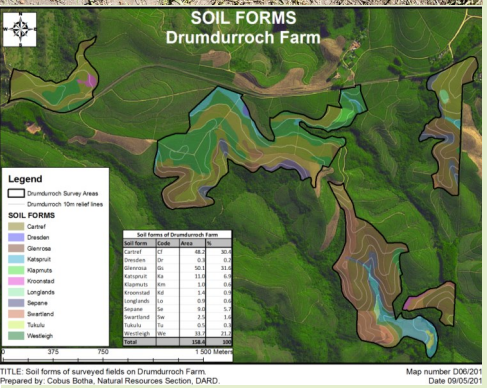
53rd Annual GSSA Congress: Mid-Congress Practical Sessions

Thursday, 26 July 2018, 14:30, ARC Training Centre, Roodeplaat, Pretoria, Gauteng, South Africa

Soil Assessment and Analysis

Presented by Cobus Botha (KwaZulu-Natal Department of Agriculture and Rural Development)



TITLE: Soil forms of surveyed fields on Drumdurroch Farm.
Prepared by: Cobus Botha, Natural Resources Section, DARD.
Map number D06/201
Date 09/05/201

Soil is the natural habitat that regulates our environment and responds to the pressures imposed upon it. Although overlooked by many of us, it carries out a number of key tasks that are essential to our well-being including: acting as a medium that enables us to grow food, natural fibre, timber and support wildlife habitats; functioning as a natural filter and regulator of water and biochemical cycles, and; a repository for carbon and other nutrients. Understanding the importance of soil in vegetation dynamics and its influence on the responses to management treatments are well-documented for rangeland science and cannot be overstated. The accurate identification of soil physical properties, the classification of soils according to soil type (or at least soil functional group), the collection of soil samples for laboratory analysis and the interpretation of soil data for land use, are practical skills required by all field scientists and practitioners. This practical session will attempt to familiarise or reacquaint participants with some of these basic skills and provide relevance in the rangeland science context. Equipment and reference material such as soil auger, beta sampling auger, blue book (Taxonomic Classification of South African Soils) and Munsel Colour Chart, Abney Level, GPS data dictionaries and field forms will be demonstrated. Interested delegates are welcome to bring their own equipment if available to them.

Tree Measurements: VOLCALC Workshop

Presented by Leslie Brown (UNISA)

Studies on plant phenology and browse capacity require effective methods to rapidly quantify plant dimensions such as tree height, height of maximum canopy diameter, height of first leaves, maximum canopy diameter, and diameter of trunk(s) at height of first leaves. The VolCalc programme is used to measure the various tree dimensions and calculate canopy volume using a measuring staff (for calibration), a digital camera and our VolCalc software. The workshop will be a brief overview of the programme where after a practical session will be done where participants will get hands-on training on the use of the programme. **Participants must have their own laptop so that the software could be loaded.**

Grass and herbaceous species identification

Presented By: Caroline Mashau (SANBI)

The practical course will discuss some of the following aspects:

- How to collect and press grasses. This will include how to collect the whole grass plant; plant layout in the plant press; taking notes of locality and habitat details of the specimens.
- Grass terminology for identification. This will include terms such as spikelets; ligules and the shape of the inflorescence.
- An Introduction to keys for grass identification.

Veld Condition Assessment

Presented By: Dr Tony Swemmer (SAEON Ndlovu Node)

Many researchers and extension officers are required to conduct assessments of veld condition, and often with little formal training on the theory of monitoring or the various methods used. In many cases, those conducting veld conditions have taught themselves, with little or no practical training. Often a particular method is selected and retained without considering all the various methods available. Data analysis is often neglected or takes far too much time, due to a lack of application of widely-available data management tools.

The aim of this session is to provide practical training on all aspects of veld condition assessment, from planning to data collection to data analysis. A brief lecture will be provided on planning, including an introduction to monitoring, the purpose of veld condition assessment, selection of relevant variables and the various methods available. This will followed by a practical session, during which delegates will conduct veld condition assessments under the guidance of experienced practitioners, on an area of natural grassland close to the conference venue. Data will then be captured and a tutorial will be provided on data management and analysis, in MS Excel and R.

This session is intended for those who are new to veld condition assessments, particularly post-graduate students and newly appointed extension officers and researchers. Some aspects of the session may also be valuable to those who have experience with veld condition assessment but are interested in new methods or new ways of managing and analysing their data.

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Herbicide application

Presented by Jaco Fouche (Dow AgroSciences)

The Dow AgroSciences (DAS) Bush and Rangeland team will arrange to prepare a small demo site at the ARC trial farm at Roodeplaat dam. The demo site will be a small trial with foliar trial and a cut stump treatments. These trials will be completed in March/April as this will be the ideal time to treat the thorny species found on the site. For the day of the practical session, a short presentation will be given on the different types of agricultural chemical available in SA (Fungicides, insecticides, herbicides and fumigants), focusing more on herbicides. In this presentation focus will be placed on key factors that need to be taken into account when deciding to use herbicides.

These will include:

- The importance of correctly identifying the target species
- The choosing of the correct application method
- How to prepare an herbicide mix
- The importance of an adjuvant or a spreader
- Environmental factors that can influence efficacy.

After the presentation, a small practical illustration will be conducted on the day to show the participants:

- Safety measure that need to be in place when applying herbicides.
- How to mix herbicides according to protocol.
- Application techniques with a high pressure knapsack and a low pressure sprayer.
- How to document all the necessary environmental data needed for the trial.

We will also show the students how trees look that have been treated a few months earlier.

Pasture Measurement

Presented by Sigrun Ammann & Janke van der Colf (Western Cape Department of Agriculture

Basic principles of laying out and managing small plot trials

Small plot pasture trials are mostly used to determine genetic potential and traits of varieties but also to determine the effects of various treatments in a controlled field trial with the aim of the only variability coming from the treatments, which can then be measured.

There are various important stages in the process of a running a field trial. Firstly, the preparation phase, which includes the site, field infrastructure and the field preparation itself as well as the seed and other treatment preparations. Establishment of the trial is the second important phase followed by day-to-day trial management and lastly the data collection which is concurrent with the trial management. The regular harvesting of pasture trials throughout the season make them more complex than crop trials which are harvested only once. The success of a trial is largely dependent on managing the field variability throughout the duration of the trial and maintaining consistency throughout. The practical session will address various practical aspects for a successful small plot trial.

Measuring and managing grazed pasture trials

Larger scale trials, particularly where pastures are grazed by animals, hold specific challenges for researchers. Grazed pastures often show a greater degree of variability in yield on a spatial scale than small plot cutting trials, primarily attributed to heterogeneity resulting from animals grazing to varying heights within paddocks and the deposition of nutrients by manure and urine. This practical will focus on the measurement of pasture using indirect methods such as the rising plate meter and discuss the basic principles of managing grazed pasture trials.

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Practical parasite control on pastures: Famacha in small stock

Presented by Gareth Bath (University of Pretoria)

This will be a practical, hands-on session to demonstrate practical methods for controlling worms (internal parasites) in a sustainable and efficient way while sheep or goats are grazing on pastures.

Participants will be shown how to examine animals, what samples to take, how to decide which animals need to be treated, and how to decide which treatment to give or other action to take.

All the techniques demonstrated have been thoroughly tested and shown to work under practical farming conditions and have been recognized internationally.

Material will be available for purchase by participants.

Ecological Infrastructure Tour: Colbyn Wetland

Presented by Mahlodi Tau & John Dini (SANBI)

SANBI is collaboration with the City of Tshwane, the Working for Wetlands and the Friends of Colbyn Wetland will be hosting the Ecological Infrastructure tour as part of the GSSA mid-congress tours. The tour is planned for Thursday afternoon on 26 July 2018 during the congress to visit the Colbyn Wetland Nature Reserve located in Pretoria East and just 20kms away from the Congress venue.

The tour is aimed at introducing the GSSA delegates to the concept and the benefits of "Investing in Ecological Infrastructure" for the agriculture sector. Over recent years, decision makers in South Africa have begun to recognize the value of healthy ecological infrastructure such as wetlands, grasslands and riparian zones, in ensuring the resilience of the country's environment, resources, and ultimately the survival of its people. Agriculture is a priority sector for realizing food security, employment and economic growth and it is also a sector with a large geographical and ecological footprint. The bulk of ecological infrastructure assets are located in agricultural landscape and these are recognized as valuable assets underpinning the sustainability of agricultural production. The sector depends and impact on EI and their depletion and degradation undermines the provision of water, fertile soil, forage and food production.

The Colbyn wetland serve as an important ecological infrastructure providing valuable services such as clean water supply, flood attenuation and disaster prevention, as well as cultural and recreational benefits. The wetland provide ecological support for the Hartebeesspruit which flows into the Roodeplaat Dam providing drinking water to the City of Tshwane and supporting the agricultural sector. The wetland is also home to rich biodiversity and includes areas of peatland, estimated to be over 7000 years with the thickness of approximately 2.4 m deep.

Activities during the field visit will include a series of participatory conversations about the history and the significance of the site; demonstration on the benefits of a healthy ecological infrastructure; the wetland rehabilitation; the importance of biodiversity and ecosystems services and drawing linkages to the agricultural sector. The tour is free of charge for the GSSA registered congress delegates and includes a return transportation from the Congress venue to the Colbyn Wetland Nature Reserve.

These practical sessions will take place outside in the field. It is advised that participants wear comfortable shoes, a hat and ensure they have sunscreen and a warm jacket.

To register, complete the registration form available on the website, www.grassland.org.za, or contact Erica Joubert on info@grassland.org.za, +27 (0)63 361 2647 (only between 8am and 1pm).