



**The Republic of the Union of Myanmar**  
**Ministry of Agriculture, Livestock and Irrigation**  
**Department of Agriculture**



**GUIDELINES FOR POST  
CERTIFICATION EVALUATION OF  
SEED PRODUCERS**  
**(Seed companies, Seed farms, Seed growers)**

**August, 2020**

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## **1 Purpose of the guidelines**

These guide lines provides the detailed steps and methods to conduct the post certification evaluation for the seeds that are being produced in Myanmar and offered for sale by seed producers. Post certification of seed producers has two basic objectives. The first is to ensure that seed producers sell genetically pure registered variety; the second is to ensure that seed sold in the market has sufficient seed quality as prescribed by Myanmar seed regulations. The guidelines also include the post certification evaluation reporting format and the decision-making matrix for recommendation measures. Authorised staff or authorised seed inspectors will develop the post-certification evaluation report based on these guidelines. The recommendation from the post certification evaluation results will be used by the Seed Division, Department of Agriculture (DOA), Ministry of Agriculture, Livestock and Irrigation (MOALI) to make their decision on the recommendation.

## **2 Users of the guidelines**

These guidelines shall be used by MOALI, and its authorised persons or authorised seed inspectors, to carry out the post certification of seeds in Myanmar.

## **3 Seed producers**

The seed producers in this guidelines are referred to the seed companies, public or private seed farms and seed growers who are involved in local (in-country) seed production, selling and distribution in Myanmar.

## **4 Scope of post certification evaluation of seed producers**

To ensure that all is well with the certified seed till planting time, a post certification of seeds will be conducted after the seed certification has been done (and the seeds are ready for sales), by the Seed Division, DOA, MOALI. These guidelines shall also apply to early generation seed (especially foundation and registered seed).

Post certification evaluation of seed producers will be based on risk based measures, as explained in detail in table 2. This shall be mainly guided by feedback (or complaints) on poor seed quality from seed users (farmers or buyers of seed) and other relevant data sources such as seed laboratory and seed division data.

Seed samples will be taken from the premises of the seed companies, seed farms, and seed growers. These samples will be sent to the designated post control test centre (for genetic purity analysis) and the designated seed laboratory (to check for germination, physical purity and moisture) in order to verify seed quality according to the minimum seed quality standards prescribed in the regulations relating to the 2016 Seed Law.

## **5 Methodology for post certification evaluation of seed producers**

### **5.1 Authorised person for post certification evaluation of seed producers**

Post certification evaluation of seed producers (seed companies, seed farms, seed growers) shall be done by seed inspectors authorised by the Seed Division, DOA, MOALI.

### **5.2 Post certification evaluation target geography**

Post certification evaluation of seed producers shall be done at regional or state level by selecting specific seed companies or seed farms or seed growers located in selected townships.

### **5.3 Post certification evaluation frequency**

Post certification evaluation of seed producers shall be done annually, the time of which will be based on consideration of the main crops production and associated harvesting seasons in the selected region and townships.

Post certification evaluation timing should be after one month of harvesting of major crops. The post certification should be completed before the seed sowing season by the majority of farmers.

In the case of a seed inspector receiving a serious complaint about a seed producer (a specific seed company, seed farm or seed grower) selling poor quality seed or unregistered varieties, inspection can be done at any time in response to the complaint.

### **5.4 List of registered crops and varieties under inspection**

Seed inspectors should collect information on crops and varieties which are officially registered and permitted for sale in Myanmar. The list of crops and varieties are regularly updated in the national variety list and the Myanmar seed catalogue. The variety list and the seed catalogue is regularly updated in the Myanmar Seed Portal (<http://www.myanmarseedportal.gov.mm>). Seed inspectors should carry the printed seed catalogue and variety list or should have digital access through a mobile phone or other electronic device. This can be used to cross check seed samples on the spot.

Any crops or varieties which are not included in the national variety list or which cannot be verified by the Seed Law Unit of the Seed Division, DOA, MOALI should be considered as unofficial crops and varieties.

### **5.5 Maintaining the seed producers' (seed companies, seed farms, seed growers) database**

Seed inspectors need to collect and update the seed producers' database for each region on an annual basis by collecting data from the township or municipality offices, DOA, MOALI. The seed producers' database should include information as set out in table 1.

**Table 1: Format for seed producers database at regional level**

Seed producer's name	
Seed producer's type (seed companies, seed farms, seed growers)	
Seed producer's address	
Seed producer's contact telephone number	
List of crops under seed production	
Seed business licence number	

### 5.6 Criteria for the selection of seed producers for post certification evaluation

It is logistically and resource-wise not feasible to conduct post certification evaluation of all the seed producers in Myanmar. In this context, these guidelines propose risk-based measures to prioritise and select the seed producers for post certification evaluation. The criteria of risk-based measures are elaborated in Table 2. Seed producers which are failing under one or more criteria as elaborated in Table 2 should be selected for the post certification evaluation.

**Table 2. Seed producers' (seed companies, seed farms, seed growers) selection criteria for post certification evaluation**

Selection criteria for seed producers in the order of risk (high to low)	Source of information
Risk level 1: Seed producers with a past history of selling poor quality of seed, selling non-registered crop or variety seed, or any other measures which do not fulfil the Seed Law or seed regulations of Myanmar.	<ul style="list-style-type: none"> <li>• Farmers' Call Centre data on seed complaints</li> <li>• Seed Division records</li> <li>• Information from the Township and District office, DOA</li> <li>• Seed laboratories' records</li> <li>• Previous post certification evaluation reports</li> <li>• Previous seed shop inspection reports</li> <li>• Previous post control test reports</li> </ul>
Risk level 2: Seed producers in a township where in the last growing season, or previously, fake seed or counterfeit seed is reported to have been sold.	
Risk level 3: Seed producers in a township where in the last growing season, or previously, farmers or seed users have complained about the poor quality of their seed.	

### 5.7 Collecting data on the post certification evaluation of seed producers

The risk measures, and seed users' complaints, can be compiled from the following two sources:

- a. **Reassignment of the Farmers' Call Centre (FCC):** These guidelines propose the reassignment of the Farmers' Call Centre, which is already functional at Nay Pyi Taw and is tasked with answering farmers' questions. The Farmers' Call Centre number will also be used to register any feedback regarding seed quality from farmers. There will be a structured questionnaire designed to acquire farmers' feedback data on seed quality and this data will be used to populate the risk-based inspections. This information will be entered in a system and will be available for review by the Seed Division, DOA to develop a post control inspection plan.

There will be a disclaimer statement read to the farmers giving the feedback stating that he/she is fully responsible for the feedback he/she is giving about a certain seed source. The feedback originator will have to furnish contact details for later verification of claim.

**Table 3. Farmers' Call Centre (FCC) feedback form on seed quality**

SN	Information	Risk measures
1	Date (day/month/year)	
2	Name of crop	
3	Name of variety	
4	Nature of dissatisfaction	
	a) Variety mixtures	
	b) Poor genetic purity	
	c) Wrong/ unregistered variety in seed bags or seed packets	
	d) Poor germination	
5	Source of seed (seed shop, seed farm, seed company, seed grower, seed wholesaler, seed distributor, others)	
6	Address of the seed source (name, township, region)	
7	Name of feedback provider	
8	Detailed address of feedback provider (village, township, house number)	
9	NRC number of feedback provider	

**Data on feedback already with the township or district DOA:** The District and Township DOA/Extension have feedback data already, as they are in the process of regular engagement with the farmers. This data will be entered into a similar questionnaire to the Farmers Call Centre questionnaire at the township or district DOA. This information will also be accessed by the seed inspector to make the final post certification plan. Since the post certification frequency is once a year, the township DOA will have to synchronize their feedback data with the Farmers Call Centre every two months, in order to keep the data updated.

**5.8 Development of annual plan for post certification evaluation of seed producers**

By the end of every month seed inspectors should compile the feedbacks from the Farmers’ Call Centre server in Nay Pyi Taw and Township/District DOA offices. The crops and varieties and seed producers which have been receiving the most negative feedback should be prioritised for post certification of seeds by the Seed Division, DOA. The seed inspectors should conduct the post certification of the seed producers of the selected crop and varieties as finalised by the Seed Division, DOA. The inspection should be carried out on an annual basis, with information as given in Table 4.

**Table 4. Annual plan of post certification evaluation of seed producers**

SN	Seed producer’s name and address	Crop name	Variety name	Nature of risk [a) Variety admixtures b) Poor genetic purity –more off types c) wrong/ unregistered variety in seed bags or seed packets d) poor germination, e) seed borne disease & pest, f) high moisture content]	Post certification plan (month)	Remarks

**5.9 Decision-making on post control tests or seed laboratory tests**

During the development of the annual post certification evaluation plan of seed producers, as mentioned in table 4 above, seed inspectors need to decide which specific test should be conducted for specific seed producers for specific crop/varieties. Criteria as given in table 5 should be used to make the decision. Seed inspectors can decide on either a post control test or seed laboratory test or both. This information should be added in the post certification evaluation plan.

**Table 5. Criteria to decide post certification evaluation types**

Seed quality feedback	Post certification test types
<ul style="list-style-type: none"> <li>• Varietal admixtures</li> <li>• Poor genetic purity</li> <li>• Wrong/ unregistered variety in seed bags or seed packets</li> </ul>	Post control test
<ul style="list-style-type: none"> <li>• Low rate of seed germination</li> <li>• Seedborne disease pest incidence</li> <li>• High moisture content</li> </ul>	Seed laboratory test

**6 Post control test**

For detailed information and procedures, seed inspectors should use the post control test guidelines (2020). These guidelines are summarized below as reference.

**250.1 Seed sampling**

This table shows the seed sample weights that need to be submitted to the testing centre for the post control test (grow out test) in table 6.

**Table 6. Seed sampling weight (submitted sample weight) for post control test**

SN	Crops	Seed sample weight (gm)
<b>A</b>	<b>Cereals crops</b>	
1	Rice / paddy	500
2	Maize	1000
3	Wheat, barley, oats	1000
4	Small millets	100
5	Sorghum	500
<b>B</b>	<b>Pulses and oil seed crops</b>	
6	Black gram, cowpea	1000
7	Green gram, pigeon pea, horse gram	500
8	Groundnut	1000
9	Soybean	1000
10	Chickpea	1000
11	Sesame	100
12	Sunflower (hybrid and OP)	1000
<b>C</b>	<b>Industrial crops</b>	
13	Cotton (hybrid and OP)	1000
14	Jute	100
<b>15</b>	Hemp	600
<b>D</b>	<b>Root tuber crops</b>	
16	Seed potato, sweet potato and other vegetatively propagating crops.	250 tubers /planting stakes / roots / corms
<b>E</b>	<b>Vegetables</b>	
17	Bitter gourd	1000
18	Squash	1000
19	Bottle gourd	1000



20	Pumpkin	1000
21	Ridge-gourd	1000
22	Watermelon	1000
23	Okra	1000
24	Melon	500
25	Cucumber	500
26	Radish	500
27	Capsicum	100
28	Chili	100
29	Cauliflower	100
30	Brinjal	100
31	Cabbage	100
32	Onion	100
33	Tomato-bushy	100
34	Tomato-intermediate	100
35	Tomato-cherry	100
36	Carrot	100
37	Snow Pea	1000

## 6.2 Sampling procedures

Different types of samples are normally drawn by a seed inspector, but we are mainly concerned here with the submitted sample for the post control test. There may be three situations, as explained below, in which the sampling needs to be done for the post control test.

- a. Seeds are in bags of 15-80 kg
- b. Seeds are kept in bulk on the floor or in large bins
- c. Seeds are already packed in 10-100 gram pouches.

We need to be concerned about whether the lot number (sometimes called the batch number) is mentioned or not. Seeds that are packed are normally identified by lot numbers, which primarily comes from the production location. A same variety (or hybrid) can belong to two separate lots if the production plots were separated by >50 m. The number is assigned by the seed certification agency (normally) or the seed company production staff.

### 6.2.1 Sampling from seeds in bags of 15-80 kg

When seeds are in bags, the minimum number of samples that needs to be drawn is given below in table 7. This then also means the minimum number of times we need to insert the sampling trier inside the bags and pull a primary sample. These are then mixed, halved and bagged as the submitted sample.

**Table 7. Sampling from seeds are in bags of 15-80 kg**

<b>Lot composition</b>	<b>Primary samples need to be taken with</b>
1-4 containers	3 samples from each container/ bag
5-8 containers	2 samples from each container/ bag
9-15 containers	1 sample from each container/ bag
16-30 containers	15 samples from the seed lot in total
31-59 containers	20 samples from the seed lot in total
More than 60 containers	30 samples from the seed lot in total

### **6.2.2 Sampling from seed kept in bulk on the floor or in large bins**

**Table 8. Sampling from seed kept in bulk on the floor or in large bins**

<b>Lot size</b>	<b>Minimum number of primary samples to be taken</b>
Up to 500 kg	At least 5 samples
501 -3,000 kg	1 sample for each 300kg, but not less than 5
3001-20,000 kg	1 sample for each 500kg, but not less than 10
20,001 kg and above	sample for each 700kg, but not less than 40

Table 8 - shows the minimum amount of primary samples that need to be collected when the seeds are stored in bulk (not in any divided containers).

### **6.2.3 Sampling seeds that are already packed in 10-100 gram pouches.**

For seed that is already packed in smaller pouches/containers, we need to make sure to sample from each lot. There may be many lots of seeds of the same crop and same variety. Check the lot number and sample from each lot. The quantity should be same as stated in table no 3. Normally vegetable seeds are packed in pouches of 10g (chili, hybrid tomato etc.) or 50-100g (cucurbits, melons, okra etc.). Collect the requisite number of pouches per lot. For example, if the seeds are packed in 50g packets in onion, select any two packets (50x2 = 100g) as a sample to be send for the post control tests, as table 3 says we need 100g seeds for onion. In this way the samples can be drawn from seeds that are already packed.

## **6.3 Sample handling**

The samples that are drawn from bags and bulk need to be mixed and divided. All the primary samples from the bags or bulk are mixed on a polyethylene (or canvas) sheet, mixed well and hand halved (or divided by a soil type divider) and brought to the approximate submitted sample size (Table 3).



Fig 1: Hand halving method (Image courtesy FAO)<sup>1</sup>



Fig 2 A Soil Divider (Image Pfeuffer GmbH)<sup>2</sup>

## 7. Seed laboratory test

Seed inspectors need to send required volume of seed samples to the authorized seed testing laboratory. See table 9 below for the required weight of samples that needs to be submitted for the seed lab analysis.

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<sup>1</sup> SEEDS TOOLKIT; Module 3: Seed quality assurance. FAO and Africa seeds. Rome 2018: ISBN 978-92-5-130951-3 (FAO)

<sup>2</sup> Image from <https://www.pfeuffer.com/product/riffelprobenteiler>

**Table 9 : Minimum weight of submitted samples for lab test**

<b>Crop</b>	<b>Submitted sample to be sent to lab (gm)</b>
<b>Field crops</b>	
Barley, wheat	1000
Maize	1000
Oats	1000
Paddy	400
Sorghum	900
Small millets	100
<b>Fibre crops</b>	
Cotton	1000
Jute	90
Hemp	600
<b>Oil-seed crops</b>	
Sesamum	70
Groundnut	1000
Sunflower	1000
<b>Pulses</b>	
Black gram	1000
Cowpea	1000
Gram (chickpea)	1000
Green gram (mung bean)	500
Horse gram	500
Lentil	600
Cajan pea (pigeon pea,)	500
Soybean	1000
<b>Vegetable crops</b>	
Onion	80
Cole crops: Brussels sprouts, cabbage, cauliflower, broccoli, knol-kohl, kohlrabi, sprouting, broccoli	100
<b>Cucurbitaceous vegetables</b>	
Ash gourd, bittergourd, bottlegourd, long-melon, musk melon, snap melon, pointed gourd	700
Pumpkin, ridge gourd	1000
Round gourd (Indian squash), snake gourd, sponge gourd, watermelon	1000
Squash	1000
Garden pea	1000
<b>Root crops</b>	
Carrot	30
Radish	300
<b>Solanaceous vegetable</b>	
Egg plant (brinjal)	70
Pepper (chillies), capsicum	150
Tomato (all types)	70
Okra (bhindi)	500

**The minimum seed quality parameters that should be checked include:**

- **Seed germination:** Seeds are incubated under specific temperature as per ISTA<sup>3</sup> methodologies on designated substrates<sup>4</sup> and observed for germination after 7 or 14 days (different days for different species). Seedlings are observed for normal, abnormal, dead and hard seeds and numbers are counted. The germination percentage is calculated based on the total number of seeds sown (usually 400) and expressed as a whole number in percentage.
- **Moisture Content:** Normally an oven is used to determine the moisture content in seeds. A small sample of seeds (about 5g in two replicates) is kept in an oven at 103<sup>0</sup>C or 130<sup>0</sup>C for one to three hours (different for different species as per ISTA methods) and the difference is noted. This difference is the amount of water present in the sample and calculated. Result is expressed in percentages up to one decimal place. This is the ISTA validated method; however there are some moisture meters which measures seed moisture content based on resistance or capacitance properties of the dry/wet seeds. These also can be used to quickly check the seed moisture content.
- **Physical Purity:** Physical purity is the measure of how clean the seeds are in terms of the presence of inert materials (rocks, mud balls, chaff, sticks etc.) broken seeds, weed seeds or other crop seeds. There are certain obnoxious weeds that are designated by ISTA whose presence is not allowed since they can cause hindrances in processing , handling and as well as they reproduce in very high quantities. Physical purity is an indicator to how efficient the seed processing operations were and how clean and weed free the cultivation was. In this test the working sample is analyzed on the table for pure seeds, inert matter, weed seeds and other seeds category. These are weighed and expressed as a percentage up to one decimal place.

Annex 6 explain the flow of operations and testing schedules planning in a typical seed testing laboratory. Also annex 1 will have an example seed test report.

The seed quality standard should match as what has been described in the seed packet. If it is not mentioned on the seed packet, it should meet the minimum seed quality standards as given in the Seed Regulation of Myanmar (2016). See annex 7 of the Myanmar Seed Quality Standards.

**8. Unavailability of seed samples during the post certification evaluation of seed producers**

In the situation when sufficient volumes of seed samples as described in Table 9 are not available for post certification, the seed producer should be separately recorded in post certification database. They should be given the highest priority for inspection in the next season, before the start of the seed sales season.

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<sup>3</sup> The International Seed Testing Association has published the International Rules for Seed Testing for seed laboratories, to create uniform seed testing procedures worldwide

<sup>4</sup> Different substrates recommended by ISTA. TP= Top of paper, BP= Between paper, S= sand

## 9. Reporting of post certification evaluation of seed producers

After the visiting the seed producer's premises (warehouse or seed storage location), a post inspection card should be provided immediately. After drawing the seed samples, seed inspectors need to fill the sample withdrawal form (Annex 2) in duplicate and hand one copy over to the seed producer. A reporting format for the post control test centre is given in Annex 3. The reporting format for the seed laboratory test is given in Annex 5. The post control test centre should use the reporting format as included in Annex 3.

## 10. Decision-making matrix

The decision-making matrix provides a clear guidance to the Seed Division, Department of Agriculture on what kind of measures should be taken for the seed producers. This includes post control test results (table 10) and seed testing laboratory results (table 11). The next steps are decided after critical consideration of the three analyses. It is important to note that not all three analyses in all cases will be performed since some producers/sellers may not be at high enough risk to merit conducting both the post control and post certification lab test. The decision-making matrix provides a clear guidance on what decision to take, showing what measures should be taken after the reports of the post control are declared. Based on the following situations of post control test results, the Seed Division, DOA can propose recommendation measures, fines/penalties, or suspension of licences, as shown in table 10.

**Table 10. Decision-making based on post control test results**

<b>SN</b>	<b>Results of the field grow out test</b>	<b>Recommendation</b>
1	Sample is >10% mix with another variety	Suspend the licence for that specific variety for the seed business concerned
2	Sample is not at all conforming to the labelled variety	Suspend the licence for that specific variety for the seed business concerned
3	Sample fails in the minimum quality standards	Provide warning; conduct post-control in next season until the quality status has been improved

Table 11. Decision-making based on seed laboratory test results

<b>SN</b>	<b>Results of the field grow out test</b>	<b>Recommendation</b>
1	Seeds fail in germination standards (refer Annex 8 for standards)	Issue a "stop Sale" order and these lots/batches shall not be sold*
2	Seed sample meets the prescribed standards of germination	No Action, Good

\* However if the same company/seed business has low germination issues in 2 consecutive tests, seed license need to be suspended

## **9. Penalty clauses**

The Seed Division, DOA can decide to define penalty clauses for the infringement of the rules of selling and distribution of sub-standard quality seeds as per the Seed Law (2015) and regulations relating to the Seed Law (2016).

**Annex 1: Post certification evaluation of seed producers' reporting outline**

**Ministry of Agriculture, Livestock and Irrigation**  
**Department of Agriculture, Seed Division**  
**REPORT ON POST CERTIFICATION EVALUATION OF SEED PRODUCERS**

Reference .....

Name of seed producer:.....

Type of seed producer (seed company/seed farm/seed grower):.....

Address of seed producer: .....

Telephone number : .....

Seed business licence number : .....

Date of post certification evaluation visit:.....

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Feedback; based on which inspection is being conducted

Crop/s (variety, if known).....

Quality non-conformity (tick)  varietal purity  germination problems  insects/diseases ,  
 others (mention) .....

**Current Observation**

Labelling	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....
Documents	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....
Premises	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....
Packaging	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....
(Add other issues)	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....
(Add other issues)	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....
(Add other issues)	<input type="checkbox"/> Ok <input type="checkbox"/> not-OK	Remarks.....

Suggestions made .....

Sampling done ?  Yes  No if yes, attach sample withdrawal format (annexe 2)

Date ..... Name of inspector .....

Signature





**Annex 2: Format for post control and seed laboratory sample list**

**Ministry of Agriculture, Livestock and Irrigation**  
**Department of Agriculture, Seed Division**  
**FORMAT OF POST CONTROL/SEED LABORATORY SAMPLE LIST**  
 (To be filled in duplicate and copy handed to seed producer)

Reference .....

Name of seed producer:.....

Type of seed producer (seed company/seed farm/seed grower):.....

Address of seed producer: .....

Telephone number : .....

Seed business licence number : .....

Date of sampling: .....

SN	Crop	Variety	Lot no / batch no	Quantity/ number of packets (indicate unit)	Remarks

Name of seed inspector: .....

Signature of seed inspector: .....

I certify that the above mentioned samples were withdrawn by the seed inspectors with my consent

..... (Signature of seed producer)

### Annex 3: Format of post control test report

**Ministry of Agriculture, Livestock and Irrigation**  
**Department of Agriculture, Seed Division**  
**FORMAT OF POST CONTROL TEST REPORT**

Reference .....

Name of seed producer:.....

Type of seed producer (seed company/seed farm/seed grower): .....

Name of seed inspector: .....

Township: ..... District.....

Crop : ..... Variety.....

Lot number (or other identifier): .....

Date of field receipt of sample: ..... Date of sowing .....

<b>Post control test location name</b>		Plot number	
		Plot Area (m <sup>2</sup> )	
Number of rows		Row length (m)	
Plant population		Number of plants observed	
<b>Date</b>		Number of offtypes	
<b>Date</b>		Number of offtypes	
<b>Date</b>		Number of offtypes	
		<b># Total number of offtypes</b>	
		Total obnoxious plants	
Genetic purity (Standard, %)		*Genetic Purity observed (%)	
Name of field assessor		Signature of assessor	
Name of Authorized personnel and designation		Signature of Authorized personnel	

$$* \frac{(Total\ population - Total\ offtypes)}{Total\ Population} \times 100\% = Genetic\ Purity\ \%$$

# Sum of observations made on different dates. This is because some traits may be visible later than others

**Annex 5: Format of Seed Laboratory Test report**

**Seed Testing Laboratory**  
**Ministry of Agriculture, Livestock and Irrigation**  
**Department of Agriculture**  
**Seed Division**  
**Certificate of Seed Testing**

Name of organization/applicant: \_\_\_\_\_ Reg. No : \_\_\_\_\_

Address: \_\_\_\_\_

Village: \_\_\_\_\_ Seed Grower's Name: \_\_\_\_\_

Crop: \_\_\_\_\_ Variety: \_\_\_\_\_ Lot No : \_\_\_\_\_

Seed class : \_\_\_\_\_ Lab Ref No : \_\_\_\_\_

Quantity of the lot \_\_\_\_\_ (kg/bsk)

Sr.No	Factor	Result	Specified Seed Standard
1	Physical purity %		
2	Germination %		
3	Seed moisture content%		
4	Inert matter %		
5	Other crop seeds%		
6	Weed seeds content (number per 500 grams)		

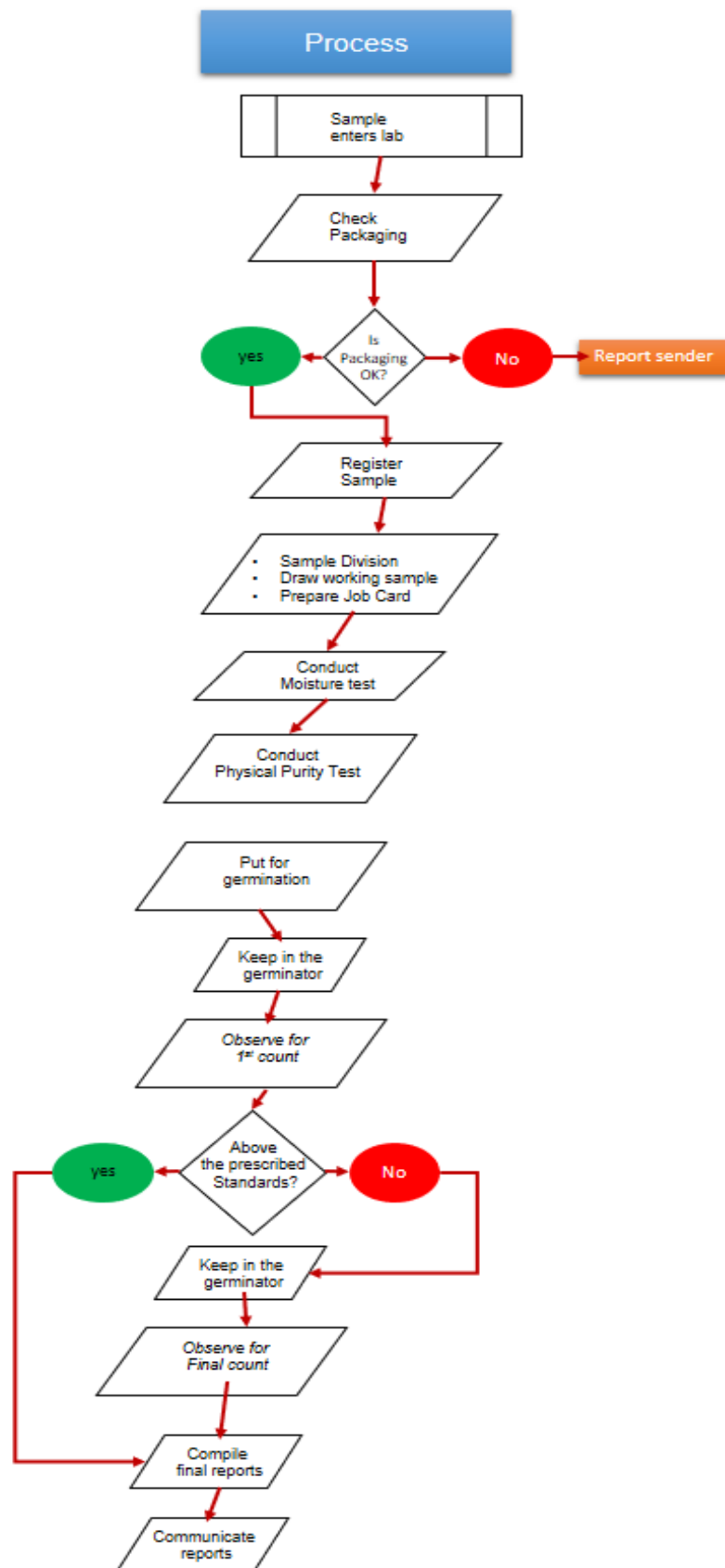
**Final Result: Suitable to use as**  CS  FS  RS  BS  
 Not suitable as seed

Date \_\_\_\_\_ - \_\_\_\_\_

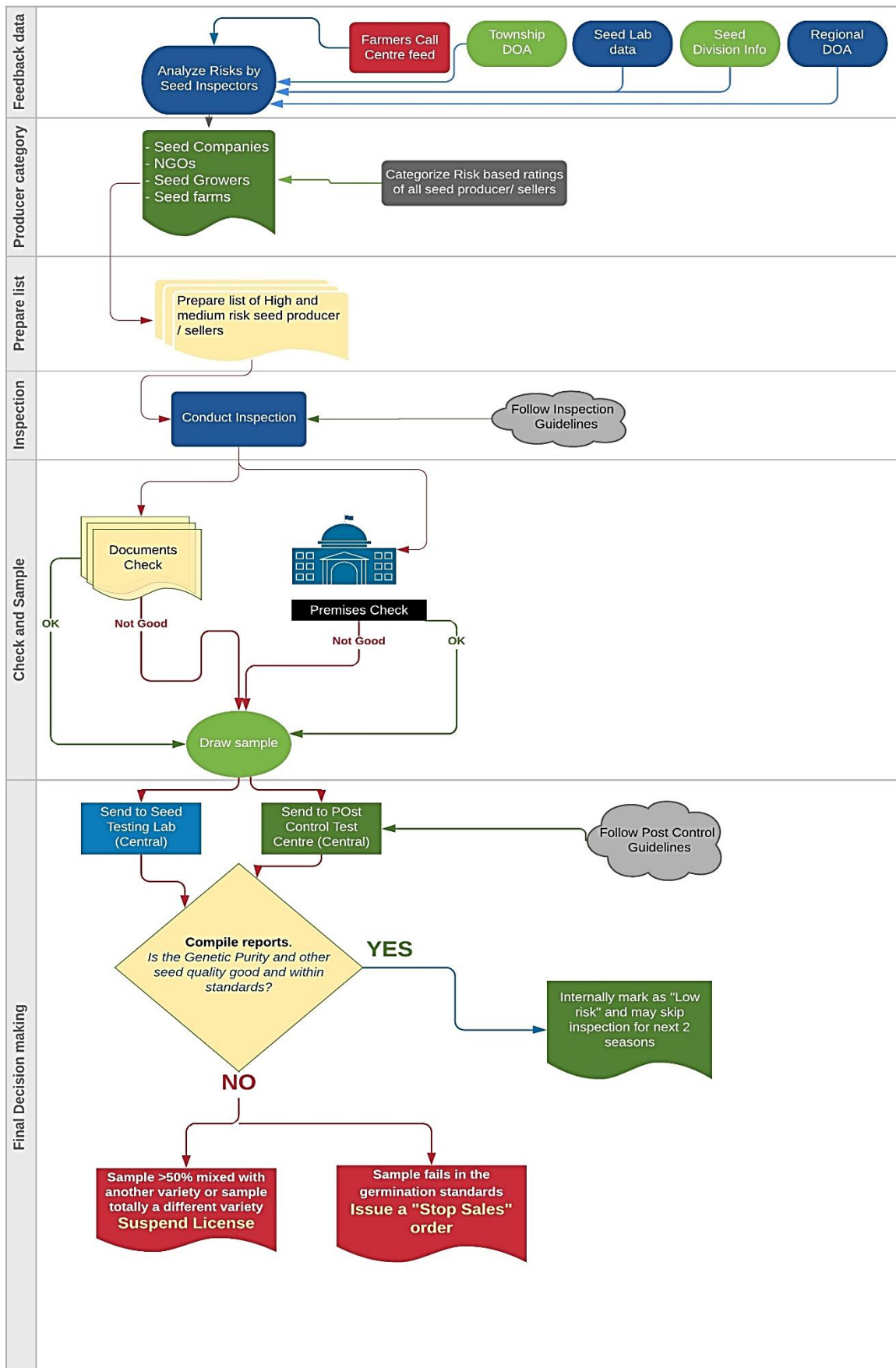
Office logo

(name and signature)  
**Seed Lab In-charge**  
**Seed Testing**  
**Laboratory**  
**Seed Division**

## Annex 6: Seed Lab testing flowchart



## Annex 7: Post certification evaluation of seed producers flowchart



Annex 8: Minimum Seed Quality Standards of Myanmar

Attachment

Standards for field inspection set by National Seed-related Committee

No	Crop	Isolation Distance (ft)		Maximum Limit (%) in Seed Production Field							
		Off-type		Inseparable other crop		Noxious weeds		Prescribe disease Plant/Head			
		FS	RS/CS	FS	RS/CS	FS	RS/CS	FS	RS/CS		
1	Rice	10	10	0.05	0.30	0.01	0.05	0.01	0.02	0.01	0.50
2	Wheat	10	10	0.05	0.30	0.01	0.05	0.01	0.02	0.01	0.05
3	Corn	600	300	0.10	0.50						
4	Sorghum	600	300	0.01	0.05						
5	Groundnut	10	10	0.01	0.50						
6	Sesame	300	150	0.01	0.2 / 0.50						
7	Sunflower	2640	2640	0.50	0.50						
8	Cotton	165	165	0.10	0.40						
9	Butter bean	10	10	0.10	0.20						
10	Chick pea	10	10	0.10	0.20						
11	Black gram/ Green gram	10	10	0.10	0.20						
12	Pigeon pea	60	30	0.10	0.20						
13	Jute	20	20	0.10	0.40						
14	Kenaf	20	20	0.10	0.40						

Attachment

Seed Regulation (Table)

**Standards for field inspection in Vegetable set by National Seed-related Committee**

No	Crop	Isolation Distance (ft)		Maximum Limit (%) in Seed Production Field										
		Off-type		Inseparable other crop		Noxious weeds		Prescribe disease Plant/Head						
		FS	RS/CS	FS	RS/CS	FS	RS/CS	FS	RS/CS					
1	Potato (Tuber)		50		0.10									3.0
2	Potato (Seed)		5											1.0
3	Cucurbitaceae	1000	500	0.10	0.20									0.50
4	Egg Plant	200	100	0.20	0.10								0.10	0.50
5	Chille	400	200	0.10	0.20								0.10	0.50
6	Okra	400	200	0.10	0.20									0.50
7	Radish	1600	1000	0.10	0.20								0.10	0.50
8	Tomato	50	25	0.10	0.20								0.10	0.50
9	Amaranthus	400	200	0.10	0.20					0.10	0.20		0.10	0.50
10	Celery	500	300	0.10	0.20								0.10	0.50
11		10	5	0.10	0.20					0.10	0.20		0.10	
12	Lettuce	50	25	0.10	0.20					0.10	0.20		0.10	0.50

**Standards for field inspection in Vegetable set by National Seed-related Committee**

No	Crop	Isolation Distance (ft)		Maximum Limit (%) in Seed Production Field							
		FS	RS/CS	Off-type		Inseparable other crop		Noxious weeds		Prescribe disease Plant/Head	
				FS	RS/CS	FS	RS/CS	FS	RS/CS	FS	RS/CS
13	Spanish	1600	1000	0.10	0.20						
14	Cauliflower/Cabbage	1600	1000	0.10	0.20						
15	Onion	1000	500	0.10	0.20						
16	Carrot	1000	800	0.10	0.20						
17	Sugar Beet	1600	1000	0.10	0.20						
18	Turnip	1600	1000	0.10	0.20					0.10	0.50



## Seed Standard set by National Seed-related Committee

No	Seed Class	Pure Seed (%) Minimum	Germination (%) Minimum	Moisture Content (%) Maximum	Inert matter(%) Maximum	Other Seed (%/Number) Maximum	Total Weed Seed (%/Number) Maximum	Objectionable weed seed (%/Number) Maximum	Red rice (grains/500g)
1	<b>Rice</b>								
	Breeder Seed	99	90	13	1	0	0	0	0
	Foundation Seed	98	90	13	2	10 kg	10 kg	2 kg	1
	Registered Seed	98	85	13	2	0.5	0.1	5kg	3
2	Certified Seed	97	80	13	3	1.0	0.2	5kg	5
	<b>Wheat</b>								
	Breeder Seed	99	85	12	1	5 kg	-	0	-
	Foundation Seed	98	85	12	1	10 kg	-	0	-
3	Registered Seed	98	80	12	2	0.1	-	0	-
	Certified Seed	98	80	12	2	0.2	-	1 kg	-
	<b>Corn</b>								
	Breeder Seed	99	85	12	1	0	-	0	-
4	Foundation Seed	99	85	12	1	0	-	0	-
	Certified Seed	98	80	12	2	1 kg	-	0	-
	<b>Sorghum</b>								
	Breeder Seed	99	85	12	1	0	-	0	-
Foundation Seed	98	85	12	2	0	0	-	0	-
	Certified Seed	98	80	12	2	1kg	-	1 kg	-

Seed Standard set by National Seed-related Committee

No	Seed Class	Pure Seed (%) Minimum	Germination (%) Minimum	Moisture Content (%) Maximum	Inert matter(%) Maximum	Other Seed (%/Number) Maximum	Total Weed Seed (%/Number) Maximum	Objectionable weed seed (%/Number) Maximum	Red rice (grains/500g)
5	<b>Groundnut</b>								
	Breeder Seed	98	80	9	2	0	0	-	-
	Foundation Seed	96	70	9	4	0	0	-	-
	Registered Seed	96	70	9	4	0.5	0	-	-
6	Certified Seed	96	70	9	4	1.5	0	-	-
	<b>Sesame</b>								
	Breeder Seed	99	85	9	1	0	0	-	-
	Foundation Seed	98	85	9	2	0.1	0	-	-
7	Registered Seed	98	80	9	2	0.2	0.2	-	-
	Certified Seed	97	80	9	3	0.2	0.2	-	-
	<b>Sunflower</b>								
	Breeder Seed	99	85	9	1	0	0	-	-
8	Foundation Seed	98	85	9	2	0.1	0.1	-	-
	Certified Seed	97	80	9	3	0.2	0.2	-	-
	<b>Pulses</b>								
	Breeder Seed	99	85	9	1	0	0	-	-
	Foundation Seed	98	85	9	2	0.1	0.1	-	-
	Registered Seed	98	75	9	2	0.2	0.2	-	-
	Certified Seed	98	75	9	2	0.2	0.2	-	-

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**Seed Standard set by National Seed-related Committee**

No	Seed Class	Pure Seed (%) Minimum	Germination (%) Minimum	Moisture Content (%) Maximum	Inert matter(%) Maximum	Other Seed (%/Number) Maximum	Total Weed Seed (%/Number) Maximum	Objectionable weed seed (%/Number) Maximum	Red rice (grains/500g)
<b>9</b>	<b>Jute</b>								
	Breeder Seed	99	90	9	1	0	0	0	-
	Foundation Seed	99	90	9	1	0	0	0	-
	Registered Seed	98	85	9	2	0	0	0	-
	Certified Seed	97	85	9	2	0.1 kg	0	0	-
<b>10</b>	<b>Kenaf</b>								
	Breeder Seed	99	90	9	1	0	0	0	-
	Foundation Seed	99	90	9	1	0	0	0	-
	Registered Seed	98	85	9	2	0	0	0	-
	Certified Seed	97	85	9	2	0.1 kg	0	0	-
<b>11</b>	<b>Cotton</b>								
	Breeder Seed	99	85	10.12	1	0	0	0	-
	Foundation Seed	98	85	10.12	2	0.1	1	0	-
	Registered Seed	98	75	10.12	2	0.4	0	0	-
	Certified Seed	97	75	10.12	3	0.6	0	0	-

## Standards for Seed Certification by National Seed-related Committee

No	Crop	Seed Class	Germination (%)	Seed Purity (%)	Inert Material (%)	Other Seed (Number/Kg)	Weed Seed (Number /Kg)	Maximum Limits			
								Objectable Weed Seed (Number/Kg)	Separable other seeds (Number/Kg)	Moisture Content (%) Normal Package      Hermetic Package	
12	Egg plant	FS	70	98	2	Nil	Nil	-	-	8	6
		RS/CS	70	98	2	Nil	Nil	-	-	8	6
13	Chilli	FS	60	98	2	5	5	-	-	8	6
		RS/CS	60	98	2	10	10	-	-	8	6
14	Okra	FS	65	99	1	Nil	Nil	Nil*	10	10	8
		RS/CS	65	99	1	5	Nil	Nil*	20	10	8
15	Radish	FS	70	98	2	5	10	-	-	6	5
		RS/CS	70	98	2	10	20	-	-	6	5
16	Tomato	FS	70	98	2	5	Nil	-	-	8	6
		RS/CS	70	98	2	10	Nil	-	-	8	6
17	Cucurbitaceae	FS	60	98	2	Nil	Nil	-	-	7	6
		RS/CS	60	98	2	Nil	Nil	-	-	7	6

## Standards for Seed Certification by National Seed-related Committee

No	Crop	Seed Class	Germination (%)	Seed Purity (%)	Inert Material (%)	Other Seed (Number/Kg)	Weed Seed (Number /Kg)	Objectable Weed Seed (Number/Kg)	Maximum Limits		
									Separable other seeds (Number/Kg)	Moisture Content (%)	Hermetic Package
18	Bittergourd and Watermelon	Fs	60	98	2	Nil	Nil	Nil	5	7	6
		RS/CS	60	98	2	Nil	Nil	10	10	7	6
19	Cucumber and Watermelon	Fs	60	98	2	5	Nil	Nil	-	7	6
		RS/CS	60	98	2	10	Nil	Nil	-	7	6
20	Luffa/	Fs	60	98	2	Nil	Nil	Nil	5	7	6
		RS/CS	60	98	2	Nil	Nil	Nil	10	7	6
21	Snake gourd	Fs	60	98	2	Nil	Nil	Nil	-	7	6
		RS/CS	60	98	2	Nil	Nil	Nil	-	7	6
22	Amaranthus	Fs	70	95	5	5	10	5*	10	8	6
		RS/CS	70	95	5	10	20	10*	20	8	6
23	Asparagus	Fs	70	96	4	5	5	-	-	8	6
		RS/CS	70	96	4	10	10	-	-	8	6

## Standards for Seed Certification by National Seed-related Committee

No	Crop	Seed Class	Germination (%)	Seed Purity (%)	Inert Material (%)	Other Seed (Number/Kg)	Weed Seed (Number /Kg)	Maximum Limits			
								Objectable Weed Seed (Number /Kg)	Separable other seeds (Number/Kg)	Moisture Content (%)	
								Normal Package	Hermetic Package		
24	Celery	FS	70	97	3	5	5	-	-	8	7
		RS/CS	70	97	3	10	10	-	-	8	7
25		FS	70	98	2	10	10	2*	10	8	6
		RS/CS	70	98	2	20	20	5*	20	8	6
26	Lettuce	FS	70	98	2	Nil	5	2*	10	8	6
		RS/CS	70	98	2	Nil	10	5*	20	8	6
27	Spanish	FS	60	96	4	5	5	-	-	9	8
		RS/CS	60	96	4	10	10	-	-	9	8
28	Cabbage Knol Khol, Chinese Cabbage	FS	70	98	2	5	5	-	-	7	5
		RS/CS	70	98	2	10	10	-	-	7	5
29	Cauliflower	FS	65	98	2	5	5	-	-	7	5
		RS/CS	65	98	2	10	10	-	-	7	5
30	Turnip	FS	70	98	2	10	10	-	-	6	5
		RS/CS	70	98	2	10	10	-	-	6	5

## Standards for Parental Lines of Rice and Hybrid Rice set by National Seed-related Committee

Parental Line	Seed Class	Genetic Purity (%)	Purity (%)	Germinatin (%)	Moisture Content (%)	Weed Seeds (Number/Kg)
A Line (Female)	Breeder Seed	100.0	> 99.0	> 98.0	< 13.0	0
	Foundation Seed	> 99.9	> 99.0	> 96.0	< 13.0	0
	Certified Seed (၀၀၀၀၀၀:၀၀:)	> 99.5	> 99.0	> 96.0	< 13.0	၀
	Certified ( :)	> 99.0	> 97.0	> 95.0	< 13.0	5
B Line (Restorer)	Breeder Seed	100.0	> 99.8	> 98.0	< 13.0	0
	Foundation Seed	> 99.9	> 99.0	> 96.0	< 13.0	0
	Certified Seed (၀၀၀ )	> 99.5	> 99.0	> 96.0	< 13.0	0
	Certified ( :)	> 99.0	> 97.0	> 95.0	< 13.0	5
R Line (Male)	Breeder Seed	100.0	> 99.8	> 98.0	< 13.0	0
	Foundation Seed	> 99.8	> 99.0	> 96.0	< 13.0	0
	Certified Seed (၀၀၀ )	> 99.5	> 99.0	> 96.0	< 13.0	၀
	Certified ( :)	> 99.0	> 97.0	> 93.0	< 13.0	5
Hybrid	Certified Seed (၀၀၀ )	> 98.0	> 98.0	> 93.0	< 13.0	0
	Certified ( :)	> 96.0	> 97.0	> 90.0	< 13.0	5