



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AGRICULTURE SKILL COUNCIL OF INDIA

for the


MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: **'Forest Nursery Raiser'** QP No. **'AGR/Q6103 NSQF Level 4'**

Date of Issuance: October 20th, 2016

Valid up to: March 31st, 2019

* Valid up to the next review date of the Qualification Pack



Authorised Signatory
(Agriculture Skill Council of India)

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Forest Nursery Raiser

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Forest Nursery Raiser", in the "Agriculture & Allied" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Forest Nursery Raiser		
Qualification Pack Name & Reference ID. ID	AGR/Q6103, v1.0		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	5 th standard pass, preferably		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Identify & select proper nursery site and quality planting materials: determine purpose of nursery & required type of site as per the work specifications • Construct forest nursery & nursery beds: design layout, undertake fencing, prepare nursery beds as per the plant requirements, ensure sterilization of nursery beds etc • Undertake nursery management practices: timely irrigation, manure & fertilizer application, weed management, pest & disease management, safe handling & transportation of nursery plants etc • Undertake basic market related activities for forest nursery plants: identify trading channels, track & record value chain of plants custody • Practice health & safety at the work place: Well versed with health and safety measures in terms of personal as well as others' safety, comply with forest regulations etc 		

This course encompasses 6 out of 6 National Occupational Standards (NOS) of “Forest Nursery Raiser” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Introduction Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code Bridge Module	<ul style="list-style-type: none"> Understand General Discipline in the class room (Do’s & Don’ts) Study the Scope & importance of forest nursery in India Understand different Economically & Socially important plant species, Endemic plant species, Endangered plant species etc Understand the usage & market demand for nursery products Understand the Role of a 'Forest Nursery Raiser' 	Laptop, white board, marker, projector
2	Select of appropriate site and construct forest nursery Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR / No6112	<ul style="list-style-type: none"> Identify & select appropriate site for nursery establishment Construct forest nursery as per operational requirements Comply with the occupational health & safety requirements relevant to work Get acquainted with the prevailing state laws and legal policies in the local forest area Understand relevant forest regulations such as Forest Rights Act of India 	Laptop, white board, marker, projector, Audio-visual aids, White Marker, plastic sheet, spades, Barbed wire, mesh wire, Wooden or R.C.C. poles, “U” nails, Hammer, Wire pooler, strainer or cable puller or iron rod hook, Coaster, Enamel paints, Plain nails, Prismatic compass, plain table with accessories Abneys’ level, measuring tape, Ranging rod, Arrows
3	Prepare nursery beds and procure quality seeds/ planting materials Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 20:00 Corresponding NOS Code AGR/N6113	<ul style="list-style-type: none"> Prepare nursery bed as per the agro climatic requirements and habitat of the plant species - raised bed, sunken bed, level beds, germination bed, transplant bed, storage bed, seedling bed and cutting bed, etc. Procure quality seeds & planting propagules from authentic sources Ensure quality stem/root cuttings for plant propagation Record details of the planting material sown/ planted 	Laptop, white board, marker, projector, Audio-visual aids, Spades, (small & large), pick axes, Wooden hammer, Ropes, cotton or steel tape, Wooden pegs, Shovels', Khurpa, sickle, axes, Wooden planks, bricks, stones, bamboo’s splinters, crow bar, wheel barrows, boxes, plastic buckets, watering cans, wire cutters, digging forks, hammer, nails, hoes, hand pruning knives, budding knives, respiratory masks, sprayers, saws, scissors, secateurs, budding and grafting knives, budding and grafting tape,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			germination trays, khurpis, iron pan, spade, forks, trolleys, tractor, disc plough, pot filling machine, grafting machine
4	Sow seeds and plant seedlings/ propagules in forest nursery Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 30:00 Corresponding NOS Code AGR/N6114	<ul style="list-style-type: none"> Practice scientific & Good Agricultural Practices (GAP) Understand & practice different plant propagation methods for different plant species Undertake seed treatment as required using approved method Undertake potting & repotting Carry out seed sowing procedures Follow approved procedures for managing seedlings- irrigation, nutrient management, weed, pest & disease management, pruning etc Carry out plant hardening process using appropriate techniques Record propagation failures & causes for the same and undertake preventive & control measures for the same Ensure proper sanitation of nursery area 	Laptop, white board, marker, projector, Audio-visual aids, G.I. net for sieving sand and soil, Wooden seed box or metal or plastic seed tray, Thick poly bags, canes, container or glass jar, Small metal sieves, knife, wire, pruning scissor, secateurs, seed trays, plant labels, wheel barrow, Cutting pliers, sharp knife, bill hook
5	Undertake disease control, irrigation and nutrients management activities in a nursery Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 25:00 Corresponding NOS Code AGR/N6115	<ul style="list-style-type: none"> Use approved techniques to inspect quality of soil composition and ensure sterilization of nursery bed & soil mixture Identify stress conditions, disease symptoms and causes for the same Control diseases and exercise preventive care Irrigate and manage nutrient requirements Undertake making of rain water harvesting structures such as shallow trenches, divisions of ground, etc. Ensure safe handling practices while transporting nursery plants Record the required information related to seedlings etc 	Laptop, white board, marker, projector, Audio-visual aids, pruner, sprayer, spade, wheel barrow, seed trays, plant labels, water pumps and equipments, Water cans, polythene pipe, sprinkler, tube well, Atomizer for irrigating minute/small seeded nursery, hedge cutters, shears, chemicals
6	Undertake basic market related activities for forest nursery plants	<ul style="list-style-type: none"> Comply with governing regulations in forestry Get acquainted with available 	Laptop, white board, marker, projector, Audio-visual aids, pen, paper, plant

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR/N6116	Schemes/ assistance available for forest nursery raising <ul style="list-style-type: none"> Practice relevant scientific & Good Agricultural Practices Track and record value chain of custody Ensure proper labelling of plant species with the required information Prepare costing and pricing of seedlings/ plants keeping in mind different factors Identify different trading channels and select as per the requirement Ensure trade license for sale of the produce, if required is intact 	labels, tray
7	Use basic health & safety practices in forestry related work Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code AGR/N9909	<ul style="list-style-type: none"> Identify job-site hazardous work and state possible causes of risk or accident in the workplace Use Personal Protective Equipments as per the work requirements Carry out safe working practices Get acquainted with fire safety procedures Render appropriate emergency, rescue and first aid procedures Report to appropriate person on-time and maintain written record as per the work site policy 	Laptop, white board, marker, projector, , Personal protective equipment Like: Helmet / head gear, rubber gloves, Safety boots, First Aid Kit: Bandages, Adhesive bandages, Betadine Solution / ointment, Pain relief spray / ointment, Antiseptic liquid; Phone directory, Search lights, fire extinguisher
8	Soft Skills/ Computer Literacy/ Financial Literacy Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code	<ul style="list-style-type: none"> Basic Communication Skills Basic Computer Skills Various types of documents and their uses- Birth certificate, 10th Certificate, Ration Card, Voter Id Card, Aadhar Card, PAN card, Driving License, Bank Pass Book Various types of loan/credit available (relevant to the trainees' requirement) and the process to avail the same 	Computer, Audio-visual aids, Projector
	Total Duration: Theory Duration (hh:mm) 70:00	Unique Equipment Required: Laptop, white board, marker, projector, Audio-visual aids, Measuring tape, Wheel barrows, Axes, crow bar, wheel barrows, boxes, plastic buckets, watering cans, wire cutters, digging forks, hammer, nails, hoes, hand pruning knives, budding knives, respiratory masks,	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Practical Duration (hh:mm) 130:00	sprayers, saws, scissors, secateurs, budding and grafting knives, budding and grafting tape, germination trays, khurpis, iron pan, spade, forks, trolleys, tractor, disc plough, pot filling machine, grafting machine, plant labels, water pumps and equipments, hedge cutters, shears, polythene bags	

Grand Total Course Duration: **200 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Agriculture Skill Council of India](#))

Trainer Prerequisites for Job role: "Forest Nursery Raiser" mapped to Qualification Pack: "AGR/Q6103, v1.0"

Sr. No.	Area	Details
1	Description	Trainer is responsible for educating the trainees – select site & construct forest nursery, prepare nursery beds, procure & sow/plant quality planting materials, nutrient management, pest & disease management, irrigation, market related activities, health & safety practices
2	Personal Attributes	Trainer should be Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	Minimum Educational Qualifications	Bachelor's Degree, Preferably in Forestry/Agriculture
4a	Domain Certification	Certified for Job Role: "Forest Nursery Raiser" mapped to QP: "AGR/Q6103 v1.0". Minimum accepted score is 80%.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "SSC/Q1402". Minimum accepted % as per respective SSC guidelines is 70%.
5	Experience	<ul style="list-style-type: none"> • M.Sc (Forestry/Agri/ Horti) with 1 Year relevant experience • B.Sc.(Forestry/Agri/ Horti) with 2 Years relevant experience • Any Graduate with 3+ years experience in relevant field • Any +2 having 5/6 Years of experience in Forest Nursery Management

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Forest Nursery Raiser
Qualification Pack	AGR/Q6103, v1.0
Sector Skill Council	Agriculture

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre(as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcomes	Assessment Criteria	Total Marks	Out of	Theory	Practical Skills
AGR/N 6112 Select appropriate site and construct forest nursery	PC1. comply with relevant occupational health and safety requirements related to the work	80	4	2	2
	PC2. select and use appropriate personal protective equipment suitable to the type of work		3	1	2
	PC3. assess possible risks and hazards in the work area and implement safety measures to minimize injury to self and others		4	2	2
	PC4. adhere to relevant accident and emergency procedures and hygiene procedures in the work area		3	1	2
	PC5. check that tools, machinery and devices are calibrated and maintained at prescribed schedule		2	1	1
	PC6. exercise safe handling practices while handling sharp agricultural tools and cutters		3	1	2
	PC7. verify if relevant regulations such as nursery registration act are applied to site location		3	1	2
	PC8. determine the purpose of nursery and required type of property based on the work specifications		2	1	1
	PC9. ensure that the land available meets the requirement of total area for raising seedlings; potting beds; paths between beds; soil storage; thatched shelter; compost making area; etc.		4	2	2
	PC10. check that the selected nursery site is situated close to the plantation area and the main road		4	2	2
	PC11. ensure that adequate and reliable source of water is available in the proximity of the selected site as per water requirements of the species and geo-climatic condition		3	1	2
	PC12. verify that skilled and inexpensive labour is available to carry out important tasks such as nursery construction, soil transportation, pot filling, etc.		3	1	2
	PC13. check that soil suitability of the agreed nursery site meets the required type of soil for the target plant species		2	1	1
	PC14. select slightly sloped land or flat land to allow proper drainage of access water		3	1	2
	PC15. confirm that the proposed nursery is located away from sources of industrial wastes and effluents and other pollutants		4	2	2
	PC16. use approved techniques to detect the presence of pathogens and insects in soil quality of nursery site		2	1	1
	PC17. determine the appropriateness of site based on environmental factors such as good amount of		4	3	1

	sunlight; clear of obstruction from shades; frost free area; non-flood location; average wind speed; etc.				
	PC18. select appropriate type of forest nurseries based on the characteristics of plant species		3	2	1
	PC19. develop appropriate nursery design or layout as per operational requirements		3	2	1
	PC20. use appropriate tools & techniques to clear land of any rocks, trees, stumps and shrubs, etc.		3	2	1
	PC21. construct good drainage system using recommended techniques for the given type of land surface to enable drainage of access water and to prevent soil erosion		3	2	1
	PC22. confirm that a fence or wall of required measurement is built to safeguard against animals intrusion		3	1	2
	PC23. leave the work area in a safe condition		2	1	1
	PC24. return used tools and materials in appropriate storage location		3	1	2
	PC25. dispose wastes materials in accordance with environmental health & safety		3	2	1
	PC26. report any work related problems or issues to responsible authority and seek guidance on how to rectify problems		4	2	2
		Total	80	39	41
AGR/N6113	PC1. comply with relevant occupational health and safety requirements related to the work	110	5	2	3
Prepare nursery beds and procure quality seeds /planting materials	PC2. assess possible risks and hazards in the work area and implement safety measures to minimize injury to self and others		5	2	3
	PC3. adhere to relevant accident and emergency procedures and hygiene procedures in the work area		4	2	2
	PC4. check that tools, machinery and devices are calibrated and maintained at prescribed schedule		2	0	2
	PC5. exercise safe handling practices while handling sharp agricultural tools and cutters		3	2	1
	PC6. follow relevant safe working practices whenever appropriate		3	2	1
	PC7. select and use appropriate personal protective equipment suitable to the type of work		3	2	1
	PC8. select appropriate tools and materials required to carry out the work		3	2	1
	PC9. select and make appropriate mother beds suitable to the seed under germination		6	3	3

PC10. use appropriate plant propagation structures	4	2	2
PC11. tilt the soil properly using appropriate techniques to make it favorable for growing seeds and planting materials	4	2	2
PC12. use good agricultural practices to control the growth of weeds	6	3	3
PC13. prepare rectangular shaped seed sowing mother beds of appropriate width and length based on the geographical location of land	4	2	2
PC14. check that the lengthy side of the bed is directed towards the sun i.e. east to west, to induce shading	3	1	2
PC15. ensure that appropriate type of mother bed is selected as per agro climatic requirements and habitat of the plant species	6	3	3
PC16. identify and access soil collection site as per approved procedures	5	3	2
PC17. check that the collected soil using good agricultural practices and ensure that it is free of weeds, litters, stones, roots, etc.	2	1	1
PC18. adhere to correct soil mixing proportion to maintain fertility such as, 2 parts of soil+1 part of manure or compost+ 1 part of sand	5	3	2
PC19. ensure that the planting materials are obtained from authorized source	5	3	2
PC20. confirm the following information of the seeds/planting propagules	4	2	2
PC21. procure good quality seeds that are free of pests, diseases, weeds, foreign and inert matter	5	3	2
PC22. obtain the following information from the producer	3	1	2
PC23. check that stem cuttings selected for root induction are uniform in length and diameter appropriate to the plant species	4	2	2
PC24. check that root cuttings are uniform in size and maturity in terms of aerial and underground parts	3	2	1
PC25. leave the work area in a safe condition	2	1	1
PC26. return used tools and materials in appropriate storage location	3	1	2
PC27. dispose wastes materials in accordance with environmental health & safety	4	2	2
PC28. report any work related problems or issues to responsible authority and seek guidance on how to rectify problems	4	2	2
Total	110	56	54

AGR/N 6114 Sow seeds and plant seedlings/propagules in forest nursery	PC1. comply with relevant occupational health and safety requirements related to the work	120	6	3	3
	PC2. assess possible risks and hazards in the agricultural work area		6	3	3
	PC3. adhere to relevant accident and emergency procedures and hygiene procedures in the work area		6	3	3
	PC4. check that tools, machinery and devices are calibrated and maintained at prescribed scheduled		4	2	2
	PC5. exercise safe handling practices while working with sharp agricultural tools and cutters		6	3	3
	PC6. ensure that tools and machinery parts under direct contact with harvested plant parts are regularly clean as per standard requirement		4	2	2
	PC7. select machine material unlikely to cause hazardous metallic contamination of medicinal plants		4	2	2
	PC8. follow safe and healthy working practices in the work area		4	2	2
	PC9. carry out pretreatment of seeds using approved methods		6	3	3
	PC10. select appropriate pot materials to raise seedlings as per nature of plant species, nursery time required, etc.		4	2	2
	PC11. fill potting mixture into containers following recommended procedures		4	2	2
	PC12. apply correct seed sowing techniques to ensure that required planting size are achieved		6	3	3
	PC13. use approved procedures during pricking out of seeds from bed		6	3	3
	PC14. irrigate seedling with the required amount of water regularly depending upon seedling age, amount of sunlight, soil type, etc.		3	1	2
	PC15. carry out manual weeding using a dibbling as per standard agricultural guidelines		5	3	2
	PC16. use fertilizers and manures with seedlings exhibiting symptoms of weakness as per standard operational requirements		5	3	2
	PC17. use appropriate tools such as knife, wire or scissors to prune roots underneath the containers required quality compliances		4	2	2
	PC18. follow correct hardening up process suitable to the type of target seedlings		4	2	2
	PC19. follow approved procedures on how to safe guard seedlings against external factors such as adverse weather conditions, human intrusions, attacks by livestock and animals, insects, fungal diseases, other diseases e.g. wilting, powdery mildew, etc.		5	2	3

	PC20. identify the possible causes of propagation failure as per relevant agricultural standards		5	3	2
	PC21. verify that the approved agricultural practices are followed in monitoring the development of plants in nursery in order to meet required parameters		3	2	1
	PC22. ensure that nursery area is clean and controlled against the growth of pathogen infection		2	1	1
	PC23. check the soil composition for fertility, excess irrigation and improper sowing of seeds using appropriate procedures		2	1	1
	PC24. treat diseased plants with appropriate fungicide symptomatically		4	2	2
	PC25. leave the work area in a safe condition		4	2	2
	PC26. return used tools and materials in appropriate storage location		2	0	2
	PC27. dispose wastes materials in accordance with environmental health & safety		2	1	1
	PC28. report any work related problems or issues to responsible authority and seek guidance on how to rectify problems		4	2	2
	Total		120	60	60
AGR/N 6115 Undertake disease control, irrigation and nutrients management activities in a nursery	PC1. comply with relevant occupational health and safety requirements related to the work	110	5	2	3
	PC2. assess possible risks and hazards in the agricultural work area		4	2	2
	PC3. adhere to relevant accident and emergency procedures and hygiene procedures in the work area		5	2	3
	PC4. check that tools, machinery and devices are calibrated and maintained at prescribed scheduled		4	2	2
	PC5. exercise safe handling practices while working with sharp agricultural tools and cutters		6	3	3
	PC6. ensure that tools and machinery parts under direct contact with harvested plant parts are regularly clean as per standard requirement		4	2	2
	PC7. select machine material unlikely to cause hazardous metallic contamination of medicinal plants		4	2	2
	PC8. follow safe and healthy working practices in the work area		4	2	2
	PC9. monitor seedlings in nursery for signs of stress symptoms		6	3	3
	PC10. ensure that nursery area is clean and adequately irrigated to prevent the growth of pathogen, weeds, insects infestation, etc.		4	2	2

	PC11. use approved techniques to inspect quality of soil composition and ensure sterilization of nursery mixture		4	2	2
	PC12. confirm that diseased plants are treated with appropriate fungicide, chemical and other biological pesticides		6	3	3
	PC13. verify that seeds are sown in sterilized/fumigated and clean beds		6	3	3
	PC14. ensure that planting materials are maintained under proper sunlight, watering and clean environment		4	2	2
	PC15. confirm that mode of transportation used to move plants are clean and well maintained		5	3	2
	PC16. carry out regular examination of seedling health and removal of diseased stocks		5	3	2
	PC17. estimate and supply appropriate water requirements of the nursery plant species based on agro-climatic conditions		4	2	2
	PC18. apply effective irrigation system to improve plant quality and health; minimize labour costs; improve productivity and reliability; control runoff and waste of water		4	2	2
	PC19. ensure fertilizers or manure is applied when the seedlings shows signs of weakness		5	2	3
	PC20. utilize rain water effectively for supply to seedlings by making structures such as shallow trenches, divisions of ground, etc.		5	3	2
	PC21. exercise safe handling practices while moving nursery plants from one place to another		4	2	2
	PC22. record all the required information such as plants name, quantity, size, geographical location, etc. in accordance with agricultural quality standard		4	2	2
	PC23. confirm that mode of transportation used to move plants are clean and well maintained		4	2	2
	PC24. comply with local regulations on chemical transport, spilling prevention and other accidents		4	2	2
		Total	110	55	55
AGR/N 6116	PC1. ensure that product name, date and time of manufacturing/collecting, geographical location of origin & registration of company/farm etc. are labelled clearly	80	6	3	3
Undertake basic market related activities for forest nursery plants	PC2. document quantity and quality of product items accurately		10	5	5
	PC3. ensure that price is correctly quoted as per relevant market control agencies, etc.		9	4	5
	PC4. confirm that the marketing costs comprise of transportation, storage, planting materials and		11	6	5

	PC15. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		7	3	4
	PC16. demonstrate the artificial respiration and the CPR Process		6	3	3
	PC17. participate in emergency procedures		7	3	4
	PC18. complete a written accident/incident report or dictate a report to another person, and send report to person responsible		5	3	2
	PC19. demonstrate correct method to move injured people and others during an emergency		5	2	3
		Total	100	50	50
	Total		600	300	300
	Percentage Weightage:			50%	50%
	Minimum Pass% to qualify (aggregate):				60%