

# Model Curriculum

## Shrimp Farmer

**SECTOR: AGRICULTURE & ALLIED**  
**SUB-SECTOR: FISHERIES**  
**OCCUPATION: AQUACULTURE**  
**REF ID: AGR/Q4902, V1.0**  
**NSQF LEVEL: 4**



## 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: '**Shrimp Farmer**' QP No. '**AGR/Q4902 NSQF Level 4**'

Date of Issuance: December 26<sup>th</sup>, 2017

Valid up to: March 31<sup>st</sup>, 2021

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



Authorised Signatory  
(Agriculture Skill Council of India)

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# Shrimp Farmer

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Shrimp Farmer”, in the “Agriculture & Allied” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	<b>Shrimp Farmer</b>		
<b>Qualification Pack Name &amp; Reference ID. ID</b>	AGR/Q4902, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	8th Standard passed		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li> <b>Set up of Shrimp Farm and perform seed sourcing: Understand</b>Government regulations and guidelines for establishment of shrimp farm, Select of suitable site, construct shrimp farm, procure necessary shrimp farm machinery/equipment and their installation, prepare ponds for shrimp culture. Collect suitable shrimp species for farming, source seeds from hatcheries, transport seeds, condition the seeds to farm environment.         </li> <li> <b>Manage the shrimp farm by proper feeding and health monitoring :</b>            Stock the shrimp seed in ponds at suitable stocking densities, feed with appropriate feeds, monitor water and pond bottom soil quality by application of probiotics at regular intervals, monitor the growth and disease occurrences if any, diagnose diseases, treat the diseased shrimp and manage the health of cultured shrimp.         </li> <li> <b>Perform commercially viable shrimp culture of different marine/brackishwater species</b> implement different culture practices depending upon the shrimp species.         </li> <li> <b>Perform harvesting and marketing activities for shrimp species:</b> Plan for timely harvesting, identify suitable markets, survey species demand, fix reasonable price for sale, undertake timely record keeping and documentation.         </li> <li> <b>Practice health &amp; safety at the work place:</b> Perform bio-security protocols; implement safety and sanitation practices for self and farmed shrimp.         </li> </ul>		

This course encompasses 10 out of 10 National Occupational Standards (NOS) of “Shrimp Farmer” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<b>Introduction</b>  <b>Theory Duration</b> (hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 02:00  <b>Corresponding NOS Code</b> Bridge Module	<ul style="list-style-type: none"> <li>Understand general discipline in the class room (Do's &amp; Don'ts)</li> <li>Understand the role of a Shrimp Farmer and the progression pathways</li> <li>Study the scope &amp; importance of shrimp culture in India</li> <li>Identify different marine/brackishwater shrimp species that can be cultured</li> <li>Get acquainted with the guidelines of Coastal Aquaculture Authority (CAA)</li> <li>Get acquainted with the Government policies of various departments related to shrimp farming</li> <li>Familiarize with the process of obtaining relevant permissions for culture of selected shrimp species</li> <li>Understand the rules and regulations to be followed for shrimp farming</li> </ul>	Laptop, white board, marker, projector
2	<b>Decide shrimp species and suitability</b>  <b>Theory Duration</b> (hh:mm) 06:00  <b>Practical Duration</b> (hh:mm) 04:00  <b>Corresponding NOS Code</b> AGR/N4906	<ul style="list-style-type: none"> <li>Identify suitable shrimp species for culture which tolerate wide range of environmental conditions and has efficient food conversion ratio such as Tiger shrimp- <i>Penaeus monodon</i>, white-leg shrimp- <i>Litopenaeus vannamei</i>, etc</li> <li>Familiarize with the operational protocol-day to day work flow chart, work distribution Get acquainted with the seasonal variations and its impact on shrimp farming</li> <li>Understand the health, hygiene, safety and quality standards required for shrimp farming</li> </ul>	Laptop, white board, marker, projector, Audio-visual aids



Sr. No.	Module	Key Learning Outcomes	Equipment Required
4	<b>Design and construct the pond</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 20:00  <b>Corresponding NOS Code</b> AGR/N4908	<ul style="list-style-type: none"> <li>Get acquainted with various shrimp culture systems</li> <li>Select appropriate culture system suitable for selected shrimp species</li> <li>Design suitable size of pond as per the management capability</li> <li>Design and construct ponds as per the selected culture system by incorporating water storage, sedimentation, treatment, and effluent ponds</li> <li>Undertake construction of flood protection bund</li> <li>Construct ponds with proper slope, suitable depth, inlet and outlet structures</li> <li>Provide central drainage system with proper slope for easy removal of wastes</li> <li>Select and use of machinaries, tools and materials used for construction of ponds</li> <li>Select suitable pumps, aerators, generators, electrical installations etc.,</li> </ul>	Laptop, White board, marker, projector, Pond construction equipment-JCB, Tractor with accessories, roller, farm equipment such as aerators, generator, water pumps (diesel & electric operated), plastic wares, glass wares, check trays, plankton nets, cast nets, bag netsetc.
5	<b>Manage the pond</b>  <b>Theory Duration</b> (hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 28:00  <b>Corresponding NOS Code</b> AGR/N4909	<ul style="list-style-type: none"> <li>Remove the organic matter accumulated at pond bottom</li> <li>Dry and plough pond bottom and compress the bond bottom with roller.</li> <li>Fix bird net above the pond, dog fencing around the pond/farm</li> <li>Apply lime (Calcium carbonate)</li> <li>Fill the pond with filtered water to desired level. Compensate evaporation loss with filtered water</li> <li>Chlorinate with bleaching powder and leave it for 3 days.</li> <li>Prepare pre-biotic liquid and apply</li> <li>Apply soil and water probiotics</li> <li>Arrange aerators in the pond corners to create water flow in the pond.</li> </ul>	Laptop, white board, marker, projector, Bird net, dog fencing net, polythene sheet, water pumps, 2000 liters plastic containers, plastic wares, aerators, generator (backup electric supply)
6	<b>Perform stocking</b>  <b>Theory Duration</b>	<ul style="list-style-type: none"> <li>Select shrimp seed from CAA certified shrimp hatchery by testing initial physical conditions such as colour, activity, salinity and</li> </ul>	Laptop, white board, marker, projector, Microscope, slides, droppers, Plastic

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 20:00  <b>Corresponding NOS Code</b> AGR/N4910	formalin test, and finally passing PCR test for various viral diseases <ul style="list-style-type: none"> <li>Decide stocking density based on selected culture system and species.</li> <li></li> <li>Acclimatize seed to pond water salinity in the hatchery, and keep it for one week in the hatchery before transport</li> <li>Estimate actual number of seed stocked by randomly counting the seed from few bags</li> <li>Transport the seed as per the standard procedure</li> <li>Acclimatize to pond water temperature and slowly release into the pond.</li> <li>Estimate stocking mortality by fixing hapa in the pond.</li> </ul>	bags, Styrofoam boxes, Thermometer, Oxygen cylinder, pH meter, Refractometer, plastic wares, plankton net, hapas, plastic sieves, PVC flexible pipes of ¼ to ½ inch diameter, FRP containers of 2000 litres
7	<b>Provide feed and manage feeding</b>  <b>Theory Duration</b> (hh:mm) 08:00  <b>Practical Duration</b> (hh:mm) 20:00  <b>Corresponding NOS Code</b> AGR/N4911	<ul style="list-style-type: none"> <li>Select nutritionally rich formulated feed to suit the nutritional requirements of the selected shrimp species.</li> <li>Store the feed in a dry place to avoid fungal infection</li> <li>Feed the shrimps with suitable feed types and as per recommended levels for the different stages of farming</li> <li>Check the consumption of feed by providing check trays</li> <li>Adjust the quantity of feed according to mean body weight of shrimp obtained at weekly sampling.</li> <li>Maintain feed chart to know the feed consumption for a crop.</li> <li>Apply feed additives to improve growth and health of shrimp</li> <li></li> </ul>	Laptop, white board, marker, projector, plastic wares, check trays, balance
8	<b>Manage water quality</b>  <b>Theory Duration</b> (hh:mm) 06:00  <b>Practical Duration</b> (hh:mm) 20:00  <b>Corresponding NOS Code</b>	<ul style="list-style-type: none"> <li>Regularly check water quality parameters such as oxygen, pH, temperature, ammonia, nitrite</li> <li>Check the water colour and transparency</li> <li>Check the pond bottom condition by collecting soil.</li> <li>Regularly apply good quality water and soil probiotics to maintain optimum water and soil quality.</li> <li>Maintain record for water and soil quality parameters</li> </ul>	Laptop, white board, marker, projector Microscope, droppers, slides, Thermometer, pH meter, permea meter Oxygen meter, Ammonia kit, Nitrite kit, Checchi Disk, glass wares, plastic wares





Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<b>Theory Duration</b> (hh:mm) <b>80:00</b>  <b>Practical Duration</b> (hh:mm) <b>160:00</b>	engineering chain, tape, ranging rod, digital distance meter, ptheodo light, dumpy level, compass (prismatic) , plain table set, total stations, soil and water analysis equipment such as soil sampling kit, pH meter, Oxygen meter, Refractometer, Nutrient analysis kits, glass wares (beakers, measuring cylinders, funnels, pipettes, burets, test tubes, filter papers, Pond construction equipment-JCB, Tractor with accessories, roller, farm equipment such as aerators, generator, water pumps (diesel & electric operated), plastic wares, glass wares, check trays, plankton nets, cast nets, bag nets, plastic sheet, pond lining material, Bird net, dog fencing net, polythene sheet, water pumps, 2000 l plastic containers, plastic wares, aerators, generator (backup electric supply), Microscope, slides, droppers, Plastic bags, Styrofoam boxes, Thermometer, Oxygen cylinder, pH meter, Refractometer, plastic wares, plankton net, hapas, plastic sieves, PVC plastic wares, check trays, balance, Microscope, droppers, slides, Thermometer, permea meter, Ammonia kit, Nitrite kit, Secchi Disk, glass wares, plastic wares, Cast nets, bag nets, seine nets, FRF/LDPE containers of 2000 l capacity, ice crusher, scoop nets, plastic crates, weighing machine, cavity slides, droppers, petri dishes, scoop nets, dropers, PPEs bags, first aid box, Hand nets and cast nets, dip nets, Hand gloves, boots, siphoning pipes, small ice making machine, crates, Styrofoam boxes, plastic crates, vehicle for transportation	

Grand Total Course Duration: **240 Hours, 0 Minutes**

*(This syllabus/ curriculum has been approved by Agriculture Skill Council of India)*

## Trainer Prerequisites for Job role: “Shrimp Farmer” mapped to Qualification Pack: “AGR/Q4902, v1.0”

Sr. No.	Area	Details
1	<b>Description</b>	Trainer is responsible for educating the trainees –identifying various shrimp species for culture in ponds and their appropriate management practices for their production which are safe for human consumption.
2	<b>Personal Attributes</b>	Trainer should be a Subject Matter Expert. He/ she should have good communication, leadership, observation and practical oriented skills.
3	<b>Minimum Educational Qualifications</b>	Diploma in Fisheries
4a	<b>Domain Certification</b>	Certified for Job Role: “ <u>Shrimp Farmer</u> ” mapped to QP: “ <u>AGR/Q4902, v1.0</u> ”. Minimum accepted score is 70%
4b	<b>Platform Certification</b>	Certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102”. Minimum accepted % as per respective SSC guidelines is 80%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• Bachelors in Fishery Sc.</li> <li>• B.Sc. (Fisheries) with 1 Year of experience in relevant field</li> <li>• B.Sc. (Zoology) with 2 Years of experience in relevant field</li> <li>• Diploma in Fisheries with 3 Years of experience in relevant field</li> </ul>

### Annexure: Assessment Criteria

<b>Assessment Criteria</b>	
<b>Job Role</b>	<b>Shrimp Farmer</b>
<b>Qualification Pack</b>	<b>AGR/Q4902, v1.0</b>
<b>Sector Skill Council</b>	<b>Agriculture</b>

#### **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. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (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 criterion.
5. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
6. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.





	PC5. pump water into the pond after cleaning completely		1	0	1
	PC6. maintain water level by filling to compensate the loss due to evaporation		1	0	1
	PC7. remove waste from the pond periodically		1	1	0
	PC8. discharge the waste dumping area frequently to avoid contamination of natural resource		2	1	1
	PC9. bleach the water by adding chlorinated lime		3	1	2
	PC10. spread the chlorinated lime throughout the pond bottom and up to the top		2	1	1
	PC11. apply large proportion of the lime over the feeding areas and to all parts of the pond that have remained wet		3	1	2
	PC12. leave the bleached water for 3 days to de-chlorinate		1	1	0
	PC13. fill the pond to maximum depth through a screen of fine mesh to prevent predators entering the pond and preying on the shrimp, causing diseases		3	2	1
	PC14. use appropriate chemicals to eradicate each of these animals in the pond		5	3	2
	PC15. make the de-chlorinated water to yellowish green color from the bluish transparent shade		3	1	2
	PC16. add chemicals such as agri lime, urea and phosphate in appropriate ratio to get the yellowish green color in a day		6	4	2
	PC17. add more fertilizer or chemical if the water color still does not change to the desired colour		6	4	2
	PC18. install aerators in the corners of the pond for maximum water flow within the pond		4	1	3
			<b>50</b>	<b>25</b>	<b>25</b>
5.AGR/N4910 Perform stocking	PC1. select seed for stocking into a pond considering various required parameters like quality, colour, etc.	100	10	8	2
	PC2. purchase healthy seeds from reliable hatcheries		4	4	0
	PC3. decide on the stocking density based on the type of system adopted and the species selected for the culture		6	4	2
	PC4. determine the optimum stocking density in a pond when the farm is ready for operation		6	0	6
	PC5. avoid overstocking which results in management problems and loss of entire production		2	1	1
	PC6. decide on the appropriate stocking density based on the culture selected and the usual practice		6	0	6
	PC7. decide on the appropriate stocking technique preventing unnecessary mortality of seed		6	3	3
	PC8. transport the seed as per recommended standard procedure (for eg., in plastic bags filled with water,		8	4	4

	oxygenated and place inside styrofoam boxes)				
	PC9. transport the seeds by considering the time of travel as per the specification (day or night time)		4	2	2
	PC10. maintain the seed in water of constant salinity for at least 1 week prior to transfer		4	2	2
	PC11. open the bags one by one and add pond water gradually to an equal volume		4	2	2
	PC12. release the seeds directly into the pond by distributing them throughout the area of the pond		4	2	2
	PC13. add the seeds depending on money efficiency and size of pond		6	4	2
	PC14. estimate the actual number of seeds at stocking		6	4	2
	PC15. stock the seeds inside the pond where high densities of seed are stocked		8	3	5
	PC16. transfer to another pond by large lift nets		8	3	5
	PC17. estimate survival number of shrimps by counting the number of seeds in the lift net and number after feeding once daily		8	4	4
			<b>100</b>	<b>50</b>	<b>50</b>
6.AGR/N4911 Provide feed and manage feeding	PC1. determine the availability of nutrients from feeds depending on the type and quality of the raw material used, the formulation, feed processing, feed storage conditions and feeding management	75	10	0	10
	PC2. decide on the cost of feed		6	0	6
	PC3. provide the appropriate supplementary or complete diet to the shrimp		15	10	5
	PC4. ensure the shrimps are provided with all essential nutrients		5	3	2
	PC5. provide the required quality and quantity of nutrient requirements that varies with different species		8	4	4
	PC6. use good quality feed		3	2	1
	PC7. ensure improvement in shrimp production and profits		3	2	1
	PC8. ensure minimum environmental pollution from shrimp farming		3	2	1
	PC9. ensure an ideal feed conversion ratio (FCR) that results in model growth rate, healthy shrimp and clean pond bottom conditions		6	4	2
	PC10. store the feed in a dry, cool and well ventilated place to maintain consistent moisture and temperature		3	3	0
	PC11. avoid storage in direct sunlight and storing for more than 3 months from the time of processing		2	2	0
	PC12. avoid usage of spoiled or old feed		3	3	0
	PC13. ensure proper quantity of feed		3	1	2
	PC14. make feeding adjustments according to the mean body weight of the shrimp		5	2	3





