



NQF Level: 4

US No: 9015

# Facilitator Guide

## Primary Agriculture

# Knowledge of statistics and probability



Facilitator: .....

Company: .....

Commodity: ..... Date: .....

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agriculture

Department:  
Agriculture  
REPUBLIC OF SOUTH AFRICA



# Before you get started...

Dear Facilitator,

This Facilitator Guide (together with the relevant Learner Guide) is aimed at facilitators who will be assisting learners wishing to complete the following unit standard:

<b>Title:</b>	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems		
<b>US No:</b>	<b>9015</b>	<b>NQF Level:</b>	<b>4</b>
		<b>Credits:</b>	<b>5</b>

This guide contains all necessary facilitation instructions to ensure that learners will attain the expected competencies required by the above-mentioned unit standard. This guide is designed to be used during the presentation of a learning session based on this unit standard. The full unit standard is attached at the end of the relevant Learner Guide. Learners are advised to read the unit standard at their time. Please discuss the unit standard with the learners to ensure that they understand what is expected from them to achieve the outcomes of the unit standard.

This unit standard is one of the building blocks in the qualifications listed below. Please mark the qualification you are currently facilitating, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48979	4	120	<input type="checkbox"/>
National Certificate in Plant Production	49009	4	120	<input type="checkbox"/>

Please mark the learning program the learners are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	<input type="checkbox"/>	<input type="checkbox"/>
Skills Program?	<input type="checkbox"/>	<input type="checkbox"/>
Short Course?	<input type="checkbox"/>	<input type="checkbox"/>

**Note to Facilitator:**

If you are presenting this module as part of a full qualification or learnership, please ensure that you have familiarised yourself with the content of the qualification.

Please explain the above concepts to the learner.

There are three guides, namely the Learner Guide (with activities), Assessor Guide and the Facilitator Guide.

These guides have been developed to address specific aspects of the learning experience. You therefore need to use these guides complementally to one another.

**Make this an enjoyable learning experience!**

## Context of Application ...

Primary Agriculture is a diverse sector and a wide range of commodities is being produced for both national and international market. Each commodity has its own production requirements and practices. You will be facilitating the learning process within a specific context where a specific agricultural commodity is being produced. The learning material has been written in a **generic** manner, as it is aimed to be available on national level and should be relevant to be applied within a variety of commodities. It is therefore inclusive of all agricultural commodities and crop in this field. Therefore, the examples that are being used in the materials may not always be applicable to your specific community, commodity, environment or region.

This presents you, the facilitator, with the challenge to **contextualise** the learning material. It is imperative that you, the Facilitator and Assessor interpret and present activities, case studies and projects related to the material in such a way that learners can easily identify and apply their knowledge within their own context. This will require from you to add examples of crop, which are applicable to the community or farm. Learners must be guided with examples from their own communities, commodities, environment or regions. This should be done by complementing the learning material with:

- Examples relevant to the commodity,
- Including commodity specific requirements,
- Including operating procedures of the farm,
- Including agricultural practice specific requirements,
- Agricultural markets,
- Guiding learners to write these specifics down in the learning guide, etc.

**The contextualisation of the learning material is a very important step in preparing for and facilitating the learning experience and enough time and effort should be put into this exercise.**

According to the qualifications mentioned on page 2, this module could be contextualised to fit the following groups of commodities:

Plant Production	Animal Production	
<ul style="list-style-type: none"> <li>• Organic production,</li> <li>• Hydroponic production,</li> <li>• Perma-culture production,</li> <li>• Agronomy,</li> <li>• Horticulture,</li> <li>• Natural resources harvesting.</li> </ul>	<ul style="list-style-type: none"> <li>• Small stock production,</li> <li>• Large stock production,</li> <li>• Dairy production,</li> <li>• Pig production,</li> <li>• Poultry production,</li> <li>• Game,</li> <li>• Aqua / mari culture,</li> <li>• Commercial insects</li> <li>• Animal fibres harvesting,</li> <li>• Bee keeping,</li> </ul>	<ul style="list-style-type: none"> <li>• Natural resources harvesting,</li> <li>• Organic production,</li> <li>• Perma-culture production,</li> <li>• Eco/Agri Tourism,</li> <li>• Agro Chemicals,</li> <li>• Horse Breeding,</li> <li>• Etc.</li> </ul>

## How to use this guide ...

Throughout the guide information is given specifically aimed at you, the facilitator, to **assist** in the actual presentation of the learning material and/or facilitation of the learning process. Although this guide contains all the information required for attaining competency in this unit standard, references to additional resources, both printed and electronic, are provided for additional reference by the facilitator and further study by the learner.

Please note that the purpose of this information is merely to **guide** you, the facilitator, and is provided as a suggestion of possibilities. It remains the responsibility of every facilitator to re-assess the learner/s in each learning situation throughout the learning process in order to stay in touch with their specific learning needs. This should be the determining factor in the choice of the learning approach to follow.

Use the different boxes listed below for identification purposes:



Instructions regarding **activities**, whether group or individual activities will be described in this box.



Facilitators' Tip ...

**My Notes ...**

You can use this box for your own notes/comments.

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# What & How will you be Facilitating?

<b>The Learning Experience .....</b>		<b>6</b>
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# The Learning Experience...

**On completion of this module, the learners will be able to:**

- ◆ This Unit Standard is designed to provide credits towards the mathematical literacy requirement of the NQF at Level 4. The essential purposes of the mathematical literacy requirement are that, as the learner progresses with confidence through the levels, the learner will grow in:
- ◆ A confident, insightful use of mathematics in the management of the needs of everyday living to become a self-managing person
- ◆ An understanding of mathematical applications that provides insight into the learner`s present and future occupational experiences ` and so develop into a contributing worker
- ◆ The ability to voice a critical sensitivity to the role of mathematics in a democratic society and so become a participating citizen.
- ◆ People credited with this unit standard are able to:
- ◆ Critique and use techniques for collecting, organising and representing data.
- ◆ Use theoretical and experimental probability to develop models, make predictions and study problems.
- ◆ Critically interrogate and use probability and statistical models in problem solving and decision making in real-world situations

**Learners will also gain basic knowledge of:**

- ◆
- ◆
- ◆
- ◆
- ◆

**Learning Assumed to be in Place:**

- ◆ The credit value is based on the assumption that people starting to learn towards this unit standard are competent in Mathematical Literacy and Communications at NQF level 3.



Remember to do a diagnostic assessment of the learner's prior learning and ensure that they are starting at the correct level.

**My Notes ...**

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# Learning Program Time Frames

	Total time allocated (hours)	Theoretical learning time allocated (hours)	Practical learning time allocated (hours)	Activities to be completed
<b>Complete Program (including summative assessment)</b>	40 hours	16 hours	24 hours	14
<b>Learner Orientation and "Ice Breaker"</b>	0.5 hour	0.5 hour		
<b>Purpose, Introduction and Learner Directions</b>	0.5 hour	0.5 hour		
<b>Session 1</b>	9 hours	3 hours	6 hours	1 - 4
<b>Session 2</b>	16.5 hours	6 hours	10.5 hours	5 - 11
<b>Session 3</b>	7.5 hours	3 hours	4.5 hours	12 - 14
<b>Preparation for Assessment &amp; revision</b>	6 hours	3 hours	3 hours	

**My Notes ...**

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## Tips for level of learning



Remember the following before you get started:

**Typically, a learning programme leading to the award of a qualification or unit standards at level 4 should develop learners who demonstrate an ability to:-**

- Take responsibility for their own learning within a supervised environment.
- Take decisions about and responsibility for actions.
- Evaluate their own performance against given criteria.
- Take the initiative to address any shortcomings they find.
- Communicate and present information reliably and accurately in writing and verbally.
- Gather relevant information, analysis and evaluation skills.
- Use their knowledge to solve common problems within a familiar context; adjust an application of a common solution within relevant parameters to meet the needs of small changes in the problem or operating context; motivate the change using relevant evidence.
- Apply essential methods, procedures and techniques of the field or discipline; apply and carry out actions by interpreting information from text and operational symbols or representations.
- Understand the organisation or operating environment as a system within a wider context.
- Demonstrate a fundamental knowledge base of the most important areas of one or more fields or disciplines, in addition to the fundamental areas of study an informed understanding of the key terms, rules, concepts, established principles and theories in one or more fields or disciplines.



# Facilitator's Checklist & Training Aids

## Learner support strategies:

Learners are supplied with all resources and aids as required by the programme – including:

- Objects & devices such as equipment, protective clothing, safety gear, etc.
- Learner Guides and Learner Workbook
- Visual aids, etc.

Use this checklist below during your preparation to ensure that you have all the equipment, documents and training aids for a successful session.

Preparation:	Yes	No
<b>Qualification Knowledge</b> – I have familiarised myself with the content of the applicable qualification		
<b>Unit Standard Knowledge</b> – I have familiarised myself with the content of all aspects of the applicable unit standard		
<b>Content Knowledge</b> – I have sufficient knowledge of the content to enable me to facilitate with ease		
<b>Application knowledge</b> – I understand the programme matrix & have prepared for programme delivery accordingly		
<b>Contextualisation</b> – I have included information which is specific to the commodity and practices related to the commodity		
<b>Ability to respond to learners background &amp; experience</b> – I have studied the learner demographics, age group, experience & circumstances & prepared for programme delivery accordingly		
<b>Enthusiasm &amp; Commitment</b> – I am passionate about my subject & have prepared my programme delivery to create a motivating environment with real commitment to success		
<b>Enterprise knowledge</b> – I know & understand the values, ethics, vision & mission of the workplace & have prepared my programme delivery, reporting & administrative tasks accordingly.		
<b>Equipment check:</b>		
Learner guides x 1 per learner		
Assessment guides x 1 per learner		
Writing materials & stationary (facilitator & learner)		
White board & pens		
Flip chart paper		
Proxima projector & screen		
Laptop & programme disk		
Sample Hand-outs and examples of laws and other relevant documents		

Safety gear as prescribed by unit standard and applicable legislation		
<b>Documentation checklist:</b>		
Attendance Register		
Course Evaluation		
Learner Course Evaluation		
Portfolios of evidence		

## Contextualisation of Content!

Go through this module and indicate what specific **information / activities / examples** should be included in this module?

Contextualisation	
<ul style="list-style-type: none"> <li>Commodity specific?</li> </ul>	
<ul style="list-style-type: none"> <li>Operating procedures of the farm?</li> </ul>	
<ul style="list-style-type: none"> <li>Agricultural practices?</li> </ul>	
<ul style="list-style-type: none"> <li>Agricultural markets?</li> </ul>	

**Session**

**1**

**Collecting data**

**Learner  
Guide:  
Page 7**

*After completing this session, the learner should be able to:*

**SO 1: Critique and use techniques for collecting, organising and representing data.**

Concept (SO 1)	Time frame	Activities related to the concept
Situations or issues that can be dealt with through statistical methods are identified correctly.	9 hours	Activity 1 - 4
Appropriate methods for collecting, recording and organising (data are used so as to maximise efficiency and ensure the resolution of a problem or issue.		
Data sources and databases are selected in a manner that ensures the representativeness of the sample and the validity of resolutions.		
Activities that could result in contamination of data are identified and explanations are provided of the effects of contaminated data.		
Data is gathered using methods appropriate to the data type and purpose for gathering the data.		
Data collection methods are used correctly.		
Calculations and the use of statistics are correct.		
Graphical representations and numerical summaries are consistent with the data, are clear and appropriate to the situation and target audience.		

<p>Resolutions for the situation or issue are supported by the data and are validated in terms of the context.</p>		
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**Please allow learners to complete Activity 1 - 4 in their Learner Guides**

Type of activity	Resources
1. Individual questionnaire.	Learner Guide, stationary, questionnaire.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
2. Individual written assignment.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
3. Answer the questions.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
4. Complete the table.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	

**My Notes ...**

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# 2 Organising and analysing data

Session

Learner Guide:  
Page 20

After completing this session, the learner should be able to:  
**SO 2: Use theoretical and experimental probability to develop models.**

Concept (SO 2)	Time frame	Activities related to the concept
Experiments and simulations are chosen and/or designed appropriately in terms of the situation to be modelled.	16.5 hours	Activity 5 - 11
Predictions are based on validated experimental or theoretical probabilities.		
The results of experiments and simulations are interpreted correctly in terms of the real context.		
The outcomes of experiments and simulations are communicated clearly.		

**Please allow learners to complete Activity 5 - 11 in their Learner Guides**



Type of activity	Resources
5. Individual assignment.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
6. Complete.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
7. Individual written assignment.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	

Type of activity	Resources
8. Answer the questions.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
9. Individual assignment.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
10. Complete.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	
Type of activity	Resources
11. Individual assignment.	Learner Guide, stationary.
<b>Instructions to give to the learners</b>	
As per instructions in Learner Guide.	

### My Notes ...

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Session **3** Probability

**Learner  
Guide:  
Page 48**

*After completing this session, the learner should be able to:*  
**SO 3: Critically interrogate and use probability and statistical models.**

Concept (SO 3)	Time frame	Activities related to the concept
Statistics generated from the data are interpreted meaningfully and interpretations are justified or critiqued.	7.5 hours	Activity 12-14
Assumptions made in the collection or generation of data and statistics are defined or critiqued appropriately.		
Tables, diagrams, charts and graphs are used or critiqued appropriately in the analysis and representation of data, statistics and probability values.		
Predictions, conclusions and judgements are made on the basis of valid arguments and supporting data, statistics and probability models.		
Evaluations of the statistics identify potential sources of bias, errors in measurement, potential uses and misuses and their effects.		

**My Notes ...**

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# What will I do differently next time?

Take some time to **reflect** on your own activities as facilitator of this Unit Standard 9015. Then write down five of the most important lessons you have learnt and include a motivation:

What will I do differently next time?	Motivate how or why (Give examples, reasons, etc.)
1.	
2.	
3.	
4.	
5.	

As facilitator, you have hands on experience in the application of the unit standard 9015. And you might experience difficulties with the unit standard that the developers did not anticipate. Also, the unit standard will be revised at the end of the registration period. Your comments below can be an important contribution in the revision process and should be brought to the attention of either the AgriSETA ETQA manager or the SGB chairperson.

Please take some time to reflect on your experience and list a few of the difficulties you had to address.

Difficulties I had with the Unit Standard	Recommended Changes to Address the Difficulty
6.	
7.	
8.	
9.	
10.	