

SK Agricare Farmer Development Course Guide

The Soil Doctor Development Programme

This course targets individuals who are on a farmer development path in which they can also be qualified as a soil doctor. The Soil Doctor is a local resource for farmers who need guidance and assistance with soil preservation, soil rehabilitation and soil fertility. The Soil Doctor assists communities with soil testing facilities thus shortening the waiting period for soil test results that get sent to far away soil testing facilities, particularly in rural settings.

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The Global Soil Doctor Course



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1. About SK Agricare

SK Agricare are a Social Enterprise working on developing a Model Farm in a small village [Dududu](#) in the south coast of KwaZulu-Natal. The model farm offers skills in theory and practice to emerging farmers on sustainable farming systems. SK Agricare promotes and implements intensification of market led products using a Japanese development programme called One-Village-One-Product (OVOP). The OVOP Programme is not to be confused with monocropping which we discourage in small plots of land.

Farmers who participate in the OVOP Programme are introduced to alley cropping where they would intercrop with unique plants that still have a niche in the market. An example would be a coffee farmer in the OVOP programme who would intercrop with mung bean which currently has a potential niche in the market. Farmers are encouraged to participate in the programme where markets have been secured for the product that needs intensification. There are products that also enable farmer beneficiaries to participate on both the demand side and supply side of the value chain.

2. The SK Agricare Farmer Development Programme

SK Agricare have engaged emerging farmers and associates in developing and delivering a Farmer Development Programme delivered at four levels referred to as SKA Level 1, 2, 3 and 4 respectively.

Level One

Addresses practical learner needs for those who cannot read or write. Learner material is in graphics complemented with workshops and mentor sessions.

Level two

On-the-field training and mentorship for farmers who do not want to sit in class for theory. Knowledge has in the past been shared live through a local radio weekly broadcast as well as a column in a national newspaper, on sustainable farming systems. These media slots have yet to be revived for the benefit of potential beneficiaries interacting with SK Agricare for knowledge empowerment sessions.

Level three

Farmers who can assimilate and internalise isiZulu learner material. We have translated, compiled and produced a booklet detailing all nine modules in isiZulu.

Level four

English language literate farmers who can assimilate theory and practice content well. Learners receive SAQA (South African Qualifications Authority) aligned unit standard learner material. The Soil Doctor Programme is offered at SKA Level four and is aligned to the SAQA- NQF Level 1-4.

3. Benefit(s) for the Soil Doctors joining the programme.

- They will become reference sources on soil management within their local communities
- They will benefit from the incentives provided to them by the promoter(s)
- They will receive special trainings aimed to increase their knowledge on soil and the practice of sustainable soil management by the promoter(s) of the programme
- They will be able to make immediate decisions in the field by putting into practice the methods in

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- the Soil Testing Methods (STM; to be put at the service of their community)
- They will strengthen their relations with the promoter, increasing their ability to request and report the needs of their community.

Soil Doctor Incentives

As motivation for commitment to the programme, learner soil doctors are encouraged by provision of incentives such as:

- Provision of the equipment needed to assess soil conditions as per the method chosen in the Soil Testing Methods (STM)
- Invitation to public events (including print media and radio talks) and in schools to talk about their work and on how to preserve soils from degradation.
- Each Soil Doctor receives a certificate of competence
- The soil doctor receives a uniform with the logo of the programme, which will allow them to be recognized within their community.

4. Purpose of the Course Guide

Business retention and expansion in cities and semi-urban communities would remain sustainable mostly through involvement and participation of small businesses working together with big business. This could also be because of sustainable local economic development promotion programmes that are driven mostly by local small-scale farmers, who if recognised and allowed to participate in the formulation and delivery of their own empowerment programmes would be enthusiastic to participate and even promote the very programme to reach more local farmers.

Since 2016 SK Agricare have had several workshops through [open days](#) at the SK Agricare Model Farm and consequently they have been able to develop a suitable farmer Development Programme that can achieve output and expected outcomes as requested by farmer beneficiaries.

This course guide purports to assist the potential learner soil doctor to get an overview of this course

5. The Global Soil Doctor Programme Outline

SK Agricare e-learning platform offers an easy, hassle-free way to engage in your own, self-paced learning experience online. SK Agricare are offering a United Nations' Food and Agriculture Organisation (FAO) Global Soil Doctor Programme as a promoter at country level in South Africa. The programme is to support national activities on sustainable soil management. The programme aims to support national governments and stakeholders working with farmer communities in building the capacity of farmers for sustainable soil management (ssm).

By providing the Soil Doctors with a set of tools for training other farmers in their community, the programme will significantly assist governmental agencies, extension service organizations and others. Additionally, the programme will allow farmers to make immediate and responsible decisions on sustainable soil management (SSM).

The SKA Level Four Soil Doctor programme is offered in three modules:

1.1 Module One

Orientation and introduction to soil matters in the agricultural space focusing on fertilising soil and

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attending to basic plant nutrition.

1.2 Module Two

Sustainable Soil Management reinforced through the understanding of how sustainable farming systems conserve natural resources.

1.3 Module Three

Module three is the core of this programme. It takes a minimum of sixty hours to complete depending on the learner doctor's commitment to practical activities. Module three starts with a unit standard to be achieved by the learner in thirty hours. The rest of the module focusses on mastering the soil morphology pertaining to all existing soil information collected to characterise or map:

- Soil properties
- Landscape and site descriptions
- Soil profile descriptions
- Laboratory analysis (chemical, physical and biological soil properties)
- Soil Maps
- Soil Sampling Campaigns

Module three of the Global Soil Doctor Programme culminates in certification as a Global Soil Doctor, recognised by the United Nations' Food and Agriculture Organisation (FAO)

6. Welcome to the Soil Doctor Programme

This document will guide you on the approach of the Global Soil Doctor Course. The first module is also referred to as **"BEFORE WE START"** because its aim is to give you orientation in the soil subject. Not all learner participants have been exposed to farming/ gardening therefore it helps to start the course by giving guidance on soil matters in general because some participants would want to take the course to be a knowledge/ skill resource to emerging farmers, where they would be expected to guide the learner farmer in issues that affect soil health and plant nutrition.

How to approach this course

The Soil Doctor course is designed primarily to be self-directed learning, which means that learners can access it at any time and follow it in the order they wish. The Soil Doctor Course has a unit standard format presented in the orientation session also referred to as Module one, (**BEFORE WE START**). Time allocated to the orientation section, is a SAQA (South African Qualifications Authority) unit standard based on credits. There are five credits allocated to this section for NQF (National Qualifications Framework) level one which translates to fifty notional hours. This is learning time that will take an average learner to meet the outcomes defined. Learning time could also be achieved in less hours depending on the learner's time management efforts.

This course is generally taken by farmers who wish to advance their knowledge and skill on sustainable soil management. Farmers who have had long experience on the field can arrange with course organisers to only take an RPL (Recognition of Prior Learning), while learners who want to take the course for the purposes of being a resource to other farmers will need to go through everything to be able to impart knowledge and skill appropriately. Taking an RPL would render the learner soil doctor competent in this module and therefore get promoted to take module two.

The learner might also decide, after completing Module one and being declared competent in the unit standard, that they prefer to further study towards a full qualification by taking a national certificate





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course in one of the following:

Title	ID Number	NQF Level	Credits
National Certificate in Animal Production	48970	1	120
National Certificate in Mixed Farming Systems	48971	1	120
National Certificate in Plant Production	48972	1	120

A learner continuing with the soil doctor course will follow instructions given on registration to pursue the course by progressing to Module two and Module three respectively.

Each section of the course explores different learning areas, like for example activities, practice/ exercises, formative assessment, and summative assessment. The sequence of the modules in sections reflects the course design and delivery process to some extent. For this reason, it may be advantageous to follow the sequence starting from Module 1 and finishing with Module 3. However, because the course is self-directed, the choice rests with the participant. Each section comprises modules/ chapters that address specific skills in certain learning areas.

Module two of the course starts with a unit standard based material at NQF level one and bears four credits, therefore being fully achieved at forty notional hours. Qualifications utilising this unit standard are:

	ID	QUALIFICATION TITLE	PRE-20 NQF LEVEL	NQF LEVEL	STATUS	END DATE	PRIMARY OR DELEGATED QA FUNCTIONARY
Core	48970	National Certificate Animal Production	Level 1	NQF Le 01	Reregistere	2023-030	AgriSETA
Core	48971	National Certificate Mixed Farming Systems	Level 1	NQF Le 01	Reregistere	2023-030	AgriSETA
Core	48972	National Certificate Plant Production	Level 1	NQF Le 01	Reregistere	2023-030	AgriSETA

Module three is advanced training where learner farmers train towards a **Global Soil Doctor** qualification. This is sponsored by the United Nations' Food and Agriculture Organisation (FAO) in terms of soil analysis kits and some of the learning materials. SK Agricare are promoters of the Global Soil Doctor at country level in South Africa, and as such, we have adapted the learning programme and added areas demanded by emerging farmers in the villages, townships, and urban farming communities in South Africa. Learning materials have been adapted for unique local conditions in South Africa.

Example ways to approach this course:

Browse a section in the appropriate learning material and find an area most relevant to your experience. For example, you are preparing a demonstration on Soil Testing, therefore you might first want to know the technique of taking a soil sample, therefore, would then jump to watching a video on "[How to test Soil pH](#)" Click on the link that leads you to the video and watch. The video will be followed by an exercise that you must perform and submit report as per instruction.

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The Course Goals

There are three sections/ modules in this course. Section one is referred to as **BEFORE WE START** because it addresses people from different walks of fields, and it is where learner farmers are introduced to the soil as a natural and essential basic resource. Module two deals with principles of **Sustainable Soil Management reinforced through the understanding of sustainable farming to conserve natural resources**, which every farmer needs to know and practice.

Module One

“BEFORE WE START” Goal

- Be able to apply soil nutrient preparations in a safe, effective, and responsible manner to the benefit of plant/crop growth.
- Gain specific knowledge and skills in soil fertilisation and plant nutrition and be able to operate in a plant production environment implementing sustainable and economically viable production principles.
- Be capacitated to gain access to the mainstream agricultural sector, in plant production, impacting directly on the sustainability of the sub-sector.

Learning outcomes

When you have achieved this unit standard you must be able to:

- Have a basic understanding of soil profiles, structure, and texture, about the physical components of soil, the biological components of soil, how soil is formed, how nutrients are absorbed by plants.
- Know how to conduct simple soil tests and observations to make basic soil assessments based on texture, colour, vegetative cover, and smell.
- Know how seeds germinate and what kind of environment is needed to achieve maximum and effective germination and early root growth.
- Know what tools to achieve with which soil preparation results.
- Know the difference between wanted and unwanted vegetation.
- Use specific types of nutrient substances.
- Work within identified safety standards.
- Measure accurately and apply specified substances.

Time required to complete this section is fifty notional hours. ‘*Notional hours of learning*’ refers to the learning time that it would take an average learner to meet the outcomes defined because this unit standard carries five credits, and ten notional hours are allocated to one credit.

Time allocation includes concepts such as:

- Contact time
- Time spent in structured learning in the workplace.
- Individual learning
- Assessment
- 30% Theoretical Learning by means of self-study or classroom or other means.
- 70% Practical Learning means in the workplace, practical experience doing the function or job.

This means that for every credit, three hours of theoretical learning and observed hours of practical experience would be recommended.

In a face-to-face interaction with the learner however, (as opposed to e-learning platforms) we would



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normally link five credits to a 5-day training programme, depending on the learner background and the RPL (Recognition of Prior Learning) assessment performance where indicated.

Module Two Sustainable Soil Management

The main goal for module two is to empower the learner soil doctor in the guidelines for sustainable soil management, **reinforced through the understanding of sustainable farming to conserve natural resources**, which every farmer needs to know and practice.

The introductory unit standard focuses on the application of natural resource management in primary agriculture. The learner will be able to participate in, undertake and plan farming practices with knowledge of their environment. This unit standard will instil a culture of maintenance and care for both the environment as well as towards farming infrastructure and operations.

When you have achieved this unit standard, you will:

- Explain the purpose of maintaining and increasing **biodiversity**.
- Understand the role of natural resource management in sustainable agricultural practices
- Apply general agricultural and conservation regulations to strengthen sustainable agricultural practices.
- Participate in, undertake and plan farming practices with a knowledge of the environment

Learning outcomes

When you have achieved this unit standard you must understand:

- Basic principles of natural resources management
- Components of the water cycle
- Components of ecosystems
- Components of an energy cycle
- Basic principles of sustainability
- Local veld types and their carrying capacities
- Classification of fauna and flora relevant to the direct environment
- Alien species relevant to the direct environment
- Basic environmental patterns and processes
- Local weather and climate, and seasonal conditions of the area
- Basic local ecosystems
- Importance of **biodiversity** in local farming systems
- Sources of water
- Sources of energy (renewable and non-renewable)
- Types of pollution
- Basic firefighting rules
- Occupational Health & Safety Act

A competent learner soil doctor in **sustainable soil management** the learner must be able to:

- Minimise soil erosion.
- Enhance soil organic matter content.
- Foster soil nutrient balance and cycles
- Prevent, minimise, and mitigate soil salinisation and alkalinisation.
- Prevent and minimize soil contamination.
- Prevent and minimize soil acidification.
- Preserve and enhance soil **biodiversity**.
- Minimize soil sealing.



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- Prevent and mitigate soil compaction.
- Improve soil water management.

Module Three

At the start of Module three participants are introduced to **Agricultural Data Collection** by going through a learning process as stated in Unit Standard No: 116311 at NQF Level 4

Agricultural Data Collection contents of the unit standard are about the process of gathering information, such as profit margins per cultivar, pest and disease infestations, weather and climatic information, rainfall, costs, economic conditions – and analysing it to be able to find patterns that will help us work more efficiently, sustainably, and profitably on a farm.

Unit Standard Learning Outcomes

- Different methods of data collection
- Selection and application of data collecting methods.
- Analysing and evaluating of collected data for problem identification and decision-making.
- Methods of analysing and interpreting data
- Report writing

The main goal for module three which pertains to research in soil science, is understanding of:

- Nature
- Properties
- Dynamics and functions of the soil

The basic requirement for attainment of the soil doctor goal is **availability of reliable information on soil morphology** and other characteristics obtained through examination and description of the soil in the field.

NB: A good soil description can prevent errors in soil sampling and mapping.

2. Course Expectations

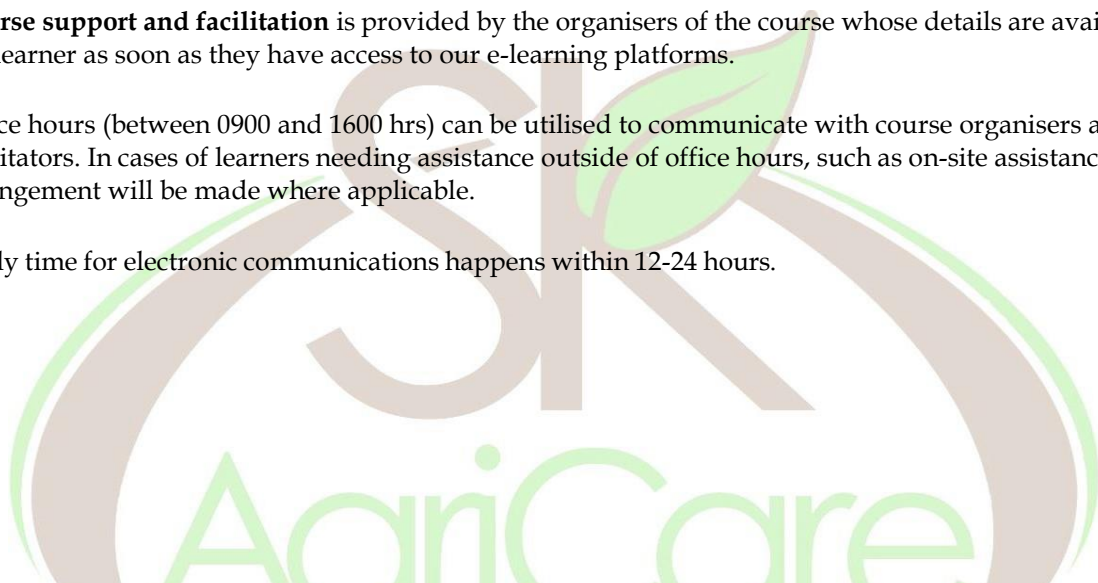
See **Course Schedule** as far as each module of the course goes and this is where you find rules of participation in terms of activities, formative, and summative assessments. Attaining competencies requires work on the learner's part and developing an independent learner attitude is important for success.

Even though learner soil doctors are required to submit their workbooks at the end of each module, some practical activities might be expected to be performed on-site when assessors visit the Agricultural Demonstration Plot to launch the Soil Doctor's local service site.

Course support and facilitation is provided by the organisers of the course whose details are available to the learner as soon as they have access to our e-learning platforms.

Office hours (between 0900 and 1600 hrs) can be utilised to communicate with course organisers and facilitators. In cases of learners needing assistance outside of office hours, such as on-site assistance, an arrangement will be made where applicable.

Reply time for electronic communications happens within 12-24 hours.



7. The Course Content

Module One - Fertilise Soil and Attend to basic Plant Nutrition

- Explore soil nutrients.
- Plant nutrition and soil fertility
- Soil improvement methods, substances and techniques
- Proper use of fertilisers and pesticides

Module two - Sustainable Soil Management reinforced through the understanding of sustainable farming to conserve natural resources.

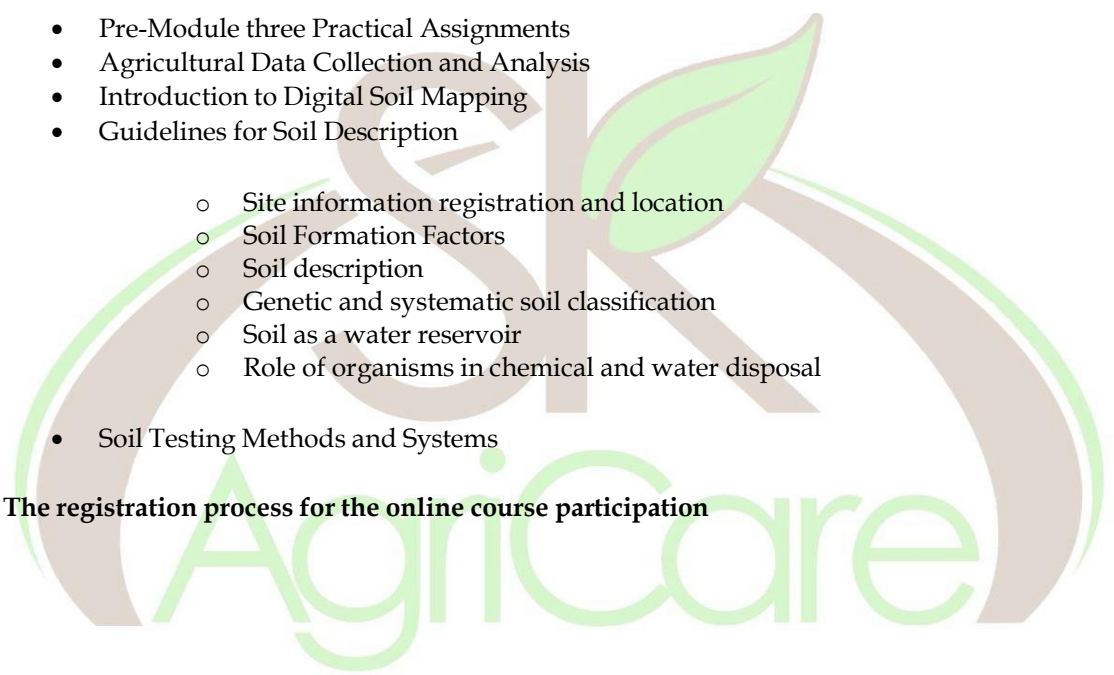
- Enabling environment for Sustainable Soil Management through governments and international core actions
- Principles of Voluntary Guidelines for Sustainable Soil Management developed within GSP (Global Soil Partnerships) framework.
- Enhance soil organic matter content.
- Foster soil nutrient balance and cycles
- Minimize soil erosion.
- Prevent, minimise, and mitigate soil salinisation and alkalanisation.
- Prevent and minimise soil contamination.
- Prevent and minimize soil acidification.
- Preserve and enhance soil biodiversity.
- Minimize soil sealing.
- Prevent and mitigate soil compaction.
- Improve soil water management.

NB. At the end of module two there is a **summative assessment**. This assessment will be followed by **practical assignments** that introduce the learner to module three. A participant who does not go beyond this module can still participate in the transfer of knowledge and skill to farmers but cannot partake in soil testing beyond the do-it-yourself soil testing with household ingredients, in other words the participant may not be equipped with chemical-based soil testing kits.

Module Three - Advanced Soil Doctor Training

- Pre-Module three Practical Assignments
- Agricultural Data Collection and Analysis
- Introduction to Digital Soil Mapping
- Guidelines for Soil Description
 - Site information registration and location
 - Soil Formation Factors
 - Soil description
 - Genetic and systematic soil classification
 - Soil as a water reservoir
 - Role of organisms in chemical and water disposal
- Soil Testing Methods and Systems

The registration process for the online course participation





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Initial registration entails registration as a course participant which is accompanied with site registration. Site registration refers to the registration of the plot (as an Agricultural Demonstration Plot, where appropriate) that will also be used as the soil testing facility and service centre for meeting the needs of local farmers who will be beneficiaries in the soil doctor's services.

Cost per Module

The learner who is certain that they wish to do all three modules (with RPL engagement where required) including summative assessment that results in a qualification as a Global Soil Doctor, can pay a registration of **R750.00** as a once-off payment.

Course participants registering to take one or two modules pay initial registration of **R500.00** which allows access to all learning materials and presentations pertaining to Module one, and subsequently make a payment of **R300.00** which allows access to Module two learning materials.

2.1 On-the-field cost

This is the practical and specific mentor sessions and the protégé learner doctor must meet travel and accommodation cost of the mentor. The protégé is at liberty to invite other protégé learner farmers to be participants at their session, in which case they can share the costs.

2.2 Learner Material Cost

All learner material is accessible online per module that the learner doctor has registered for accordingly.

3. Communication Guidelines

This course is based on a self-directed approach and is meant for individual study. The course is offered all year round, so there is a community of soil doctors in training all seasons, if you wish to share experiences and knowledge with other soil doctors, the organisers of the course can share the appropriate link with you. As you become a part of this community you may also enjoy supporting others. Self-teaching and problem solving is a challenging way to learn. Self-directed as the course may be, there is only one summative assessment per module per year to start and there may later be more than one annual summative assessment should learner participation deem it necessary.

4. Social Presence and Interaction

- 4.1 The instructor establishes a social presence at the beginning of the course with an introduction on the e-learning platform and asks students to do the same.
- 4.2 Learning activities provide opportunities for interaction that supports active learning.
- 4.3 The requirements for student interaction are clearly articulated.
- 4.4 The instructor is present throughout the course, participating regularly.

Netiquette:

We commit ourselves to observe netiquette rules and expect the same from our groups:

- We will not share large files through email directly but will send links to large files for you to access and/ or download.

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- We always try to respond to emails promptly, within the first 12 hours and not later than 24 hours.
- We will always keep our online information reasonably updated and we also appeal to our online groups to draw our attention to online information that might seem outdated.