

**National Vocational & Technical Training Commission**

# **Competency Standards**

**for**

**Agriculture Farm Supervisor**

**NVQF level 4**

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Islamic Republic of Pakistan  
اسلامی جمہوریہ پاکستان  
Islāmī Jumhūrī-ye Pākistān



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## Competency Module A: supervise Farm Assets

**Overview:** This competency standard identifies the competencies required to perform duties necessary for agriculture farm management. Trainee will be able to maintain farm inventory as well as machinery to ensure their working status and maintenance of farm machinery/implements.

Competency Unit	Performance Criteria	Knowledge and Understanding
A1 – maintain farm inventory	<p><b><i>Trainee will be able to:</i></b></p> <p>P1. Identify inventory of farm assets</p> <p>P2. Perform basic numeracy to maintain physical record</p> <p>P3. Maintain stock register for farm assets</p>	<p><b><i>Trainee must know and understand:</i></b></p> <p>K1. Types, quantity and size of equipment</p> <p>K2. Functions of farm assets</p> <p>K3. Basic mathematics operation through manual and calculator.</p> <p>K4. Incoming and outgoing of assets</p>
A2. Ensure maintenance of farm machinery/ implements	<p><b><i>Trainee will be able to:</i></b></p> <p>P1. Maintain history sheet of farm machinery</p> <p>P2. Ensure smooth operations of farm machinery by calibrating to optimal specification</p> <p>P3. Ensure preventive maintenance is carried out according to maintenance schedule</p> <p>P4. Adopt safety measure while performing maintenance of farm machinery</p> <p>P5. Store farm machinery appropriately</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1 Process of calibration.</p> <p>K2. Operating manuals of machinery</p> <p>K3. Cost efficiency of machinery and equipment</p> <p>K4. Pre and Post safety measures</p> <p>K5. Warranty and life of equipment</p> <p>K6. Methodology of stocking and storage</p> <p>K7. History sheet</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<b>A3.</b> Maintain land units	<p><b><i>Trainee will be able to:</i></b></p> <p>P1. Measure boundary of farm to record total available area</p> <p>P2. Mark cultivated and non-cultivated land.</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Geographical and topographical characteristics of farm land.</p> <p>K2. Factors hindering cultivation of non-cultivated land and knowledge to bring this land under cultivation.</p>

## Competency Module B: Maintain Farm Records

**Overview:** This competency standard identifies the competencies required to maintain farm records. Trainee will be able to prepare data sheets including farm production, farm inputs, utility bills and farm accounts etc.

Competency Unit	Performance Criteria	Knowledge and Understanding
<b>B1.</b> Maintain input and farm production records	<p><b><i>Trainee will be able to:</i></b></p> <p>P1. Record the crop specific inputs</p> <p>P2. Record the irrigational requirements according to crop</p> <p>P3. Record of crop specific cultivation</p> <p>P4. Record the crop production for data reference</p> <p>P5. Record irrigation charges and power tariff</p>	<p><b><i>Trainee must know and understand:</i></b></p> <p>K1. Type of fertilizer to be used at the farm</p> <p>K2. Types and concentration of Pesticide, fungicide and herbicide</p> <p>K3. Types and variety of Seed and their sowing rates</p> <p>K4. Fertility level of soil and quality of irrigation water available</p> <p>K5. Canal irrigation schedule</p> <p>K6. Alternative sources of irrigation</p> <p>K7. Types of implements used for cultivation</p> <p>K8. Handling of total yield or produce</p> <p>K9. Modern techniques of storage</p> <p>K10. Agriculture and market taxes</p>
<b>B2.</b> Prepare and maintain log books of farm machinery	<p><b><i>Trainee will be able to:</i></b></p> <p>P1. Design basic template for log books</p> <p>P2. Maintain log books as per requirement on regular basis</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Importance of the log book</p> <p>K2. Storage and utilization of Fuel and Lubricants</p> <p>K3. Cost effective efficiency of farm machinery</p>

	P3. Ensure maintenance protocol based on log book entry	K4. Calculation of fuel consumption K5. Maintenance protocols
<b>B3. Maintain farm/labour accounts</b>	<p><b><i>Trainee will be able to:</i></b></p> <p>P1. Enlist and categorise the labour according to their skill</p> <p>P2. Prepare the labour accounts and other expenditures of farm</p> <p>P3. Determine cost of farm production for profit and loss of farm</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Wage rates</p> <p>K2. Basic labour laws</p> <p>K3. Types of labour</p> <p>K4. Labour trends</p> <p>K5. Basic accountancy</p>

## Competency Module C: Perform Market Survey

**Overview:** This competency standard identifies the competencies required to perform market survey. Trainee will be able to conduct survey cost effective farm inputs, Identify the potential market for farm production and select the market for purchase and sale of products.

Competency Unit	Performance Criteria	Knowledge and Understanding
<b>C1.</b> Sensitize the product marketing	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Identify the relevant market for purchase of farm inputs</p> <p>P2. Perform comparative cost analysis of farm inputs available in market</p> <p>P3. Purchase cost effective quality farm inputs</p>	<p><b><i>Trainee must know and understand:</i></b></p> <p>K1. Price list of inputs and farm produce</p> <p>K2. Latest brands of inputs</p> <p>K3. Comparative cost analysis of farm inputs</p> <p>K4. Quality of inputs</p> <p>K5. Government policies for subsidies and support price</p> <p>K7. Loan facility</p>
<b>C2.</b> Manage farm sales	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Identify the potential market</p> <p>P2. Select the appropriate buyers according to farm produce</p> <p>P3. Assist in preparing agreements for sales</p> <p>P4. Arrange safe and cost effective transportation of farm produce</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Fluctuation of market price of farm produce</p> <p>K2. Market buyers</p> <p>K3. Basic knowledge of agreement writing</p> <p>K4. Cost effective modes of transportation available in the vicinity</p>

## Competency Module D: Conduct farm operations

**Overview:** This competency standard identifies the competencies required to conduct farm operations. Trainee will be able to design crop scheme and schedule different cultural practices at pre-harvest level. This will also strengthen the knowledge of plant protection and to plan crop inputs including fertilizer, irrigation and crop monitoring.

Competency Unit	Performance Criteria	Knowledge and Understanding
D1. Supervise Farm Labor	<p><b>Trainee will be able to:</b></p> <p>P1. Assign daily duties for the completion of farm task</p> <p>P2. Monitor performance for improvement and better utilization of time/ staff</p> <p>P3. Create conducive environment for efficient output</p>	<p><b>Trainee must know and understand::</b></p> <p>K1. Operations of farms</p> <p>K2. Basic welfare and rights of farm labour</p> <p>K3. Basic farm management tools</p> <p>K4. Security protocols</p>
D2 – prepare the crop production schedule	<p><b>Trainee will be able to:</b></p> <p>P1. Identify the market demand for farm produce</p> <p>P2. Prepare cropping scheme for target crops</p> <p>P3. Plan crop sowing according to cropping season</p>	<p><b>Trainee must know and understand:</b></p> <p>K1. Market demand/trends</p> <p>K2. High/ low value crops</p> <p>K5. Availability of resources</p> <p>K6. Weather conditions</p> <p>K7. Sowing and harvesting times</p>
D3. Carryout farm cultural practices	<p><b>Trainee will be able to:</b></p> <p>P1. Arrange the appropriate tools as per requirement</p>	<p><b>Trainee must know and understand::</b></p> <p>K1. Different farm tools</p> <p>K2. Sowing times of crops</p>



Competency Unit	Performance Criteria	Knowledge and Understanding
	P2. Prepare soil for targeted crop P3. Adopt suitable sowing method for better crop P4. Adopt suitable practices to deal with climatic and other adverse stresses P5. Deal with the biological and social threats	K3. Precautionary measures based on Flood information K4. Weather forecasting K5. Biological and social invasions K6. Pest, diseases and weeds K7. Communal perception and attitude K8. Different farming practices
<b>D4. Supervise farm inputs</b>	<i>Trainee must be able to:</i> P1. Prepare calendar for different inputs as per crop requirement P2. Carryout purchase of different inputs as per calendar P3. Apply prescribed chemical for seed treatment P4. Apply the farm inputs as per crop requirement P5. Adopt safety measures while applying inputs P6. Apply organic sources at the farm to alleviate the fertility level of soil	<i>Trainee must know and understand::</i> K1. Market rates of inputs K2. Manufacturing and expiry dates of required inputs K3. Formulation techniques for application of inputs K4. Different techniques of application K5. Safety measures during storage and application of inputs K6. Pest scouting for economic use of chemicals K7. Biological control of pests K8. Seed borne diseases and their treatment K9. Organic and inorganic sources of fertilizers
<b>D5. Carryout plant protection measures</b>	<i>Trainee must be able to:</i> P1. Undertake pest scouting for proper spray P2. Apply chemical against crop pests and weeds P3. Apply disease control practices	<i>Trainee must know and understand::</i> K1. Pest scouting procedure K2. Difference between insect and pests K3. Attack and damage by different pests

Competency Unit	Performance Criteria	Knowledge and Understanding
		K4. Appropriate chemicals and their dosage K5. Biological control measures for pests and diseases
D6. Supervise the irrigation schedule	<i>Trainee must be able to:</i> P1. Manage sources of irrigation to fulfil water requirements of crops P2. Ensure de-silting of water channels to enhance delivery of water P3. Monitor Irrigation schedule	<i>Trainee must know and understand::</i> K1. Water quality K2. Irrigational requirements of crops K3. Cleanliness/ dechocking of water channels K5. Critical stages of crops regarding water requirement K6. Closure schedule of canals K7. Proper use of rainy water

## Competency Module E: Ensure soil conservation and its sustainability

**Overview:** This competency standard identifies the competencies required to perform conservation of soil and its sustainability. Trainee will be able to enhance and manage soil fertility through application of balanced fertilizers. It will also enhance the capacity and knowledge to perform the crop rotation and reclaim/ improve problematic soil and irrigation water.

Competency Unit	Performance Criteria	Knowledge and Understanding
<b>E1 – Manage soil fertility analysis</b>	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Collect proper soil samples for soil analysis as per standard procedures</p> <p>P2. Arrange soil analysis from relevant laboratory</p>	<p><b><i>Trainee must know and understand:</i></b></p> <p>K1. Sample techniques and tagging</p> <p>K2. Sample size</p> <p>K4. Analysis facility</p> <p>K5. Parameters or attributes of analysis report e.g.</p> <ul style="list-style-type: none"> <li>• Soil types</li> <li>• Soil pH</li> <li>• Organic matter</li> <li>• Available and non- available plant nutrients</li> <li>• Macro and micro-nutrients</li> <li>• Electrical conductivity</li> </ul>
<b>E2. Apply balanced fertilizer (Organic and inorganic)</b>	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Select required fertilizer as per soil analysis to enhance fertility</p> <p>P2. Apply fertilizer as per crop requirement</p> <p>P3. Apply available manures and compost to sustain soil fertility</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Different sources and forms of fertilizers</p> <p>K2. Importance of micronutrients</p> <p>K3. Per acre dose of fertilizer for different crops</p> <p>K4. Proper time of application of fertilizer</p> <p>K5. Methods of fertilizer/ manures application</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<b>E3.</b> Schedule crop rotation	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Prepare crop rotation scheme to sustain the fertility</p> <p>P2. Supervise cultivation of crop as per cropping calendar</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Importance of crop rotation</p> <p>K2. Restorative and exhaustive crops</p> <p>K3. Cultivation process</p> <p>K4. Cropping calendar</p>
<b>E4.</b> Ensure reclamation of soil and water	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. identify the soil and water issues to improve the soil status</p> <p>P2. Apply the amendments to solve soil and water problems as per recommendations</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Categories of soil and water problems</p> <p>K2. Accurate amendments like gypsum and sulphuric acid</p>

## Competency Module F: Perform harvesting and post-harvest operations

**Overview:** This competency standard identifies the competencies required to perform harvesting and post-harvest operations. Trainee will be able to plan and carry out the effective harvesting to handle the losses and quality. It will also strengthen the knowledge of post-harvest processing including sorting, grading and packaging to maintain the quality of farm produce.

Competency Unit	Performance Criteria	Knowledge and Understanding
F1. Ensure crop harvesting at right time	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Identify physiological maturity of crop for harvesting</p> <p>P2. Adopt appropriate method of harvesting according to crop</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Crop ripening indicators</p> <p>K2. Impact of observing proper ripening indicator on yield</p> <p>K3. Types of machinery for crop harvest</p> <p>K4. Different techniques of harvesting</p>
F2. Manage post-harvest operations	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Perform weighing and filling in suitable packing of farm produce</p> <p>P2. Arrange transport for farm produce at proper place within farm</p> <p>P3. Carryout post-harvest treatment for safety of farm produce</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>k1. Calibration of weighing balance ‘</p> <p>k2. Suitable packing sources</p> <p>k3. Importance of proper working of transport vehicle</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<p><b>F3.</b> Manage safe storage after effective sorting, grading and packing of farm produce</p>	<p><b><i>Trainee must be able to:</i></b></p> <p>P1. Perform sorting and grading of farm produce to ensure quality</p> <p>P2. Carryout grade wise packing of farm produce</p> <p>P3. Spray recommended chemical in the store before storage of farm produce</p> <p>P4. Stack/ store the produce packing in proper way in store to ensure the quality of farm produce</p> <p>P5. Maintain temperature and moisture as per requirement in store</p>	<p><b><i>Trainee must know and understand::</i></b></p> <p>K1. Importance of grade wise quality of farm produce</p> <p>K2. Sorting of farm produce and its importance</p> <p>K3. Quality material for packaging</p> <p>K4. Requirement of ventilation in stores</p> <p>K5. Requirement of temperature and moisture levels in stores</p> <p>K6. Sprays/ chemicals required for storage</p>

**Competency Module G: Perform Health, Safety and Security.**

**Overview:** This competency standard identifies the competencies required to Perform Health, safety and security measure. Trainee will be expected to prepare safety plan in order to deal with any emergency and hazardous condition at farm through effective first aid strategy.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p><b>G1 – Ensure personnel safety</b></p>	<p><b><i>Trainee must be able to:</i></b>                      P1. Execute pictorial guidelines and instructions of personal safety in working premises                      P2. Ensure proper clothing for safe working                      P3. Use safety kit during farm operations as per requirement</p>	<p><b><i>Trainee must know and understand:</i></b>                      K1. Safety manuals                      K2. Importance of safety standards                      K3. Usage of safety Tools                      K4. Proper placement of tools</p>
<p><b>G2. Perform first aid</b></p>	<p><b><i>Trainee must be able to:</i></b>                      P1. Arrange first aid kit                      P2. Deal with different injuries and hazards</p>	<p><b><i>Trainee must know and understand::</i></b>                      K1. Hazards of work place                      K2. Fire types &amp; basic fire fighting techniques                      K3. First aid treatment for;  <ul style="list-style-type: none"> <li>• <b>Chemical injury</b></li> <li>• <b>Mechanical injury</b></li> <li>• <b>Biological injury</b></li> </ul>                     K4. Manufacturing and expiry dates of first aid medicines</p>
<p><b>G3. Ensure safe and secure working environment</b></p>	<p><b><i>Trainee will be able to:</i></b>                      P1. Execute guidelines and instruction of safe working.                      P2. Ensure relevant protective clothing and</p>	<p><b><i>Trainee must know and understand::</i></b>                      K1. Safety standards                      K2. Safe working components</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
	<p>equipment is cleaned and stored in proper place</p> <p>P3. Deal with the potential threats (biological, chemical and physical)</p> <p>P4. Mark the specific working area for specific operations</p> <p>P5. Perform anti-theft measures and secure farm valuables</p>	<p>K3. Storage and stacking of safety components</p> <p>K4. Potential threats</p> <p>K5. Specific working areas</p> <p>K6. Information of local emergency services, hospitals and law enforcements</p>



## List of Tools and Equipment

<b>Name of Trade</b>	<b>Agriculture Farm Supervisor</b>	
<b>Duration</b>	1 year	
<b>Sr. No.</b>	<b>Name of Item/ Equipment / Tools</b>	<b>Quantity</b>
1.	Computer	10
2.	Printer	05
3.	Calculator	20
4.	Scale	20
5.	Compass	5
6.	Different seed treaters	05
7.	Hand tools	5 boxes
8.	Sickles	5
9.	Hand Hoe (Ramba)	20
10.	Spade	20
11.	Pruners	05

12.	Magnifiers	20
13.	Measuring tap	5 boxes
14.	Hoe (kasola)	20
15.	Tractors of different horse powers	02
16.	Primary Tilage implements	20
17.	Disc plough	02
18.	Mold bold plough	02
19.	Chisel plough	02
20.	Disc harrow	02
21.	Cultivators	02
22.	Rota weighters	02
23.	Precision Land levelers	02
24.	Puddler	02
25.	Front blade	02
26.	Rear blade	02
27.	Sowing machines	02

28.	Different planters	05
29.	Seed drills	03
30.	Ridger cum bed shaper	02
31.	Boarder disc	02
32.	Inter cultural machinery:	02
33.	Hoeing machines	05
34.	Rotary weeders	02
35.	Chemical application machinery	02
36.	Sprayers	05
37.	Harvesting machinery:	01
38.	1. Reaper –wind rowers	02
39.	Wheat straw chopper	01
40.	Cutter binder	01
41.	Threshers	01
42.	Combine harvester	01
43.	Irrigation equipment/machinery	01

44.	Centrifugal pumps	01
45.	Diesel engines	01
46.	Trickle irrigation system	01
47.	Sprinkler irrigation system	01
48.	Grader Line	01
49.	Dryers	01
50.	Cleaners	01
51.	Pruning machinery	01
52.	Trolley	01
53.	Weighing machines	01
54.	Fertilizer spreader	02
55.	Fodder chopper machine	01
56.	Knives	05