Certificate of Agronomy: Foundations in Crop Science ACS

5 – 9 April 2027
Cape Town (South Africa)



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Why This Course

Agronomy is a core discipline for improving crop productivity, soil health, farm efficiency, and long-term agricultural sustainability. Modern crop production requires more than planting and harvesting; it depends on understanding soil conditions, plant growth, nutrient needs, pest risks, climate factors, and the right use of technology.

This intensive 1-week Certificate of Agronomy Training program provides participants with a practical foundation in modern crop science and field management. The course covers soil science, crop physiology, crop production planning, nutrient management, integrated pest management, precision agriculture, conservation practices, and climate-smart farming. Through applied exercises and real-world agricultural examples, participants will gain the confidence to make informed agronomic decisions and support more productive and sustainable farming operations.

What You'll Learn and Practice

By joining this program, you will:

- Understand the fundamental principles of soil science and crop physiology.
- Identify soil formation processes, composition, classification, and key properties.
- Assess soil fertility, soil health, and erosion risks.
- Understand plant growth stages and environmental factors affecting crop performance.
- Select suitable crop varieties and design crop rotation plans.
- Apply seeding techniques and plant population management practices.
- Understand essential plant nutrients and their role in crop yield and quality.
- Interpret soil testing results and develop nutrient management recommendations.
- Apply fertilizer selection, timing, placement, and application methods.
- Develop integrated pest management strategies for weeds, diseases, and insects.
- Apply pesticide safety and responsible application practices.
- Explore precision agriculture, conservation tillage, cover crops, and climate-smart practices.



The Program Flow

Day 1: Soil Science and Management

- Understand soil formation, composition, and classification.
- Identify physical and chemical properties that influence crop production.
- Assess soil fertility and soil health indicators.
- Interpret basic soil conditions for better management decisions.
- Apply soil conservation and erosion control techniques.

Day 2: Crop Physiology and Production

- Understand plant growth and development stages.
- Analyze crop adaptation to climate, soil, water, and environmental conditions.
- Select suitable crop varieties based on production goals and field conditions.
- Apply crop rotation principles to improve productivity and soil health.
- Use seeding techniques and plant population management practices effectively.

Day 3: Nutrient Management

- Identify essential plant nutrients and understand their functions.
- Conduct and interpret basic soil tests.
- Select suitable fertilizer types based on crop and soil needs.
- Apply fertilizer using appropriate timing, placement, and application methods.
- Explore precision nutrient management and variable rate technology.

Day 4: Integrated Pest Management

- Understand weed biology and practical control strategies.
- Identify common crop diseases and management approaches.
- Recognize insect pests and assess their impact on crop performance.
- Develop integrated pest management plans for sustainable crop protection.
- Apply pesticide safety and responsible application techniques.

Day 5: Sustainable Agriculture and Technology

- Understand conservation tillage systems and their benefits.
- Explore the role of cover crops in soil health and erosion control.
- Use precision agriculture tools and technologies to improve farm efficiency.
- Apply climate-smart agriculture practices for resilience and sustainability.
- Build practical strategies for combining productivity with environmental protection.



Individual Impact

- Build confidence in applying agronomic principles to real farming situations.
- Strengthen skills in soil assessment, crop planning, and nutrient management.
- Improve the ability to identify and manage common pests, weeds, and diseases.
- Gain practical awareness of precision agriculture and conservation techniques.
- Develop stronger decision-making skills for sustainable crop production.

Work Impact

- Improve crop yield, quality, and field productivity through better agronomic planning.
- Strengthen soil health and long-term land sustainability.
- Reduce input waste through improved nutrient and pest management.
- Support more efficient use of technology in farming operations.
- Enhance farm resilience through conservation and climate-smart agriculture practices.

Training Methodology

This program combines agronomy fundamentals with practical field-focused application through:

- Soil science and fertility assessment exercises.
- Crop planning, variety selection, and rotation design activities.
- Soil testing interpretation and nutrient recommendation workshops.
- Integrated pest management case studies and identification exercises.
- Precision agriculture and variable rate technology discussions.
- Sustainable farming and climate-smart agriculture planning activities.

Beyond the Course

Upon completion, participants will be able to:

- Conduct and interpret basic soil tests for informed management decisions.
- Develop comprehensive crop management plans for farming operations.
- Create integrated pest management strategies for common crop pests.
- Apply nutrient management practices to improve crop yield and quality.
- Use precision agriculture tools to improve farm efficiency.
- Support sustainable and conservation-focused agricultural production.

