ethiopian government has favorable policy for agricultural research and fully supports the research system by allocating appropriate resources. As a result, the country's agricultural research system has developed and released about 600 varieties of 50 different crops since 1966. However, the ESE has only been able to produce 111 different varieties of just 26 different crops in 2009/10 cropping season

MoARD is an umbrella organization which coordinates and leads the various activities of the seed industry. The main tasks of MoARD's various departments include the national seed policy, variety registration and release, seed import/export, seed certification, quarantine and extension. Previously, the responsibility for official seed quality control and certification was given to the now defunct National Seed Industry Agency (NSIA). To date, it is handled by the Agricultural Inputs Quality Control Department of MoARD, which is now being restructured.

BoARDS in regional states and (Farmers cooperative Unions (FCUs) play a vital role in seed distribution while credit is offered by various financial institutions through FCUs.

The Ethiopian Seed Enterprise is the only public seed enterprise responsible for production of seed for all crops (cereals, pulses, fruits, vegetables and forage), although its seed production is dominated by cereals, especially maize and wheat. It produces, processes, distributes, and markets improved seed based on the official demand projection of the regional bureaus of agriculture.

The policy/regulatory environment, the availability of relevant agricultural technology, the support institutions and the socio-economic factors have a profound effect on the development of the national seed industry (Louwaars, 2002; Turner and Bishaw, 2000; Almekinders and Louwaars, 1999). The interactions between these factors determine the extent of the functioning of the formal and informal seed sector operations. The national seed policy should be viewed within the framework of government policy to ensure the development of the agricultural sector in general and the seed sector in particular.

In the past seed laws and regulations were prepared and implemented with specific national interests and with no or little regional interactions. Most national seed laws, however, are replicas of each other (Louwaars, 2002; 1996) with little national flavor. To date, with the increasing globalization of seed trade the existence of unrealistic and inflexible national regulations become a serious impediment for regional integration.

This paper, is therefore, aimed at assessing the current seed systems operating in the country and reviewing initiatives in the area, documenting best approaches and also assessing the variety release procedures and regulations at national levels to come up with recommendations that could help for regional harmonization .

The study involved a review, analysis of relevant documents from available literatures and guided discussions and interviews with different stakeholders from Federal and regional governmental bodies. The study examined the current seed situations, identified issues and factors and made recommendations on issues procedures and regulations for variety release and registration varieties, transfer, acquisition, multiplication, dissemination and trade of seeds.

3. Performance of Ethiopian Agriculture

In Ethiopia, 84% of the estimated 78 million people live in rural areas are depending on agriculture for their livelihoods. The sector contributes 41.4% of the GDP of the country. The average cereal yields are low at 1,244kg/ha (World Bank, 2006). Despite the importance of agriculture in its economy, Ethiopia has been a food deficit country since the early 1970s. A close look at the performance of the Ethiopian agriculture reveals that over the last three decades it has been unable to produce sufficient quantity to feed the country's rapidly growing human population. Even worse, the country has experienced recurrent droughts that claimed the lives of several thousands of people. It is note worthy that food aid has been accounting for a significant proportion of the total food supply in the country. For instance, Ethiopia received 726,640 metric tons of food aid yearly over the 1985-2000 periods (FDRE, 2002). This is equal to about 10% of the national food grain production.

There fore, the current main goal of the Government of Ethiopia's ADLI strategy was to raise crop yields through a centralized and aggressive extension-based push focusing on technological packages that combined credit, fertilizers, improved seeds and better management practices.

Policy makers assumed that significant productivity growth could be easily achieved by improving farmers' access to technologies which would narrow the gap between farmers' yield and what agronomists called 'exploitable yield potential'. Researchers also reported the existence of technologies that can make a huge difference and shift upwards farmers' yield frontier in grain production. Based on six years average data, researchers indicated that maize yield, for instance, can be increased from current farmers' yield level of 1.6 ton/ha to 4.7 ton/ha, and wheat from 1.1 ton/ha to 2.8 ton/ha and tef from 0.7 ton/ha to 1.5 ton/ha, if peasants use the right type and amount of improved seed varieties, fertilizers and other recommended practices (Berhane et al., 2004).

In the recent years, agricultural GDP grew at levels close to double figure, a pattern that appears to be confirmed by looking at cereal production growth. Based on the data from Central Statistics Authority (CSA), cereal production in the period 2005/06 to 2009/10 was increased by more than 4% per year. The yields and area cultivated increased at a rate of 2.5% and 2% per year, respectively. The largest increases in all dimensions were in tef, wheat and sorghum (Table 1).

In the same way, the demand and use of inputs by smallholder farmers have been increased tremendously. The supply of inorganic fertilizer (DAP and Urea) was increased from 375,717 metric tones in 2006 to 826,564 in 2010. About 826,564 tones of fertilizers have been Supplied in 2010, which is about 40 percent more than the volume imported in 2009. At the same time, the amount of fertilizers (DAP and urea) supplied to regional states were increased from 375,717 tones in 2005/06 to 595,261 tones in 2009/10.

According to CSA (2010) data, fertilizer was applied on 4,734,474 ha of land which is 39.38% of the total area cultivated in 2009/10 cropping season. From the above figure, one can understand that the reason why farmers couldn't buy all amount of fertilizer imported may be associated with little working capital, uncertain access to credit and often cannot afford the cost of improved seed and the fertilizer. Hence, most farmers use less amount of fertilizer per hectare than the recommended rate, thereby reducing yield potential of different crops.

Table 1. Area covered (ha), Crop production (Q) and crop productivity (Q/ha) during the five years (2005/06 to 2009/10) for Cereals, Pulses and Oil crops

Crops	Description	2005/06	2006/07	2007/08	2008/9	2009/10
Cereals	Area	8,463,615	8,730,001	9,019,054	8,770,117	9,233,024
	Production	128,660,941	137,169,908	146,800,700	144,964,059	155,342,280
	Ave. productivity	15.2	15.71	16.28	16.61	17.00
Pulses	Area	1,228,564	1,344,091	1,446,730	1,391,731	1,328,618
	Production	13,661,202	15,806,944	17,445,197	17,452,634	16,451,467
	Ave. productivity	11.12	11.76	12.06	13.04	10.72
Oil crops	Area	740922	707059	875855	855147.41	780915.89
	Production	4968294	5406849	7454594	6557044	6436144
	Ave. productivity	6.71	7.65	8.51	8.96	9.81

Source CSA, 2006-2010

Table 2. Area (ha), production (q) and productivity (q/ha) of Cereal crops (2005/06 to 2009/10)

Crop	Description	2005/06	2006/07	2007/08	2008/9	2009/10	Average growth rate (%)
Tef	Area	2,404,674	2,565,155	2,542,125	2,481,333	2,588,661	1.53
	Production	24,377,495	29,929,235	31,342,437	30,280,181	31,793,743	6.08
	Productivity	10.14	11.67	12.33	12.20	12.28	4.22
Barley	Area	1,019,314	984,943	950,047	977,757	1,129,112	2.15
	Production	13,521,480	13,548,071	13,436,233	15,194,042	17,504,436	5.89
	Productivity	13.27	13.76	14.14	15.54	15.5	3.36
Wheat	Area	1,473,917	1,424,719	1,509,110	1,453,817	1,683,565	2.84
	Production	24,630,639	23,144,885	26,877,417	25,376,398	30,756,436	4.97
	Productivity	16.71	16.25	17.81	17.46	18.27	1.87
Maize	Area	1,694,522	1,767,389	1,977,111	1,768,122	1,772,253	0.92
	Production	37,764,397	37,497,491	41,485,050	39,325,217	38,971,631	0.64
	Productivity	22.29	21.22	20.98	22.24	21.99	-0.27
Sorghum	Area	1,464,318	1,533,537	1,571,213	1,615,297	1,618,677	2.11
	Production	23,160,409	26,591,292	26,335,118	28,043,510	29,712,655	5.66
	Productivity	15.82	17.34	16.76	17.36	18.36	3.21
Finger millet	Area	374,072	399,268	406,592	408,099	368,999	-0.27
	Production	4,844,089	5,379,915	5,999,629	5,603,045	5,241,911	1.64
	Productivity	12.95	13.47	14.76	13.73	14.21	1.95
Oats	Area	32,798	30,556	30,171	30,605	24,018	-5.35
	Production	362,432	365,858	380,815	427,729	330,191	-1.78
	Productivity	11.05	11.97	12.62	13.98	13.75	4.89
Rice	Area	-	24,434	32,685	35,088	47,739	23.84
	Production	-	713,161	944,001	713,937	1,031,277	11.15
	Productivity		29.19	28.88	20.35	21.6	-6.50
Total	Area	8,463,615	8,730,001	9,019,054	8,770,117	9,233,024	1.82
	Production	128,660,941	137,169,908	146,800,700	144,964,059	155,342,280	4.15
	Average productivity	15.20	15.71	16.28	16.61	17.00	2.36

Source CSA, 2006-2010

Table 3. Fertilizer distribution (tonnes) to the users for the five years
(2005/06-2009/10)

Year	DAP	Urea	Total
2006	251,156	124,561	375,717
2007	259,020	129,121	388,141
2008	265,768	138,988	404,756
2009	289,446	158,075	447,521
2010	394,029	201,232	595,261
Total	1,459,419	751,977	2,211,396

Source ESE, 2010 and MoARD personal communication, 2010

Table 4. Comparison between total amount of fertilizer purchased, supplied
to regions and used by farmers in 2010/11 (tonnes)

Fertilizer	DAP	UREA	Total	Share of used fert. vs purchased and supplied
Leftover from last season	204,412.0	96,874.0	301,286.0	
Purchase	324,792.3	200,485.4	525,277.7	
Total Supply	529,204.3	297,359.4	826,563.7	
Purchased Vs. Used by farmers	337,950.3	177,224.27	515,174.52	62.33
Transported to Region Vs. Total supply	394,028.56	201,232.05	595,260.61	86.55

Source MoARD, 2010

4. Seed system in Ethiopia

Seed system in Ethiopia represents the entire complex organizational, institutional and individual operations associated with the development, multiplication, processing, storage, distribution and marketing of seed in the country. Farmers, particularly small holder ones, are involved in multiple kinds of seed systems, which can guarantee them in obtaining the quantity and quality of seeds they need and to market their produce.

Seed systems in Ethiopia can be divided into two broad types: the formal system and the informal system (sometimes called local or farmers system). Both systems are operating simultaneously in the country and difficult to demarcate between the two. There is however, a fact that the formal system is the original source of improved seeds in the informal system. There is also a system that interact the two systems referred to as integrated seed system. Other forms of seed systems operating in both systems also exist such as Community-Based Seed System (CBSS). Though not well developed, few commercial seed systems are also operating in the country.

4.1. Informal Seed System

The informal seed system, also known as local system or sometimes as "farmers" system, is called informal because it operates under non-law regulated and characterized by farmer-to-farmer seed exchange. According to Cromwell, Friis-Hansen, and Turner (1992), five key features distinguish the informal from the formal system. These are, the informal system is traditional, semi-structured, operate at the individual community level, uses a wide range of exchange mechanisms, and usually deal with small quantities of seeds often demanded by farmers.

In the context of some countries like Ethiopia, the informal system is extremely important for seed security. In Ethiopia, the bulk of seed supply is provided through the informal system, implying its importance in national seed security. About 60-70% of seed used by Ethiopian smallholder farmers is saved on-farm and exchanged among farmers, and the remaining 20-30% is borrowed or purchased locally. The informal seed system (either self-saved seed or farmer-to-farmer seed exchange) accounts for 90% of the seed used by smallholder farmers (Belay, 2004), while the share of improved seed is less than 10% (Table).

The majority of Ethiopian farmers show a tendency of depending on the informal system due to the following key reasons:

1. It is relatively cheaper and readily available in the farmer's villages just at the time of seed is needed.
2. It allows use of seeds after testing on primary adopter farmers.
3. It is more reliable and its sustainability is more guaranteed than the formal system.

Ethiopian farmers have a long tradition of settled agriculture contributing to the evolution and maintenance of the country's rich agro-biodiversity, and to a well entrenched informal seed system. Farmers use centuries-old strategies, including the improvement of farmer-saved seeds, farmer-to-farmer seed exchange, and farmer-managed seed production (Zewde, B. *et al.* 2007). Farmers have rich experience in seed and varietal selection, seed preservation and protection, biological resources conservation through cultivation, local knowledge related with local crops and varieties.

As depicted in Table 1, on average more than 12 million hectare of land are cultivated by the major food crops over the last five years (2005-2010). These are: cereals, legumes, oilseeds, root crops and horticultural crops. In 2009/10 cropping season, out of 10,979,645 hectares (84.75%) were covered by local seeds (Table 2). More over, about 71.3% of the total cultivated area is covered by major cereals: tef, maize, barley, wheat and sorghum, followed by legumes (11.5%) and oil seeds (6%). In the same cropping season, the annual area coverage of tef, maize, sorghum, wheat and barley are 2.59, 1.77, 1.62, 1.68, 1.13 million hectares, respectively. Major pulses (faba bean, field peas, Haricot beans, chickpea, grass pea and lentil) occupy 14.9 million hectares, and oilseed crops: niger seed, linseed, rapeseed, peanut, sunflower, sesame and castor bean is about 0.78 million hectares (Table 1).

Table 1. Area cultivated (ha) by major crops over the last five years (2005/06-2009/10)

Crop category	Cropping season				
	2005/06	2006/07	2007/08	2008/09	2009/10
Cereals	8,072,561	8,463,080	8,730,001	8,770,118	9,233,025
Pulses	1,292,063	1,378,939	1,517,662	1,585,236	1,489,308
Oil crops	796,397	740,847	707,059	855,147	780,916
Vegetables	117,578	95,194	119,091	162,125	138,393

Root crops	168,836	188,917	184,329	145,742	212,208
Other temporary	77,554	97,677	84,977	69,103	63,418
Permanent crops	767,582	823,121	1,039,313	906,518	53,086
Total	11,292,572	11,787,775	12,382,434	12,493,989	12,954,749

Source: CSA, 2006-2010

Table 2. Area covered (ha) by local (informal) seeds over the last five years (2005/06- 2009/10)

Crop	Cropping season				
	2005/06	2006/07	2007/08	2008/09	2009/10
Cereals	7,636,935	8,127,710	8,309,899	8,333,097	7,660,560
Pulses	1,283,564	1,373,914	1,509,394	1,568,457	1,358,379
Oil crops	790,471	736,791	702,518	851,626	706,361
Vegetables	116,298	94,636	118,026	159,626	122,832
Root crops	167,189	186,804	180,624	143,761	183,254
Other annuals	77,000	97,575	83,041	68,048	56,431
Permanent	750,353	810,364	1,023,591	885,427	48,927
Total	11,292,572	11,787,775	12,382,434	12,493,989	12,954,749

Source: CSA, 2006-2010

4.2. Formal Seed System

The formal seed system is called formal because it is government supported system and several public institutions are involved on it. The major actors of the formal system are: National Agricultural Research Systems (NARS), Ministry of Agriculture and Rural Development (MoARD), Ethiopian Seed Enterprise (ESE) and private seed companies specializing on specific crops like Pioneer. Recently, regional seed enterprises (RSE) were also established as public seed enterprises (such as Oromiya Seed Enterprise-OSE, Amhara Seed Enterprise-ASE and Southern Region Seed Enterprise-SRSE) and entered into the formal system. All actors have inter-dependent roles in the system and inefficiency of one actor will automatically affect negatively the performances of the rest of the actors. NARS (EIAR & RARIs) is responsible for variety development and supply of initial seed, and ESE and RSEs are playing key roles in mass production of improved seeds. MoARD is also involved in variety release, multiplication, certification and distribution of seeds in the country. Private seed growers and other farmer institutions such as unions and cooperatives are also playing key roles in multiplication, certification and distribution of different classes of seeds. Legal institutions such as variety release procedures, intellectual property rights, certification programs, seed standards, contract

laws, and law enforcement are also an important component of the formal seed system of any country. They help determine the quantity, quality, and cost of seeds passing through the seed system (Maredia, *et al.*, 1999).

The Ethiopian government has favorable policy for agricultural research and is fully supporting the research system by allocating appropriate resources. Therefore, the country's agricultural research system has developed and released more than 664 varieties of 50 different crop types (MoARD, 2010; Personal communications). ESE has only been able to produce 111 different seeds of just 26 different crop varieties in 2009 cropping season. Seed multiplication by ESE focused mainly on two cereal crops (wheat and maize) and annual supply of certified seed by the enterprise doesn't exceed 20,000 tons (Marja H. *et al.*, 2008). Wheat and hybrid maize constitute about 85% of the total output.

The total area covered by improved seeds in 2009/10 (2002 E.C) cropping season was about 364,154 hectares. In the same season, the largest volume of improved seeds used was that of maize and wheat, which amounted to about 5,720 and 4,690 tons, which has covered the largest area under improved seeds cultivation estimated to be about 210,000 and 38,000 hectares, respectively (Table 3).

Table 3. Area covered (ha) by improved seeds (formal) during 2005/06 to 2009/10

Crops	Cropping season				
	2005/06	2006/07	2007/08	2008/09	2009/10
Cereals	429,536	335,369	412,629	430,937	322,819
Pulses	5,224	5,025	6,309	14,918	12,912
Oil crops	1,833	4,056	2,273	2,328	9,139
Vegetables	779	559	501	1,899	2,788
Root crops	813	2,114	2,251	799	3,721
Other annuals	70	102	-	-	-
Permanent	9,681	11,742	5,828	13,120	9,852
Total	449,186	359,937	432,107	465,809	364,154

4.3. Integrated Seed System

The line between the formal and informal seed sectors can become somewhat blurred, as seeds of improved varieties can be saved by farmers and eventually considered as “local variety” or “local seed” after some years of usage. In addition, in Ethiopia there have been attempts made by the government and NGOs to promote quality seed production and distribution through market channels for landrace varieties, although until now the volume they represent is quite small (Lipper *et al.*,2005). Thus, the formal and local seed systems are not always as distinct or separated as the two labels may imply something to integrate and synergize both systems.

5. Seed Legislation in Ethiopia

Seed legislation is a regulatory mechanism put in place to protect the farmer from purchasing seed of dubious quality. In general, the objective of seed legislation is to regulate seed commerce including variety certification and variety protection.

In countries where there is a fairly well developed seed inspection and certification service, the regulatory authority is vested to an autonomous or semiautonomous agency away from the main seed producer players (Marco A. Quiñones, 2010). This agency carries out control of all processes of seed inspection and certification and has authority to enforce seed laws and regulations. It is answerable directly to the Ministry of Agriculture.

Ethiopia has recently reviewed her seed legislation and is in the process of issuing a seed proclamation. However, there is not perfect seed legislation anywhere in the world and the laws and regulations may need to be frequently amended in response to changing circumstances. Even sometimes the seed legislation may need to be temporarily suspended as in times of crisis due to drought, floods, disease outbreaks etc. Looking at the future, it is recommended that Ethiopia brings her seed legislation and regulations in conformity with the International Seed Testing Association in order to facilitate seed imports and exports of diverse crop cultivars as it may become necessary.

5.1. Seed inspection and certification

Successful seed program is one which is able to supply a sufficient quantity of high quality seed at the required time, at a reasonable cost and at a place where it is needed. The seed standards in Ethiopia have been prepared under the direction of the agricultural product standards committee and published by the Quality and Standards Authority of Ethiopia. Currently, the Authority revised its seed standards and prepared field and seed standards for 174 crops versus the 74 crops standards that were officially issued for implementation.

Ethiopian Seed Standards includes the minimum limits of germination, varietal purity, physical purity and other quality attributes of Certified, Quality Declared and Emergency Seed, or of any other standard the Minister may establish under article 15 of the new draft law. In this system, the producer declares that the seed meets the established Quality Declared Seed standards based on internal quality controls, which the regulatory authority later controls through spot checks. It relies on the technical facilities and competence of seed producers to control quality; as such, it is initially intended to apply to large producers.

Previously, the responsibility for official seed quality control and certification was given to National Seed Industry Agency (NSIA) and later transferred to the Animal and Plant Health Directorate of MoARD.

To date, the implementation of seed inspection and certification restructured and decentralized to Bureaus of Agriculture and Rural Development (BoARDs) in regional states. The management of all 10 seed testing laboratories was also given to regional Bureaus (Ambo and Assela to Oromiya Region, Durbete, Gondar, Debre Markos and Dessie to Amhara Region, Axum and Mekelle to Tigray Region, and Durame, and Wolaita to Southern Nation and Nationality Region). The mini seed laboratories and the central laboratory have a combined capacity to test over 30,000 samples per year. With the current seed production trends this limited testing capacity makes it impossible to fulfill the requirement that all seed be certified.

The Farmers' cooperative Unions (FCUs) play a vital role in seed and fertilizer distribution while credit is offered by various financial institutions through FCUs. The FCU's share in seed supply to small farmers is now growing very rapidly.

Any person, who wants to engage in seed production, processing, import, export is required by the law to obtain a competence assurance certificate from the MOARD/BoARD, register their fields for inspection and provide proof of the parental material of the registered variety.

The new draft law (2010) gives the Regional authority to:

- coordinate public seed production and distribution at the regional level among regions and with the central public seed producer;
- issue certificates of competence for seed producers, processors, distributors and retailers in accordance with Articles 25 and 26;
- designate and obtain accreditation for seed testing laboratories;
- carry out quality control functions as provided in this Proclamation; and
- perform other functions within the scope of this article or as agreed between the Regional Authorities and the Minister.

During inspection the authorities consider minimum isolation distance, crop history and rotation, contaminants, disease and health status. Seed samples are collected and examined in the laboratory for purity, germination capacity, moisture content and health status (seed-borne diseases of seed lots). A seed analysis certificate is issued to the seed grower and each bag of certified seeds is labeled according to the standards set by former NSIA. Seed Inspectors with the authority to appear at production, processing, storage, wholesale and retail sites to inspect seed for its conformity to these standards. Certificate holders must make records and samples from laboratory tests of seed quality available to Inspectors, and follow any advice the Inspector gives them for improving the quality, before they are allowed to sell their seed. Any prescribed seed on sale must have a label specifying it is Certified, the variety name, and the dates of production and testing.

The ESE operates a central seed testing laboratory at headquarters and five mini laboratories attached to seed processing plants and storage facilities located in different regions (Table). ESE has kept its internal seed quality assurance activities even after the introduction of formal seed certification under the MoARD. The Regional Seed Enterprises and private seed growers are using seed laboratories of their respective Region, neighboring regions or ESE laboratories for quality assurance and cleaning and labeling their seeds.

The quality of seed could be tested by sending sample seed to Official Government Seed Testing Laboratory. The seed law may allow official testing of seed every year. The seed quality could be also done in own-laboratory through proper sampling of seed and following the procedures set by the standard authority

It was observed that some Ethiopian seed standards are excessively high, which has resulted in the rejection and destruction of good quality seed. It is therefore recommended that standards be reviewed and revised as necessary to comply with international standards and otherwise to determine what is appropriate for each variety (Draft seed law, 2010).

Concerning Official laboratories, the draft seed law says 'The Minister shall establish the accreditation criteria and testing procedures for all seed testing laboratories in Ethiopia'. This section takes into account Ethiopia's current seed testing capacity while still requiring the eventual adoption of ISTA procedures.

In the new draft law the Minister gives the power to accredit and issue guidelines, procedures and standards for both central and regional laboratories to promote consistent seed quality among regions. This will facilitate the inter-regional movement of seed and otherwise create a coherent seed system in Ethiopia.

5.1.1. Seed production, demand and supply

Seed security is one of the most important sociological, political, economic and scientific challenges in the country. Securing the supply of quality seed and planting material of the most important food crops is the most effective way to sustain food security.

In Ethiopia, the seed demand is increasing rapidly due to the agricultural development. The establishment of Ethiopian Seed Enterprise's led to advent of organized seed production and supply system in the country and remained the main supplier in the formal sector. Currently, government and private seed enterprises are involving and combining their efforts to produce and supply seed to the growers.

In the country, the supply of improved seeds never fulfilled the need of producers. But for the last two years with the shift in seed multiplication strategy, the production of improved seeds especially hybrid maize and wheat were considerably improved.

Table 6. Demand and supply of hybrid maize basic seed for five years
(2005/06-2009/10)

Production year	Demand	Supply	Supply vs. demand (%)
2006/07	1179	515	43.68
2007/08	2427	1023	42.15
2008/09	2224	1145	51.48
2009/10	2755	1509	54.77
2010/11	5606.3	6449.8	115.05

Table 7. Demand and supply hybrid maize certified seed in Quintals for four years
(2007/08-2010/11)

Production year	Demand	Supply	Supply vs demand (%)
2007/08	123777	35244	28.47
2008/09	143847	86787	60.33

2009/10	193079	95735	49.58
2010/11	333249	193123	57.65

Table 8. Demand and supply of non-hybrid certified seed in Quintals for five years
(2006/07-2010/11)

Production year	Demand	Supply	Supply vs demand (%)
2006/07	555650	225310	40.55
2007/08	629422	205680	32.68
2008/09	841458	246051	29.24
2009/10	737992	278353	37.71
2010/11	723588	433049	59.85

During the last five years, the ESE Produced and distributed its certified seeds through the Ministry of Agriculture and Rural Development to the peasant sector. The amount of certified seed production was increased from 207,459 quintals in 2005/06 to 543,209 quintals in 2009/10. The amount of seed distributed by ESE is shown in Table 9. In addition 20,000 quintals of hybrid certified was produced by Pioneer Hi-brid Seed Ethiopia in 2009/10 cropping season.

In the other hand, Seed sales show fluctuation from year to year and were 86% in 2006 and 56% in 2010, compared to seed production by ESE. ESE used to have a problem of carry-over stock, while the majority of farmers are unable to obtain improved seed. This problem was attributed to poor seed marketing (promotion and sales outlets) for reaching the farmer and/or the inabilities of the enterprise to meet the farmers need in terms of varietal choice and product quality (Table 10).

Table 9. Amount of certified seed produced by ESE in Quintals for five years (2006/07-2010/11)

Crop	2005/06	2006/07	2007/08	2008/09	2009/10
Cereals	181,526.28	195,733.60	226,954.11	302,883.37	524,303.24
Pulse crops	16,783.11	19,771.41	19,689.15	28,407.85	14,847.28

Oil crops	8,818.68	6,206.26	5,791.77	5,955.07	2,980.58
Horticultural crops	2.10	29.90	44.69	18.30	29.33
Spices	-	-	-	-	5.55
Fiber Crops	240.00	-	32.58	-	1,000.00
Forage crops	88.95	103.15	-	176.14	93.29
Total	207,459.12	221,844.32	252,512.30	337,440.73	543,259.27

Source: ESE, 2010

Table 10. Sales of certified seed produced by ESE in Quintals for five years (2006/07-2010/11)

Crop	2006	2007	2008	2009	2010
Cereals	164,715	138,840	171,905	171,534	293,161
Pulse crops	12,301	10,061	10,805	10,606	8,235
Oil crops	1,359	1,242	848	480	331
Horticultural crops	19	8	45	4	64
Forage crops	64	63	92	15	5
Total	178,458	150,214	183,695	182,638	301,795

Source: ESE, 2010

All the above facts depicted in the tables indicated the official seed production and other input statistics distributed to the end-user during the last five year plan (2005/06 – 2009/10). Availability and status of seed infrastructure is also highlight in order to assess the capacity of the country to implement requirements of seed certification that is necessary for the purpose of the harmonization at COMESA level.

5.1.2. Seed Production Facilities in Ethiopia

The formal seed sector has built up its seed processing capacity over the past two and a half decades. Currently there are quite a number of seed processing facilities in the seed sector (Six in ESE, 13 in Oromiya Region, 19 in Amhara Region, 7 in Tigray Region, 13 in Southern Peoples and Nationalities Region (SNNP), but most of the processing machines found in the four Regional states are needs repair. Concerning the seed testing

laboratories, ESE has its own 6 laboratories with a capacity of 17500 samples per year. At Federal MoARD level there is one seed testing laboratory with a capacity of 5000 samples per year. In addition, there are 10 seed testing laboratories found under the BoARD of four Regional States with a total capacity of 25000 samples per year. ESE has 10 storage facilities with a total capacity of 39600 quintals. In addition all three Regional Seed Agencies and 33 private seed growers have storage facilities with different amount of storage capacities. However, transport facilities are very limited. Most of the facilities are owned by the ESE but are not located strategically for serving small farmers throughout the country (Table 11). Besides the ESE, Pioneer Hi-Bred Seeds Ethiopia owns a seed processing plant with an annual capacity of 6,000 tones and a seed storage facility of 2000 tones – both located in Addis Ababa. Moreover, over 40 seed processing machines with an over 450,000 tones seed processing capacity found in different Regional states. However, only some of the Processing machines are functional. Others are either standing idle or needs some spare parts for repair.

Table 11. Seed processing, storage and laboratory facilities in Ethiopia

Institute/location	quantity	Seed processing (tons)		Seed testing laboratory (samples tested/year)	Storage (tons)
		Per day	Seed processed/year		
ESE	Seed testing labs. (6)			17,500	
	Seed processing machines (6)	16-32	137,952		
	Storage facilities (10)				39,600
Sub-total			137,952	17,500	39,600
Pioneer	1		6,000		2,000
Sub-total			143,952		41,000
MoARD	Addis Ababa			5,000	
Sub-total		0	0	5,000	0
Regional BoARD					
Oromiya	Seed testing labs. (2)			5,000	
	Seed processing machines (13)	2-30 t	40,880		
Amhara	Seed testing labs. (4)			10,000	
	Seed processing machines (19)	4-30 t	46,000		
Tigray	Seed testing labs. (2)			5,000	
	Seed processing machines (7)	8-20t	28,835		
Southern Region	Seed testing labs. (2)			5,000	
	Seed processing machines (13)	8-30t	64,605		
Sub-total			180,320	25,000	
Total			462,224	47,500	41,000

5.1.3. Existing seed classes

The new varieties, released by private or government must pass through a series of evaluation, release and registration tests and procedures before farmers can use them. Seed production of registered cultivars follows a generation system to ensure that all seeds marketed to farmers should be originated from a known source (breeder seed). Each generation is produced under strict supervision and must meet seed quality standards. Ethiopia has adopted from Organization for Economic Cooperation and Development (OECD) seed generation scheme which is indicated below:

- ♦ Breeder seed (1st generation) is the initial source of seed and is usually produced by the breeder. It is the source for the production of pre-basic or basic seed.
- ♦ Pre-basic seed (2nd generation) is the progeny of the breeder seed and is usually produced under the supervision of a breeder or his designated agency. This generation is commonly used for crops that have low multiplication ratios and where large quantities of certified seed are required.
- ♦ Basic seed (3rd generation) is the progeny of breeder or pre-basic seed and is usually produced under the supervision of a breeder or his designated agency and under the control of a seed quality control agency.
- ♦ Certified seed (4th generation and above) is the progeny of basic seed and is produced on contract with selected seed growers under the supervision of the seed enterprise, public or private. Certified seed can be used to produce further generations of certified seed (certified 1, certified 2, etc) or can be planted by farmers for grain production.

5.1.4. Main Findings and Recommendations

In Ethiopia there are favorable policies and incentives to attract and develop private seed companies to engage in the seed industry. However, needs more effort to implement those policies and strategies. The Ministry of Agriculture and Rural Development should enable the private sector to take the lead in production and sale of certified seeds while the public sector produces breeder pre-basic and basic seeds. In the development and conservation of new varieties, seed inspection and certification are indispensable processes.

The new draft law has been revisited and amended to keep up with new developments in the seed industry. A number of articles were amended, particularly with regard to seed quality standards, which are very high for some crops. The Seed Law No. 206/2000 demands conformity with these standards for any commercial seed. However, it proved impossible to achieve such standards at the current stage of development in the seed sector. This concern was noted by the responsible agency but no practical action has been yet taken to improve the situation.

The establishment of the National Seed Quality Control and Certification Division under MoARD and BoARD by itself is not a solution for the current seed quality problem. The Ministry should start independent certification agency that could equally serve all seed producers and enforce the regulations to build farmers confidence.

Another major constraint is the inefficiency of the executing agencies. There are serious problems in implementation, although the seed sector has now better legal frameworks. Repeated restructuring of the executing agencies created a gap and responsibilities shared among various departments of the MoARD, which is now also being reorganized. This weak or feeble the enforcement and serious fraudulent practices were reported by some suppliers. It is important that the quality assurance is strengthened so as to enforce the seed laws and prevent malpractices which have very serious repercussions for the development of agricultural sector.

Finally harmonization of a Seed Certification System that promotes the use of common terminologies, standards, procedures, seals and labels will guarantee the production and sale of high quality seed across the region.

5.2. Variety evaluation, release and registration system

In 1978, the Ethiopian government convened a National Seed Council to consider the issue of seed supply. From their recommendations the Ethiopian Seed Corporation was founded in 1979 as a state enterprise, run through the Ministry of State Farms, Coffee, and Tea Development (Dabi et al., 1998). In the beginning, there were no clear procedures for evaluating which improved variety breeders had developed would be approved for multiplication and release. The National Crop Improvement Committee (NCIC), instrumental in founding the ESE, was also important in establishing the National Variety Release Committees (NVRCs) in 1982 (Getinet Gebeyehu and Gebremedhin, 1999). Each major crop has its own committee, though their statutory role was not legally defined until recently (Federal Democratic Republic of Ethiopia, 2000). An NVRC is usually chaired by a breeder, and includes agronomists, crop protection specialists and social scientists, representing different institutions (e.g. IAR/EARO; the Ethiopian Biodiversity Institute⁵⁰; ESE; and the Ministry of State Farms, Coffee, and Tea Development) (Agrawal and Wolde Mariam, 1995).

In Ethiopia, two steps are involved in the release of a new variety or a hybrid developed by a breeder. These are - testing the new improved variety, and registering and releasing the variety and both steps are undertaken by the National Variety Release Committee (NVRC) Hence, the NVRC is mandated with the task of being involved with both the testing and release of varieties and hybrids.

The Committee is composed of breeders (4), agronomists (1), crop protection specialists (2), research/extension (1) and socioeconomists (1) representing different research institution and user organizations. The membership includes the EARI, Institute of Biodiversity Conservation and Research (IBCR), Awassa College of Agriculture, MoARD, The functions of the NVRC are to make decisions on variety release and related issues, undertake periodic reviews and approve recommendations for enhancing the system in the country. It develops guidelines and issues important formats to breeders.

The NVRC also compiles the national variety list and prepares a register book on all released crop varieties in the country.

It is headed by a chairperson elected from among the members and an official from the Ministry of Agriculture and Rural Development serve as its permanent secretary. The members of the committee hold office for 3 years but the chairperson and one member of the committee serve for 4 years to ensure the smooth transfer of activities to the new committee. The Animal Health and Phytosanitary process serves as the secretariat of NVRC

Before a candidate variety is submitted to the NVRC, it must have had at least two years of regional or national trials on-station at three to five locations, and a one year 'verification trial' on-farm, to demonstrate yield, disease-resistance, or "other important characteristics" (Dabi et al., 1998: 2). Once the NVRC has received this data, it elects a technical sub-committee to oversee a further verification trial, evaluating performance on a 10x10m plot on-station and two on-farms. The committee assessing Plant height, days to maturity, resistance to pests and other performance data that matches with breeders data. This is to ensure that the variety meets DUS criteria for stability, as well as for uniformity. The subcommittee also interviews the breeder in detail, particularly on agronomy, and solicits the farmer's views on performance relative to both a standard (improved variety) and a local (Farmer's Variety) check, usually grown on adjacent plots.

On the basis of these assessments, the sub-committee submits a report to the NVRC with their recommendation or otherwise for release.

The Crops included in the variety evaluation, release and registration system/process are:-

- cereals (Wheat, maize both hybrids and OPVs, barley, oats, sorghum both hybrids and OPVs, tef, rice, sunflower, mustard, linseed, rapeseed, noug, sesame, ground nut, faba bean, field pea, chickpea, lentil, haricot bean, soy bean vetch)
- Fiber Crops (Cotton, Sisal)

- Horticultural crops Vegetable, Roots and Tubers, and Enset (Capsicum, egg plant, Tomato, Leek, Onion, Cabbage, Cauliflower, Lettuce, Spinach, Swiss chard, Green beans, Melon, Beet root, Carrot, Cassava, Sweet potato, Potato, Taro, Yam, Garlic, Shallot, Ginger, Turmeric, Cardamom (true), Cardamom (false), and Black pepper
- Perennial crops (fruits -Citrus, Mango and Avocado, coffee, Enset, and tea, Strawberry, etc.). (See Annex for the number of released varieties in the country)

Today many irrigated and rain fed horticultural crop varieties are developed both for local and export market and are ready for release. However, the existing guideline does not encompass these crops. Therefore, to promote stability, uniformity and distinctness of horticultural crops and thereby strengthen their development program, these releases a comprehensive guideline should be prepared based on the existing release guideline. (See the National variety Release policy and Mechanism document in the annex)

5.2.1. Conditions for Harmonizing Seed Laws and Regulations across Regions

In the past seed laws and regulations were prepared and implemented with specific national interests and with no or little regional interactions. Most national seed laws, however, are replicas of each other (Louwaars, 2002; 1996) with little national flavor. To date, with the increasing globalization of seed trade the existence of unrealistic and inflexible national regulations become a serious impediment for regional integration. Given broadly similar agro-ecology, production environments, and crops at the regional level there are opportunities for countries to pursue a more integrated regional approach to the development of the seed sector. Such harmonized regulations and technical procedures would facilitate the movement of varieties and seeds across boundaries creating a regionally unified market and attract investment from the private sector (Zewdie, 2004).

In Ethiopia, the huge volume and the rapid growth in production and demand present has a unique opportunity for the development of seed sector and trade in varieties and planting materials. This process could be achieved through a rapid movement of improved planting materials. This would require uniform and harmonized policies, regulations and, procedures for the development, release, multiplication, transfer and exchange of improved planting materials and commodities.

Therefore, the Ethiopian draft seed laws and regulations were reviewed and prepared in relation to the country's expressed priorities, circumstances and needs and based on International standards. However, it should be necessary to check whether it complies with the regional laws and regulations.

5.2.2. Main Findings and Recommendations

The variety evaluation and release process i.e. the time from breeders making a cross to the improved variety being released and multiplied could take as long as 14 years. The current official goal of the government is to streamline the process, and drastically reduce delays in variety testing and release Therefore; this process is currently revised by EIAR in the Institute's Business Process Engineering (BPR) study and shortened to 8-11 years. The other option for shortening the time of variety testing and release could be the use of irrigation, so that variety testing could perform twice in a year.

The participation of some institutions in the NVRC was inadequate, and that late reporting of evaluations (and poor attendance by committee members) delayed variety release are the common problems. These issues have already been considered the new draft law article 6.

Policies for variety identity control (DUS) are perhaps most relevant for crops that are exported, or where there is an active seed market, such as for F1 hybrid seeds. For the horticultural sector, where most seeds are imported, quality control clearly needs to improve, since distributors sell impure or expired seed, which strongly impacts on the value of the harvest to farmers

The released variety seed that was multiplied should be distributed through institutional channels according to administrative decisions, rather than through a distribution network in response to farmers' expressions of seed needs. The lack of a system to monitor the status of released varieties has hindered the feedback on performance of released varieties. Such feedback is useful for lesson-learning and improvement in the quality of new varieties to be developed. Furthermore, variations, incompleteness and sometimes absence of agronomic and morphological descriptors have often delayed the release of candidate varieties.

Shortages of personnel and low standard office facility have affected the efficiency and effectiveness of the NVRC to accomplish its duties and responsibilities. In addition, the assignment of a variety developer to act as evaluator and also decision maker on a variety has raised concern over a conflict of interest.

A strong variety release mechanism is a basis in the supply of an adequate quantity of quality seed required for production. Therefore, strengthening the NVR office, and the establishment of an independent body (as mentioned in the draft law article No. 6) and incentive(allowance or other remuneration) in short and long terms should get due attention by the Government.

5.3. Phytosanitary measures

Seed production has to comply with numerous regulation and standards in order to access export markets. Such regulations and standards cover such broad areas as human and environmental health, plant health, introduction of alien species, worker welfare and consumer tastes (Zewdie,2004). These regulations are enforced through a number of bilateral and multilateral mechanisms and arrangements between and among trading partners, for example, the World Trade Organization (WTO). The fundamental requirement of WTO's regulation is to ensure that agricultural products are safe and pose no risk to human, animal and plant health.

WTO's Sanitary and phyto-sanitary (SPS) agreement has two main objectives: to recognize the sovereign right of members to provide the level of health protection they deem appropriate and ensure that SPS measures do not present unnecessary, arbitrary, scientifically unjustifiable or disguised restrictions on international trade. SPS measures refer to the actions taken to protect (a) human life from plant or animal-carried diseases, (b) animal or plant life from pest, diseases or disease-causing organisms, (c) human and animal life from risks arising from additives, contaminants, toxins or diseases-causing organisms in their seeds, food, beverages or feedstuffs; and (d) a country from damage caused by entry, establishment or spread of pests.

These measures allow countries to set their own seed or food safety and animal and plant health standards and regulations based on science and encourage members to use international standards, guidelines and recommendations where such exist.

In Ethiopia, in 1992, a revised Plant Quarantine Regulation No. 4/1992 was issued based upon the Plant Protection Decree No.56/1971. All imported plants and materials, which are liable to be infested or infected with plant pests, are subjected to plant quarantine checks. The regulation restricts the importation of some plants, plant products and other articles without import permit duly issued by the Ministry of Agriculture and Rural Development. It positively contributes to MoARD's regulatory function on seed import and/or export in checking the seed health and issuing the phyto-sanitary certificates.

A Seed Import Permit must be obtained from the Animal and Plant health Regulatory Directorate of the MoARD before importing seed into the country. The permit specifies the requirements for plant health, indicating prohibitions, packaging, conditions for release at the point of entry, and any other additional declaration with regard to pre-shipment treatments. Any seed consignment arriving in the country must be accompanied by a copy of the Import Permit together with a "Phytosanitary Certificate" which verifies that a competent authority, preferably internationally accredited in the exporting country has examined the plant material for pests prior to leaving the country and that the materials meets the importing country's own phytosanitary requirements. Without a phytosanitary certificate plant material is not allowed entry and may be destroyed or reshipped at the owner's cost.

5.3.1. Main Findings and Recommendations

Phytosanitary Services (PS), often State provided, are expected to diagnose pests found on plant materials at the point of entry, diagnose plant pest problems on samples brought by farmers and identify pathogens and pests causing plant damage. They should also be able to provide advice on disease and pest management strategies.

As a measure to minimize the introduction and spread of diseases and pests within the region strict quarantine measures are required and movement of vegetative planting materials must be through disease-free tissue culture materials. In the current conditions, Ethiopia can not meet the requirement because of lack of capacity in tissue culture and quarantine services. In addition, Governments of the EAC through their relevant institutions should develop/ strengthen capacity in pest risk analysis, detection, identification and elimination from plant samples targeting all diseases and pests that are of potential threat to the country. The institutions should develop a list of common pest and disease risks from each country in the region, establish and effectively implement standards and procedures for detecting; identifying and eliminating the pests and diseases in plant materials should they be detected. Finally, from EACs the ISTA accreditation is limited only to Kenya but in other neighboring countries facilities should be accredited in shortest time in order to fasten the harmonization process.

5.4.Plant Variety Protection (Intellectual Property Rights)

Ethiopia has been an active sympathizer of farmers' rights ever since the mid-1980s when the concept of farmers' rights began to emerge. Since then, it has played a significant role in all the negotiation processes related to farmers' rights and access to genetic resources. Important progress has been made in developing policy frameworks to address the rights of communities, farmers and breeders at national level. However, the pace toward implementing farmers' fights has not been as significant as the role that Ethiopia has played at the regional and global levels. (Regassa Feyissa, 2006)

Ethiopian Intellectual Property Office (EIPO) was established by Proclamation No 320 of 2003 to study, analyze and recommend intellectual property policies and laws. The Plant Breeders' Rights Proclamation (Proclamation No. 481/2006) was developed to encourage plant breeders by offering economic rewards as incentive for their contributions in the agricultural sector, realizing that the utilization of new plant varieties developed through research play a significant role in improving agricultural production and productivity.

5.4.1. Main Findings and Recommendations

The Proclamation also recognizes the contributions of local farmers in the conservation and use of genetic resources that constitute the basis for breeding new varieties for agricultural production (Art. 27). In this regard, the farmers' rights principle as set out in Article 27 of the Proclamation contains elements of the African Model Legislation that are important components of farmers' rights.

The 2006 Plant Breeders Act provides incentives for private investment in breeding, multiplication, and distribution of improved seed

The Plant Breeders' Rights Proclamation upholds farmers' rights to save, use, multiply, exchange and sell farm-saved seed of protected varieties, but they are not allowed to sell seed protected with plant breeders' rights. Although this proclamation provides for farmers' rights in a separate article, these provisions are limited to the conditions under

which farmers can use protected varieties. There is no mention of how farmers are supported and recognized for the role they play in conserving and developing crop genetic diversity, and how their rights to share benefits derived from the use of their varieties are ensured.

5.4.2. Main Findings and Recommendations

Ethiopia's implementation of a Plant Variety Protection (PVP) regime is provided for in the Plant Breeders' Right Proclamation, No. 481/2006. Though Ethiopia is not currently a member of the World Trade Organization, it has applied and is, therefore, seeking to bring its legal system into compliance with the Organization's requirements, including those of TRIPs (Robert J. Lewis-Lettington.2008).

Ethiopia also aims to expand its horticultural trade with the European Union and is seeking to promote plant breeding and the seed industry internally. Proclamation No. 481/2006 follows the basic structure and detail of the UPOV Convention. Though Ethiopia. Ethiopia has also been a leading country with regard to the promotion of community and farmers' rights in Africa as well as internationally. However, the country only recently adopted its own legislation in this regard. Regardless of the policy commitments made to address farmers' and community rights, the process of formulating legal instruments for the implementation of the policies has been very slow.

5.5. Seed import/export documentation and procedures

The Ministry of Trade and Industry (MOTI) is responsible for seed import and/or export trade license while the MoARD is in charge of issuing the certificate of competence, a prerequisite for issuing a trade license. According to Seed Proclamation No. 206/2000 the requirements for seed import and export include, inter alia, the following:

1. Seed importers-exporters must be registered with MoARD to get the certificate of competence and must have a trade license from MOTI.
2. Seed importers-exporters are required to apply and get import-export permit from MoARD before importing-exporting any seed.
3. Seed importers-exporters must comply with the requirements of the Plant Quarantine Service of MoARD.

In addition to the above the new draft law of Ethiopia on Import and Export of Seed suggests the following;

1. Any variety of seed to be imported for multiplication purposes, except where exclusively for re-export, shall be subject to prior verification trials as established by the VRC and shall be listed in the National Variety Register in accordance with this Proclamation.
2. Genetically modified organisms may be imported into Ethiopia only if the Minister receives prior assurance of their compliance with applicable legislation from the authority designated therein.
3. No person may import or export restricted seed; or import any seed containing terminator gene technology.
4. The Minister may, by directive, restrict the export of any variety of seed if it is determined that such export may adversely affect Ethiopia's food security or any other public interest.

The organizations involved in seed import and/or export include private traders, private producers, and public enterprises (ESE, Horticultural Development Enterprise (HDE), NGOs, research institutions, universities and colleges. Crops usually imported or

exported are cereals, pulses, oil crops, vegetables, ornamentals, fruits, medicinal plants, trees and shrubs.

5.5.1. Main Findings and Recommendations

Plant importation Permit division in Ethiopia found under the plant quarantine service department of MoARD. According to the permit order, a seed import permit must be obtained before importing seed into the country. The permit specifies the requirements for country and place of origin, plant health (free from soil), indicating prohibitions, validity of the permit and any other additional declaration with regard to pre-shipment treatments. Any seed consignment arriving in the country must be accompanied by a triplicate copy of the Import Permit together with a “Phytosanitary Certificate” which verifies that a competent authority.. Without a phytosanitary certificate plant material is not allowed entry and may be destroyed or reshipped at the owner's cost.

Similarly, seed for export also requires the description of consignment (name and address of exporter, place of origin, declared point of entry botanical name of the plant), any other additional declaration and disinfestations and/or disinfection treatment and it must be accompanied by an export permit together with and a phytosanitary certificate from the exporting country. (See the plant importation and re-export permit formats in the annex 2)

The requirements for imports and exports should be harmonized and the Pest Risk Analysis (PRA) procedures should be conducted based on FAO guidelines. This will result in faster seed flow across borders, and increased availability of seed varieties, which would otherwise have restricted entry because of reasons which are not scientifically based.

6. Conclusions

Agriculture in Ethiopia is caught in a low input-output trap, due to partly low levels of investment, low technology application, low capacity to afford for high input prices (seed, fertilizer, etc.). The solution needs to involve a structural change, for which major

capacity development is needed, including a quantum change in human capacity, input supply, technology adoption, and provision of infrastructure Poverty Accelerated and Sustainable Development Eradication Program(PASDEP), 2005). Especially, in order to increase the production and productivity of agricultural output, the use of modern agricultural technologies are vital, out of which fertilizer and high yielding variety of crops are the most important technologies to increase the level of crop production.

The policy/regulatory environment, the availability of relevant agricultural technology, the support institutions and the socio-economic factors have a profound effect on the development of the national seed industry (Louwaars, 2002; Turner and Bishaw, 2000; Almekinders and Louwaars, 1999). The policy and regulatory environment defines the organizations, functions and linkages among the institutions involved in the seed sector and the mechanisms for coordinating the activities and monitoring the progress of the national seed industry. To date, with the increasing globalization of seed trade the existence of unrealistic and inflexible national regulations become a serious impediment for regional integration. Given broadly similar agro-ecology, production environments, and crops at the regional level there are opportunities for countries to pursue a more integrated regional approach to the development of the seed sector. Such harmonized regulations and technical procedures would facilitate the movement of varieties and seeds across boundaries creating a regionally unified market and attract investment from the private sector. At present there are some promising developments aimed at harmonization of regulations in East Africa and Southern Africa.

The EACs should standardize documentation and rationalize procedures that will require plant import permit, phytosanitary certificate from source, quality certificate and customs clearance. This will reduce time on documentation and will speed up seed movement, thus availing seed to farmers sooner and encouraging seed trade.

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8. Annexs

Annex 1. Summary of Released/Registered varieties of crops

Crops	Number of released varieties		Total
	New varieties released in 2008	Released before 2008	
Cereal Crops	9	219	228
Tef	2	28	30
Bread wheat	0	41	41
Durum wheat	0	26	26
Triticale	0	4	4
Emmer wheat	0	2	2
Rice	0	15	15
Maize	7	33	40
Sorghum	0	30	30
Finger millet	0	6	6
Pearl millet	0	1	1
Food barley	0	25	25
Malt barley	0	8	8
Pulse Crops	13	115	128
Faba bean	2	18	20
Field pea	2	24	26
Chickpea	0	16	16
Cowpea	1	4	5
Lentil	0	8	8
Haricot bean	5	31	36
Soy bean	2	11	13
Grass pea	0	1	1
Mung bean	1	0	1
Fenugreek	0	2	2
Oil Crops	3	48	51
Noug	0	4	4
Linseed	0	8	8
Rapeseed	0	8	8
Sesame	0	12	12
Ground nut	3	13	16
Sunflower	0	1	1
Vernonia	0	1	1
Castor	0	1	1
Tubers, Roots and vegetable crops	2	77	79
Irish potato	0	23	23
Sweet potato	2	21	23
Taro	0	3	3

Crops	Number of released varieties		Total
	New varieties released in 2008	Released before 2008	
Cassava	0	2	2
Tomato	0	13	13
Garlic	0	3	3
Onion	0	3	3
Shallot	0	3	3
Sweet	0	6	6
Condiments and Medicinal Plants	1	12	13
Coriandor	1	1	2
Black pepper	0	2	2
Ginger	0	2	2
Turmeric	0	1	1
Cardammom	0	1	1
Sweet Annie	0	1	1
Citronela grass	0	1	1
Pyretrum	0	2	2
BlaCck cumin	0	1	1
Fruit Crops	7	19	26
Banana	0	12	12
Mango	0	1	1
Pine apple	1	0	1
Wine Grape	0	6	6
Avocado	6	0	6
Forage and pasture	0	9	9
Tree Lucerne	0	1	1
Elephant Grass	0	1	1
Panicum	0	1	1
Dolicos lablab	0	1	1
Phalaries	0	1	1
Trifolium	0	1	1
Vetch	0	1	1
Oats	0	1	1
Fiber Crops	1	14	15
cotton	1	14	15
Stimulant Crops	0	25	25
Coffee	0	25	25
Total	31	336	367

Annex 2 : APPLICATION FOR PHYTOSANITARY INSPECTION
ON ENTRY

TO : Plant Quarantine Service
Ministry of Agriculture and Rural Development
Addis Ababa, (Ethiopia)

I

(Full Name)

Occupation :

Full Address :

requests that a phytosanitary inspection should be carried out on the consignment described below :

Description of Consignment

Sender (Name and Address) :

Consignee (Name and Address) :

Number and description of package :

Distinguishing marks :

Origin (Country and place of dispatch) :

Means of conveyance :

Point of entry :

Date of arrival :

Contents of the package(s) :

Type of plants (fruits, seeds, tubers, etc.)

Name of plant and varieties :

Quantity :

Import permit No. :

Phytosanitary Cert. No. :

I the undersigned authorized importer declare that these plants Plant products

Growing medium will be propagated contained (preserved) at

starting the month of 200 and I agree to facilitate :

Field Herbarium Container inspection of the imported materials any time upon the request of the Plant Quarantine Service.

Signature of Applicant

Annex 3: The Federal Democratic Republic of Ethiopia
Ministry of Agriculture and Rural Development
Plant quarantine Service
Plant Importation Permit

Permit No. _____

Date Issued: _____

Permission is hereby granted to _____

(Name and address of the importer)

To import from _____ the following plants/seeds/plant parts:-

<u>Common name</u>	<u>Botanical name</u>	<u>Quantity</u>
1. _____	_____	_____
2. _____	_____	_____

through the port(s) of _____

subject to the following conditions

1. country and place of origin _____
2. The consignment is subject to inspection on arrival and if necessary to treatment or destruction or return to the country of origin, as the case warrants.
3. Plant or parts must be entirely free from soil
4. Phytosanitary certificate from the country of origin together with one of this permit shall accompany each consignment.
5. The following materials are prohibited entry as packing materials: _____
6. **Additional Declaration:** _____

Note A/ This permit is valid for _____ from the date of issue, but may be cancelled at any time by plant quarantine service,

B / This permit is drawn up in triplicate: two copies are delivered to the importer who should send one copy to the supplier

Date _____

Signature _____

Annex 4: Model Phytosanitary certificate for re-export

No. _____

Plant protection of _____ (contracting party of re-export)

To: Plant protection organization (s) of _____ (contracting party(ies) of import)

I. Description of consignment

Name and address of exporter: _____.

Declared name and addresses of consignee _____

Number and description of Package _____

Distinguishing marks _____

Places of origin: _____

Declared means of conveyance: _____

Declared point of entry _____

Name of produce and quantity declared _____

Botanical name of plants _____

This is to certify that the plants, plant products of other regulated articles described above were imported in to _____ (contracting party of re-export) from _____ (contracting party of origin) covered by phytosanitary certificate No. _____. Original, Certified true copy, of which is attached to this certificate; that they are packed, repacked in original *new containers, that based on the original phytosanitary certificate and additional inspection they are considered to conform with the current phytosanitary requirements of the importing contracting party, and that during storage in _____ container (contracting party of re-export), the consignment has not been subjected to the risk of infestation or infection.

*Insert tick in appropriate boxes

II. Additional Declaration

III. disinfection and/or Disinfection treatment

Date _____ Treatment _____ chemical (active ingredient) _____.

Duration and temperature _____

Concentration _____

Additional information _____

Place of issue _____

(Stamp of Organization) name of authorized officer _____

Date _____

(Signature)

No financial liability with respect to this certificate shall attach to _____ (name of plant protection Organization) or to any of its officers or representatives

Annex 5

NATIONAL VARIETY RELEASE POLICY AND MECHANISM

NATIONAL SEED INDUSTRY AGENCY

June, 2001

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THE NATIONAL VARIETY RELEASE POLICY

I. INTRODUCTION

In Ethiopia, research and higher learning institutions with the support and/or collaboration with government and private organizations are engaged in research geared to development of varieties of various crops in order to increase productivity per unit area.

The development of new varieties per se and their utilization by farmers in the production system follows specific procedures in most countries. Some countries have a rigorous testing system and variety-releasing mechanism before the newly developed variety is

made available to farmers. Other countries have no such mechanism that the varieties developed could be distributed to farmers by the researchers. The former system is most widely used. It is more reliable, safe and suitable to an agrarian country like Ethiopia where high productivity of crops has tremendous impact on the economy of the nation.

Hence, the need for establishing basic rules and regulations as well as a mechanism governing the release of important varieties or hybrids is unprecedented. The necessary steps involved, the need for a sub-committee and inclusion of additional criteria need special emphasis in testing and release of varieties under Ethiopian context.

- *STEPS IN THE RELEASE OF A VARIETY*

Two steps are involved in the release of a new variety or a hybrid developed by a breeder. These are - testing the new improved variety, and registering and releasing the variety. Though different countries have different approaches in carrying out these steps, in Ethiopia both steps are undertaken by the National Variety Release Committee (NVRC) Hence, the NVRC is mandated with the task of being involved with both the testing and release of varieties and hybrids.

- *A SUB-COMMITTEE*

In view of the high number of requests made by breeders for testing and release of varieties of different crops the need for a sub-committee was sought essential. Therefore, a sub-committee will be organized/formed that will be accountable/responsible to the NVRC. Members of the sub-committee for the respective crops shall be strictly professionals assigned from different public, private and non-governmental institution in the country. A standing member of the NVRC will be assigned by the NVRC as chairperson for each sub-committee.

- *ADDITIONAL CRITERIA*

In many instances the important criteria that are considered in testing and release of a variety are simple yield performances and reaction to diseases. It is however essential and pertinent that criteria that reflects the chemical composition of seed, and produces as the case may be, should be considered in the evaluation exercises. Hence the mechanism for testing seeds for specific quality such as malting quality, fiber quality, oil content and others should be developed. The inclusion of these criteria will contribute to making the final decision more complete and hence reliable.

It is therefore with such noble notion that this guideline is prepared by the NSIA in order to safeguard the distribution and proper utilization of released seeds breeds of different crops in the national agricultural production system.

II. STATURE OF THE NATIONAL VARIETY RELEASE COMMITTEE

A. BACKGROUND

The need for the establishment of sound mechanism for variety releases that will safeguard the production system and assure standardized practice is indisputable. This was expressed in different fora and as a result, an ad-hoc committee that was elected by the National Crop Improvement Conference (NCIC) in 1980 created the National Variety Release Committee (NVRC) in 1982. The terms of reference and guidelines of the NVRC were developed by the ad-hoc committee.

B. OBJECTIVES

General Objective

The general objective of the NVRC shall be to test, approve or release and register the new variety or hybrid developed by a breeder in order to assure the high standard and quality of the improved variety and safeguard the interest of the farmers and other users,

Specific Objectives

The specific objectives of the National Variety Release Committee are presented as follows.

1. To review the data supporting the release of a new hybrid or variety.
2. To determine the uniqueness and production potential of the variety under Ethiopian condition.
3. To provide the mechanism for approval and proper release of varieties and hybrids.
4. To register the released variety and hybrid.

FUNCTIONS

The functions of the National Variety Release Committee shall be: -

1. To approve the release of hybrids and/or varieties developed by governmental and private institutions.

2. To provide appropriate forms to the breeder to effect the release of a variety or hybrid. The release of a variety depends upon distinctness and the availability of a reasonable quantity of breeders' seed of a variety or seed of the parents of hybrids to the NSIA adequate enough to generate basic seed (Refer Table 1). Release is also dependent on the provision by the breeder or the institution which developed the variety a descriptive information regarding the distinguishing characteristics of the released varieties or hybrids (morphological, physiological, biochemical etc.) and the parents of varieties or hybrids (origin, pedigree) including performance.
3. To review and evaluate the data provided by the breeder and decide whether or not the variety or hybrid can be released.
4. To formally notify the appropriate individuals and agencies that the variety or hybrid has or has not been released. To compile and provide published information of released varieties and hybrids on the basis of the descriptive information provided by the breeder or the institution responsible for developing the variety regarding the distinguishing characteristics of the released varieties and hybrids (morphological, physiological, biochemical etc.) and parents of hybrids, (origin, pedigree) including performance.
5. To determine and assign responsibilities to appropriate institutions or agencies for maintenance of breeders' seed.
6. To obtain seed of the newly released varieties or hybrids from the breeder or the institution that developed them and provide it to the Institute of Biodiversity Conservation Research for long-term storage and maintenance.
7. To take appropriate action to recall and remove obsolete varieties and hybrids from the list of those eligible for seed certification when and if sufficient information is available.
8. To register released varieties and hybrids and maintain an up to date list (National Seed Registry) and publish such a list annually along with their characteristics and recommended ecological zones of production for each entry. To provide the above information (8) to the national seed and other appropriate data bases and maintain an up to date cross institutional data base linkage.

9. To review and standardize varietal and hybrid naming procedures used in the country.
10. To give periodic review and status report through the secretary to the National Seed Industry Agency.

C. ORGANIZATIONAL SET-UP

The National Variety Release Committee will function under the organizational set-up of the National Seed Industry Agency. The Agency shall provide an office for the Permanent Secretary.

D. COMPOSITION OF COMMITTEE

The committee shall be composed of high professional calibers from different concerned agricultural institutions. The committee members will be selected by the National Seed Industry Agency. The committee will consist of:

Breeders ¹ = 2; Agronomist/Physiologist = 1; Entomologist =1;
Pathologist = 1; Economist = 1; Research/Extensionist = 1; Food scientist =1; Seed technologist = 1; Private seed producers representative = 1;
Farmers union representative =1; permanent secretary(NSIA) = 1;and public sector representative.

The committee members shall be representatives from the following institutions/organizations

1. Ministry of Agriculture
2. National Seed Industry Agency
3. Ethiopian Agricultural Research Organization
4. Institute for Biodiversity Conservation and Research.
5. Coffee and Tea Development Authority
6. Higher Education Institutions/ universities and colleges
7. Other relevant organizations/institutions

Office Holders of the Committee

A chairperson and permanent secretary shall represent the Committee.

¹ Breeders working on different crop and on crops having different pollination habits will preferably be chosen.

E. CHAIRPERSON

The National Variety Release Committee shall have a chairperson elected from among the professional members. The chairperson shall have the following duties and responsibilities:

- Directs the activities of the Committee and preside over all of its meetings.
- Directs, guides and makes decisions on aspects of variety release meetings and other related matters.
- Attends the Board's meeting of the Ethiopian Seed Industry and provides periodic review and status report on the activities of the Committee.
- Directs and guides the overall activity of the National Variety Release Committee according to the rules and regulations approved by the National Seed Industry Council.
- He/she shall step down temporarily when a crop that he/she is involved in, is presented for release either at the ad-hoc committee or NVRC levels.

F. PERMANENT SECRETARY

The Permanent Secretary shall be an employee of the Agency. Part of his assignment shall be to serve in the Seed Quality Control and Certification Team under the National Seed Industry Agency. The Permanent Secretary is also envisaged to serve as a nucleus towards establishing an independent Testing Agency in the future when conditions such as human-power, facilities and other requirements are available.

Duties and responsibilities of the permanent secretary are presented as follows:

Make periodic review of the NVRC to assess its activities, make proposals and develop strategies for improvement including the establishment of an independent Testing Agency when appropriate and present these to the NVRC for approval and adoption.

Give guidelines developed by the NVRC and issue necessary formats to breeders and institutions involved in the development and multiplication of new varieties and hybrids.

Receive requests for the release of new varieties and hybrids from breeders and other institutions and give the appropriate response in consultation with the NVRC Chairperson.

With the chairperson of the NVRC he shall form and assign a sub-committee to evaluate the proposed variety or hybrid for release in accordance to the timetable request of the breeder.

Prepare trip schedules and notify in time standing member institutions and other members of the evaluation team. Organize the trip and make all the necessary arrangements including the provision of transport vehicles and notifying the arrival date of the sub-committee team at the breeder.

Make the necessary arrangements with appropriate foreign and local institutions (ENI, AAU, ESTIA etc) to conduct quality tests such as oil content, cooking, baking, malting or fiber quality for varieties and hybrids proposed for release. Deliver the materials to be tested to the testing institutions.

Collect and compile reports from the evaluation sub-committees team leader and in the evaluation and testing of varieties proposed for release. Organize the data and compile a report to present to the NVRC for its deliberations regarding the release of varieties and hybrids.

Serve as rapporteur to the NVRC during all of its deliberations and keep the necessary records and minutes.

Compile a list of all the varieties released along with their distinguishing characteristics and other essential publications related to the National Variety Release Committee.

Follow up any other activity as deemed necessary by the National Variety Release Committee.

G. TERMS OF OFFICE

The terms of office for the NVRC members shall be three years. However the chairperson and permanent secretary and one member of the committee, selected by the existing Committee, shall serve for four years in order to insure continuity and smooth transition of the NVRC activity when new members are elected. Members are eligible for re-election for unlimited terms.

H. MEETING

The National Variety Release Committee shall have two meetings, one each for highland and lowland crops, per year to release varieties and to deliberate on issues related to variety release. However, it can meet more than one time if necessary

III. VARIETY RELEASE GUIDELINE FOR FIELD CROPS AND HORTICULTURAL CROPS

A. PART ONE: FIELD CROP

RATIONALE

The ultimate goal of producing quality crops is primarily based on the development of superior cultivars fitting to the different production systems. This however, requires scrupulous scrutiny of germplasms by the breeder and other researchers. An effective variety releasing guideline for crops is therefore indisputable. The current variety release guideline has been in use for over two decades now and hence the need for revision and/or amendment of its contents was found essential and timely.

A. I. CONDITION FOR RELEASE

A.1.1 The new variety must show excellent performance in sufficient number of tests in comparison with the standard cultivar (s) grown in the ecological zone(s) where it is intended to be used.

A.1.2 The variety should be tested for yield, disease reaction and other important characteristics for a minimum of two to three years in Regional or National Variety Trials at least in 3 to 4 locations.

A.1.3 The variety to be released should be uniform, stable and distinctly superior to the existing commercial cultivar(s) grown in the area in one or more characteristics important for the crop, and is satisfactory in other major requirements. However, when there are no adequate number of released cultivars of a particular crop, the NVRC may consider releasing a variety even if its is not superior to existing cultivars, without compromising the requirements of the grower.

A.1.4 The new variety/varieties should be planted along with the established local or improved cultivar(s) as the case may be in relatively large plots (at least 100 m² at 2 to 3 sites). One of the sites should be on station and the other two on farm verification trials during the anticipated year of release for assessment by NVRC.

A.1.5 Prior to preparing proposals for release of varieties, the researcher should consult with commodity leader and other concerned researchers. The consensus reached on the merits of the variety should be communicated to the NVRC.

A.2. SUPPORTING DOCUMENTS

Release requests should be accompanied by:

A. 2.1 Complete morphological description of candidate varieties

A.2.2 Appropriate data to support recommendations-yield, agronomic data, disease reaction and other supporting data for individual locations and years should be presented in addition to the summaries. Care should be taken to include performance of appropriate checks. Other relevant data on important characteristics for local consumption, industry, export market, as the case may be should also be supplied e.g. canning quality (haricot bean) oil content (oil seeds), cooking time (faba bean), protein content (malting barley) etc.

A.2.3 Three completed copies each of the variety release request form and a year x location data summary of the recommended entries, these must be submitted to the committee chairman before May 30 each year.

A.2.4 A list of locations to be visited with the suggested dates of visit.

A.3 EVALUATION PROCEDURE

A.3.1 The NVRC through its chairman appoints a sub-committee composed of NVRC members and other relevant specialists to report on varietal performance after examining the submitted data and field visits. The evaluation report from the sub committee is expected to cover:

- . Performance data evaluation
- . Field performance evaluation
- . General comments
- . Recommendation

A.3.2 In any one season no more than three varieties per crop should be proposed for release under the same agro-ecological zone in the coming years unless sufficient written justification is given for such action. Moreover, varieties once rejected by the NVRC should not be repeatedly put in verification and proposed for release in the coming years unless sufficient written justification is given for such action.

A.3.3 Variety release proposals should be submitted to the committee Chairman by May 30 of each year. Actions to place varieties on the release list will be taken at the November/December meeting of the NVRC. The breeder submitting the variety or varieties for release may be called to appear in person before the NVRC to answer

enquiries regarding the proposal. Decisions reached by the committee will be reported at the NVRC in April the following year.

A.3.4 A new variety should be assigned a permanent designation by the breeder/team (preferably a short local name) after it has been approved for release. This is a pre-condition for release. A variety should not be distributed under more than one name. Provisionally released variety should be planted in the following year on one hectare plot at the ESE farm and another suitable site chosen by the breeder for final inspection by the NVRC.

A.3.5 The breeder or institution responsible for developing varieties that have been approved for release would be expected to maintain an appropriate quantity of the breeder and basic seed for use in replenishing and restoring commercial seed of the variety to the desired genetic purity.

A.3.6 Obsolete varieties arising from genetic deterioration, loss of resistance to diseases, or a breakdown in resistance/tolerance to a condition the candidate cultivar was developed for will be communicated to the NVRC by the users (breeders, extension agents, state farms) for the appropriate action.

A.3.7 A new variety should be assigned a permanent designation by the breeder/team (preferably a short local name) after it has been approved for release. This is a pre-condition for registration. A variety should not be distributed under more than one name. The proposed name(s) can be rejected by NVRC for valid reason.

A.3.8 Up to three cultivars of a crop could be proposed for release for the same agro-ecology for the same purpose. Moreover, varieties once rejected by the NVRC should not be repeatedly put in verification and proposed for release under the same agro-ecology for the same purpose.

A. 4. AMENDMENT

The field crops variety release guideline will be subjected to amendment/revision as deemed necessary

NATIONAL VARIETY RELEASE COMMITTEE

Field Crops Variety Release Request Form

(To be filled in triplicate)

A.1. Name and address of researcher/institution responsible for developing the cultivar (s).

A.2 Research commodity/project

A.3 Crop (with Latin name)

A.4 Variety designation (breeder's reference)

A. 5. Background of the material including origin and pedigree

A. 6 Main positive feature(s) of the variety which make it an improvement to those in current use. Indicate also shortcomings, which may restrict its use in some areas:

A.7 Test years and locations providing data for this assessment:

Year 1. _____ No. of location _____ No. of varieties in trial _____

Year 2. _____ No. of location _____ No. of varieties in trial _____

Year 3. _____ No. of location _____ No. of varieties in trial

Regions /locations where trials were conducted

A. 8. Results

A. 8.1 Annex yield and other relevant agronomic data

total yield of the variety as percent of check in trial _____

A.8.2 This variety required (kg/ha) N _____, P _____, K _____

_____ fertilizer to achieve this yield.

A.8.3 The trials received / did not received irrigation. (circle one)

A.8.4 Pesticide *applied, was not applied* (circle one).

Indicate type, chemical name and rate/ha.

A.8.5. Resistance to disease insects and other hazards (e.g. cold, heat, drought, and salinity). Explain scoring system and classify resistance in comparison with standard check.

Disease/insects and other hazard	Local check	Standard check	Proposed variety

A.8.6 Qualities of products like acceptability, nutritional value/quality, utilization aspects etc. Provide other information relevant to the crop.

NSIA
FORM-FC-A-4

A. 9. Main morphological characteristics which distinguish this variety

Morphological characteristics	Measurement or description

A.9. Recommended ecological zones of adaptation

A.10 Source of seed. Indicate which institution or organization is maintaining breeder's seed.

A.11 Other remarks:

A.12 Main contributors for the release of the variety:

<u>Name</u>	<u>Institution</u>	<u>Profession</u>
-------------	--------------------	-------------------

I the undersigned attest by my signature that the information given is true to the best of my knowledge.

I, hereby, apply to the National Variety Release Committee for the release and registration of this/these

Name _____ Signature _____

Position _____

Institution/Center _____

Institution/Center Manager _____

(Official Seal for approval) _____

Date _____

Table A1. Minimum quantity of Breeder's seed of field crops required in seed stock

Cereals	Seed stock class*	Breeder's seed required/variety** (kg)	Breeder's Nucleus cold storage/variety*** (kg)
Wheat	New release	250.0	
	Renewal stock	250.0	8.0
Barley (Malt)	New release	100.0	6.0
	Renewal stock	100.0	
Barley	New release (regional or national)	100.0	
	Renewal stock	100.0	6.0
Oats	New release	6.0	0.5
	Renewal stock	6.0	0.5
Hybrids Maize Sorghum Sunflower	Inbred parents Note: Inbred parents will be multiplied and cold stored till needed by users	By arrangement only	
Maize open pollinated	Composites/synthetics		
	Per cycle	5.0	
	Early maturing	10.0	2.0
	Medium maturing	20.0	3.0
Sorghum open pollinated	Late maturing		5.0
	Lowland 80 days	100.0	1.0
	Lowland 100 days	50.0	1.0
	Lowland 120 days	20.0	1.0
Tef	Lowland 150 days	20.0	1.0
	New release or national	1.5	0.5
	Renewal stock	5.0	0.5

*, ** and *** indicate seed stock class, required breeder's seed and required breeder's nucleus seed in cold storage, respectively. A brief description of each is given in the annex on pages 44

Table A1. continued

Oil Crops & Pulses	Seed Stock Class	Breeder's seed requirement/variety (kg)	Breeder's Nucleus cold storage/variety (kg)
Mustard	New release	0.5	1.0
	Renewal stock		
Linseed	New release	3.0	3.0
	Renewal stock		
Rapeseed	New release	0.5	1.0
	Renewal stock	1.0	1.0
Noug	New release	1.0	0.5
	Renewal stock	1.0	0.5
Sesame	New release	1.0	0.5
	Renewal stock	1.0	0.5
Sunflower open pollinated	New release	0.5	1.0
	Renewal stock	10.0	1.0
Groundnut	New release	50.0	10.0
	Renewal stock	50.0	10.0
Fababean	New release	100	25.0
	Renewal stock	100	
Field pea	New release	13.0	2.5
	Renewal stock	25.0	2.5
Chickpea	New release		
	Renewal stock	25.0	3.0
Lentil	New release	10.0	2.0
	Renewal stock	15.0	2.0
Haricot bean	New release	10.0	2.5
	Renewal stock	20.0	2.5
Soybean	New release	10.0	1.5
	Renewal stock	10.0	1.5
Vetch	New release		
	Renewal stock	3.5	0.25

B. PART TWO: HORTICULTURAL CROPS**RATIONALE**

The ultimate goal of producing quality crops is primarily based on the development of superior cultivars fitting to the different production systems. This however, requires scrupulous scrutiny of germplasms by the breeder and other researchers. To that effect the need for an effective variety releasing guideline for crops is also found unequivocal.

Today many irrigated and rain fed horticultural crop varieties are developed both for local and export market and are ready for release. However, the existing guideline does not encompass these crops. Therefore, to promote stability, uniformity and distinctness of horticultural crops and thereby strengthen their development program, these release guidelines are prepared based on the existing field crops' release guideline (cereal, pulses, oil crops, etc.) as Sections A and B of Part Two. Section A covering vegetables, root and tubers and Section B the perennial crops (fruits, coffee, tea, ensete etc.) as part of the responsibility of the National Seed Industry Agency (NSIA).

B.1 VEGETABLE CROPS, ROOTS AND TUBERS, AND ENSET

B.1.1 CONDITION FOR RELEASE.

B.1.1.1 The new variety must show an improvement in sufficient number of tests in comparison with the standard or local cultivars grown in the agro-ecological zone(s) where it is intended to be used.

B.1.1.2 The variety should be tested for yield, diseases, insect pests, and other important characteristics for a minimum of two years in the respective agro-ecological zones in at least two locations.

B.1.1.3 The variety to be released should be uniform, stable and distinctly superior to the existing standard or local cultivar (s) grown in the area in one or more characteristics important for the crop and is satisfactory in other major requirements.

However, when there are no adequate number of released cultivars of a particular crop, the NVRC may consider releasing a variety even if its is not superior to existing cultivars, without compromising the requirements of the grower.

B.1.1.4 The new variety/varieties should be planted along with the established local or standard cultivar(s) (as the case may be) in relatively large plots (at least 50 m² replicated twice or 100 m²) at least in three sites. One of the sites should be on station and the other two on farm verification trials during the anticipated year of release for assessment by the NVRC.

B.1.1.5 Prior to preparing for release of varieties the researcher should consult with program leader and other concerned researchers. The consensus reached on the merits of the variety should be communicated to the NVRC.

B.1.1.6 A new variety should be assigned a permanent designation by the breeder/team (preferably) a short local name after it has been approved for release. This is a pre-condition for registration. A variety should not be distributed under more than one name. The proposed name (s) can be rejected by NVRC for valid reason.

B.1.2 SUPPORTING DOCUMENTS

Variety release request should be accompanied by:

B.1.2.1 Complete morphological description of candidate variety (s);

B.1.2.2 Appropriate data to support recommendations like yield, agronomic data, diseases, insect pest reactions and other supporting data for each locations and years. Other relevant data on important characteristic for local consumption, industry, export market, as the case may be, e.g. canning quality (tomato, carrot, (etc.), cooking time (potato, sweet potato, etc.), total soluble solids (tomato, onion, shallot, etc.), pungency (shallot, pepper, etc.), oleoresin (pepper, ginger, etc.), color (tomato, pepper, shallot, potato, sweet potato, etc.) should be supplied.

B.1.2.3 Three completed copies for candidate variety/varieties release request form and a year X location data summary of the recommended entries which must be submitted to the Secretariat Office of NVRC before Ginbot 30 for rain fed crops and before Meskerem 30 for irrigated crops. A list of locations to be visited with the suggested dates of visit should be communicated and confirmed at least one week before the date of evaluation. Actions to place varieties on the released list will be taken at the Yekatit/Megabit meeting of the NVRC. The breeder submitting the variety or varieties for release may be called to appear in person before the NVRC to answer queries regarding the proposal. Decisions reached by the committee will be reported at the National Agricultural Research and Development Forum.

B.1.3 EVALUATION PROCEDURES

B. 1.3.1 The NVRC appoints a sub-committee composed of NVRC members and other relevant professionals to report on varietal performance after examining the

submitted data and field visits. The evaluation report from the sub-committee is expected to cover: -

- Research data evaluation
- Verification trials evaluation
- General comments
- Recommendation

B. 1.3.2 No more than three varieties per crop should be proposed for release for a given agro-ecology in any one season. Moreover, varieties once rejected by the NVRC should not be repeatedly put in verification and proposed for release under the same agro-ecology for the same purpose.

B.1.3.3 Provisionally released varieties should be planted in the following year on 1,000 m² at two appropriate sites for final inspection by the NVRC. If not planted within the coming two years, it will lose its provisional status but could be considered as a new entry in another variety trial.

B.1.3.4 Varieties recommended for "repeat" if not tested within the coming two years will lose its repeat status but could be considered as a new entry in another variety trial.

B.1.3.5 The breeder or institution responsible for developing varieties that have been approved for release would maintain an appropriate quantity of the breeder and basic seed for use in replenishing and restoring commercial seed of the variety to the desired genetic purity.

B.1.3.6 Obsolete varieties or otherwise arising from genetic deterioration, loss of resistance to diseases, etc. will be recommended by the NVRC to be discontinued from production list when it is reported by the users (breeders, extension agents, state farms etc).

B.1.4 AMENDMENT

This Annual Horticultural Crops Variety Release Guideline will be subjected to amendment/revision as deemed necessary.

NATIONAL VARIETY RELEASE COMMITTEE.

Application for variety release/registration of vegetables, root and tubers and enset crops
(To be filled in triplicate)

B.1. 1 Name and address of researcher/institution responsible for developing the cultivar

B.1.2 Research commodity

B1.3 Crop (with Latin name)

B1.4 Variety designation (breeder's reference)

B.1.5 Background of the material including origin and pedigree

A.1.6 Main positive feature(s) of the variety which make it an improvement to those in current use. Indicate also shortcomings, which may restrict its use in some areas:

B1.7 Test years and locations providing data for this assessment:

Year 1. _____ No. Of location _____ No. of varieties in trial _____

Year 2. _____ No. of location _____ No. of varieties in trial _____

Year 3. _____ No. of location _____ No. of varieties in trial _____

Regions /locations where trials were conducted

B1..8 Results

B1.8.1 Annex yield and other relevant agronomic data

B1. 8.2 Total yield of the variety as percent of check in trial _____

NSIA
FORM-VC-B1-3

B1.8.3 This variety required (kg/ha) N _____, P _____, K _____

fertilizer to achieve this yield.

B1.8.4 The trials received / did not received irrigation. **(circle one)**

B1.8.5 Pesticide *applied*, was not applied **(circle one)**.

Indicate type, chemical name and rate/ha.

B1..8.6 Resistance to disease insects and other hazards (e.g. cold, heat, drought, salinity).
Explain scoring system and classify resistance in comparison with standard check.

Disease/insects and other hazard	Local check	Standard check	Proposed variety
_____	_____	_____	_____
_____	_____	_____	_____

B1.8.7 Qualities of products like acceptability, nutritional value, TSS, utilization aspects etc. Provide other information relevant to the crop.

B1..8.8 Main morphological characteristics which distinguish this variety

Morphological characteristics	Measurement or description
_____	_____
_____	_____
_____	_____

B1..9. Recommended ecological zones of adaptation

B1.10. Source of seed or planting materials. Indicate which institution or organization is maintaining breeder's seed.

B1..11. Other remarks:

B1.12. Main contributors for the release of the variety:

Name Institution Profession

I the undersigned attest by my signature that the information given is true to the best of my knowledge.

I, hereby, apply to the National Variety Release Committee for the release and registration of this/these

Name _____ Signature _____

Position _____

Institution/Center _____

Institution/Center Manager _____

(Official Seal for approval) _____

Date _____

Table 1. Minimum quantity of breeder's seed of some horticultural crops required in seed stock

Vegetable Crop	Seed stock class*	Breeder's seed required/variety (kg) **	Breeder's Nucleus cold storage/variety (mg) ***
Capsicum	New releases	0.7	60
	Renewable stock	1.0	60
Egg plant	New releases	0.7	60
	Renewable stock	1.0	60
Tomato	New releases	0.3	50
	Renewable stock	0.5	50
Leek	New releases	4.0	500
	Renewable stock	6.0	500
Onion	New releases	4.0	500
	Renewable stock	6.0	500
Cabbage	New releases	0.7	100
	Renewable stock	1.0	100
Cauliflower	New releases	0.7	100
	Renewable stock	1.0	100
Lettuce	New releases	0.7	100
	Renewable stock	1.0	100
Spinach	New releases	8.0	2000
	Renewable stock	10.0	2000
Swiss chard	New releases	8.0	2000
	Renewable stock	10.0	2000
Green Beans	New releases	80.0	1600
	Renewable stock	100.0	1600
Melon	New releases	3.0	400
	Renewable stock	4.0	400
Beet root	New releases	8.0	2000
	Renewable stock	10.0	2000
Carrot	New releases	4.0	500
	Renewable stock	5.0	500
Cassava	New releases	1000 cutting	TBA *
	Renewable stock	1200 cutting	TBA

*, ** and *** -do-

Table B1. Continued

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Vegetable Crop	Seed stock class	¹ Breeder's seed requirement /variety (kg)	Breeder's Nucleus cold storage/variety
Potato	New releases	2000	TBA ²
	Renewable stock	2500	
Sweet potato*	New releases	25000	TBA
	Renewable stock	30000	TBA
Taro	New releases	12500	TBA
	Renewable stock	15000	TBA
Yam	New releases	12500	TBA
	Renewable stock	15000	TBA
Garlic	New releases	600	TBA
	Renewable stock	700	TBA
Shallot	New releases	1200	TBA
	Renewable stock	1500	TBA
Ginger	New releases		TBA
	Renewable stock		TBA
Turmeric	New releases		TBA
	Renewable stock		TBA
Cardamom (true)	New releases		TBA
	Renewable stock		TBA
Cardamom (false)	New releases		TBA
	Renewable stock		TBA
Black paper	New releases		TBA
	Renewable stock		TBA

¹Breeder seed requirement for perennial crops will be arranged with the appropriate researcher.

²TBA = To be arranged with Institute of Bio-Diversity Conservation and Research and the appropriate researcher.

* Softwood cuttings

B. PERENNIAL CROPS (fruits, coffee and tea)

B.2.1 CONDITION FOR RELEASE

B.2.1.1 The proposed cultivar must show an improvement over existing or currently recommended cultivar (s) in one or more economic characters (yield, resistance/tolerance to diseases, pests, soil problems, fruit color, aroma, flavor, storability, juice/pulp, quality, maturity periods, propagation capability, high range of adaptability, hardiness, etc.). Other characters should however be comparable to the existing cultivars, if not superior.

B.2.1.2 The character(s) for which the candidate cultivar is to be released should be tested against the existing 'standard' local cultivar in the case of indigenous species (e.g. coffee, enset etc.) and against already established commercial cultivars if the new proposed cultivar is an exotic crop (e.g. citrus, grapes, etc). In the absence of a standard cultivar for a particular crop, the cultivar with the highest coverage will be considered as the standard for that particular growing environment (e.g. citrus in Upper Awash). When such established cultivars are not available, NVRC may still consider releasing and registering the candidate cultivar, in the interests of the production sector.

B.2.1.3 The candidate cultivar should be tested for all relevant characters such as disease/pest resistance/tolerance and susceptibility against the standard cultivar or on internationally accepted screening systems and parameters.

B.2.1.4 At least two years production data should be provided for any crop in the respective agro-ecological zones in at least two locations.

B.2.1.5 The cultivar proposed for release should be distinct, stable and uniform.

B.2.1.6 In view of the prolonged growth habit of perennial crops it is mandatory to design the initial trial program in such a way that variety trial evaluation plots will be used for verification purpose of promising varieties for release. The candidate cultivar should be established together with recommended cultivars /clones/ propagules /graft combinations replicated 3 times for every agro-ecological region. Hence the plot size for:

B.2.1.6.1 Large plants (citrus, mango, avocado etc.) shall be 144 to 330 m² or 4 plants per plot.

B.2.1.6.2 Intermediate plants (papayas, coffee, enset etc.) shall be 40-100 m² or 8 plants per plot.

B.2.1.6.3 Small plants (strawberry, etc.) shall be about 16 m² or 30 plants per plot.

B.2.1.7 In the case of papaya data of 3 locations for one year will be submitted for NVRC and its performance will be evaluated in the following year and later, yield and other data of the second year will be submitted for final approval.

B.2.1.8 For onset, complete morphological and yield data of the screening trial will be presented at the time of request for evaluation. In addition the performance of advanced clones (variety trial) will be evaluated just before harvest and yield and qualitative data will be presented to NVRC for appropriate action. The most appropriate period for inspection shall be communicated to the NVRC, at the time the application is made for release/ registration.

B.2.2 SUPPORTING DOCUMENTS

Release requests should be accompanied by the following:

B.2.2.1 Complete morphological description of candidate cultivar (s) should be provided by each breeder/researcher/organization to enable identification. If possible suitable plates, drawings and photographs may accompany each application.

B.2.2.2 Candidate cultivar should be free of serious diseases and insect pests at the breeders' or nucleus source of seed/ bud wood / propagule / clone supply. A document to that effect should be attached.

B.2.2.3 Adequate data in support of the application with respect to quantitative and qualitative characters, under each location and number of years tested, should be provided. These data should give a valid comparison with the standard cultivar or local check if available.

B.2.2.4 Three completed copies for each candidate variety/varieties release request form and a year location data summary of the recommended entries must be submitted to the Secretariat Office of the NVRC before Ginbot 30 for rainfed crops and before Meskerem 30 for irrigated crops each year. Actions to place varieties on the released list will be taken at the Yekatit /Megabit meeting of the NVRC. The breeder submitting the variety or varieties for release may be called to appear in person before the NVRC to answer

queries regarding the proposal. Decisions reached by the committee will be reported at the National Agricultural Research Review and Development Forum.

B.2.3 EVALUATION PROCEDURES

B.2.3.1 The NVRC through its chairman appoints a sub-committee composed of NVRC members and other relevant professionals to report on varietal performance after examining the submitted data and field visits. The evaluation report from the sub-committee is expected to cover: -

- Research data evaluation
- Verification trials evaluation
- General comments
- Recommendation

B.2.3.2 Breeder's maintenance plots, for scions and rootstock research institution or other organization should establish foundation or nucleus multiplication blocks. This will ensure a steady supply of material to the production sector. The commercial nursery/seed increase cooperator/ agency is the final and crucial bridge between the plant breeder and the grower.

B.2.3.3 Seed gardens (foundation), nucleus scion wood and rootstock mother plantations, colonial and propagate foundation blocks have to be maintained and made available for periodic inspections by the NVRC or delegated specialists after a cultivar is registered and released provisionally or otherwise.

B.2.3.4 A perennial crop should be provisionally released if there is an urgent need to develop an exotic crop that has shown sufficient potential in the period stipulated even though comparisons are not possible in the short term.

B.2.3.5 Provisionally released varieties due to suspicion of disease or other problems should be further inspected within the following two years by the NVRC.

B.2.3.6 Registering with NVRC should formally regularize cultivars, which have been in commercial productions prior to the establishment of this guideline.

B.2.3.7 A new variety should be assigned a permanent designation by the breeder/team (preferably a short local name) after it has been approved for release. This is a pre-condition for registration. A variety should not be distributed under more than one name. The proposed name(s) can be rejected by NVRC for valid reason.

B.2.3.8 Up to three cultivars of a crop could be proposed for release for the same agro-ecology for the same purpose. Moreover, varieties once rejected by the NVRC should not be repeatedly put in verification and proposed for release under the same agro-ecology for the same purpose.

B.2.3.9 A breakdown in resistance/tolerance to a condition the candidate cultivar was developed for, should be communicated to the NVRC by the users. If this occurs the NVRC will take appropriate action.

B.2.4 AMENDMENTS

This Perennial Crops Variety Release Guideline will be subjected to amendments/revision as deemed necessary.

NATIONAL VARIETY RELEASE COMMITTEE

Application for variety release/registration/ of perennial horticultural crops

(To be filled in triplicate)

B.1. Name and address of researcher/ institute responsible for developing the cultivar

B.2. Research commodity _____

B.2. Name of crop (with Latin Name)_____

B.3. Variety designation (breeders reference) _____

B.4. Origin of cultivar

Information on origin and pedigree, mode of reproduction. (Hybrid/open pollinated, seedling/bud sprout/clone/selection/imported/unknown)

B.5. Recommended ecological zones of adaptation.

B.6. Main positive feature(s) of the variety which make it superior to those in current use. Indicate also shortcomings, which may restrict its use in some areas:

B.7. Input Required

B.7.1 This variety required (kg/ha) _____(N), _____(P), _____(K)

fertilizer to achieve this yield.

B.7.2 The trials (received) (did not receive) irrigation (circle one)

B.7.3 Pesticide applied, not applied (circle one). Indicate type, chemical name and rate/ha.

<u>Type</u>	<u>Name</u>	<u>Rate</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

B.8 Test years and locations providing data for this assessment:

Year 1. _____ No. of location _____ No. of varieties in trial _____

Year 2. _____ No. of location _____ No. of varieties in trial _____

Year 3. _____ No. of location _____ No. of varieties in trial _

Regions/locations where trials were conducted:

B.9 Characteristics of the cultivar:

B.9.1 Morphological description

B.9.2 Quality of Product (Acceptability, Nutritional Value, TSS, Utilization Aspects, etc.)

B.9.3 Regularity in bearing

B.9.5 Harvest period (s)

B.9.6 Resistance to disease/insects and other hazards (e.g. cold, heat, drought, salinity). Explain scoring system and classify resistance in comparison with standard check.

<u>Disease/insect or other hazard</u>	<u>Standard check</u>	<u>Proposed variety</u>
_____	_____	_____
_____	_____	_____

B.9.7 Processing quality/utilization information

B.10 Additional information (fertilizer regimes, irrigation levels, rootstock preferences edaphic adaptability, suitability for large scale production or small farmer cropping systems etc.)

B. 11. Main contributor for the release of the variety

<u>Name</u>	<u>Institution</u>	<u>Profession</u>
_____	_____	_____
_____	_____	_____

B. 12 Organization/institution responsible for maintaining breeder's stock

I the undersigned attest by my signature that the information given is true to the best of my knowledge.

hereby, apply to the National Variety Release Committee for the release and registration of this/these

Name _____ Signature _____

Position _____

Institution/Center _____

Institution/Center Manager _____

(Official Seal for approval)

Date _____

Breeder's seed/planting materials and/or a recommendation thereof could be obtained only from the breeders of the respective crops or program leader.

IV. QUANTITIES OF BREEDER'S SEEDS REQUIRED

All breeders* will be required to provide "Breeder's Seed for their varieties to the Ethiopian Seed Industry Agency (NSIA) through the NVRC at the time the varieties are granted the status of "provisional release" or 'full release" approved by the NVRC.

Request for renewal stocks will be made by the government and/or other authorized users direct with the concerned breeder in writing with a copy to NSIA. Breeders should plan to provide the seed requested within 12 months. Breeders are also required to provide seed to the Institute of Biodiversity Conservation and Research for long time storage and maintain duplicate samples at the time they get approval from NVRC to release their varieties.

The quantity of breeder seed required for new release or renewal stock is indicated in column Tables 1 and 2. These are the quantities of seed per variety and seed stock class, which authorized government, and other users such as ESE should receive from the breeder, so that the users may produce the breeder-pre-basic seed generation the same year as received.

The quantity of the nucleus seed that the breeder should preferably keep in cold storage is shown in column 4 of the same tables. The breeder is responsible to ensure that this nucleus stock is 100% authentic (represent the variety as released) and viability exceeding 85%. In practice, the breeder will multiply this seed one generation to obtain the Breeder Seed quantity for authorized government and other users and simultaneously replace his nucleus stock in cold storage.

* Breeders involved in field crops and/or horticultural crops

V. VARIETY EVALUATION REPORT GUIDELINE

Please include the following points in your evaluation visit report of verification plots of varieties proposed for release. (Any other additional Information is appreciated).

2.1 Performance data evaluation

This will consist of scrutinizing the submitted data for completeness, relevance, Commissions and assessing if appropriate comparisons were done

2.2 Field evaluation

Insitu performance evaluation and recording of relevant information (data) that will help in decision making and checking against reported information.

4.3 Comments

Any general observations regarding the conduct of the verification plots and any shortcomings and suggestion should be included.

4.4 Recommendation

A recommendation on whether to accept, reject or reassess the variety or varieties proposed for release should be explicitly stated.

Annex 6: DRAFT SEED PROCLAMATION

Proclamation No. /2010

WHEREAS Ethiopia's seed sector is vital to the country's food security and economic prosperity;

WHEREAS it is essential to ensure that a reliable and accessible supply of quality seed is made available to farmers, agro-pastoralists and other seed users;

WHEREAS the production, processing and distribution of quality seed hinges on the coordinated efforts of public and private actors at the national, regional and local levels;

WHEREAS in light of the above, it has become necessary to strengthen the legal and institutional framework related to seed in Ethiopia.

NOW, THEREFORE, in accordance with Article 55(1) of the Constitution of the Federal Democratic Republic of Ethiopia, it is hereby proclaimed as follows:

PART ONE

GENERAL

1. Title

This Proclamation shall be cited as "Seed Proclamation No. /2010".

2. Definitions

In this Proclamation, unless the context requires otherwise:

- 1/ "Certified Seed" means domestically-produced or imported seed certified as conforming to the Ethiopian Seed Standards set forth in Article 15(b)(i);
- 2/ "certificate of competence" means a certificate attesting to the satisfaction of established requirements to engage in a specified activity in Ethiopia's seed sector, as provided in Part Six of this Proclamation;

- 3/ "Emergency Seed" means seed of a known provenance that is intended to meet an acute seed shortage set forth in Article 15(b)(i);
- 4/ "Ethiopian Seed Standards" means the minimum limits of germination, varietal purity, physical purity and other quality attributes of Certified, Quality Declared and Emergency Seed, or of any other standard the Minister may establish under Article 15;

This term has been re-defined to cover the three standards for seed quality under this Proclamation.

- 5/ "genetically modified organism" means any living organism that possesses a novel combination of genetic matter obtained through the use of modern biotechnology;
- 6/ "local variety" means a variety that has evolved over a period of time under particular agro-ecological conditions within a defined area;
- 7/ "Minister" or "Ministry" means the minister or ministry responsible for agriculture in Ethiopia;

This formulation is a useful alternative to putting in the current name of the ministry, which if changed would necessitate an amendment of the Proclamation.

- 8/ "OECD Seed Schemes" means the certification system of the Organisation for Economic Cooperation and Development for the international trade of seed;
- 9/ "person" means any natural or juridical person;
- 10/ "prescribed seed" means any seed on or intended for the domestic market for which there are minimum standards or quality control requirements, as designated by ministerial directive;

The list of prescribed seed must be comprehensive and should include seed that may not be grown domestically, but which is imported for the domestic market (e.g. rice).

The term "domestic market", used throughout the text, has intentionally been left undefined as counterparts agreed its meaning was understood but difficult to accurately define. The Minister is given the power (Article 32) to define the

term by directive if necessary to achieve the stated purposes of the Proclamation.

- 11/ "Proclamation" means this proclamation and includes all regulations, directives and other subsidiary implementing legislation;
- 12/ "quality control" means the process of evaluating seed quality for compliance with Ethiopian Seed Standards, as provided under Article 17 of this Proclamation
- 13/ "Quality Declared Seed" means seed certified as conforming to the Ethiopian Seed Standards set forth in Article 15(b) (ii) of this Proclamation;

In this system, the producer declares that the seed meets the established Quality Declared Seed standards based on internal quality controls, which the regulatory authority later controls through spot checks. It relies on the technical facilities and competence of seed producers to control quality; as such, it is initially intended to apply to large producers.

- 14/ "Region" means any state referred to in Article 47(1) of the Constitution of the Federal Democratic Republic of Ethiopia and includes the Addis Ababa and Dire Dewa city administrations;
- 15/ "Regional Authority" means the authority responsible for agriculture at the regional level;

As with the definition of Minister above, this descriptive term permits changes to, or variations among, the names of regional agriculture authorities without amending the legislation.

- 16/ "restricted seed" means seed prohibited from being marketed in, imported into or exported from Ethiopia by published ministerial directive;
- 17/ "seed" means true botanical seed, bulbs, tubers, cuttings rhizomes, roots, seedlings or any other plant propagating material intended for planting;
- 18/ "variety" means plant grouping within a single botanical taxon of the lowest known rank that can be:

- a) defined by the expression of the characteristics of a given genotype or combination of genotypes;
- b) distinguished from any other plant grouping by the expression of at least one of the said characteristics; and
- c) considered as a unit with regard to its suitability for being propagated unchanged.

The UPOV definition has been used to bring the legislation in line with Ethiopia's Plant Breeder's Rights Proclamation and international standards.

Any expression in the masculine gender includes the feminine.

3. Scope of Application

- 1/ This Proclamation shall apply to seeds of all plant varieties, subject to sub articles 2 and 3 below.
- 2/ This Proclamation shall not apply to:
 - a) the use of farm-saved seed by any person, or the use, exchange or sale of farm-saved seed by smallholder farmers;
 - b) any sale of seed involving persons or seeds exempted from the provisions of this Proclamation under sub-articles 3; or
 - c) seed used for research purposes, which nevertheless may be subject to regulation under other legislation.
- 3/ The Minister may, from time to time and by published directive, exempt any class of persons or category of seed from the provisions of this Proclamation.
- 4/ The application of any provision of this Proclamation shall in no way affect the rights granted under Plant Breeder's Rights Proclamation No. 481/2006.

4. Purpose

The Proclamation has the following purposes:

- a) ensure reliable access to high quality seed;

- b) facilitate the introduction of improved varieties on the market;
- c) protect farmers from sub-standard or fraudulently sold seed;
- d) encourage the emergence of private seed production enterprises; and
- e) meet Ethiopia's food security and economic needs.

PART TWO ADMINISTRATION

5. **Implementing Authority**

- 1/ The Minister shall have the power and responsibility to implement this Proclamation.

The term "Minister" is used instead of "Ministry" because responsibility to implement the proclamation ultimately rests with the Minister; the Ministry is not an accountable entity.

- 2/ The Minister may delegate any part of the authority granted under this Proclamation to other entities as may be necessary.

6. **National Variety Release Committee**

- 1/ An independent National Variety Release Committee shall be established, comprised of a Chairperson to be voted by the Committee, a Permanent Secretary and at least one other member from the Ministry, and members from at least the following:

- a) agricultural research institute at federal and regional levels;
- b) public seed producer at federal and regional levels;
- c) institute responsible for biodiversity conservation;
- d) cooperatives union;
- e) private sector seed growers association;

- f) private seed producer (non-association); and
- g) institution of higher learning.

The Committee may establish such technical or other sub-committees as may be necessary for it to carry out its functions.

- 2/ Committee members shall receive a sitting allowance or other remuneration as determined by the Minister in compensation for their services. *[national counsel to advise]*
- 3/ The Committee shall meet at least twice each year, or as often as necessary for it to carry out its functions under this Proclamation. At its first meeting, the Committee shall:
 - a) establish its operating rules and procedures; and
 - b) convene a committee of relevant crop specialists to draft technical guidelines and requirements for variety release
- 4/ The Committee shall carry out the following functions in accordance with published procedures and guidelines:
 - a) determine the procedures and methodologies for seed testing;
 - b) establish and/or improve technical standards for each species of prescribed seed;
 - c) order trials and evaluate results;
 - d) take decisions on applications to release new varieties.
- 5/ The Committee shall report directly to the Minister for variety release recommendations and the Permanent Secretary shall list approved varieties in the National Variety Register.

- 6/ Committee decisions on the release of new varieties shall be taken by a 2/3 majority of at least 51% of the voting members.
- 7/ The Committee shall engage in disinterested decision-making and, to that end, shall define in its operational rules and procedures what will constitute a conflict of interest and shall require any member who falls within that definition to abstain from decision-making on the case in question.
- 8/ Any person who has grounds to believe his application was rejected in violation of the Committee's procedures and guidelines shall have the right to appeal the decision, first to the Committee and then to the appropriate administrative body.

7. National Seed Advisory Board

-
- 1/ The Minister shall establish a National Seed Advisory Board (the "Advisory Board"), which shall comprise a Chairperson appointed by the Minister, a Secretary from the Ministry, and representatives from:
 - a) federal agricultural research institute;
 - b) Regional Authorities (rotating basis);
 - c) national standards authority;
 - d) institute responsible for biodiversity conservation;
 - e) private sector seed producer;
 - f) seed importer and exporter;
 - g) authority responsible for environment
 - h) ministry responsible for trade and industry;
 - i) ministry responsible for health;
 - j) authority responsible for revenue & customs; and
 - k) institution of higher learning.

The composition is listed in descriptive terms rather than proper names, which are subject to change.

- 2/ The Advisory Board shall:
 - a) advise the Minister on policies and legislation aimed at strengthening Ethiopia's seed systems, including on institutional, capacity-building and other matters;
 - b) advise the Minister on the implementation of such policies and legislation, including this Proclamation and any subsidiary instruments.
- 3/ The Advisory Board may establish task forces as necessary for it to effectively perform its functions.
- 4/ The Advisory Board shall meet at least once annually and thereafter as often as may be required, and shall adopt its operating rules and procedures at the first meeting.

An inter-ministerial advisory body is a useful vehicle for providing broad input on cross-cutting issues that affect a range of public and private actors in Ethiopia's seed system.

8. Regional Authorities

- 1/ Each Regional Authority shall be responsible for implementing this Proclamation at the regional level.
- 2/ The Regional Authorities shall, among other things:
 - a) liaise with the Ministry on matters of regional interest with respect to plant varieties;
 - b) coordinate public seed production and distribution at the regional level among regions and with the central public seed producer;
 - c) issue certificates of competence for seed producers, processors, distributors and retailers in accordance with Articles 25 and 26;
 - d) designate and obtain accreditation for seed testing laboratories;

- e) carry out quality control functions as provided in this Proclamation; and
 - f) perform other functions within the scope of this article or as agreed between the Regional Authorities and the Minister.
- 3/ Each Regional Authority shall establish or designate such bodies as may be necessary to carry out its functions under this Proclamation.

9. Federal and Regional Coordination

- 1/ a) The Minister and the Regional Authorities shall coordinate implementation of this Proclamation as and to the extent necessary to effectively achieve its purposes.
- b) To the same end, the Regional Authorities shall communicate and coordinate among themselves.
- 2/ To further ensure coherent and uniform application of this Proclamation, the Regional Authorities shall employ procedures, standards and guidelines issued or approved by the Minister for, among other things:
- a) laboratory accreditation;
 - b) seed production;
 - c) quality control, including seed testing and inspection;
 - d) issuing certificates of competence;
- as well as for any other activity identified by the Minister.
- 3/ The Minister shall provide the Regional Authorities and institutions with the training, capacity-building and other support necessary for them to carry out their functions under this Proclamation.

PART THREE
VARIETY RELEASE AND REGISTRATION

10. Approval and Release of Varieties

Any new variety of seed may be approved and released by decision of the Minister upon the recommendation of the Variety Release Committee, following evaluation of the results of variety verification trials.

1/ Varieties for Export Only

Varieties for export only shall not be subject to variety release or registration requirements unless otherwise required by the importing country, but shall nonetheless be subject to all controls under prevailing phytosanitary, biosafety and other relevant legislation.

2/ Varieties for Release on the Domestic Market

a) New domestic and foreign-bred varieties for release on the domestic market shall undergo multi-year, multi-location testing as set forth in the variety release and registration guidelines.

b) Domestic local varieties already in existence in informal seed systems shall be subject to such testing as the Committee shall require in accordance with its rules and procedures prior to their release on the domestic market.

c) Registered foreign-bred varieties for release on the domestic market shall undergo single- or multi-season, multi-location verification trial, as determined by the Committee in accordance with its rules and procedures.

3/ In order to facilitate the release of new varieties on the domestic market, the Minister, on advice of the Committee, may reduce or waive the testing requirements for any variety falling under paragraph 2(c) above if the applicant can scientifically demonstrate its adaptability to Ethiopian conditions, as determined through tests equivalent to those employed or recognized for other nationally-registered varieties.

Safeguards are built into this provision to prevent the registration of inappropriate varieties. Additional requirements may be established by directive or regulation.

11. National Variety Register

- 1/ The Minister shall enter the varieties approved in accordance with Article 10 of this Proclamation in the National Variety Register.
- 2/ The Permanent Secretary of the Variety Release Committee shall keep and regularly update the National Variety Register and make it available to the public.
- 3/ The Variety Release Committee shall periodically re-evaluate the varieties listed in the National Variety Register and recommend the removal of any obsolete varieties.

PART FOUR SEED PRODUCTION and DISTRIBUTION

12. Production

Seed may be produced by any entity, including (but not limited to):

- a) federal and regional public seed production bodies;
- b) private companies;
- c) cooperatives;
- d) NGOs; and
- e) farmers;

subject to the provisions of the Plant Breeder's Rights Proclamation (No. 481/2006) and any other applicable legislation.

13. Registry of Prescribed Seed Producers

The Minister shall establish a registry of prescribed seed producers, which shall contain the following information on each public and private producer:

- a) business name and address;
- b) description of activity and type(s) of seed produced;
- c) validity of certificate of competence;
- d) data on the seed being grown, including:

- (i) field number and growing history over the previous five years;
 - (ii) seed variety and class;
 - (iii) all field and laboratory inspection reports;
 - (iv) the quantity produced for certification where relevant;
 - (v) plot testing results; and
 - (vi) any action taken to reject or downgrade seed in the previous [five] years; *[Recommend clean slate after a certain number of years have passed without any such action taken.]*
- e) production statistics, including imports, exports and in-country production; and
 - f) any other information as may be prescribed by published ministerial directive.

14. Integrated Production Planning

- 1/ The federal and regional seed production institutions shall, together with private seed companies and the Minister, develop, draft and periodically review a strategy for rationalizing their roles in the production and distribution of prescribed seed, with an emphasis on integrated production planning, harmonizing standards and procedures, sharing best practices and equitably allocating machinery and infrastructure.
- 2/ The Minister shall keep a prescribed seed production database containing:
 - a) planning methodologies;
 - b) annual production targets and allocation of responsibilities;
 - c) annual production statistics for each type of seed, by institution and overall;
 - d) land, infrastructure and other resources used to produce the seed in (c) above; and
 - e) any other information relevant to national seed production.

The seed production database shall be part of or linked to the registry of prescribed seed producers established under Article 13 of this Proclamation.

PART FIVE QUALITY CONTROL AND CERTIFICATION

15. **Standards**

The Minister shall, through Ethiopia's national standards authority, establish the following with respect to prescribed seed:

- a) the standards and requirements for different classes of seed;
- b) the Ethiopian Seed Standards for:
 - (i) Certified Seed;
 - (ii) Quality Declared Seed;
 - (iii) Emergency Seed, which shall be of a known provenance; and
 - (iv) any other seed standard that may be established; and
- c) which species shall be subject to each standard.

Counterparts observed that some Ethiopian seed standards are excessively high, which has resulted in the rejection and destruction of good quality seed. It is therefore recommended that standards be reviewed and revised as necessary to comply with – but not necessarily exceed – international standards and otherwise to determine what is appropriate for each variety.

16. **Official Laboratories**

- 1/ The Minister shall establish the accreditation criteria and testing procedures for all seed testing laboratories in Ethiopia.

This sub-section takes into account Ethiopia's current seed testing capacity while still requiring the eventual adoption of ISTA procedures.

- 2/ The Minister shall establish or designate an accredited national laboratory to test prescribed seed, which shall endeavor to comply with International Seed Testing Association methods as soon as practicable.
- 3/ The Minister shall accredit official laboratories for seed testing at the regional level.

The Minister is given the power to accredit and issue guidelines, procedures and standards for both central and regional laboratories to promote consistent seed quality among regions. This will facilitate the inter-regional movement of seed and otherwise create a coherent seed system in Ethiopia.

17. Quality Control of Prescribed Seed

The Minister shall establish the procedures and criteria for all quality control testing of prescribed seed in Ethiopia.

- 1/ The Regional Authorities shall be responsible for quality control of domestically produced seed for release on the domestic market;
- 2/ The Minister shall be responsible for the quality control of:
 - a) imported prescribed seed, to ensure its conformity with Ethiopian Seed Standards; and
 - b) domestically produced seed for export, to ensure its conformity with the standards of the country of destination.
- 3/ The Minister may recognize the quality control designation of any foreign certification agency as equivalent to Ethiopian Seed Standards.
- 4/ OECD Seed Schemes or their internationally accepted equivalent shall be employed as soon as practicable, with a priority on domestically produced seed for export.

This provision takes into account Ethiopia's current capacity for quality control while requiring that the OECD or equivalent scheme be put in place as soon as possible.

18. Certificates of Seed Quality

1/ Certified Seed and Quality Declared Seed

Each Regional Authority shall, upon ascertaining that domestically produced and processed prescribed seed for supply to the domestic market:

- a) is listed in the National Variety Register;
- b) has been produced and processed by a person holding a certificate of competence in accordance with prescribed procedures, including the use of appropriate generations of seed;
- c) has been tested in accordance with this Proclamation and found to be in conformity with the applicable Ethiopian Seed Standards; and
- d) fulfils any other requirement as the Minister may specify by published directive;

upon payment of the prescribed fee, issue a certificate of Certified Seed or Quality Declared Seed with respect to such seed.

2/ Emergency Seed

The Minister shall issue a Certificate of Emergency Seed upon ascertaining that the seed in question is in conformity with the applicable Ethiopian Seed Standards and fulfils any other requirement the Minister may establish.

3/ Imported Seed

The Minister shall, upon ascertaining that imported seed:

- a) is listed the National Variety Register, unless imported for breeding and re-export purposes only;
- b) was imported into Ethiopia by a seed importer holding a certificate of competence;
- c) has been tested in accordance with this Proclamation and found to be in conformity with the applicable Ethiopian Seed Standards; and
- d) fulfils any other requirement as may be required by the Minister by published directive;

upon payment of the prescribed fee, issue a certificate of seed quality with respect to such seed.

4/ Seed for Export

The Minister shall, upon ascertaining that seed for export:

- a) where required by the importing country, is of a variety listed in the National Variety Register;
- b) was produced and processed by a person holding a certificate of competence;
- c) has been tested in accordance with this Proclamation and found to be in conformity with OECD Seed Schemes or their international equivalent, or with the testing procedures of the country of destination; and

This article permits testing procedures to be equivalent to OECD Seed Schemes in order to bring exports in line with international standards even if Ethiopia is not technically able to comply with all of the OECD requirements.

- d) fulfils any other requirement as may be required by the Minister by published directive;

upon payment of the prescribed fee, issue a certificate of seed quality for export with respect to such seed.

5/ Revocation

Any certificate of seed quality may be revoked where:

- a) it is found to have been obtained on the basis of false, misleading or incomplete information; or
- b) the seed is found not to meet the applicable Ethiopian Seed Standards following a post-control conducted under Article 20 of this Proclamation or any re-testing of seed quality.

Prior to revoking a certificate of seed quality, the Minister or relevant Regional Authority shall notify the holder of the certificate and give him the opportunity to be heard.

19. Labeling

- 1/ No prescribed seed may be put on the domestic market unless labeled in accordance with this Proclamation.
- 2/ Prescribed Seed Labels shall be printed according to OECD color codes and shall contain at least the following information:
 - a) the name and emblem of the producer;
 - b) "Certified Seed", "Quality Declared Seed" or relevant seed class;
 - c) type of crop and name of variety;
 - d) year of production, date of seed testing and expiration date of certificate;
 - e) quantity of seed in the container;
 - f) symbol of danger for chemically-treated seed; and
 - g) any other information that the Minister may require by published directive.
- 3/ For Emergency Seed, the label shall contain the following information:
 - a) name of supplier;
 - b) the phrase "Emergency Seed";
 - c) crop and, if possible, variety;
 - d) date of seed testing and expiration date of certificate;
 - e) representation that it meets minimum germination requirements;
 - f) quantity of seed in the container;
 - g) symbol of danger for chemically-treated seed; and
 - h) any other information that the Minister may require by published directive.

Seed labels shall be printed or stamped in indelible ink on the container of the seed or affixed thereto as specified by published ministerial directive.

20. Pre- and Post-Control

- 1/ As soon as practicable, the Minister shall put in place a system of pre- and post-control plot testing of an established percentage of all classes of seed except breeder seed lots to verify varietal identity and purity, in particular when there is reason to doubt the applicable standards are met and for all higher generation seed.
- 2/ The Minister and Regional Authorities shall conduct plot testing to verify the seed quality control procedures and shall undertake such remedial measures as may be necessary.
- 3/ To verify that a given lot of seed on the domestic market conforms to the applicable Ethiopian Seed Standards, a laboratory test using the latest technology may be conducted at any time on samples of such seed.

21. Rejected or Downgraded Seed

- 1/ Where a seed lot fails to meet the applicable standards, it shall be downgraded where possible, or rejected and disposed of in accordance with directives issued by the Minister, subject to the provisions of sub article 2 below.
- 2/ Any person whose seed lot has been rejected shall be given the option to:
 - a) use the seed for food or feed; or
 - b) re-plant the seed in his own fields for personal use;unless the seed is found to be contaminated or otherwise unfit for consumption or use.

This novel provision permits the productive use of sub-standard seed where possible as an alternative to its automatic destruction.

22. Import and Export of Seed

- 1/ No person shall import or export seed without a valid import or export permit issued by the Minister.
- 2/ Any variety of seed to be imported for multiplication purposes, except where exclusively for re-export, shall be subject to prior verification trials as established by the Variety Release Committee and shall be listed in the National Variety Register in accordance with this Proclamation.
- 3/ Genetically modified organisms may be imported into Ethiopia only if the Minister receives prior assurance of their compliance with applicable legislation from the authority designated therein.
- 4/ No person may:
 - a) import or export restricted seed; or
 - b) import any seed containing terminator gene technology.
- 5/ The Minister may, by directive, restrict the export of any variety of seed if it is determined that such export may adversely affect Ethiopia's food security or any other public interest.

23. Supply of Emergency Seed

In case of an acute seed shortage in Ethiopia, the Minister shall have the power to declare a seed shortage emergency and to authorize the supply of Emergency Seed to affected areas.

PART SIX CERTIFICATES OF COMPETENCE

In post-workshop discussions, it was decided that the requirement for certificates of competence will remain in the Proclamation, but that the provisions setting forth the specific criteria for each category will be moved into regulations and ministerial directives as appropriate. This approach will help avoid unintended or excessive hurdles, in particular for small seed enterprises, and will lessen the administrative burden on the government.

24. Requirement

- 1/ Any producer, processor, importer, exporter, wholesaler, distributor or retailer of prescribed seed shall obtain a certificate of competence from the appropriate authority, as provided under Article 25.
- 2/ A certificate of competence must be obtained before application is made for any required trade license.
- 3/ The Minister shall have the authority to establish and/or modify the requirements for each category of certificate of competence by published ministerial directive, subject to the provisions of this Proclamation and implementing regulations.

25. Application, Issuance and Validity

- 1/ Applications for certificates of competence shall be made to:
 - a) for seed producers, processors, distributors or retailers, the Regional Authority of the region in which their headquarters is located; or
 - b) for seed importers and exporters, the Minister.
- 2/ Applications shall contain evidence showing the fulfillment of the requirements provided for in this Proclamation with respect to the issuance of the certificate of competence in question and other information that may be required by published ministerial directive.
- 3/ The Minister or the relevant Regional Authority shall, upon ascertaining that the application is complete and correct and upon payment of the prescribed fee, issue the certificate of competence in question.
- 4/ When any application is rejected, the Minister or the relevant Regional Authority shall state the reasons therefor.
- 5/ Unless otherwise established by ministerial directive, any certificate of competence issued under this Proclamation shall be valid for a period of three years, and shall be automatically renewed for additional three-year periods upon payment of the prescribed fee unless terminated by the relevant authority for failure to maintain the conditions upon which the certificate was granted.

26. National Registry

All certificates of competence shall have national validity and shall therefore be recognized by all other issuing authorities in Ethiopia. To this end:

- a) The Minister shall establish a national registry of all certificates of competence issued by both federal and regional authorities.
- b) Each Regional Authority shall transmit to the Minister the records of all certificates of competence it issues for entry into the national registry.
- c) The Minister shall make the contents of the national registry available to all federal and regional authorities that may need to verify for official purposes the existence of a valid certificate of competence.

The purpose of this provision is to ensure the national validity of all certificates so producers (or other actors) cannot be made to obtain a separate certificate of competence for every region in which it does business. The national registry is intended to provide a centralized, accessible source of information to facilitate inter-regional recognition of certificates by all concerned officials.

27. Suspension and Revocation

1/ Where a person issued a certificate of competence in accordance with this Proclamation:

- a) fails to maintain the conditions upon the basis of which the certificate of competence has been issued; or
- b) contravenes any material provision of this Proclamation, including the regulations and directives issued for its implementation;

the Minister or the relevant Regional Authority may suspend the certificate of competence and instruct the holder to rectify the irregularities within a specified reasonable period of time.

- 2/ The Minister or relevant Regional Authority may revoke any certificate of competence issued in accordance with this Proclamation where the holder of the certificate:
 - a) is found to have obtained the certificate of competence upon presentation of false evidence;
 - b) in the case of suspension under sub-article (1) of this Article, fails to rectify the irregularities within the specified time limit; or
 - c) has committed an offense under Article 31 of this Proclamation or under the Penal Code.
- 3/ The Minister or the relevant Regional Authority shall, upon revoking a certificate of competence, so notify in writing any authority that issued a business or trade license on the basis of the certificate in question.

Consider adding administrative right to appeal the denial or revocation of a certificate of competence.

National legal counsel to advise on the role of courts, arbitration tribunals or other administrative dispute resolution mechanisms and whether the denial of a certificate of competence rises to the level of those administrative actions that deserve an additional appeal process.

28. Records and Access

Any holder of a certificate of competence shall:

- 1/ record and keep particulars of each field and seed produced or processed, imported, exported, distributed or retailed, as the case may be;
- 2/ keep samples of seed on which laboratory test have been made for at least one year; and
- 3/ furnish such information or samples upon request by any inspector authorized under Article 30 of this Proclamation.

29. Waiver of Requirement

The Minister shall have the power to waive the requirement for any individual or category of certificate of competence in case of severe seed shortage.

PART SEVEN
ENFORCEMENT

30. Inspection

- 1/ The Minister and each Regional Authority shall appoint inspectors to ensure compliance with this Proclamation and shall issue them an official certificate of authority.

The term "identity card" was replaced by "certificate of authority" because inspectors need to prove their delegation of power to act, not just their identity.

-
- 2/ The Minister shall:
-

- a) determine the federal and regional inspection jurisdictions;
- b) ensure standardized inspection procedures throughout the country; and
- c) provide inspection training and support to Regional Authorities where necessary.
-

3/ An inspector shall have the power, at all reasonable times, without a warrant and upon presentation of his certificate of authority, to:

a) carry out periodic inspections of any land, building, plant, machinery, facility, vehicle, equipment or container where seed may be produced, processed, stored or transported to determine compliance with the provisions of this Proclamation;

b) require the production of and inspect certificates, permits, records and other documents relevant to determining compliance with this Proclamation and make copies thereof;

c) take samples of seeds and submit same for analysis for the purpose of post control under Article 20 of this Proclamation;

d) seize any machinery or equipment, container, seed, book, record or document that provides evidence of a contravention of this Proclamation, provided that he:

(i) provides a receipt in the prescribed form to the person from whose custody the item was taken; and

(ii) promptly returns the item once the necessary inquiry or prosecution has been completed, except when subject to destruction under this Proclamation.

e) carry out other inspection, monitoring or surveillance activities as may be prescribed by regulations and directives issued hereunder.

4/ Inspectors shall promptly submit evidence of any violation of this Proclamation that is gathered in the course of inspections to the relevant body for prosecution.

5/ All persons shall comply with any order or instruction issued during the course of inspection and shall otherwise permit inspectors to carry out their functions under this Proclamation.

6/ Any inspector shall produce his certificate of authority upon the demand of any person affected by the exercise of his official duties under this Proclamation.

7/ Inspectors shall have the power to call upon Ethiopia's forces of order for support in carrying out any of their functions under this Proclamation.

31. Offenses and Penalties

To be reviewed by national counsel for consonance with the Criminal Code and any applicable civil or administrative offences and penalties.

Any person who:

- a) imports or supplies to the domestic market any seed not registered and quality controlled in accordance with this Proclamation, or which does not meet the applicable Ethiopian Seed Standards; or
- b) gives or offers to give any thing of value to cause the commission of fraudulent act in the course of production, processing, marketing or quality control of seeds;
- c) intentionally present the wrong seed sample for testing;
- d) tampers with any sample taken under this Proclamation;
- e) knowingly gives any false or misleading information in making any application or filing any document under this Proclamation;
- f) fails to observe the labeling provisions under Article 19 of this Proclamation, or supplies to the market seed that does not correspond to the information on the label; or
- g) without lawful authority, alters, defaces, or removes any register, certificate, label, or other official record created or issued under this Proclamation;
- h) refuses to cooperate with or willfully obstructs the work of a seed inspector exercising his powers under this Proclamation; or
- i) contravenes other [material] provisions of this Proclamation; *Recommend removing this subparagraph, or reformulating by adding the term "material", as it could potentially apply to the even the most minor deviation from the Proclamation. Further, it likely provides insufficient notice of what behavior constitutes a violation and could therefore be found unconstitutional. TBD by national counsel.*

shall have committed an offense under this Proclamation and shall be subject to such penalties as provided under Ethiopian civil or criminal law.

2/ Any official or personnel of the Ministry or of any Regional Authority who:

- a) in exchange for value or due to kinship or other personal relationship, causes the registration of a variety or the issuance of a certificate or a permit while the requirements provided under this Proclamation are not met; or
- b) with intent to obtain undue advantage or to injure the rights or interests of another, delays or wrongfully disposes of any matter brought before him in his official capacity;

shall have committed an offense with intent to corrupt under this Proclamation and shall be subject to such penalties as provided under Ethiopian criminal law.

Provisions assigning specific amounts for fines were removed to avoid having to amend the Proclamation whenever inflation or other changes render them obsolete. Alternatives: proportion of an amount that (ideally) changes with inflation, e.g. average monthly wage of a civil servant, or as determined by a judge or magistrate. To be decided by national counsel according to applicable drafting rules.

PART EIGHT MISCELLANEOUS PROVISIONS

32. Powers and Duties of the Minister

Without prejudice to any other provision of this Proclamation, the Minister shall have the power to issue published directives and other subsidiary instruments for the following non-exhaustive list of purposes:

- a) designate the species to be listed as prescribed seed;
- b) establish and modify the parameters defining "domestic market" and "smallholder farmer" as used in the Proclamation, if necessary;

- c) set fees for variety release applications, laboratory testing, certificates of competence and other administrative procedures under this Proclamation;
- d) ensure the production of an adequate supply of breeder seed;
- e) prepare technical working manuals for seed production and quality control;
- f) provide technical support and training to smallholder farmers on production and multiplication in the informal seed system;
- g) establish or designate a central seed testing laboratory and ensure that it obtains and maintains international accreditation;
- h) accredit, supervise and provide technical support to seed testing laboratories and bring seed testing services in line with international standards;
- i) establish and maintain adequate seed reserves for emergency situations;
- j) encourage private investors to engage in seed production and distribution; and
- k) promote equal access and opportunities to all actors in Ethiopia's seed sector.

33. Power to Issue Regulations

The Council of Ministers may issue any regulation necessary for the implementation of this Proclamation.

34. Repeal

- 1/ Seed Proclamation No. 206/2000, including any implementing instrument promulgated thereunder, is hereby repealed.
- 2/ No law, regulations, directives or customary practices shall, in so far as they are inconsistent with this Proclamation, be applicable with respect to matters provided for by this Proclamation.

35. Effective Date

This Proclamation shall enter into force on the day of 2010.

Done at Addis Ababa, this day of 2010.

PRESIDENT OF THE FEDERAL DEMOCRATIC
REPUBLIC OF ETHIOPIA

Annex 7 : Proclamation No. 481/2006: Plant Breeders' Rights Proclamation

FEDERAL DEMOCRATIC NEGARIT GAZETA
OF THE DEMOCRATIC REPUBLIC OF ETHIOPIA
12th Year No. 12
ADDIS ABABA – 27th February, 2006
Proclamation No. 481/2006 Plant Breeders' Right
Proclamation....Page 3339

PROCLAMATION NO. 481/2006

A PROCLAMATION TO PROVIDE FOR PLANT BREEDERS' RIGHT

WHEREAS, the utilization of new plant varieties developed through research play a significant role in improving agricultural production and productivity;

WHEREAS, the development of new plant varieties requires considerable effort and investment;

WHEREAS, it is necessary to provide for recognition and economic reward for those who contribute to such effort and investment so as to encourage their involvement in the sector;

WHEREAS, it is necessary and appropriate to ensure that the farming and pastoral communities of Ethiopia, who have been conserving and continue to do so in the future the agro-biodiversity resource used to develop new plant varieties, continue to their centuries old customary practice of use and exchange of seed;

NOW, THEREFORE, in accordance with Article 55 (1) of the Constitution of the Federal Democratic Republic of Ethiopia, it is hereby proclaimed as follows:

PART ONE

GENERAL PROVISION

1. Short Title

This Proclamation may be cited as the "Plant Breeders' Right Proclamation No. 481/2006."

2. Definitions

In this Proclamation unless the context otherwise requires:

1/ "applicant" means a person who has filed an application with the Ministry for a plant breeders' right;

2/ "Ministry" means the Ministry of Agriculture and Rural Development;

3/ "breeder" means a person who:

a) has bred and developed a new plant variety; or

b) has employed or commissioned the work of the person who has bred or developed a new plant variety; or

c) is a successor in title of the person mentioned in (a) or (b) of this Sub-Article;

4/ "holder" means a person to whom a plant breeders' right has been granted by the Ministry;

5/ "new plant variety" means a variety that:

a/ by reason of one or more identifiable characteristics, is clearly distinguishable from all other varieties the existence of which is a matter of common knowledge at the date of application for a plant breeders' right;

b/ is stable in its essential characteristics, in that after repeated reproduction or multiplication, at the end of each cycle, remains true to its description;

c/ having regard to its particular features of sexual reproduction or vegetative propagation, is sufficiently homogenous or is a well-defined multi-line; and

d/ its material has not been sold or otherwise disposed of to others by the breeder for purposes of commercial exploitation of the variety:

i) in the territory of Ethiopia, earlier than one year before the date of filling of application for plant breeders' right with the Ministry; or

ii) in the territory of any other state, earlier than six years in the case of varieties of tree, fruit tree or grape vines, or in the case of other species, earlier than four years before the date of the application.

6/ "Plant" means a living-organism which is not an animal and which can reproduce itself naturally.

7/ "protected variety" means a new plant variety that is protected by a plant breeders' right granted by the Ministry;

8/ "variety" means a plant grouping within a single botanical taxon of the lowest known rank, which can be:

a) defined by the expression of the characteristics resulting from a given genotype or combination of genotypes;

b) distinguished from any other plant grouping by the expression of at least one of said characteristics; and

c) considered as a unit for being propagated unchanged;

9/ "Farmers variety" means a plant variety having specific attributes and which has been discovered, bred, developed or nurtured by Ethiopian farming communities or a wild relative of variety about which the Ethiopian farming communities have common knowledge;

10/ "Wild relative" means a plant variety which is not domesticated by man and which is found in the wild by nature.

11/ "Propagating material" means any part of a plant which can be propagated.

12/ "Person" means natural person or juridical person.

13/ "Institution" means a state or private organization having juridical personality.

3. Scope of Application

1/ This Proclamation shall apply to new plant varieties of the genera and species, which the Ministry shall determine by directives;

2/ The Ministry may revise, from time to time, as necessary, the list of the plant genera and species to which this Proclamation shall apply.

PART TWO

PLANT BREEDERS' RIGHT

4. Protection of Right

Subject to the conditions and limitations provided for in this Proclamation, a breeder shall be granted a plant breeders' right in respect of his new plant variety.

5. Scope of Plant Breeder's Right

1/ Subject to the exemptions and restrictions provided for in this Proclamation, a plant breeders' right entitles the holder an exclusive right to:

a) sell, including the right to license other persons to sell, the seed or propagating material of the protected variety; and

b) produce, including the right to license other persons to produce, propagating material of the protected variety for sale.

2/ The carrying out of the activities referred to in Sub-Article (1) of this Article by other persons with respect to a protected variety is prohibited unless with the authorization of the holder.

6. Exemptions to Plant Breeders' Right

1/ Notwithstanding the existence of a plant breeder's right, any person or farmers' community may:

a) propagate, grow and use a protected variety for purposes other than commerce;

b) sell plants or the propagating material of the protected variety for use as food or for any other use that does not involve growing the plant or the propagating material of the protected variety;

- c) sell plants or propagating material of a protected variety as they are within a farm or any other place where plants of the variety are grown;
 - d) use plants or propagating material of a protected variety as an initial source of variation for purpose of developing another new plant variety except where the person makes repeated use of plants or propagating material of the variety for the commercial production of another variety;
 - e) sprout a protected variety for use as food for home consumption or for the market;
 - f) use a protected variety in further breeding, research or teaching;
 - g) obtain, with the conditions of utilization, protected variety from gene banks or plant genetic resources centers.
- 2/ Notwithstanding the provisions of Sub-Article (1) of this Article, farmers cannot sell farm-saved seed or propagating material of a protected variety in the seed industry on commercial scale.

7. Restrictions on Plant Breeders' Right

- 1/ The Ministry may, when public interest so requires, due to the following grounds, put restrictions on the exercise of a plant breeders' right where:
- a) problems arise due to competitive practices of holders;
 - b) food security, nutritional or health needs or biological diversity are found adversely affected;
 - c) a high proportion of a protected variety offered for sale is being imported;
 - d) the requirements of the farming community for propagating material of a particular protected variety are not met;
 - e) it is considered important to promote public interest for socio-economic reasons and for developing indigenous and other technologies.
- 2/ When the Ministry decides to put restrictions on the exercise of a plant breeders' right, it shall:
- a) give to the holder the copy of the decision setting out the particulars of the restrictions;
 - b) give public notice of the restrictions; and
 - c) specify the compensation to be paid to the holder.
- 3/ where the holder is dissatisfied with the compensation decided to be paid, he may lodge his appeal in accordance with Article 34 of this Proclamation.

8. Compulsory Licensing

- 1/ Without prejudice to the provisions of Article 8 of this Proclamation, the Ministry may, to safeguard public interest, grant a compulsory license upon application by any interested person.
- 2/ The Ministry may grant a compulsory license only if:
- a) the holder is not producing and selling the propagating material of the protected variety in sufficient amount to meet the needs of the general public and has refused to license other persons to produce and sell the propagating material of the protected variety or is not willing to give such license under reasonable terms; or
 - b) there exist no condition under which the holder can be expected to give a permit to use his protected variety.
- 3/ Where the Ministry grants compulsory license, it shall determine the remuneration the person to whom the compulsory license is granted shall pay to the holder, the duration of the compulsory license and other conditions as necessary. The duration of a compulsory license shall not be shorter than three years and longer than five years; provided, however, that the Ministry may extend the duration if an application for extension is made and the conditions warranting compulsory licensing continue to exist.

- 4/ A person to whom a compulsory license is granted shall have a non-exclusive right to perform all or any of the activities for which the authorization of the holder would have been required.
- 5/ Compulsory licensing shall not preclude the holder from using the variety or to grant license to others.

9. Duration of Plant Breeders' Right

Without prejudice to other provisions of this Proclamation, a plant breeders' right shall exist for a period of 20 years in the case of annual crops, and 25 year in the case of trees, vines and other perennial trees from the date the successful application for a plant breeders' right was accepted.

10. Persons Entitled to Plant Breeders Right

- 1/ A breeder shall be entitled to a plant breeders' right in respect of his new plant variety, whether or not the breeder is an Ethiopian national or a foreigner, or is an Ethiopian resident or not, and whether the variety was bred locally or abroad.
- 2/ Where two or more persons bred the variety jointly or that they are joint successors, they shall jointly be entitled to plant breeders' right; provided however, that only one or some of such persons may apply for a plant breeders' right provided that the remaining other persons have given their consent in writing to this effect.
- 3/ Where the breeder is a public or a private institution, the plant breeders' right shall be granted in the name of the institution.
- 4/ Where a variety has been bred by two or more persons independently of each other, the entitlement to plant breeders' right shall belong to the person who has first filed an application with the Ministry for plant breeders' right.
- 5/ Where an application is filed by a person who is not entitled to plant breeders' right, the person who is entitled to the plant breeders' right may apply to the Ministry for the assignment of the application to him.

11. Application

A breeder who wants to be granted a plant breeders' right in respect of a new plant variety shall, present written application to the Ministry. The conditions and procedure in accordance with which applications may be lodged, examined and decided shall be specified by regulations.

12. Provisional Protection

- 1/ The applicant shall be deemed to have a plant breeders' right in respect of the new variety during the period between the date the application for plant breeders' right is filed and the granting of plant breeders' right or the final rejection of the application.
- 2/ The genetic material of the new plant variety under provisional protection shall not be used for non-research purposes. The Ministry shall take the necessary measures to prevent the use of the genetic material of such variety for non-research purposes.

13. Opposition

Where an application is lodged for a plant breeders' right, any person, who considers that the granting of plant breeders' right will be contrary to public interest, or that the variety does not fulfill the requirements for granting plant breeders' right, or that the applicant is not entitled to plant breeders' right, may lodge with the Ministry an opposition to the application setting out the particulars for the opposition. The conditions and procedure pursuant to which oppositions shall be lodged, examined and disposed shall be specified by regulations.

14. Granting of Plant Breeders' Right

The Ministry shall grant a plant breeders' right if it is satisfied that:

- 1/ the plant variety is new;

- 2/ there is no ground, as provided for in this Proclamation, to refuse the granting of plant breeders' right to the applicant;
- 3/ the breeder has a proof that he has obtained the genetic resource used to develop the variety in accordance with the relevant laws on access to genetic resources;
- 4/ a plant breeders' right has not been granted to another person in respect of the variety;
- 5/ there has been no earlier application, that has not been withdrawn or rejected, for a plant breeders' right in respect of the new variety in question; and
- 6/ all fees payable in relation to the granting of plant breeders' right have been paid.

15. Register of Plant Breeders' Right

The Ministry shall keep a register of plant breeders' rights. The particulars that may be entered in the register shall be specified by regulations.

16. Publication of Plant Breeders' Right

Where the Ministry grants a plant breeders' right, it shall give public notice to that effect.

17. Deposition of Samples

The Ministry shall, for the purpose of conservation, cause that the holder deposits at the Institute of Biodiversity Conservation sample of the new plant varieties with respect to which a plant breeders' right have been granted.

18. Maintenance of Variety

- 1/ The holder shall have the obligation to maintain the variety to ensure that all the characteristics of the variety at the date of granting the right are maintained throughout the duration of the plant breeders' right.
- 2/ The Ministry may, to ensure that the variety is maintained, require the holder to furnish material of the variety or any other necessary information.

PART THREE

TRANSFER AND REVOCATION OF PLANT BREEDERS' RIGHT

19. Transfer of Right

- 1/ Plant breeders' right may be transferred to other persons by a contract or by the law.
- 2/ A transfer of plant breeders' right by a contract may have no effect unless entered in the register of plant breeders' right.

20. Surrender of Plant Breeders' Right

- 1/ A holder may surrender his plant breeders' right by giving notice to the Ministry.
- 2/ Upon receiving notice of surrender, the Ministry shall enter same in the register of plant breeders right and give public notice thereof.
- 3/ Where an action in respect of a plant breeders' right is pending before a court, the Ministry shall not register the surrender except by leave of the court or by consent of the parties in the court proceeding.

21. Plant Breeders' Right Granted to a Person not Entitled to

- 1/ Where a plant breeders' right has been granted to a person who is not entitled to, the person who is entitled to the plant breeders' right may apply to the Ministry demanding that the plant breeders' right be transferred to him.
- 2/ The Ministry shall, upon examining the application for the transfer and the response of the holder and ascertaining that the right has wrongly been granted to the holder and that the applicant is entitled thereto, cause the plant breeders' right to be transferred accordingly.

22. Revocation

- 1/ The Ministry shall revoke a plant breeders' right if;
 - a) it is proved that the variety was not new or that facts exist which, if known before the granting of the right, would have resulted in the refusal of the right;
 - b) the holder has failed to pay the prescribed fee payable in respect of the plant breeders' right within 90 days after having been notified that the payment has fallen due; or

c) the holder has failed to maintain the variety.

2/ Where the Ministry decides to revoke a plant breeders' right in accordance with Sub-Article (1) of this Article, it shall give written notice of the revocation to the holder stating the grounds for the decision, and it shall give public notice of the revocation.

23. Application for Revocation

Any person whose interest is affected by the granting of a plant breeders' right may apply to the Ministry for the revocation of the plant breeders' right in accordance with this Proclamation. The procedure in accordance with which an application for revocation of plant breeders' right may be examined and decided shall be specified by regulations.

PART FOUR

INFRINGEMENT OF PLANT BREEDERS' RIGHT

24. Act of Infringement

Any act in respect of a protected variety for which the authorization of the holder is required and which is done without such authorization shall constitute an act of infringement of a plant breeders' right.

25. Legal Action

1/ A holder whose plant breeders' right has been infringed may institute an action in court to require the cessation of the act of infringement and claim compensation for damage.

2/ The court shall order the cessation of an act of infringement and the payment of compensation for the damage caused on the holder unless the defendant forthwith proves that the plant breeders' right alleged to have been infringed has to be revoked in accordance with the provisions of article 23(1) of this Proclamation.

26. Counter Claim

1/ A defendant in an action against infringement may institute a counter claim for the revocation of the plant breeders' right in question, if it is revocable in accordance with Article 23(1) of this Proclamation.

2/ The court shall order the revocation of the plant breeders' right in question, if any of the grounds specified in Article 23(1) of this Proclamation is proved to exist by the counter claim.

3/ Where the court orders the revocation of the plant breeders' right, the defendant shall serve the copy of the court order to the Ministry. Upon receiving the court order, the Ministry shall register the revocation of the plant breeders' right and give public notice of the revocation.

PART FIVE

FARMERS' RIGHT

27. Principle

Farmers' Right stem from the enormous contributions that local farmers have made and will continue to make in the conservation and sustainable use of plant genetic resources that constitute the basis of breeding for food and agricultural production.

28. Farmers' Right

1/ In relation to the use of plant varieties, farmers shall have the following rights:

- a) to save, use, exchange and sell farm-saved seed or propagating material of farmers' varieties;
- b) to use protected varieties including material obtained from gene banks or plant genetic resource centres to develop farmers' varieties;
- c) to save, use, multiply, exchange and sell farm-saved seed or propagating material of protected varieties.

2/ Notwithstanding the provisions of Sub-Article (1) of this Article, farmers may not sell farm-saved seed or propagating material of a protected variety in the seed industry as a certified seed.

PART SIX

MISCELLANEOUS PROVISIONS

29. Penalty

Any person who infringes a plant breeders' right shall, in addition to the confiscation of the seed or propagating material of the protected variety which is the proceed of the infringement, be punished with imprisonment not exceeding three years or a fine up to five thousand Birr or with both such imprisonment and fine.

30. Appeals

A party who is aggrieved of a decision on the granting, refusal, revocation or restriction of a plant breeders' right may lodge an appeal to the federal high court within sixty days from the date of receipt of the decision.

31. Fees

The amount and schedule of payment of fees to be paid in relation to plant breeders' right shall be determined by regulations to be issued hereunder.

32. Issuance of Regulations

The Council of Ministers may issue regulations for the proper implementation of this Proclamation.

33. Implacable Laws

No law, regulation, directive or practice shall, in so far as it is inconsistent with this Proclamation, have effect in respect of matters provided for by this Proclamation.

34. Effective Date

This Proclamation shall come into force upon publication in the Federal Negarit Gazeta.

Done at Addis Ababa, this 27th day of February, 2006

GIRMA WOLDEGIORGIS

PRESIDENT OF THE FEDERAL DEMOCRATIC

REPUBLIC OF ETHIOPIA

