

*SOIL SCIENCE  
SOCIETY OF SOUTH  
AFRICA*



**NEWSLETTER**

**No. 99**

**May 2015**

## **SSSSA COUNCIL/GVSA RAAD: 2015-17**

<b>President</b>	<b>Dr R. van Antwerpen</b> (SASRI, Mount Edgecombe)
<b>Vice-Pres./Vise-Pres.</b>	<b>Dr J.J. Botha</b> (ARC-ISCW, Glen)
<b>Past Pres./Oud-Pres.</b>	<b>Dr P.A.L. le Roux</b> (UFS, Bloemfontein)
<b>Secr. Treas./Skr.-Tes.</b>	<b>Mr T.E. Dohse</b> (Pretoria)
<b>Secretariat:</b>	<b>Mrs M. van der Walt</b> (ARC-ISCW, Pretoria)
<b>Members/Lede</b>	<b>Dr A.G. Hardie</b> (University of Stellenbosch)
	<b>Prof J.J.O. Odhiambo</b> (University of Venda)
	<b>Mr M. du Plessis</b> (NWK, Lichtenburg)
	<b>Ms R. Rhodes</b> (SASRI, Mount Edgecombe)
	<b>Ms L.D. Wiese</b> (ARC-ISCW, Pretoria)

### **ADDRESS/ADRES**

**P O Box/Posbus 65217  
Erasmusrand  
0165**

### **TELEPHONE/TELEFOON**

**President: 031 508 7400  
Sec./Skr.: 082 324 5389**

### **E-MAIL**

**[theo.dohse@webafrica.org.za](mailto:theo.dohse@webafrica.org.za)**

### **WEB PAGE/-TUISTE**

**<http://www.soils.org.za>**

*(Website co-ordinator: Ailsa Hardie; [aghardie@sun.ac.za](mailto:aghardie@sun.ac.za); 021 808 4790)*

**The SSSSA does not necessarily agree with opinions expressed in this newsletter.**

***Die GVSA onderskryf nie noodwendig die menings van bydraes tot sy nuusbrieff nie.***

**MESSAGE FROM THE PRESIDENT/  
BOODSKAP VAN DIE PRESIDENT**

Dear colleagues/*Beste kollegas,*

The United Nations declared 2015 as the International Year of Soils (IYS). Visiting the internet, it is clear that those with an interest in soils are making full use of the opportunity to celebrate and promote the importance of soils on a global scale. So far IYS activities in SA have involved: the development of a manifesto for soils, organizing a conference, networking meetings, talks, calendars and distributing commemorative maps. The conference mentioned here is organized by Dr Andrei Rozanov for 5-6 November in Stellenbosch.

The SSSSA turned 60 last year and to celebrate the event, SSSSA members from around South Africa met one evening at the recent congress in George where they could network and listen to stories from days gone by Prof Giel Laker and Adam Mostert. The evening was a huge success with all food and drinks sponsored by FERTASA. (See pictures and more about the evening on our Facebook.)

At the 2015 Combined Congress in George, it was recorded that nearly 100 people attended without indicating their affiliation to any of the four societies. Because the number of people attending per society is recorded for administration purposes it is hereby requested that all members of SSSSA indicate their affiliation at future congresses. By doing so you will help to make your society stronger.

You are encouraged to recommend candidates to be considered by council for honorary membership, and medals for exceptional service to promote soil science in SA. Submit the names with a short motivation (half page) to the treasurer, Theo Dohse, at [theo.dohse@webafrica.org.za](mailto:theo.dohse@webafrica.org.za).

The SA Journal of Plant and Soil belongs to the four societies and an important objective of the journal is to increase its ISI rating. To achieve this, members are requested to reference articles from the SAJPS in their publications.

The next congress will be held in January 2016 in Bloemfontein and members are requested to start working on their abstracts as the first call for submissions will be circulated soon. The 2017 congress will be held in Pretoria.

Finally I want to encourage members to visit our website ([www.soils.org.za](http://www.soils.org.za)) and Facebook for more information in the world of soils. Our Facebook in particular, has many interesting news snippets. One that caught my eye was the procedure to convert a simple solar powered pathway light into a soil moisture sensor. There is also an article on how to construct a Winogradsky column and another from the BBC News on ancient soils. Check it out!

I wish that the second half of 2015 will be an interesting and productive period for all of us.

*Die Verenigde Nasies het 2015 verklaar as die Internasionale Jaar vir Gronde (IJG). Daar is volop voorbeelde op die internet van hoe persone die geleentheid gebruik om grondkunde werêldwyd te bevorder. IJG aktiwiteite in SA sluit in: die ontwikkeling van 'n manifest vir gronde, die organiseering van 'n konferensie, vergaderings om skakeling te bevorder, gesprekke, kalenders, en die verspreiding van gedenkkaarte. Die konferensie word deur Dr Andrei Rozanov vir die 5-6 November in Stellenbosch gereël.*

*Die GVSA het verlede jaar 60 geword en die geleentheid is deur lede tydens die George kongres in Januarie op 'n geselligheid herdenk. Tydens die geleentheid het Prof Giel Laker en Adam Mostert ons met stories uit vergange dae vermaak. Die aand was 'n groot sukses en is deur FERTASA geborg. (Besoek gerus die GVSA Facebook vir meer omtrent die aand en fotos.)*

*Bykans 100 persone wat die 2015 kongres op George bygewoon het, het nie hul affiliasie met enige van die vier lid verengings aangedui nie. Die aantal persone per vereniging wat die kongres bywoon word om administratiewe redes gemonitor. GVSA lede word versoek om hul affiliasie aan te dui en daardeur 'n bydra te maak om jul verenging sterker te maak.*

*Lede word versoek om dié wat 'n besondere bydra tot grondkunde gemaak het vir erelidmaatskap en medaljes vir buitengewone diens te benoem. Die name tesame met 'n kort motivering moet aan die tesourier, Theo Dohse, gestuur word ([theo.dohse@webafrica.org.za](mailto:theo.dohse@webafrica.org.za)).*

*Die SA Tydskrif vir Plant en Grond behoort aan die vier vak verenigings. 'n Belangrike doelwit van die journal is om sy ISI gradering te verbeter. Om dit reg te kry word die hulp van alle lede benodig. Lede word dringend versoek om artikels uit die SA Tydskrif vir Plant en Grond in die bronne lys van alle publikasies in te sluit.*

*Die volgende kongres word in Januarie 2016 in Bloemfontein gehou. Lede word aangeraai om aan hul uittreksels vir die komende kongres te begin werk aangesien die eerste aankondiging binnekort uitgestuur sal word. Die 2017 kongres sal in Pretoria gehou word.*

*Laastens wil ek lede versoek om ons webblad ([www.soils.org.za](http://www.soils.org.za)) en Facebook te besoek vir meer inligting aangaande grondkunde. Ons Facebook veral het heelwat interessante nuus brokkies. Een wat my oog gevang het is 'n metode om 'n eenvoudige sonkrag liggie te omskep in 'n grond water sensor. Ek het ook 'n metode om 'n Winogradsky kolom te bou daar gekry en 'n BBC artikel oor antieke gronde.*

*Hoop dat die tweede helfde van 2015 'n interessante en produktiewe tyd vir almal sal wees.*

Best wishes/Groete,

**Rianto van Antwerpen**

(031 508 7400; [Rianto.vanAntwerpen@sugar.org.za](mailto:Rianto.vanAntwerpen@sugar.org.za))

## **EDITORIAL/REDAKSIONEEL**

This issue continues the recent theme of looking back over the past few decades of soil science in South Africa. Once again, thanks to Giel Laker for putting together an item on some hair-raising experiences of past soil surveyors. I have added my own small contribution, but I am sure there are many of you with similar stories, which we would love to hear, so that they can be included in future newsletters. Also, old photographs that will give a different perspective on how soil science was “back in the day”.

There will shortly be a document produced and circulated that gives instructions on how to access the ‘SA Journal for Plant and Soil’ through the Taylor & Francis web page. Please look out for that in the near future. Please also read the item on the next page on prospective changes to the management of the SSSSA. Council has worked hard to ensure (hopefully) that the transition will be smooth. They will need all our co-operation.

Regards,

**Garry Paterson**

(012 310 2601; 083 556 2458; [garry@arc.agric.za](mailto:garry@arc.agric.za))

## COUNCIL MATTERS/RAADSAANGELEENTHEDE

### **The link between the SSSSA and the Southern African Plant and Soil Sciences Committee (SAPSSC)**

In 2005, four societies agreed to hold combined congresses and formed a committee with its main purpose to organize annual congresses on behalf of the four societies. In time they have entered into a formal agreement which is now known as the Southern African Plant and Soil Sciences Committee (SAPSSC). The four societies are: Soil Science Society of South Africa (SSSSA), South African Society of Crop Production (SASCP), Southern African Society for Horticultural Sciences (SASHS) and Southern African Weed Science Society (SAWSS).

2015 is an important transition year for the four societies during which administration tasks will be shifted to the SAPSSC office with one permanent employee – the Secretary. These tasks include membership and financial administration. However, each society will still manage their own members and finances. For example, the SAPSSC Secretary will receive an application for membership to a society and pass it on to that society. The society will then make a recommendation regarding the application and the SAPSSC Secretary will act on this recommendation and adjust the membership list accordingly. The same process will apply to finances.

The SAPSSC is in good hands as it consists of members representing all four societies (past president, president and vice-president). For your information, members serving on the current SAPSSC are listed below, followed by a message from the SAPSSC Chairman.

Prof Pieter le Roux (SSSSA, Chair SAPSSC)  
Dr Diana Marais (SASCP, Vice-chair SAPSSC)  
Dr Johann Strauss (SASCP)  
Mr Willem Engelbrecht (SASCP)  
Dr Rianto van Antwerpen (SSSSA)  
Dr Cobus Botha (SSSSA)  
Mr Mark Penter (SASHS)  
Ms Karen Hannweg (SASHS)  
Dr Nicky Taylor (SASHS)  
Mr Kobus Steenekamp (SAWSS)  
Prof Charlie Reinhardt (SAWSS)  
Dr Elbe Hugo (SAWSS)  
Dr Dave Turner (SAJPS)  
Dr Gert Ceronio (Chair of the LOC - Bloemfontein)

## **MESSAGE FROM SAPSSC CHAIRMAN/BOODSKAP VAN DIE SAPSSC VOORSITTER**

The SAPSSC has appointed Ms Nancy Nortjé (UFS, Bloemfontein) to administer the office. She will report to the SAPSSC Chairman. The SAPSSC office will serve the societies by systematically taking over responsibilities from the local organizing committees for congresses, the journal and the four societies. The process will hopefully be completed as soon as possible and will be limited to administration which overlaps and is typically repeated for each society. No scientific matters will be handled. Financial matters will be handled by the societies, and regular contact between them is important. Financial information can, for example, be submitted on a monthly basis to the society treasurers.

The procedures of the office will be specifically discussed with the societies, with the challenge being to manage the process to the satisfaction of all concerned.

*Die SAPSSC het Me Nancy Nortjé (UFS, Bloemfontein) aangestel om die kantoor te bedien. Sy rapporteer aan die voorsitter van die SAPSSC. Die SAPSSC kantoor sal die vakverenigings diens deur metertyd verantwoordelikhede van die plaaslike reelingskomitee van die kongress, die tydskrif en die vier vakverenigings oorneem. Die proses moet verkieslik so gou moontlik afgehandel word. Die verantwoordelikhede van die kantoor is beperk tot administrasie wat oorvleuel en tipies in al die verenigings herhaal word. Die kantoor sal geen vakverwante sake hanteer nie. Finansies sal deur die vakverenigings bestuur word en gereelde skakeling met die vakverenigings is belangrik. Finansies kan byvoorbeeld op maandelikse basis aan die vakverenigings se tesourie deurgegee word.*

*Die prosedures van die kantoor sal algaande met die vakverenigings uitgeklaar word. Die uitdagings is daarin dat die proses tot bevrediging van al die belangegroep bestuur moet word.*

Pieter le Roux

## **APPOINTMENTS/AANSTELLINGS**

**Prof Isaiah Wakindiki**, previously at the University of Fort Hare, has been appointed Research Team Manager for the Soil Science Programme at the ARC-Institute for Soil, Climate and Water in Pretoria.

## **DEGREES AWARDED/GRADE TOEGEKEN**

Recent PhD recipients from the University of Fort Hare:

- **Frank Oshioname Unuofin** was awarded a PhD in Soil Science on May 13, 2015. The title of his thesis is “Optimization of the vermicomposting of cow dung waste paper mixtures”. His promoter was Prof P.N.S. Mkeni.
- **Hupenyu Allan Mupambwa** was awarded a PhD in Soil Science on May 13, 2015. The title of his thesis is “Optimization of bio-conversion and nutrient release from coal fly ash amended cow dung – waste paper composts using earthworms (*Eisenia fetida*) and effective micro-organisms”. His promoter was Prof P.N.S. Mkeni.

MSc (Agric) degrees in Soil Science awarded at the autumn graduation ceremony of the University of Pretoria:

- **M.E. Malobane** received his MSc on a dissertation entitled “Using the organic carbon fractions of the Van Soest method to determine compounds responsible for C and N mineralization from sludge amended soils”. Eyob Tesfamariam was his supervisor, with Chris de Jager as co-supervisor.
- **Petrus van der Merwe** received his MSc on a dissertation entitled “Phosphorus phyto-availability and fertilizer value of petrochemical and municipal wastewater sludges”. Chris de Jager was his supervisor, with John Annandale as co-supervisor.

## **CORRECTION/REGSTELLING**

### **KARATE ACHIEVEMENTS OF PIETER LE ROUX**

For some inexplicable reason, when compiling the 60<sup>th</sup> Anniversary SSSSA review document last year, I forgot to include something about the karate achievements of **Pieter le Roux**, immediate Past-President of the SSSSA. Fortunately he afterwards kindly gave me the following information when I requested it from him:

Pieter is a 7<sup>th</sup> dan in karate and was member of the Protea B team. He used to be one of only two persons with PhD degrees who reached 5<sup>th</sup> dan level in karate, but we do not have present statistics. He was coach/trainer of the Junior Protea team that competed in the international tournament in Hungary in 2002. Pieter did not mention it, some years ago someone told me that in karate circles Pieter was known as the one with the fastest hands.



Giel Laker

## **AWARDS/TOEKENNINGS**

Congratulations to the following winners from the George Congress in January:

### **SSSSA President's Award for Best Paper**

Effect of shallow water tables on the evapotranspiration and irrigation requirement of winter wheat and maize in a semi-arid region – **L Ehlers, ATP Bennie and CC du Preez**

### **Best Paper: Over 30 years of age**

Increasing crop yields and rainwater productivity through rainwater harvesting and conservation techniques – **JJ Botha, JJ Anderson and PP van Staden**

### **Best Paper: Under 30 years of age**

The contribution of manganese oxides to redox buffering in selected soils of the South African Highveld – **L Mudaly, PC de Jager, J van der Waals and MV Fey**

### **Best Paper on Innovative New Technology (joint award)**

Soil organic matter: constant, variable and unknown – **A Rozanov, I Ros and LD Wiese**

Soil carbon accounting in KZN midlands using vertical distribution functions – **LD Wiese, I Ros, A Rozanov, WP de Clercq and T Seifert**

### **Omnia Student Award**

Using soil chemical trends as recent indicators to improve morphological and hydrometrical interpretations of hydrological response – **D Bouwer, PAL le Roux, JJ van Tol and CW van Huyssteen**

### **Best Poster**

Effect of biochar and phosphorous fertilizer application on selected soil chemical properties and yield of chickpea – **SG Lusiba, JJO Odhiambo and JBO Ogola**

### **SAJPS Award**

Finally, congratulations to the winners of the best soil science article in the SA Journal of Plant and Soil for 2013: **John Wooldridge, Johan Fourie and Marlise Joubert** – *“Effects of soil surface management practices on soil and tree parameters in a ‘Cripps Pink’/M7 apple orchard 2. Tree performance and root distribution.”*

## CONGRESSES/KONGRESSE

### COMBINED CONGRESS

The next Combined Congress will be held in Bloemfontein in January 2016. The first announcement will follow in due course. (In addition, the 2017 Combined Congress will be in Pretoria.)

### 7th International Conference of the Africa Soil Science Society

*Theme: Critical soil solutions for sustainable development in Africa  
First announcement and call for communications*



2015  
International  
Year of Soils

The Africa Soil Science Society (ASSS) and the Soil Science Society of Burkina Faso (3SBF) invite participants to the 7th International Conference of the Africa Soil Science Society that will be held from 25 October to 1 November 2015 in Ouagadougou (Burkina Faso). This 7th International Conference will gather soil scientists, land planners and users as well as all related specialists to deliberate on the contribution of soil science for a sustainable development in Africa, with special attention on issues such as food insecurity, climate change, land degradation, land and water knowledge management and renewable energies. Contributions will include oral communications (keynote speeches, scientific papers) and poster presentations. Proposed contributions must be relevant to one of the following sub-themes:

- Soil productivity in tropical agro-systems,
- Land ownership and sustainable land management,
- Soil and climate change,
- Education and capacity building in soil science in Africa.

The Africa Soil Science Society is a non-profit organization founded in 1986, with the aim of promoting and fostering soil science in all its facets and facilitating the collaboration and cooperation amongst the Regional and National Societies of Soil Science in Africa.

#### **Some important dates:**

- **15 May 2015:** 2nd announcement
- **1 June 2015:** Deadline for abstract submission
- **5 July 2015:** Notification of abstract acceptance
- **31 August 2015:** 3rd announcement
- **30 September 2015:** Deadline for full paper submission

- **2 October 2015:** Final programme
- **25 Oct-1 Nov 2015:** Conference and field tour
- **April 2016:** Publication of the Proceedings

Abstracts should be submitted through the ASSS website: [www.asssland.org](http://www.asssland.org) or [www.asssonline.org](http://www.asssonline.org) or by e-mail to **Dr Mamadou Traore:** [iribatraore@yahoo.com](mailto:iribatraore@yahoo.com) and [sssbfaso@outlook.com](mailto:sssbfaso@outlook.com)

## The 9th International Symposium on Plant-Soil Interactions at Low pH

October 18-23, 2015. Dubrovnik, Croatia

### Background

Approximately 30% of the world's total land area consists of acid soils, and it has been estimated that over 50% of the world's potential arable lands are acidic. Excessive soil acidity as an agricultural limiting factor impacts crops production on numerous farms in Europe, including Croatia. About 830 000 ha (32%) of the agricultural land in Croatia consists of acid to highly acidic soils (2 590 718 ha in total). There are 3 clearly defined regions in Croatia - Pannonian, Mountain and Adriatic, and 79.5 % (660,617 ha) of all acid soils in Croatia are in the Pannonian region. Acid soils occupy 40% of Pannonian region, which is the most important agricultural region in Croatia.



### Symposium Objectives

The 9th International Symposium on Plant-Soil Interactions at Low pH will enhance exchange and dissemination of knowledge and experience, ideas and results and promote internationalization and friendships among researchers and professionals in all research fields associated with soil acidity effects on the environment, with a focus on both agricultural food crops as well as forest lands. The major theme of the first PSILPH symposium in Europe will be Interdisciplinary Approaches to Soil Acidity Effects on the Plant-Food Chain.

### Symposium Topics

1. Physical, chemical and biological properties of acid soils
2. Physiological and molecular mechanisms of plant adaptation to acid soils
3. Genetics and breeding of crops for acid soils
4. Aluminium toxicity, P deficiency, and other acid soil limitations with a focus on their amelioration and remediation
5. Sustainable utilization and management of agricultural and natural ecosystems on acid soils
6. Chemistry and management of acid – sulphate soils
7. Forestry and Agroforestry on Acid Soils
8. Soil Acidity Effects on the Food Chain (Food Quality, Nutrition and Human Health)

### Information

For further information please contact:

PhD Zdenko Lončarić, professor, Chairman of Croatian Organizing Committee, Phone: +385 31 554 827

PhD Domagoj Rastija, professor, Secretary of Croatian Organizing Committee, Phone: +385 31 554 829

PhD Vladimir Ivezić, assistant, Deputy Secretary of Croatian Organizing Committee, Phone: +385 31 554 831

Web page: <http://www.agroekologija.eu/9thpsilph/>

E-mail: [9thpsilph@gmail.com](mailto:9thpsilph@gmail.com), [Zdenko.Loncaric@pfos.hr](mailto:Zdenko.Loncaric@pfos.hr)

**2015 Conference on Soil and Water Conservation & Ecological  
Restoration (CSWCER 2015)  
August 25-27, 2015 Shanghai, China**

2015 Conference on Soil and Water Conservation & Ecological Restoration (CSWCER 2015) will be held from August 25 to 27, 2015 in Shanghai, China. This Conference will cover issues on Soil and Water Conservation & Ecological Restoration. It dedicates to creating a stage for exchanging the latest research results and sharing the advanced research methods. For more details, please visit the conference web site at: [www.engii.org/conf/CSWCER/2015Aug](http://www.engii.org/conf/CSWCER/2015Aug).

## **MISCELLANEOUS/ALGEMEEN**

### **Be a mentor and write about your Science**

**Gerhard Nortjé**

(SA Subtropical Growers' Association, Tzaneen)

Most of us had, somewhere along the way, someone who taught, led and believed in us, either through direct contact or a written article in a popular magazine, and by doing so have often touched and changed the direction of our lives and careers. Everyone needs a support structure. A mentor could fulfil part of that need.

The general public needs to understand what scientists are doing, what encompasses a specific scientific field, and what the latest scientific findings mean. This is relevant to all, but more so for children at primary and secondary school levels. As a scientist, you would have mastered the technical language and impersonal style of writing scientific journal articles. However, most people find scientific language incomprehensible and boring – a definite put-off to non-specialist readers.

The demands to speak to and reach the general public are increasing and scientists who can make science 'user friendly' have a great skill. Writing for the public could be very rewarding: it creates a higher profile that impresses funders, gains public support and attracts top-quality collaborations. Most people are not interested in how you discovered something. They want to

know what your discovery means. You have to answer the "so what?" questions. Rather focus on the impact of your research on people's daily lives, or how it could influence society.

Primary and high school learners need to be informed as to what specific scientific fields involve. This forms a very important part when planning their careers and choosing subjects to study. If the scientists refrain from doing that, who will? Take a student under your wing and mentor that student throughout his/her study career. "Examples" are worth a thousand words! Writing about science in everyday language gets easier with practice. In all cases, turn your research or scientific development into a story with a narrative – Popular articles!

The objective of this article is to challenge and encourage all Soil Scientists to write more popular articles about their current research projects and to be a mentor to at least one high school learner or undergraduate student. There is a great need for such mentors, believe me!

Soil science needs to be promoted and it is the responsibility of the current Soil Scientists to do just that.

## FIRST PUBLICATION 50 YEARS AGO

### Giel Laker

On 17 May 2015 I had a braai together with Jan, now called Jannie, (JBM) de Villiers, with whom I published my second article in 1966. He was lecturer and researcher in soil science at Elsenburg. In 1963, while doing my M studies at Maties, I assisted with an experiment that he did at Outeniqua experiment farm near George. Jan left Stellenbosch at the end of 1963 and I was asked to round off the research and write an article on it. I never saw him again after 1963 until this braai 52 years later.

It then dawned upon me that I published my first article 50 years ago in 1965. The reference is: **Bartell, E.E. & Laker, M.C.** 1965. Recovery of zinc from plant material. *SA J. Agric. Sci.* 7, 183-190.

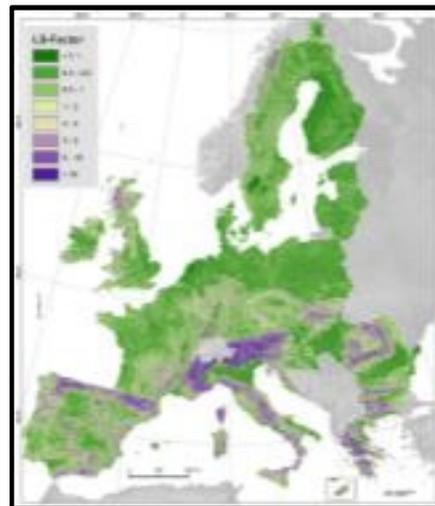
The objective was to determine how effective different digestion methods are to recover zinc from plant material for determination of the zinc concentrations and contents in the plant material by making use of radio-active  $^{65}\text{Zn}$ . Other researchers had done such studies before, but they added  $^{65}\text{Zn}$  labeled zinc to the plant material after the material had been dried and milled. We believed that such an approach gave false results, because the zinc was simply sorbed onto the plant material and not built into it. So, we grew rye plants fertilized with  $^{65}\text{Zn}$  labeled zinc chloride and then harvested, dried and milled the plant material. So, the zinc was actually built into the plant material and had to be released from it during digestion. Thereafter we digested the plant material with different methods and used  $^{65}\text{Zn}$  determination to determine how effective each method was. The basic standard was a  $^{65}\text{Zn}$  counting on the dried plant material itself, to determine its content in the plant material. All the wet digestion methods were very effective and gave virtually 100% recovery of the zinc. With dry ashing in an oven the ashing temperature was extremely important, with

the best one somewhat different from the one usually recommended. Even at the optimum temperature, recovery was not as good as with the wet digestion methods. The most interesting finding was with what happened at very high temperatures: the recovery was extremely low. In the past it was assumed that Zn was lost at those temperatures due to volatilization (if that is the correct word, or is it sublimation) into the air. By doing counts on the porcelain crucibles in which the digestion was done, we found almost all the zinc there, fused into the crucibles at those temperatures.

### **Slope Length and Steepness factor (LS-factor)**

The European Soil Data Centre (ESDAC) has developed a new pan-European high-resolution soil erosion assessment to achieve a better understanding of the spatial and temporal patterns of soil erosion in Europe. The LS-factor calculation was performed using the original equation proposed by Desmet and Govers (1996) and implemented using the System for Automated Geoscientific Analyses (SAGA), which incorporates a multiple flow algorithm and contributes to a precise estimation of flow accumulation.

The LS-factor dataset was calculated using a high-resolution (25 m) Digital Elevation Model (DEM) for the whole European Union, resulting in an improved delineation of areas at risk of soil erosion as compared to lower-resolution datasets. This combined approach of using GIS software tools with high-resolution DEMs has been successfully applied in regional assessments in the past, and is now being applied for first time at the European scale. The LS-factor dataset is in Raster format. Users can download 2 different resolution datasets: a) **100 m resolution** for the whole EU and b) **25 m resolution** per country.



<http://eusoils.jrc.ec.europa.eu/library/themes/erosion/Topography/>

## **SOIL SURVEYING IS NOT FOR SOFTIES!**

**Giel Laker**

At the Combined Congress in January, someone mentioned that there are four or five things that make an organization or company vibrant and create a cohesive team spirit. I have forgotten the others, but one is stories from the past. I believe that in this historic

time for South African soil science it is opportune to dust off some old stories and try to create a new team spirit amongst our soil scientists. Over many, many years I have believed that the classic story about Spine van Niekerk's amazing experience in Mozambique had to be recorded and preserved for posterity. I believe that the opportunity is now ripe to do so. Fortunately, Spine is still alive and well and his old cheerful self and, thanks to Theo van Rooyen and Freddie Ellis, I could track him down. In the process I got a few bonuses. Spine provided a few more anecdotes. Theo mentioned a narrow escape that he and Eben Verster had in Malawi and Eben kindly wrote it up. Spine and Eben wrote their stories in Afrikaans. Because some of our members are not fluent in Afrikaans I have decided to translate them to the best of my ability. However, I believe that Spine's Mozambique story in his own colourful Afrikaans should also be preserved, so I have copied it in unedited at the end.

### **Eben Verster**

Regarding the incident in Malawi: during October 2005, Theo and I were busy evaluating the suitability of soils for sugarcane along Lake Malawi when the farmers chased us off their land. They refused to give permission for the growing of sugarcane. They rather wanted to produce food. We decided to hide in the police rondawel in the small village nearby. The farmers and community started to protest and eventually the protest became out of control. Upon advice from the police, we decided to leave. With only one road out of the town and hundreds of protestors, some with pangas, blocking the road and police on and around the bakkie, we drove slowly through the crowd and over stones. That is until one protestor tried to break the window on my side. With a scream "Go, Theo!", Theo put his foot down and **went!** We reached the main road unharmed, but we do not know what happened in the village. We picked up our labourers a few kilometres further along the road to where they had fled.

There are, of course, many other stories – mainly about hardships during soil surveys. To stay in a tent along the Orange River in winter is hardship at its extreme. Even the water in your tent is frozen in the morning and any hair which is not covered with a towel is frozen. Some unusual things also happened, like the male ostrich which kicked our GG bakkie full of dents. The worst part was to complete the accident report for the GG garage. Nobody wanted to believe it!

### **Spine van Niekerk**

Giel, you wanted to know whether I have any anecdotes about my life as a soil scientist. There are many, but what I consider to be interesting memories may be quite boring to others. The general work vehicle at the time was the Land Rover. Everyone who had a Landy can tell you that the thing could drop you in the worst places. But these stories one must tell to ex-Land Rover owners and then it will take several more beers to listen to their stories. Sometimes more primitive transport was used. In a few places I had to travel on horseback and once had to be rowed over a river for a week long in a "dug-out canoe" to get to the work area.

In the late eighties we (Loxton, Venn & Associates) had to investigate an area southwest of Maseru. In the area, there was a plateau that could be reached only on horseback. At one stage we were near a ravine where, unknown to us, a group of young men were staying for their initiation period. While one of my two helpers was busy with a soil auger there was a big noise when they charged at us with sticks and kieries. We had to mount fast and leave at a fast gallop. Thereafter we avoided that area.

***And now for the story of all South African soil science stories – Giel***

Giel, the incident that you refer to happened in Mozambique in 1972. At the time we had a big contract with the Portuguese government. It involved determination of the dryland, irrigation and forestry potential of large areas along the Zambesi River. Myself and a team of four were assigned to start with a new area south of Tete, not far from the eastern border of the then Rhodesia. Frank Merryweather and a team of soil scientists and technicians were in the Sena area, a few hundred kilometres south, doing agricultural potential surveys.

I went ahead to do a quick reconnaissance of the area and establish a “main camp”. The best site for the latter was near a small village, Mugare, where there was a shop and a small military camp. I decided upon a camp site about 300 metres from the town near a small river, pitched camp and went to bed. Unfortunately it was the night that a Frelimo group decided to roughen up the Portuguese soldiers a bit. At about two o’clock I was awakened by the shock of something hitting me and the din of automatic rifle shots. I rolled from the stretcher and lay as flat as possible on the ground. There was a dull pain through my whole body. The shooting stopped. My first awareness was that I came alive through this incident. I was also not paralyzed, because I could move my toes. I was only concerned about how many bullets had hit me and whether I was losing blood.

Suddenly the shooting started again and I could hear how the bullets were flying over me through the tent and how the Land Rover was hit. The shooting stopped again and after a minute or two I decided to go and look for help. The Land Rover started, but the front tyres were flat and with only one useful arm I could not drive. So, I walked to the village. There an operational medic examined me. Only one bullet had hit me and he stuck plasters on the holes. The bullet went in at my lower back and out at the top of my shoulder. I enquired what it looked like in the camp and had to hear that I was the only casualty in the attack.

They took me by troupe carrier to Guro, some 20 kilometres away, where a commando unit was stationed. From Guro I was taken by helicopter to Tete. A doctor at the military hospital there examined me and decided to take this “*strangeiro*” by light aircraft to Salisbury. So I landed in Salisbury without passport and still in my shorty pajamas. From there I was taken to a catholic hospital where, tired and with an aching body, I was put in a bed at 4 pm. A doctor examined me and his conclusion was that if a medical expert had to find a path for a bullet through my body without hitting any vital organs he would not have been able to do it better than the Frelimo soldier who pulled the trigger.

In a lighter vein: I remember that two nurses started giggling in my room the next day. When I asked what the reason was, they told me that the elderly lady who had to wash me the previous day was a nun who had never before in her life seen a naked man and they were still giggling about her comments. My consolation is that if she was a good nun she would not have had a wide reference field.

After a recovery period in South Africa I returned to Mozambique three months later, but to a more peaceful area where I helped Frank.

### ***En hier is Spine se eie oorspronlike weergawe van die Mosambiek voorval in Afrikaans***

*Giel, die voorval waarna jy verwys het in 1972 in Mosambiek gebeur. Ons het destyds 'n groot kontrak met die Portugese regering gehad. Dit het die bepaling van die droëland-, besproeiings- en bosboupotensiaal van groot areas langs die Zambesi-rivier behels. Ek en 'n span van vier sou begin met 'n nuwe area suid van Tete, nie ver van die oosgrens van destydse Rhodesië nie. Frank Merryweather en 'n span grondkundiges en tegnisi was in die Sena area, 'n paar honderd kilometres suid, besig met landboupotensiaal opnames.*

*Ek het vooruit gegaan om die area vlugtig te verken en 'n "hoofkamp" op te sit. Die beste plek vir laasgenoemde was naby 'n klein dorpie, Mungare, waar daar 'n winkel en 'n klein militêre kamp was. Ek het op 'n kampplek besluit, so 300 meter van die dorpie naby 'n riviertjie, begin kamp opslaan en later gaan slaap. Ongelukkig was dit die nag dat 'n Frelimo groep besluit het om 'n bietjie vuur te maak onder die Portugese soldate. So teen 2 uur word ek wakker geruk deur iets wat my tref en die geraas van outomatiese geweervuur. Ek het van die kampbed afgerol en so plat as moontlik op die grond gelê. Daar was 'n dowwe pyn deur my hele lyf. Die geweervuur het opgehou. My eerste gedagte was dat ek lewendig deur hierdie insident gekom het; ek was ook nie verlam nie want ek kon my tone beweeg. Ek was net bekommerd oor hoeveel koeëls my getref het en of ek bloed verloor.*

*Toe skielik het die geweervuur weer begin en ek kon hoor hoe die koeëls bo-oor my deur die tent trek en ook die Land Rover tref. Die geweervuur het toe weer gestaak en na 'n minuut of twee het ek besluit om hulp te gaan soek. Die Land Rover het gevat maar die voorbande was pap en met net een bruikbare arm kon ek nie bestuur nie. Het toe maar na die dorpie toe gestap. Daar het 'n mediese ordonans na my gekyk. Net een koeël het my getref en hy het pleisters op die gate geplak. Die koeël is by my laer rug in en bo deur my skouerbeen uit. Ek het hom gevra hoe dit in die kamp lyk en moes toe hoor dat ek die enigste ongeval in die aanval was.*

*Hulle het my met 'n troepedraer na Guro geneem, so 20 kilometer vandaar, waar daar 'n Kommando Eenheid gestasioneer was. Van Guro is ek met 'n helikopter na Tete gevlieg. 'n Dokter by die militêre hospitaal daar het na my gekyk en besluit om hierdie "strangeiro" met 'n ligte vliegtuig na Salisbury te vlieg. Ek land toe in Salisbury sonder paspoort en nog steeds geklee in my shorty pajamas. Vandaar is ek na 'n katolieke*

*hospitaal waar ek so teen 4 nm, lyfseer en moeg, in `n bed gesit is. `n Dokter het my ondersoek en sy bevinding was dat indien `n medikus `n pad moes vind vir `n koeël deur my lyf sonder om enige “vital organs” te tref sou hy dit nie beter kon doen as daardie Frelimo soldaat wat die sneller getrek het nie.*

*In `n ligter luim; ek onthou dat twee verpleegsters die volgende dag in die kamer begin giggel het. Toe ek hulle die rede vra sê hulle dat die ouerige vrou wat my die vorige dag moes bad `n non is wat nog nooit `n kaal mansmens gesien het nie en hulle giggel nou oor haar comments. Ek troos myself maar daaraan dat indien sy `n goeie non was sy nie `n baie wye verwysingsveld sou hê nie.*

*Na `n herstel periode in R.S.A. is ek drie maande later terug na Mosambiek, maar na `n rustiger area, waar ek vir Frank gaan help het.*

To add to the above reminiscences, here are some more “flashbacks”:

### **From Garry Paterson, ARC-ISCW, Pretoria**

I too have been shot at while doing soil survey, but luckily the consequences were not as serious as for Spine van Niekerk. Back in the early 1980s, Bernhard Plath and I were doing land type survey work in the Waterberg and we stopped on a dirt road to look at a cutting. As we climbed out of the Land Cruiser, there was a report and a bullet flew over our heads. Luckily, the bakkie was half hidden by the road cutting so we were able to sneak back inside and drive off quickly. We reported it to the local police station, who promised to investigate, but when we passed by a few days later, they said that they could not find out anything about the occurrence or the farmer concerned. So we put it down to a lucky escape and avoided the farm concerned for the rest of our time in the area.

On another note, while doing an irrigation survey in 1988 along the Steelpoort River, the arrangement was to visit each farm in turn, get permission from the farmer for access and put out some labourers in the mornings to dig pits, before coming back in the afternoons to describe, sample and close the pits. On one farm, I dropped off the labourer next to the boundary fence, but unknown to me, he climbed through the fence to dig the pit in an area with shorter grass (but on the neighbouring property). When we returned later that day, I found a very frightened-looking digger and a rather angry farmer. It turns out that he was the brother of the farmer where we had originally sited the pit (and got permission!), but the two brothers had a feud on the go and hadn't spoken for years! Eventually, after a lot of sweet talking, I was able to get permission to go into the angry farmers' property for one day (and one day only!), to do all the mapping, collect all the necessary samples and then get out again. Ironically, the surname of the two brothers was Language, which just goes to show that not all Languages speak the same language!

## SOIL SURVEY – Then and now

Those of us who have been tramping through the veld of South Africa for more than a couple of decades while looking at soils will have a good appreciation for how the process has changed in that time. For myself, who started at the then Soil and Irrigation Research Institute in 1981, it is almost frightening to look back on those “good” (??) old days and compare them with today, but here goes;

	<b><u>THEN</u></b>	<b><u>NOW</u></b>
Base Maps	Aerial photos, cut up and stuck onto boards to form a mosaic	Google Earth background, printed out to the desired size
Soil investigation	Employ local labourers, dig pits, describe them (with full sampling), then auger in between	Augering only (budget restrictions), limited sampling (budget restrictions)
Navigation	Freestyle, measuring off paces (problem if you are short or tall!!). Use compass for directions	GPS, set to desired grid, all points loaded and correct to less than 1 m accuracy
Map making	Hand drawn, submit to drawing office for good copy, then coloured in by hand, using pencils or paint. Duplication by ammonia copier, then re-colour	Digitize on GIS, areas measured automatically, many interpretations possible with a few clicks. Duplication by computer printer/plotter
Report	Write by hand, submit to typist for good copy, often many mistakes, limited functionality	Type on PC or tablet, incorporate many maps, pictures. Editing and alterations as often as you like
Final Product	<b>Good</b>	<b>Good</b>

And that last line is the most important thing!! If the soil surveyor is well trained, logical and conscientious, it doesn't matter about technological advances. An accurate, usable soil map, which will help the land user to utilize and conserve his soil, can still be produced.



# HUMOUR

## PHENOMENAL TWO-LETTER WORD

I'm sure you will enjoy this. I never knew one word in the English language that could be so versatile. This two-letter word in English has more meanings than any other two-letter word, and that word is 'UP.' It is listed in the dictionary as an [adv], [prep], [adj], [n] or [v].

It's easy to understand UP, meaning toward the sky or at the top of the list, but when we awaken in the morning, why do we wake UP?

At a meeting, why does a topic come UP? Why do we speak UP, and why are the officers UP for election (if there is a tie, it is a toss UP) and why is it UP to the secretary to write UP a report? We call UP our friends, brighten UP a room, polish UP the silver, warm UP the leftovers and clean UP the kitchen. We lock UP the house and fix UP the old car.

At other times, this little word has real special meaning. People stir UP trouble, line UP for tickets, work UP an appetite, and think UP excuses. To be dressed is one thing but to be dressed UP is special.

And this UP is confusing: A drain must be opened UP because it is blocked UP. We open UP a store in the morning but we close it UP at night. We seem to be pretty mixed UP about UP!

To be knowledgeable about the proper uses of UP, look UP the word UP in the dictionary. In a desk-sized dictionary, it takes UP almost 1/4 of the page and can add UP to about thirty definitions.

If you are UP to it, you might try building UP a list of the many ways UP is used. It will take UP a lot of your time, but if you don't give UP, you may wind UP with (UP to) a hundred or more.

When it threatens to rain, we say it is clouding UP. When the sun comes out, we say it is clearing UP. When it rains, the earth soaks it UP. When it does not rain for a while, things dry UP. One could go on and on, but I'll wrap it UP, for now ... my time is UP!

Oh . . . one more thing: What is the first thing you do in the morning and the last thing you do at night?

U  
P!

Did that one crack you UP?

Don't screw UP. Send this on to everyone you look UP in your address book ... or not ... it's UP to you.

Now I'll shut UP!

## **SOIL SCIENCE SOCIETY OF SOUTH AFRICA: MISSION**

The SSSSA is a scientific society, which, in the interest of its members, promotes the advancement of soil science and soil technology as well as the responsible practising thereof by its members with the view to the long-term sustainable utilization of the environment in the interest of the community.

### **Aims**

1. Promotion and protection of the professional status and prestige of soil science as a science and career.
2. Promotion and extension of the society.
3. Promotion of the standard of training of soil scientists and technologists.
4. Creation of opportunities for the free exchange of ideas on soil science and technology.
5. The obtaining and dissemination of knowledge, information and ideas having relevance to soil science by means of discussion and publication.
6. Promotion of contact between the society and other bodies with common or similar interests, both within South Africa and overseas.

## **GRONDKUNDEVERENIGING VAN SUID-AFRIKA: MISSIE**

Die GVSA is 'n wetenskaplike vereniging wat in belang van sy lede verbind is tot die bevordering van grondkundige wetenskap en tegnologie, en die verantwoordelike beoefening daarvan deur sy lede met die oog op die lang termyn volhoubare benutting van die omgewing in belang van die gemeenskap.

### **Doelstellings**

1. Bevordering en beskerming van die professionele status en aansien van grondkunde as 'n wetenskaplike beroep.
2. Bevordering en uitbouing van die vereniging.
3. Bevordering van die standaard van opleiding van grondkundige wetenskaplikes en -tegnoloë.
4. Skepping van geleenthede vir vrye gedagtewisseling oor grondkundige wetenskap en tegnologie.
5. Die verkryging en verspreiding van kennis, inligting en idees wat op grondkunde betrekking het by wyse van samesprekings en publikasies.
6. Bevordering van skakeling tussen die vereniging en ander liggame met gemeenskaplike of soortgelyke belange, beide in Suid-Afrika en in die buiteland.