

रनजःस्वायन्त्रवायन्त्रियाः विद्यान्यः स्वायम् यन्त्रियाः चन्नयः क्रयः प्रदास्य विद्याः

ROYAL GOVERNMENT OF BHUTAN MINISTRY OF HEALTH

BHUTAN FOOD AND DRUG AUTHORITY



INSPECTION SERVICES

CHECKLIST FOR SEED CERTIFICATION

Farm Information: A.

1. Name of registered N	ursery:		
2. Address:			
3.Contact grower inform	ation:		
3.1 Village:			
3.2 Gewog:			
3.3 Dzongkhag:			
4. Source of seed:			
5. Total acreage under prod	uction:		
6. Register grower Farm			
7. Acreage of the field no. i	nspected:		
8. Previous crop:	I	solation distance	:
9. Stage of crop at the time	inspection:		
10.Type of Inspection - Init	ial/Re - inspection (ti	ick or underline t	he relevant one)
11. Duration:	Start time:		End time:

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रेनज.र्जव.पर्चिया.यथिटः। याजू.च.रंजेव.ायया पर्चिया.पञ्चय.क्रम.रेटः.श्रैव.द्रयाना.रेचटः.पहूर्या

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INSPECTION SERVICES

Clause. No	Requirements	Ye	No	NA	Inspector's	Compliance
		S			Comments	Status
	FIC SEED STANDARDS FOR CEREAL	L, LEGI	JMES A	ND OII	LSEED CROPS	T
1.1	Land requirement: Land to be used for					
	seed production is free of volunteer					
1.2	plant.					
1.2	Field Standards: The isolation distance					
	meets the relevant specification for the					
1.3	crop. Seed Standards: the crops grown are					
1.5	uniform of same genetic identity					
2. SPECI	FIC SEED STANDARDS FOR TUBER	CROPS				
		CROIS		1		
2.1	Fields/plot for multiplication should be free of wart and bacterial wilt					
	incidences.					
2.2	The area has to be free from virus					
2.2	transmitting aphid.					
2.3	The buffer zone of at least 3m should be					
	maintained.					
2.4	A record on crop rotation to avoid					
	volunteers' plants and remaining tubers					
	of previous season from mixing with the					
	planted seed has to be maintained					
2.5	The farm/plot from off types plants					
2.6 Requiren	nent of Seed tubers			-I		1
2.6.a	The seed tubers should not weigh less					
	than 35 grams and not more than 65					
	grams.					
2.6.b	The seed lot should be reasonably clean					
	and free from stones, soil, and firm with					
	characteristic eyes, color and shape of					
	the variety.					
2.6.c	The proportion of tubers with cuts and					
	bruises, cracks and other mechanical					
	damages should not exceed 3 % by count.					
2.6 d	The seed tubers should be free from					
2.0 u	damages caused by insects and worms and					
	should be free from late blight, dry or wet					

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	rots, charcoal rot, wart, black heart and freezing injury.						
3. SPEC	CIFIC SEED STANDARDS FOR YACON O	CROP (GROUN	ND APP	LE (Smallan	thus sonchifolius)	
3.1	Rhizome crown should be broken or cut into pieces of propagules						
3.2	Cut surface on each propagule should be as minimum as possible to avoid desiccation in the field.						
3.3	Each propagule should have 4-5 growing tips.						
3.4	Each propagule should be not less than 200gm.						
3.5	Propagules should be firm, fresh and unsprouted. It should not be rubbery and sprouted.						
3.6	Propagules should be clean and free from soil.						
4. GEN	ERAL SEED STANDARDS FOR FRUIT C	ROPS A	AND PI	LANTIN	G MATERI	ALS	
4 1 Require	ements for Seedlings and grafted plant						
4.1 Acquire	The seedlings should have strong and						
4.1.a	well-established root system without any deformities.						
4.1.b	The stem diameter of the planting						
	material should be at least 10-15 mm above the graft / bud union.						
4.1.c	The height of the seedlings should be 0.6-1m from the first lateral roots.						
4.1.d	The height of the grafted planting materials should be at least 0.6-0.8 m from the first lateral roots.						
4.1.e	The graft union must be at least 10-15 cm from the first lateral roots.						
4.1.f	The planting material should have a straight trunk.						
4.1.g	The seedlings/grafted planting materials should be free from visible pests and diseases.						

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4.1.h	The planting materials should be treated					
	with appropriate insecticide and					
	fungicide prior to distribution.					
4.1.i	The planting materials should be raised					
	from notified/released varieties and					
	properly labeled.					
4.1.						
4.1.j	The graft union should be properly					
	established					
4.2 Require	ement for Raising Mother Plants					
4.2. a	The mother plants should be certified by					
	certifying agency prior to the collection					
	of seeds and scion woods.					
4.2.b	The mother plants for seeds collection					
	should be inspected at least once a year.					
4.2.c	The mother plants for scion wood					
	collection should be inspected at least					
	twice a year.					
4.2.d	The prescribed scheduled spray records					
	are maintained.					
4.2.e	There should be a record of scheduled					
	spray.					
5. SPE (CIFIC SEED STANDARDS FOR FRUIT C	ROPS,	MAPS.	AND PI	LANTING MAT	ERIALS
A. CITRUS	(Mandarin, Sweet Orange, Lime, Lemon, 1	Pomelo	, Kumq	uat, Gra	apefruit)	
5.A.1.	Requirement of Nursery Site and Struc					
5.A.1.a	The nursery site should be above 1200					
	m above sea level.					
5.A.1.b	The nursery site should be latest 1 km					
	away from the citrus orchards.					
5.A.1.c	The nursery sites must be devoid of					
	field standing citrus trees and any hosts					
	of HLB and Psyllids.					
5.A.1.d	All citrus planting materials including					
	the bud wood's daughter trees should					
	be raised under insect-proof structures					
	with double entryways.					
5.A.1.e	The nursery media used should be					
	completely sterilized and free from soil					
	borne pests and diseases.					

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		1	1	
5.A.1.f	All planting materials should be			
	containerized and grown in raised			
	benches			
5.A.2 Requ	irement of Root stock			
5.A.2. a	Rootstock(s) should be a released or			
	notified rootstock variety			
5.A.2.b	The seeds for rootstocks should be			
	collected from a disease-free mother			
	tree			
5.A.2.c	The appropriate seed treatment should			
	be strictly followed as recommended			
	by NPPC.			
5.A.2.d	The seeds should be sown in raised			
	seedbed, seed trays, or container.			
5.A.2.e	The seedlings should be transplanted			
	into container/polypots when the			
	seedlings attain 3-4 leaves.			
5.A.2.f	The seedlings with deformed main			
	stem and bent/crooked/J-root must be			
	completely discarded.			
5.A.2.g	The diameter of the rootstock should be			
	a minimum of 10mm at the time of			
	grafting.			
	irement of Seed raised from seeds	T		
5.A.3.a	The seeds should be collected from			
	released and notified mother trees free			
	from diseases.			
5.A.3.b	The seeds should be sown in raised			
	seedbeds after recommended seed			
	treatments			
5.A.3.c	Seedling shall be of genetically pure in			
	absolute terms.			
5.A.3.d	The planting material should be at least			
	one-year old at the time sale.			
5.A.3.e	The planting material should be 0.8-1m			
	tall and 6-10mm girth at the base.			
5.A.3.f	The seedling must be of single stem			
	and have strong and well-developed			
	root system.			
5.A.3.g	The seedling lot shall be free of			
	deformed main stem and			
	bend/crooked/J-roots.			

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	CHECKLIST FOR SI	
5.A.3.h	The material must be grown in container/polypots and raised in benches.	
5.A.3.i	The source of the seeds should be labeled and their record maintained.	
5.A.3.j	The material should be certified free from viruses, canker, greening and other known pests and diseases.	
5.A.3.k	The lot, seedling not conforming to specified size shall not exceed 5.0% (by number)	
5.A.4 Requ	irement of Seedling from Grafted	
5.A.4.a	The rootstock and scion wood should be sourced from released and notified varieties	
5.A.4.b	The scion/bud wood source trees should be registered and tested at least once in two years and certified free from graft transmissible diseases.	
5.A.4.c	Both rootstock and scion wood should be genetically pure in absolute term and free from graft transmissible diseases.	
5.A.4.d	The overall height of the plant should range from 40-60 cm at the time of sale.	
5.A.4.e	The diameter of the grafts at 10cm above the graft union should range from 1.01.25 cm.	
5.A.4.f	The graft should have preferably single stem and have strong and well-established root system.	
5.A.4.h	The grafted sapling should be free from rootstock sprouts/suckers.	
5.A.4.i	The source of the bud wood and rootstock should be properly labeled and recorded.	
5.A.4.j	The grafts should be maintained completely free of flowers/fruits.	
5.A.4.k	The material should be free from viruses, canker, HLB and other known pests and diseases at the time of sale.	

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5.A.4.1	In the planting material lot, materials					
	not conforming to specified size shall					
	not exceed 5.0% (by number).					
Clause. No	SPECIFIC SEED STANDARDS FOR	FRUIT	CROPS	, MAPS	AND PLANTI	NG MATERIALS
В. ТЕМРЕ	RATE FRUITS (Apple, Pear, Peach, Pers	immon	, Plum, A	Almond	, Cherry, Apric	ot, Kiwi)
5.B.1 Requir	ement of Rootstock (seedling Rootstocks)					
5.B.1.a	The seeds for rootstocks should be					
	collected from a disease-free mother					
	tree.					
5.B.1. b	The appropriate seed treatment should					
	be strictly followed as recommended					
5.B.1.c	The seeds should be sown in raised					
	beds.					
5.B.1. d	The diameter of the rootstock should be					
	minimum of 10 mm at the time of					
5 D 2 De suri	grafting.					
•	rement of Clonal Rootstock		ı	1	ı	
5.B.2. a	Land to be used for clonal propagation					
5 D O 1	shall be free from volunteer plants					
5.B.2. b	Clonal Rootstock should be free from					
5 D 2 -	pests and disease The diameter of the rootstock should be					
5.B.2.c	minimum of 10 mm at the time of					
	grafting.					
5 R 3 Requir	rement of Grafted seedling					
_			ı	ı	T.	
5.B.3.a	All saplings shall be produced by					
5 D 0 1	asexual methods of propagation.					
5.B.3.b	The scion/bud wood and rootstock used					
	for propagation should be collected from the released or notified varieties.					
5.B.3.c	Both rootstock and scion wood should					
J.D.J.C	be genetically pure and free from graft					
	transmissible diseases.					
5.B.3.d	The source and details of the bud					
0.2.0.0	wood/scion wood and rootstocks					
	should be properly labeled.					
5.B.3.e	The grafted planting material should					
	meet the following specified qualities:					
5.B.3.f	The diameter of the rootstock should					
J. D .J.1	range from 0.50 - 1.0 cm					
	141150 110111 0.50 1.0 CIII					

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5.B.3.g	The diameter of the grafted plant at 10 cm above the graft union should range from $0.5-0.75$ cm						
5.B.3.h	The height of the grafted plant should be 50 cm – 100 cm.						
5.B.3. i	The grafted sapling should be free from suckers e. The saplings with deformed stem & damaged roots should be discarded						
5.B.3.j	In the sapling lot, saplings not conforming to specified size shall not exceed 5.0% (by number)						
5.B.3.k	The uprooted saplings should be treated with fungicides and properly packed with mosses and gunny bags, and labeled prior to transportation.						
5.B.3.1	The saplings should be free from other known pests and diseases.						
Clause. No	SPECIFIC SEED STANDARDS FOR	FRUIT	CROPS	, MAPS	AND PLA	NTING MA	ATERIALS
	PERATE NUTS (Walnut and Chestnut)						
5.C.1 Requir	rement for Rootstocks						
5.C.1.a	The seeds for rootstocks should be collected from a disease-free mother tree.						
5.C.1.b	The appropriate seed treatment should be strictly followed as recommended						
5.C.1.c	The seeds should be sown in raised beds.						
5.C.1.d	The diameter of the rootstock should be minimum of 15 mm at the time of grafting.						
5.C.1.e	Rootstock should be at least one year						
5.C.1.f	The stem should be straight and without deformities.						
5.C.2 Requir	rement of Grafted planting materials						
5.C.2.a	The scion wood and rootstock used for propagation should be of the released or notified varieties.						

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5.C.2.b	The scion wood should be collected						
	from disease free mother plants						
5.C.2.c	The diameter of the grafted plant at 10						
	cm above the graft union should be						
	minimum of 1 cm.						
5.C.2.d	The height of the grafted plant should						
	be minimum of 60 cm						
5.C.2.e	The grafted sapling should be free from						
	suckers						
5.C.2.f	The saplings with deformed stem &						
	damaged roots should be discarded						
5.C.2.g	In the sapling lot, saplings not						
	conforming to specified size shall not						
	exceed 5.0% (by number)						
5.C.2.h	The uprooted saplings should be treated						
	with fungicides and properly packed						
	with mosses and gunny bags, and						
7.7.2.	labeled prior to transportation.						
5.C.2.i	The saplings should be free from other						
D GVID FID	known pests and diseases.				7 10 11		
D.SUB-TR	OPICAL FRUITS (Mango, Avocado, Litch	i, Guava	a. Pomeg	ranate.	. Jackfruit.	Pecanut)	
			·, _ 01110g	,- 0000	, 0 40 0 2 2 2 2 4 2 5 7	r ccarrac)	
	irement for Rootstock	,	·, - ·	,	, 000		
5.D.1 Requ	irement for Rootstock				, 0 11 21 11 15	2 counce)	
5.D.1 Requ	The seeds for rootstocks should be						
5.D.1 Requ	The seeds for rootstocks should be collected from a disease-free mother				, , , , , , , , , , , , , , , , , , , ,		
5.D.1 Requ 5.D.1.a	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended.				, , , , , , , , , , , , , , , , , , , ,		
5.D.1 Requ 5.D.1.a	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should				, , , , , , , , , , , , , , , , , , , ,		
5.D.1 Requisition 5.D.1.a	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended.						
5.D.1 Requi 5.D.1.a 5.D.1.b 5.D.1.c	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot.						
5.D.1 Requi 5.D.1.a 5.D.1.b 5.D.1.c	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be						
5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year						
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5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year						
5.D.1 Requisition 5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d 5.D.1.d 5.D.1.f	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year The stem should be straight and						
5.D.1 Requisite 5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d 5.D.1.d 5.D.1.f 5.D.2 Requisite 5.D.2 Requisit	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year The stem should be straight and without deformities.						
5.D.1 Requisition 5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d 5.D.1.d 5.D.1.f	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year The stem should be straight and without deformities. Interment of seedling from Grafting The scion wood and rootstock used for						
5.D.1 Requisite 5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d 5.D.1.d 5.D.1.f 5.D.2 Requisite 5.D.2 Requisit	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year The stem should be straight and without deformities. The scion wood and rootstock used for propagation should be of the released						
5.D.1 Requisite 5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d 5.D.1.f 5.D.2 Requisite 5.D.2.a	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year The stem should be straight and without deformities. Interment of seedling from Grafting The scion wood and rootstock used for propagation should be of the released or notified varieties.						
5.D.1 Requisite 5.D.1.a 5.D.1.b 5.D.1.c 5.D.1.d 5.D.1.d 5.D.1.f 5.D.2 Requisite 5.D.2 Requisit	The seeds for rootstocks should be collected from a disease-free mother plant. The appropriate seed treatment should be strictly followed as recommended. The seeds should be raised in polypot. The diameter of the rootstock should be minimum of 10 mm at the time of grafting. Rootstock should be at least one year The stem should be straight and without deformities. The scion wood and rootstock used for propagation should be of the released						

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5.D.2.c	The diameter of the grafted plant at 10 cm above the graft union should be minimum of 0.75 cm.						
5.D.2.d	The height of the grafted plant should be minimum of 60 cm.						
5.D.2.e	The grafted sapling should be free from suckers.						
5.D.2.f	The saplings with deformed stem & damaged roots should be discarded.						
5.D.2.g	In the sapling lot, saplings not conforming to specified size shall not exceed 5.0% (by number).						
5.D.2.h	The saplings should be free from other known pests and diseases.						
5.D.2.i	The saplings should be tagged and labeled prior to distribution.						
5.D.3 Requir	rement Seedling through layering:						
5.D.3.a	The sapling should be produced from disease free mother plants.						
5.D.3.b	The sapling should have well developed root system.						
5.D.3.c	The stem should be straight and free from deformities.						
5.D.3.d	The height of the sapling should be minimum of 60 cm.						
5.D.3.f	The diameter of the sapling 10 cm above first lateral root should be 0.75 cm.						
5.D.3.h	The sapling should be free from other known pest and diseases.						
5.D.3.i	In the sapling lot, saplings not conforming to specified size shall not exceed 5.0% (by number).						
5.D.3.j	The saplings should be treated with fungicides and properly raised in polypot and labeled prior to distribution.						
Clause. No	SPECIFIC SEED STANDARDS FOR	FRUIT	CROPS	, MAPS	AND PLAN	NTING MAT	TERIALS
E. OTHER	FRUIT CROPS (Areca nut, Banana, Pin	eapple,]	Passion 1	ruit, Dr	agon fruit, (Grapes, Pap	aya, Fig)
5.E.1 Requir	ement for seed propagation						

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5.E.1.a	The seeds should be collected from					
	disease free mother plants.					
5.E.1.b	The seeds collected should be from					
	released and notified varieties.					
5.E.1.c	The seed should be treated with					
	recommended fungicides prior to					
	sowing.					
5.E.1.d	The seedling should be at least one year					
	except for areca nut, which should be					
	three years.					
5.E.1.e	The minimum height of the seedling					
	should be 50cm -1m.					
5.E.1.f	The seedling should be free of known					
	pest and diseases.					
5.E.1.g	The seedling should be tagged and					
	labeled prior to distribution.					
5.E.2 Requi	rements Seedling through Suckers/Tissue	Culture	(Banan	a and Pi	ineapple):	
5.E.2.a	The suckers/explants should be					
	collected from disease free mother					
	plants.					
5.E.2.b	The suckers/explants collected should					
	be from released and notified varieties.					
5.E.2.c	The planting material should attain at					
	least one year.					
5.E.2.d	The seedling should be free from					
	known pest and diseases.					
5.E.2.e	The seedling should be tagged and					
	labeled prior to distribution.					
5.E.3 Seedl	ing through cuttings (Grapes and Dragon f	ruit, Te	a):	· I	1	
5.E.3.a	The cuttings should be collected from					
	pest and disease-free mother plants.					
5.E.3.b	The cuttings should be from released					
	and notified varieties.					
5.E.3.c	The sapling should have strong and					
	healthy root system.					
5.E.3.d	The sapling should be at least one year					
	old.					
5.E.3.e	The sapling should be free from known					
5.2.5.0	pest and diseases.					
5.E.3.f	The seedling should be tagged and					
3.11.3.1	labeled prior to distribution.					
	raction prior to distribution.	<u> </u>	<u> </u>	1		1

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Clause. No	SPECIFIC SEED STANDARDS FOR						
F. CARDA	AMOM (Amomum Subulatum Roxb.)						
5.F.1. Slips f	or Vegetative Propagation						
5.F.1.a	The planting slips should of healthy						
	disease free.						
5.F.1. b	The cardamom slips or planting						
	material should consist of						
	rhizomes/bulbs/slips along with 1-2 of						
	2-3 immature tillers/vegetative buds.						
5.F.1.c	Cardamom slips should be free from						
	Foorkey and Chirkey viral diseases or						
	any other diseases such as wilt, rotting						
5.5.1.1	and root knot.						
5.F.1. d	The planting material is propagated						
5 E 1	through seeds and tissue culture.						
5.F.1. e	The plots should be free from volunteer plants of other varieties and						
	wild cardamom.						
Clause. No	SPECIFIC SEED STANDARDS FOR	FDIIIT	CDADS	MADS	AND DI	NITINIC I	MATEDIALS
	MERIC (Curcuma longa L.)	FKUII	CKOIS	, WIAI S	ANDILE	MILING	VIATERIALS
5.G.a	Soil should be loose, arable and offer						
J.G.a	minimum resistance to rhizome						
	development.						
5.G.b	Soil depth 30 cm or more, high organic						
	matter of acidic soil.						
5.G.c	The plot or land should be free Pythium						
	sp., Pseudomonas solanacearum, and						
	Meloidogyne incognita.						
Clause. No	SPECIFIC SEED STANDARDS FOR	FRUIT	CROPS	S, MAPS	AND PLA	NTING I	MATERIALS
H. GINO	GER (Zingiber officinale Rose)						
5.H.a	Partial shade with gentle sloppy						
	landscape						
5.H.b	Soil depth 30 cm or more, high organic						
	matter and pH of 6-6.5 are favorable.						
5.H.c	Land should be free from volunteer						
	plants						
Recommend	lation:						

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कुने अरीचा मा ख़ियां न	INSPECTION SERVICES			1429/12/11	
 -	CHECKLIST FOR SEED CERTIFICATION				
Name and signature of the T Date	eam Leader				
			Name and Signature of the N Date:	Tursery Operator	

NB: Checklist shall be used for specific commodity inspection purpose

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