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Facilitator Guide



Sector
Agriculture and Allied

Sub-Sector
Agriculture Crop Production

Occupation
**Farm Machinery and Equipment Operation
and Maintenance**

Reference ID: AGR/Q1101, Version 1.0
NSQF Level: 4

Tractor Operator



Shri Narendra Modi
Prime Minister of India

“ Skilling is building a better India.
If we have to move India towards
development then Skill Development
should be our mission. ”

Acknowledgements

We are thankful to all organizations and individuals who have helped us in preparation of this Facilitator Guide. We also wish to extend our gratitude to all those who reviewed the content and provided valuable inputs for improving quality, coherence and content presentation of chapters. This handbook will lead to successful roll out the skill development initiatives, helping greatly our stakeholders particularly trainees, trainers and assessors etc. We are thankful to our Subject Matter Expert **Dr. Pitam Chandra** who has given the content and helped us in preparation of Facilitator Guide.

It is expected that this publication would meet the complete requirements of QP/NOS based training delivery, we welcome the suggestions from users, Industry experts and other stakeholders for any improvement in future.

About this Guide

Dear Trainer,

This Trainers Manual is intended to empower preparing for the Tractor Operator Qualification Pack (QP). Every National Occupational (NOS) is spread over Unit/s. Key Learning Objectives for the NOS check the start of the Unit/s for that NOS. The images utilized as a part of this book are portrayed beneath. Tractor Operator is in charge of Installation, Testing, Commissioning of Tractor Operator at agriculturist's field for better water administration and increment in yield of product. The National Occupational Standards indicate the measures of execution an individual must accomplish when doing a capacity in the work environment, together with the information and comprehension they have to meet that standard reliably. These word related guidelines are appropriate both in the Indian and worldwide settings. According to these measures the Tractor Operator ought not work freely, ought to be relentless and must be able to settle on operational choices relating to his range of work. The student ought to pick up clarity of work and ought to be result situated; The Trainee ought to likewise have the capacity to exhibit abilities to utilize different devices in the Tractor Operator. The mentor should guide and prepare the students' in the accompanying abilities:

- **Knowledge and Understanding:** Satisfactory operational learning and comprehension to play out the required chore
- **Performance Criteria:** Pick up the required aptitudes through hands on preparing and play out the required operations inside the predetermined measures
- **Professional Skills:** Capacity to settle on operational choices relating to the zone of work

The course incorporates Trainer Guide including student handbook for the learners and coach's aide; appraisal guide; session arrangement; and syllabus for you. The course material likewise incorporates a couple of blurbs as showing helps in the classroom. The appraisal guide subtle elements the assessment system. As a mentor you will assess the learners' execution and grade them in light of the assessment parameters given in the aide. The system additionally incorporates field visit for the students where they will watch the method/operations and administrations of the Tractor Operator. Chapter sare prepared to build up the expert abilities like – choices making, systematic and basic considering. We hope you will be able to impart your knowledge with our help to make this program a success and up-skill the workers to the recommended standards.

We trust you will have the capacity to confer your insight with our help to make this program a win and up-skill the workers to the suggested norms.

All the best!

Role of the Trainer

As a trainer, keep in mind the following guidelines:

Know your job thoroughly

The Trainer ought to first know his/her learners (the students) keeping in mind the end goal to guarantee their productive contribution in the learning procedure. Fundamentally the majority of these contemplations are guided by the reasoning of participatory preparing, which advocates that preparation, not at all like instructing, is more worried with the general improvement of the human identity.

- As a Trainer, remember the accompanying rules:
- Training is not learning
- The trainer needs to learn for himself/herself, through his/her own particular activity and movement
- The trainer can just guide the understudy movement in a way that prompts a decent learning background
- The trainer can create reasonable situations fancied to deliver a powerful learning (curricular, co-curricular and additional curricular) experience
- Trainees' response with the earth is relied upon to achieve an adjustment in conduct
- The trainer is the key component, as on him/her depends the arranging of the learning circumstance for accomplishing the sought result

Practice these common courtesies

- Greet the students
- Be warm and neighborly
- Introduce yourself
- Ask their names
- Explain the reason and objectives of preparing project
- Ask their desires
- Always make inquiries
- Listen to then quietly and answer their inquiries
- In case you can't react to an inquiry say that you will hit them up
- Respect the students
- Do not hang over them, their work, or get in their work-space
- Do not take their work or move it without requesting their consent
- Be a decent onlooker
- Offer rededication for weaker students Correct the flawed practices of learners at work before they transform into propensities
- Do not condemn
- Show gratefulness where it is expected
- Always say 'please', 'thank you', and "too bad"
- Be a tutor

Responsibilities

- The trainer has a unique position and assumes a few parts. He/she is a go between the student and administration.
- The trainer has moral and lawful duties and guarantees the expert advancement as well as the prosperity of the young. You need to counteract:
 - Discrimination as a result of sexual orientation, race or nationality or some other kind
 - Bullying and/or lewd behavior
 - Abuse of liquor, prescription or whatever other substance
 - Physical threats through mischance, air contamination, commotion or risky chemicals
 - Overstepping the student's physical limit
- You likewise need to secure that time directions or other lawful controls are not infringing– neither by you nor by the disciple.

Symbols Used



Steps



Time



Tips



Notes



Objectives



Do



Ask



Explain



Elaborate



Field Visit



Practical



Lab



Demonstrate



Exercise



Team Activity



Facilitation Notes



Learning Outcomes



Say



Resources



Activity



Summary



Role Play



Example

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1. Introduction

Unit 1.1 - Role of agricultural mechanization in India and abroad

Unit 1.2 - History of tractors

Unit 1.3 - Tractor market in India and abroad

Unit 1.4 - Glossary of terms and symbols

Unit 1.5 - Know your tractor and implements/machines



Key Learning Outcomes

After completing this session the trainees will be able to:

- Ensure that the participants understand the importance of mechanization for profitable agriculture.
- Convince that tractor is the versatile power unit for farm operations
- Inform the participants about the evolution of tractors globally
- Let the participants understand the tractor industry growth worldwide and in India and link it with agricultural growth
- Build the capacity of the participants about the nomenclature and terminology related to tractors and their use
- Let the participants learn various symbols, and signs needed for communication while talking about or using tractors
- Let the participants be conversant about various tractor parts and their functions
- Familiarize the participants the whole range of farm machinery which is operated with a tractor.

UNIT 1.1: Role of Agricultural Mechanization In India and Abroad

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Let them understand the whole landscape of agriculture and why mechanization became essential
- Let them realize how the need for timeliness and resource conservation necessitated the mechanization
- Let them realize how different countries progressively developed the agricultural tools and machinery in relation to the power availability
- Make them realize the constraints of Indian agriculture and the progress of mechanization.
- Explain the importance of an efficient tractor operator in carrying out various agricultural operations safely and increase agricultural profitability

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers.
- Up-to-date power point presentation on the role of agricultural mechanization for different countries as well as India
- Numerical examples indicating the efficiencies of field operations under mechanized and animated agriculture
- Supplementary videos on agricultural mechanization for different crops and different regions of the world
- Laser pointer

Do

- Explain the need for raising power availability per ha on farm for timely completion of farm operations.
- Let them know the range of power availability and its effect on productivity and profitability
- Let them understand why India lagged behind in mechanizing its agriculture
- Explain with the help of examples the differences in mechanised and non-mechanised agriculture
- Caution the trainees about safety concerns while handling and operating tractors and machineries

UNIT 1.2: History of Tractors

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that participants understood the rationale for increasing the farm power availability to complete the farm operations in time
- Let the participants appreciate the development of the first tractor
- Make them understand the evolution of tractors to their present level of sophistication
- Make them understand the trends in tractor development as influenced by functional, ergonomically, environmental, and economic reasons

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers.
- Up-to-date power point presentation on the history of tractors globally and in India
- Performance charts of steam engine and IC engines
- Data on different fuels for tractors and their comparisons with regard to tractor performance
- Supplementary videos on tractor evolution
- Laser pointer

Do

- Explain the relationship between the perceived farm needs and the tractor development
- Explain the relationship between the fuel availability and tractor development
- Explain the relationship between technology availability and tractor development
- Explain the relationship between economic considerations and tractor development
- Explain the differences between the first tractor and the latest tractor in relation to farm mechanization
- Explain as to how a futuristic tractor would differ from the present day tractor

UNIT 1.3: Tractor Market In India and Abroad

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Let the trainees appreciate how the sale of tractors in a country relates to the agricultural productivity in a country or region
- Inform the trainees about the range of tractors available in market and the features of those tractors in relation to the farm operations
- Inform them about non-farm use of tractors

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers.
- Up-to-date power point presentation on the history of tractors globally and in India
- Performance charts of steam engine and IC engines
- Data on different fuels for tractors and their comparisons with regard to tractor performance
- Supplementary videos on tractor evolution
- Laser pointer

Do

- Explain the relationship between the perceived farm needs and the tractor development
- Explain the relationship between the fuel availability and tractor development
- Explain the relationship between technology availability and tractor development
- Explain the relationship between economic considerations and tractor development
- Explain the differences between the first tractor and the latest tractor in relation to farm mechanization
- Explain as to how a futuristic tractor would differ from the present day tractor

Say

- Selection of a tractor should be made; besides economics, ease of serviceability, reliability, and environment sustainability; on the basis of matching the job requirements and the features of the available tractors
- What users of different tractors say about the pros and cons of their tractors

UNIT 1.4: Glossary of Terms and Symbols

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees get familiarised with different terms and symbols related to tractors and their applications
- Educate the trainees about the communications that occur about tractors and agricultural mechanization
- Indicate to them the context in which a given term should be used
- Convince them about different symbols and their use for effectiveness

Resources

- LCD projector, projection screen, desktop or laptop computer, colour markers, charts, videos
- Explanation of different terms and symbols
- Visuals of how these terms and symbols are used
- Safety related terms and symbols
- Laser pointer

Do

- Let them practise the use of terms and symbols in groups
- Let them classify symbols as per the class of activities; e.g., driving on road, stationery operations, etc
- Let them learn the correct units related to the terms

Say

- Symbols and terms constitute the language of the tractor operator
- Use of these symbols and terms leads to reduction in anxiety related to conversation

UNIT 1.5: Know Your Tractor and Implements Machines

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Let the trainees be familiar with tractors and related implements/ machines
- Make them understand the ways of finding tractor specifications
- Make them learn about the utility of various implements and machines
- Enable the trainees to describe the tractor, implement and machines to common person
- Make them understand the matching of the tractor and the implements/ machines

Resources

- LCD projector, projection screen, desktop or laptop computer, colour markers, charts, cut models and videos
- Model specification table for tractors
- Specifications of implements/ machines
- A prototype tractor
- Prototypes or models or charts of different implements and machines
- Sketches and layouts of tractor electrical, hydraulic, transmission, dash board and engine systems
- Measuring tapes, micrometers, etc
- Laser pointer

Do

- Let them practise the identification of various external and internal parts of a tractor
- Let them understand the operation of various systems and sub-systems of a tractor
- Let them learn the parts and their functions for different implements and machines
- Let them draw sketches of various components of tractors and the implements/ machines
- Indicate the specific materials of construction for different components and their relevance

Say 

- A tractor operator must clearly understand the nomenclature of various components and parts
- She/ he must be clear about the location of specification plate and identify other distinguishing features of a given tractor
- The trainees must be able to quickly point out various components and parts of the tractor and the implements/ machines

Ask 

- Them to identify various components, systems and sub-systems of tractor and implements/ machines
- Them to indicate the capacities of tractor and implements/ machines
- Them to characterize the tractor wheels and tyres
- Them to measure the dimensions of various components and parts

Activity 

- Let the groups of 4-5 and prepare specifications of tractors and machines.
- The groups may clearly sketch the systems and sub-systems of tractors and the implements/ machines

Notes 



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2. Operation of The Tractor

Unit 2.1- Pre-operation checks

Unit 2.2- Start the tractor

Unit 2.3- Check the displays and notice any abnormal noise and smoke

Unit 2.4- Tractor for agricultural field operations

Unit 2.5- Tractor hitching with implements and machines



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Key Learning Outcomes

After completing this session the trainees will be able to:

- Make the trainees confident about handling the tractor before starting the field operations
- Ensure that the trainees know the mandatory checks that they must make before starting the tractor engine.
- Let the trainees know what the displays on the dash board mean and the remedial measures to be taken, if required
- Enable the trainees to correctly hitch the tractor with implements and machines
- Enable them to trouble-shoot in case of any abnormality
- Enable the trainees to carry the implement or machine to the place of application correctly

UNIT 2.1: Pre-operation checks

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Convince them about the essentiality of carrying out pre-operational checks
- Ensure that they learn the pre-operational checks in the order of priority that they would be carrying out everytime the tractor needs to be operated
- Make them understand the normal settings of the checked items required before starting the tractor
- Ensure that the trainees know how to approach the tractor after completing the pre-operational checks

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, appropriate videos
- Up-to-date power point presentation on the number and types of pre-operational checks that the operator is required to carry out
- Knowledge of the different conditions of the checks that may be found and how to bring them to their normal conditions
- The tools and measuring devices required to make the pre-operational checks and how to use them
- A prototype tractor
- Laser pointer

Do

- Explain the logic for carrying out the pre-operational checks
- Introduce the tools and measuring devices required for the checks and the methods of their use
- Let them understand the consequences of not carrying out the pre-operational checks

Say

- Before approaching to start the tractor, the operator must carry out the pre-operational checks to ensure that the tractor is in the condition that it could be started
- That a tractor operator must be aware of the abnormal conditions that could exist and to be corrected before starting the tractor

UNIT 2.2: Start The Tractor

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees have the correct skills to safely start a tractor
- Confirm that the trainees carried out the pre-operational checks and then correctly started the tractor
- Make sure that the trainees have looked at the dash board to confirm the normalcy of all parameters
- Ensure that the trainees are aware of abnormal and normal engine sounds and vibrations
- Ensure that the trainees are aware of driver seat adjustments and the operations of brakes, clutch, horn, levers and switches

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, and appropriate videos
- Up-to-date power point presentation on the steps to start a tractor
- Videos explaining the functions of brakes, clutch, ignition switch, horn, and levers
- Videos explaining the correct methods of handling and using brakes, clutch, ignition switch, horn, and levers
- Safety instructions
- A prototype tractor
- Laser pointer

Do

- Emphasise the correctness of the procedure to start a tractor for safety and efficiency
- Indicate the wrong and correct ways of using brakes, clutch, ignition switch, horn, and levers
- Let them practise the correct ways of using brakes, clutch, ignition switch, horn, and levers

Say

- Never start a tractor without the pre-operational checks
- In case of any unusual display, sound or vibrations; correct the trouble before using the tractor for intended purpose

UNIT 2.3: Check The Displays And Notice Any Abnormal Noise And Smoke

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand the significance of all the displays on the dash board
- Make sure that each of the trainees is able to identify the normal sound of the engine from the abnormal
- Make sure that the trainees are able to look at the exhaust colour and determine whether the fuel air ratio is proper. If not, how to correct it
- Ensure that the trainees are aware of fuel gauge reading and see if the tractor needs refuelling
- Ensure that the trainees are aware of indication on the battery dial and to confirm that battery is fully charged

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, and appropriate videos
- Up-to-date power point presentation on the reading of displays and observations on noise as well as smoke
- Videos explaining the functions of various indicators and displays along with how to interpret them
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Ensure that each trainee is well versed in the reading of the displays and indications
- Discuss the different situations that might exist with respect to the displays and indicators
- Discuss what remedial actions are called for if the situation so demands
- Let them observe the exhaust colour and comment on the quality of fuel-air mixture
- Let them observe the noise and identify the source. Then learn how to correct the defect

Say

- Never ignore the signals that you receive through interpretation of the display, indicators, noise and smoke. To ignore is to invite bigger troubles
- In case of any unusual display, sound, vibrations or smoke; correct the trouble before using the tractor for intended purpose

UNIT 2.4: Tractor For Agricultural Field Operations

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Permit the trainees to drive the tractor from the parking to the field with the knowledge of how to turn the tractor left and right
- Ensure that the trainees are aware of the road signs and signals while driving to the field
- Ensure that the tractor drivers understand the methods of driving uphill and downhill
- Ensure that the trainees have learnt the methods of stopping the tractor and parking properly
- Ensure that the trainees have learnt the fuel saving tips so as to run tractors efficiently
- Make them proficient in the methods of tractor towing, tractor transport, using safety chain, and using differential lock

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, and appropriate videos
- Up-to-date power point presentation on safe driving of tractor, towing, transport, use of safety chain and differential lock pedal, negotiating hill slopes, and fuel saving tips
- Videos explaining the methods of safe turning, stopping, and parking
- A prototype tractor
- Laser pointer

Do

- Caution the trainees about maintaining safe speed to avoid accidents
- Explain how tractor could roll over if speed is high; especially on turns and while negotiating slopes
- Advise the trainees to always practise fuel saving techniques
- Ensure that the trainees understand correct methods of stopping the tractor and parking
- Caution them to be alert while driving tractor and anticipate dangers so that preventive measures could be initiated; especially, children and old people
- Advise them to frequently look at the displays and indicators to ensure that tractor systems are all working satisfactorily

Say

- Never drive when sick, under the influence of sedatives, or alcohol
- Never travel downhill with the gears in neutral
- Be vigilant against the leakage of fuel/ oil and tyre pressure

Ask

- Trainees about the safety concerns while operating the tractor
- Them about the state of transmission system that they should maintain while stopping a tractor for a long duration
- The trainees whether they knew the relationship between the weights of the towing vehicle and the towed vehicle for stability
- Them about the precautions to avoid tractor roll over

Activity

- The trainer needs to provide sufficient opportunity to each trainee for tractor driving.
- Training team must provide constructive feedback on the driving skills of each of the trainees

Notes

UNIT 2.5: Tractor Hitching With Implements and Machines

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand and practise the correct methods of hitching the tractor with the implements and machines
- Make sure that each of the trainees is able to choose the correct hitching method for trailed as well as mounted implements and machines
- Make sure that the trainees understand the functioning and use of three-point hitch system
- Ensure that the trainees are aware of the hitch system adjustments both for trailed and mounted implements/machines
- Ensure that the trainees have learnt the function of trailer hitch and how to use it
- Ensure that the functioning and use of hitch control lever have been learnt by the trainees.

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos, model or prototype drawbar, three point hitching system
- Up-to-date power point presentation on the tractor hitching systems, trailer hitch, hitch control lever
- Videos explaining the functioning of various hitching systems and precautions necessary
- Safety concerns
- A prototype tractor and implements/ machines along with hitching accessories
- Laser pointer

Do

- Ensure that each trainee is well versed with the knowledge and use of tractor hitching systems
- Enquire if the trainees understood as to how to put drawbar in storage position
- Let the trainees understand what a stabilizer is and how it should be used
- Ensure that the trainees are well aware of draft control mechanism and its use

Say

- Trailed type and pull-behind type implements/ machines are the same
- Draft control is possible through the depth control lever only in mounted type implements/ machines



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3. Tractor Maintenance

- Unit 3.1 - Signs of trouble during tractor operation
- Unit 3.2 - Locating the trouble and the cause of trouble
- Unit 3.3 - Actions to be taken for taking care of the trouble
- Unit 3.4 - Regular servicing checklists
- Unit 3.5 - Log book keeping
- Unit 3.6 - Service record maintenance
- Unit 3.7 - Storage and maintenance of frequently replaceable parts



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Key Learning Outcomes

After completing this session the trainees will be able to:

- Check and maintain fluids regularly/ lubrication points
- Ensure right tyre pressure
- Check belts and hoses
- Brake and clutch adjustment
- Check working of all the electrical systems and gauges
- Avoid overloading
- Attachment and detachment of Implements
- Clean/replace air cleaner filter, oil filter and fuel filters
- Apply grease to parts through nipple
- Clean check electrical system in petrol engine and adjust spark plug
- Charging of battery
- Care and maintenance

UNIT 3.1: Signs of Trouble During Tractor Operation

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Make sure that the trainees clearly understand and take note of signs of trouble that could show up during tractor operation
- Let them understand as to what could be the signs of trouble from engine, brakes, steering wheel and hydraulic system

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos,
- Up-to-date power point presentation on the signs of trouble during tractor operation
- Videos explaining the troubles during tractor operation as they show-up
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Ensure that each trainee is well versed with the knowledge and use of tractor hitching systems
- Enquire if the trainees understood as to how to put drawbar in storage position
- Let the trainees understand what a stabilizer is and how it should be used
- Ensure that the trainees are well aware of draft control mechanism and its use

Say

- That they must not overlook any of the signs of trouble
- If human body experiences bleeding and pain, a visit to medical centre is advised. Similarly, when tractor shows signs of trouble, the trouble needs to be identified and removed

UNIT 3.2: Locating the Trouble and the Cause of Trouble

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees locate the cause of the sign of trouble during tractor operation whether it is engine, steering wheel, brakes or hydraulic system
- Enable them to analyse the sign of trouble logically and then locate the origin of the trouble
- Enable them to look for ways to minimize the occurrence of such troubles in future

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Up-to-date power point presentation on analysing the signs of trouble encountered during tractor operation
- Videos explaining the process of trouble shooting
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Encourage the trainees to analyse the occurrence of the signs of trouble in the context of tractor functioning and history

Say

- That most of the signs of trouble could be traced to the normal tractor functioning and some of the related actions, such as repairs, carried out in the past
- That the service log book is a valuable reference for trouble shooting in an old tractor

UNIT 3.3: Actions to be Taken for Taking Care of the Trouble

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Let them understand as to how the trouble encountered during the tractor operation needs to be corrected
- Make the trainees understand the reasoning behind the cause of the trouble and the suggested remedial measure
- In addition, convince them about certain desirable actions that should be practised by tractor operators
- Convince them about certain undesirable actions that must not be taken by a tractor operator

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Up-to-date power point presentation on analysing the signs of trouble encountered during tractor operation
- Videos explaining the process of trouble shooting
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Let the trainees question the Dos and Don'ts listed for minimizing the signs of trouble and seek the reasons for these suggested actions

Say

- The best way to remember the Dos and Don'ts is to understand the reasoning behind these actions

UNIT 3.4: Regular Servicing Checklists

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand the logic for regular servicing schedule to minimize on the job tractor troubles
- Ensure that the trainees understand the service schedule for different tractor components
- Make them understand exactly what needs to be done to comply with the service requirements

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Up-to-date power point presentation on the regular servicing of tractor components and subsystems
- Videos explaining the purpose of servicing a component without waiting for the failure to occur
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Let each trainee be well versed in fulfilling the servicing needs of the tractor with punctuality
- Let each trainee undertake the specific servicing of tractor components in the correct manner
- Let the trainees learn as to what should be done for the safe disposal of the servicing by-products

Say

- Do not skip the regular servicing of tractor parts and sub-systems or else the troubles would occur frequently and unsuspectingly
- Tractor operator is skilled to fulfil most of the servicing needs of the tractor. However, some components require special fixtures to service them and, therefore, the tractor needs to be taken to an accredited service centre.

UNIT 3.5: Log Book keeping

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand the need for proper record keeping and what each column and each row means for maintaining the log book
- Impart the skills to record the necessary details of the activity carried out with the tractor
- Make the trainees realise as to how the log book indicates vital information about the tractor functioning and the need for preventive maintenance
- Impress upon the trainees that the log book entries need to be made soon after completing the job

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on maintaining proper log book
- Laser pointer

Do

- Ensure that each trainee is well versed with the format of the log book
- Enquire if the trainees understood as to exactly what needs to be noted in the log book

Say

- Do not skip the regular servicing of tractor parts and sub-systems or else the troubles would occur frequently and unsuspectingly
- Tractor operator is skilled to fulfil most of the servicing needs of the tractor. However, some components require special fixtures to service them and, therefore, the tractor needs to be taken to an accredited service centre.

UNIT 3.6: Service Record Maintenance

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand the need for maintaining the tractor history record as well as the tractor servicing record just as a family doctor maintains the patient records
- Ensure that the trainees understand as to what needs to be recorded in each column
- Make the trainees understand that these records not only indicate the evolving of troubles but also if previous servicing was responsible for some fault that has arisen now

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on the maintenance of tractor history and tractor service records
- Laser pointer

Do

- Let the trainees practise filling of tractor history and service details properly

Say

- That it is only on the basis of these service details that we could approach the service centre for corrective measures if there had been some deficiency on the previous occasion
- The service and history details should be periodically shown to the senior officer or the tractor owner periodically to let him/ her be aware of the tractor health

Activity

- The correct method of recording the information in the tractor history and tractor service records should be shown to the trainees and then provide an opportunity to each of the trainees to fill up these records

UNIT 3.7: Storage and Maintenance of Frequently Replaceable Parts

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand the requirements of storage of a tractor in the event of its non-use for some time.
- Ensure that the trainees have learnt the procedure to store the tractor
- Make sure that the trainees have learnt the procedure to remove the tractor from storage after the storage period
- Convince the trainees that it is necessary to keep a record of frequently replaceable tractor parts and also

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on the methodology, with reasons, of properly storing the tractor and removing from storage. The ppt must also include the reasons for maintaining a record of frequently replaced tractor parts and the format of maintaining such a record
- Videos explaining the activities of tractor storage, removing from storage, maintaining the record of the parts replaced, and the inventory of such parts
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Ensure that each trainee understands the reasoning behind the procedures of tractor storage and removal from storage
- Ensure that the trainees have learnt the procedure for maintaining the tractor parts replacement record and method of maintaining the inventory of such parts



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4. Maintain Health & Safety at the work place

- Unit 4.1- Operator's health and clothing
- Unit 4.2- Adjustments in the work place
- Unit 4.3- Hazards, risk and risk controls when using tractors
- Unit 4.4- Safety when operating on public roads
- Unit 4.5- Safety when using PTO
- Unit 4.6- Proper work-rest cycle
- Unit 4.7- People at special risk
- Unit 4.8- Emergency preparedness
- Unit 4.9- Hazard checklist – Tractors and Machinery



AGR/N9903

Key Learning Outcomes

After completing this session the trainees will be able to:

- Ensure that the trainees Maintain a clean & efficient workplace
- Ensure that the trainees render appropriate emergency procedures
- Make them understand the need for reporting time to time to appropriate person.
- Ensure that the trainees know and practice general safety and first aid

UNIT 4.1: Operator's Health and Clothing

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Convince the participants about the need for proper clothing; which types of clothes to wear and which types to avoid
- Make sure that the trainees understand the need for the operator to be mentally and physically fit to operate tractor

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on the tractor operator's clothing and health to operate the tractor
- Videos explaining why certain types of clothes must not be worn and the guidelines about jewellery use and state of operator's health
- Safety concerns
- Laser pointer

Do

- Let the trainees discuss among themselves the appropriateness of certain types of clothes and jewellery from the safety and efficiency points of view
- Let them get convinced of the consequences of using wrong clothing, jewellery, and state of health

Say

- Wrong clothing, too much jewellery and poor health result into accidents and reduced efficiency

Ask

- Trainees never to compromise safety and efficiency on account of wrong clothing and poor health

UNIT 4.2: Adjustments in the Work Place

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Make sure that the trainees understand what the operator's work place is and how an operator needs to be totally in charge of the work place
- Allow the trainees to get into the work place and get out safely, adjust seat, and learn the position of all controls

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power Point presentation on Operator's work place and the correct method of its use
- Videos explaining the work place, adjustments that an operator needs to carry out, and safe use
- Safety concerns
- A prototype tractor
- Laser pointer

Do

- Ensure that each trainee is well versed with the knowledge and use of operator's work place

Say

- That the operator's physical and mental comfort is essential for safe and efficient operation of the tractor
- That the tractor operator, while in the work place, must feel to be an integral part of the tractor so as to be able to operate safely and effectively

Ask

- Trainees about the location of different control levers on tractor and how to reach them correctly

Activity

- Trainees to safely get into the work place, adjust the seat, and safely get out of the work place

UNIT 4.3: Hazards, Risk and Risk Controls When Using Tractors

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Convey to the trainees what the different hazards and risks are while operating the tractor on farm or off-farm
- Let them know how the hazards and risks evolve and how to take care of them maintaining safety and high work efficiency
- Make them understand that tractor roll over and tractor run-over are the most serious hazards during tractor operation and the operator must make all efforts to prevent them
- Skill them about noise control, negotiating undulating terrains, working with other implements and machines, observing proper work-rest cycle, proper parking, clutch use, tractor operation with front mounted equipment, and proper use of hydraulics

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on efficient and safe use of tractors on farm and off-farm
- Videos explaining various situations where hazards and risks are encountered and effective ways of dealing with those situations
- Safety concerns
- A tractor and implements/ machines /trailers with relevant accessories
- Laser pointer

Do

- Explain that the hazards and risks could be minimized but not eliminated all together
- Emphasise that training on effective and safe dealing with the hazards and risks is an essential armour with the tractor operator
- Let the trainees know that anticipation of hazards and risks prepares the tractor operators better to minimize their occurrence and to effectively deal with them

Say

- Plan the work and work the plan
- The tractor must be fully equipped with relevant tools and supplies to mitigate the hazards and risks
- Tractor operator is required to undertake refresher training courses to keep herself/ himself up-to-date

Ask

- Grill the trainees about their mental preparedness to handle hazards and risks associated with tractor operation

Activity

- The trainer needs to organise adequate trainings on the whole range of hazards and risks that they would face while operating tractors

Demonstrate

- Safe and effective methods of dealing with specific hazards and risks to safeguard self, other people and property

Notes For Facilitation

- The trainer needs to ensure that the trainees are fully motivated to be responsible tractor operators and, therefore, volunteer themselves to learn and understand the entire material on safe and effective tractor operation

Notes

UNIT 4.4: Safety When Operating on Public Roads

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Skill the trainees in safely and correctly operate the tractor when moving on public roads
- Make them understand that a tractor and the attached equipment/ trolley must have a slow moving vehicle sign on the back which should be clearly visible to the vehicles going in the same direction
- Let the trainees be conversant with the use of traffic signs and signals for tractor operation on public roads

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos, slow moving vehicle sign
- Power point presentation on the guidelines for operating tractors on public roads
- Videos explaining the essential features of tractor driving on public roads with or without an equipment/ trolley
- A tractor, implements/ machines, and trolley
- Laser pointer

Do

- Let the trainees revise their knowledge of driving slow moving vehicles on public roads
- Let them understand the significance of slow moving vehicle sign

Say

- Never take the tractor on public road without proper fixing of slow moving vehicle sign
- That one should not back the tractor without clear visibility. Use mirrors, horns, any other reversing aid, and help while reversing the tractor on public roads.

Ask

- Trainees to draw the slow moving vehicle correctly and choose right colours

UNIT 4.5: Safety When Using PTO

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand how to use PTO safely

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on the tractor PTO use
- Videos explaining the safe functioning and use of PTO
- Safety concerns
- A prototype tractor and PTO operated machines
- Laser pointer

Do

- Ensure that each trainee is well versed with the PTO, how it operates and what could be the safety concerns

Say

- The PTO must not be damaged and needs to be properly connected to the machine. The PTO needs to be with proper guard

Ask

- Trainees about specific precautions for the safe and efficient use of tractor PTO

Demonstrate

- Correct procedure for connecting the machines to tractor PTO correctly and use it safely

UNIT 4.5: Safety When Using PTO

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Convince the trainees that tractor operator requires proper work place and a balance between work and rest in order to maintain proper occupational health and work efficiency
- Convince them that there is a need to take regular breaks from work to provide needed rest to the body

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on principles and practices of ergonomics related to tractor operation
- Videos explaining the inclusion of work-rest cycles in tractor operation.
- Safety concerns
- A prototype tractor and implements/ machines along with hitching accessories
- Laser pointer

Do

- Ensure that each trainee is well versed with the knowledge and use of tractor hitching systems

Say

- Trailed type and pull-behind type implements/ machines are the same

Ask

- Trainees about the specialty of hitching pin in traileed type hitching

Activity

- The trainees need to practise hitching of tractor and implement/ machine

UNIT 4.7: People at Special Risk

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand the vulnerability of children, old people and visiting guests while operating the tractor
- Let them feel confident of the necessary actions to be taken to avoid causing harm to these people

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on avoiding harm to people, especially, children and old people
- Videos explaining the safety measures to avoid causing harm to people
- A prototype tractor and implements/ machines
- Laser pointer

Do

- Ensure that each trainee understands the safety issues related to people
- Ask them to respond to your queries about the specific situations involving people

Say

- Children must not be allowed to ride the tractor or even coming close to the running tractor

Notes

UNIT 4.8: Emergency preparedness

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Ensure that the trainees understand what the emergencies related to tractor operation could be
- Let them be clear about the necessity of an operational communication system to let the concerned people know about the emergency
- Ensure that everything needed for attending to the emergency is available on the tractor
- Ensure that the trainees know exactly what needs to be done in the event of an emergency

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos, first aid box
- Power point presentation on emergencies and preparedness to mitigate them
- Videos explaining the occurrence of emergencies and how to deal with them
- A prototype tractor, implements/ machines, and hitching accessories
- Laser pointer

Do

- Let them build emergency scenarios and discuss among themselves the ways of dealing with them
- In case of injuries, let them practise the first aid protocols
- Let them practise as to what they should communicate in case of emergency

Say

- How importance is it to be calm and focussed in case of an emergency
- It is important to prioritize the actions to be taken in the event of an emergency

Activity

- The trainer may create emergency scenarios and then ask the trainees to practise emergency protocols
- Let the trainees practise first aid actions

UNIT 4.9: Hazard Checklist – Tractors and Machinery

Unit Objectives

After Completing This Session The Trainees Will Be Able To:

- Allow the trainees to check all the relevant safety points on the tractor
- Let the trainees confirm that all the operator's/ service manuals are readily accessible on tractor, properly equipped first aid kit is available, and all moving parts are adequately guarded
- Ensure that the trainees realise the need for checking proper condition of exhaust and hydraulic systems

Resources

- LCD projector, projection screen, desktop or laptop computer, erasable colour markers, charts, appropriate videos
- Power point presentation on the hazards check list
- Videos explaining the relevance and compliance of various hazards that a tractor operator must watch out for
- A prototype tractor and implements/ machines along with hitching accessories
- Laser pointer

Do

- advise each trainee to prepare a detailed check list of the hazards and ensure, with respect to the assigned tractor, that all action points on the check list have been complied with

Say

- A tractor operator needs to be proactive in ensuring that the hazard occurrence is obviated

Notes



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5. Annexures

Annexure I : Training Delivery Plan

Annexure II : Assessment Criteria



AGR/N9903

Annexure I

Training Delivery Plan

Training Delivery Plan			
Program Name:	Certificate Course in Tractor Operator		
Qualification Pack Name & Ref. ID	Tractor Operator AGR/Q1101, AGR/Q1102, AGR/Q1103, AGR/N9903		
Version No.	1.0	Version Update Date	21-01-2016
Pre-requisites to Training (if any)	No entry level barrier; 5th Standard Passed preferable One year prior experience in field (crop) operations		
Training Outcomes	<p>By the end of this program, the participants would have achieved the following competencies:</p> <ul style="list-style-type: none"> • Identify/familiarize with tools and equipments: Identification, selection and use of tools and equipments for various operations like ploughing, land levelling, sowing, intercultural operations, harvesting etc • Handle routine services of Tractor: checking of all the parts of the Tractor and set ready for the operation • Care and maintenance: check and set the standards, regular check, carry out minor repairs, maintain and store tools, equipments • Practice health & safety at the work place: Well versed with health and safety measures in terms of personal safety and others as well. 		

SL No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
1	Introduction	Ice Breaker	Get to know the participants	Bridge NOS	Activity	Interactive Games	30 Minutes
2	Introduction	Introduction to PMKVY & to ASCI	Introduction to course and expectation setting	Bridge NOS	Trainer Led - Information sharing, Q&A	PPT, Classroom Projector, Audio Visual Aids	30 Min
3	Introduction	Job Role Awareness	Create awareness about the role of Tractor Operator in the Agriculture Sector, Scope of farm mechanization	Bridge NOS	Trainer Led - Information sharing, Q&A	PPT, Classroom Projector, Audio Visual Aids	2 Hour 30 Min
4	Introduction	Reading Exercise	Develop candidates reading skills	Bridge NOS	Group Participation	Classroom, handouts to read	30 Minutes
5	Introduction	Communication Skills	Increase Conversational skills	Bridge NOS	Group Participation	Classroom	1 hour

6	Introduction to Tractors	Farm Mechanization	<ul style="list-style-type: none"> • Use of Tractors in Agriculture • Familiarize with Tractor Parts and activities related to tractor operator • Nomenclature of different parts of Tractor • Understand Working procedure and difference between two/four stroke petrol/diesel engine • Understand Lubrication system and its types • Familiarize with Cooling system and types • Gain knowledge about Fuel supply layout of petrol/diesel engine • Learn Introduction to clutch, gear box, differential power converter and power take off • Familiarize Tyre size and rotation • Familiarize General tyre defects <p>Calculate the cost of Operation and Hiring charges</p>	Bridge NOS	Trainer Led - Information sharing, Q&A	Laptop, white board, marker, projector, tractor, trolley, implements	45 hour
7	Operation of the Tractor	Introduction to tractor system	<ul style="list-style-type: none"> • Familiarization with the tractor engine • Explain function, principle of operation and constructional features of various tractor systems • Practical demonstration for working of tractor assemblies/sub-assemblies 	AGR/N1101	Class room session & Practical	<ul style="list-style-type: none"> • Tractor, 35 hp • Tractor trailer • M. B. Plough • Cultivator • Thresher (optional) 	5 hour

8	Operation of the Tractor	Do the daily checks	<ul style="list-style-type: none"> • Familiarity with the checking and topping up engine oil and coolant • Familiarity with greasing points and greasing procedures 	AGR/N1101	Class room session & Practical	<ul style="list-style-type: none"> • Tools including DE set, Box spanner set, ring spanner set, set, screw drivers, pliers, circlip plier and other general purpose tools 	10 hour
9	Operation of the Tractor	Ballasting importance and process	<ul style="list-style-type: none"> • Understand need of ballasting • Learn process of cast iron ballasting • Learn process of water • Understanding of the purpose, use and functions of various controls and levers 	AGR/N1101	Class room session & Practical	<ul style="list-style-type: none"> • Tool box • Fast moving spares and 	10 hour
10	Operation of the Tractor	PC & DC levers and Gear & RPM selection	Operate PC & DC levers as per the need and Do proper gear & RPM selection	AGR/N1101	Class room session & Practical	<ul style="list-style-type: none"> • Teachers /charts/v ideo/plc 	10 hour
11	Operation of the Tractor	Land Preparation Requirement & Land Opening	<p>Select and suggest the implements as per the need of the farmer</p> <ul style="list-style-type: none"> • Reducing ped size • Weed control • Incorporation of fertilizers • Puddling • Leveling soil surface • wheel track adjustment • Do sway chain adjustment • Position and adjust the Centre link • Measure wheel slippage 	AGR/N1101	Class room session & Practical		15 hour
12	Operation of the Tractor	Climatic Understanding	Various climatic parameters such as maximum and minimum temperatures, intensity and distribution of precipitation (rainfall), relative humidity etc., that affect field operations	AGR/N1101	Class room session & Practical		10 hour

13	Operation of the Tractor	Fuel Saving Tips	Right way of operating to ensure proper fuel usage.	AGR/N110 1	Class room session & Practical		10 hour
14	Operation of the Tractor	Safety	Driving and must possess a tractor driving license issued by an authorized Body. Recommendations of the manufacturer for implementation usage Safe methods of handling the tools	AGR/N110 1	Class room session & Practical		5 hour
15	Tractor Maintenance	Introduction to need of preventive maintenance and familiarization with lubricants	<ul style="list-style-type: none"> • Understand need of preventive maintenance • Understanding of elements of periodical maintenance • Familiarity with lubricating oils and greases used for tractor maintenance 	AGR/N110 2	Class room session & Practical		3 hour
16	Tractor Maintenance	Study and follow of owner's manual	<ul style="list-style-type: none"> • Familiarity with the content o owner's manual • Understanding of basic operating instructions • Understanding of schedule and intervals of routine • maintenance and lubrication of different parts of the tractor 	AGR/N110 2	Class room session & Practical	<ul style="list-style-type: none"> • Tractor, 35 hp • Tractor trailer • M. B. Plough • Cultivator • Thresher (optional) • Tools including DE set, Box spanner set, ring spanner set, set, screw drivers, pliers, 	2 hour
17	Tractor Maintenance	Obtaining Certified Tools	<ul style="list-style-type: none"> • Understanding of different types of certified / recommended tools needed for tractor maintenance • Understanding of proper use of tools 	AGR/N110 2	Class room session & Practical		2 hour

19	Tractor Maintenance	Ensure Right Tyre Pressure	<ul style="list-style-type: none"> • Familiarity with general constructional features and sizes of tractor front and rear tyres • Understanding of recommended inflation pressures in front and rear tyres as per usage of the tractor 	AGR/N110 2	Class room session & Practical	<ul style="list-style-type: none"> • circlip plier and other general purpose tools • Tool box • Fast movin 	5 hour
20	Tractor Maintenance	Check Belts & Hoses	<ul style="list-style-type: none"> • Knowing hoses and belts fitted in different components of the tractor • Knowledge of inspection of hoses, belts and other connections and rectification of defects and replacement of defective seals, hoses & belts. 	AGR/N110 2	Class room session & Practical		5 hour
21	Tractor Maintenance	Brake and clutch Adjustment	<ul style="list-style-type: none"> • Understanding of general constructional features of brake and clutch and various adjustments required for their proper use • Understanding of adjustment of brake and clutch free play • Understanding the use of brake paddle latch and ensuring its proper engagement/locking while driving tractor on road. 	AGR/N110 2	Class room session & Practical		5 hour
22	Tractor Maintenance	Check Working of all the Electrical Systems and Gauges	<ul style="list-style-type: none"> • Familiarization with all electrical systems and gauges fitted on the tractor and their function • Understanding the working of lights and horn and remedial 	AGR/N110 2	Class room session & Practical		10 hour

23	Tractor Maintenance	Avoid Overloading	<ul style="list-style-type: none"> Understanding of different types and sizes of implements and their matching with the tractor Understanding of different types and sizes of trailers and their matching with the tractor Understanding selection of recommended type and size of implement and matching trailer to avoid overloading of tractor. 	AGR/N110 2	Class room session & Practical		8 hour
24	Tractor Maintenance	Attachment and Detachment of Implements	<ul style="list-style-type: none"> Familiarity with Category 1 and Category 2 types of three point linkage Understanding how to attach trailed, semi-mounted and mounted implements with the tractor Understanding the techniques of detachment of implements from the tractor 	AGR/N110 2	Class room session & Practical		10 hour
25	Maintain Health & Safety at the workplace	Maintain a clean & efficient workplace	<ul style="list-style-type: none"> basic safety checks before operation of all machinery and vehicles Work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used Prior to performing manual handling jobs, risk is assessed and work is carried out Use equipment and materials safely and correctly and return the same <p>Report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger</p>	AGR / N 0047	Class room session & Practical	Teachers/charts/video/pic / Tractor and implements	10 hour

Annexure II

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for ASCI- Tractor Operator	
Job Role	Tractor Operator
Qualification Pack	AGR/Q1101
Sector Skill Council	Agriculture Skill Council of India

S.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 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 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.
7.	The marks are allocated PC wise, however, every NOS will carry a weight age in the total marks allocated to the specific QP.

Assessment Outcome	Assessment Criteria	Total Marks (300)	Marks Allocation		
			Out of	Theory	Skills Practical
1.AGR/N1101 Operation of the tractor	Pc1. Lubricate rear axle bearing	120	5	2	3
	Pc2. Check engine oil level		4	2	2
	Pc3. Check coolant level		4	2	2
	Pc4. Drain water and sediment from fuel filter		4	2	2
	Pc5. Lubricate tie rod ends.		5	2	3
	Pc6. Lubricate Steering spindles		5	3	2
	Pc7. Lubricate front axle pivot pin		5	3	2
	PC8. Use of ballasting as per the need		5	3	2

	Pc9. Operate PC & DC levers as per the need		5	3	2
	Pc10. Do proper gear & RPM selection		5	3	2
	Pc11. Classify tillage implements into Primary tillage implements, Secondary Tillage implements, leveling equipment and trailer		4	2	2
	PC12. Select proper implement for a specific function.		4	2	2
	Pc13. Take precautions before using implements and Trailer		5	3	2
	Pc14. Select and suggest the implements as per the need of the farmer		5	0	0
	Pc15. Take up the following function		4	2	2
	• Reducing ped size		4	2	2
	• Weed control		4	2	2
	• Incorporation of fertilizers		4	2	2
	• Puddling		4	2	2
	• Leveling soil surface		4	2	2
	• wheel track adjustment		4	2	2
	• Do sway chain adjustment Position and adjust the Center link		4	2	2
	• Measure wheel slippage		4	2	2
	PC1. Do Lateral & horizontal adjustments of Implements		10	5	5
	PC2. Do Hitching and unhitching the implement from tractor.		10	5	5
			120	60	60
2.AGR/N1102 Tractor Maintenance	Pc1. Follow intervals for routine maintenance		10	5	5
	Pc2. Lubricate different parts of the tractor		10	5	5
	Pc3. Follow basic operating instructions		10	5	5
	PC4. Procure maintenance tools that are certified for such operations from a recognized body.		10	5	5
	PC5. Check the engine oil.		5	2	3
	Pc6. Check the transmission fluid/hydraulic oil		5	2	3
	Pc7. Check the coolant in the radiator/ reservoir tank		5	2	3
	Pc8. Ensure all the tyres have the right inflation pressure as per the usage of the tractor		10	5	5
	Pc9. If fittings or connections are leaking, tighten them or replace the seals		5	2	3

	PC10. Ensure proper adjustment of the brake and clutch, and make sure the brakes and clutches free play are adjusted properly.		10	5	5
	Pc11. Ensure that brake paddle latch should be engaged while driving on road.		10	5	5
	Pc12. Always ensure the right temperature, oil pressure and hour meter		10	5	5
	Pc13. Ensure working of headlights, brake lights and horns.		5	2	3
	Pc14. Always use a recommended load as suggested by the manufacturer.		5	5	0
	PC15. Attachment and detachment of Implements.		10	5	5
		120	120	60	60
3.AGR/N9903 Maintain health & Safety at the workplace	PC1. Undertake basic safety checks before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor.		2	1	1
	PC2. work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy.		2	1	1
	PC3. Read and understand the hazards of use and contamination mentioned on the labels of pesticides/fumigants etc.		5	2	3
	PC4. Assess risks prior to performing manual handling jobs, and Work according to currently recommended safe practice.		5	3	2
	PC5. Use equipment and materials safely and correctly and return the same to designated storage when not in use.		5	2	3
	PC6. Dispose of waste safely and correctly in a designated area		5	2	3
	PC7. Recognise risks to bystanders and take action to reduce risk associated with jobs in the workplace		2	1	1
	PC8. Perform your work in a manner which minimizes environmental damage all procedures and work instructions for Controlling risk are followed closely.		5		2
	PC9. Report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action To reduce further danger.		2	1	1



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