



Updates & News Alert

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Editor's view: Introducing the March, 2017 CA Alert



Suurbraak-Grain-Farmers-Co-operative-members. Photo: Farmer's Weekly

"Penny-wise, pound-foolish", a phrase by Dirk van Papendorp, Mentor of the Suurbraak Grain Farmers Association in the Suurbraak area in the Western Cape, South Africa is our key message for the March CA alert. Dirk says, "The people who do not listen, do not understand the science. People bale straw and sell it for cash, but that is penny-wise, pound-foolish. It is a short-term gain. If you kept the straw on the land, you lost that income but have a greater yield in the long term [far outweighing the straw sales opportunity]."

The discussion in point concerns an emerging wave of young middle-scale farmers in Africa, embracing change in farming practices, anchored on Conservation Agriculture (CA) principles, capable of reclaiming degraded land to become productive again which makes business sense. The particular reference

is Wilmar and Chrishendo Adams, Farmer, Suurbraak Grain Farmers' Association. The 35-year old farmer in a municipality, which has a very low-income population according to Statistics South Africa, has adopted CA on 295 hectares with sheer determination. In addition, he has had to encourage many in the community of Suurbraak that this new way of doing things is the best way – picking up some conflict along the way. When it comes to either "feeding the cow or feeding the soil", Wilmar notes seeing the difference in yield on land where livestock have grazed, versus camps where livestock have not grazed. "Last year a camp that had livestock yielded 2.5 tons per hectare. Another of my camps, which did not have livestock, yielded 3.4 tons per hectare of wheat." Wilmar's story continues on page two.

There are many such "Wilmar's" across Africa seizing the moment to transform farming. However, they require Mentors, and Africa needs more such champions as Dirk, to reach a critical mass of adopters to transform farming whereby CA becomes the "Conventional way of farming".

ACT acknowledges the various sources, authors, reporters, organizations and practitioners whose articles appear in this March 2017 issue. Special mention to Mr Francis Steyn representing the Western Cape province, and Martha Khwene and Klass Mampholo of the Department of Agriculture, Forestry and Fisheries, South Africa. Others are Tatira Zwinoira of the Standard; CIMMYT, Organic Matters Magazine; and IAPAR. It is testimony of the enthusiasm and interest from various organizations, countries, researchers and scientists in Africa's development.

Notable upcoming events include Validation Workshop on the Framework for Sustainable Agricultural Mechanization in Africa 11th to 12th May 2017, AUC HQ Addis Ababa, Ethiopia. Others are the 7th World Congress on Conservation Agriculture (7WCCA) being organized by CAAPAS and AAPRESID, 31st July to 2nd August 2017 at Rosario, Argentina; and the Second Africa Congress on Conservation Agriculture (2ACCA), 27-30 March 2018, Johannesburg, South Africa.

We encourage you to share your CA views and articles. Please submit articles, links or views to: kim@act-africa.org

Apologies for any cross posting of some articles.

Wilmar Adams - A young Conservation Agriculture farmer filled with sheer determination



Wilmar Adams has introduced Conservation Agriculture to the property where he farms.

Farming close to nature, according to Conservation Agriculture principles, is a long-term project. For Wilmar Adams, a 35-year old farmer in the Suurbraak area in the Western Cape, South Africa, it has meant sacrificing yields and profit in the short term – in order to improve the land's condition over time. The town of Suurbraak falls in the Swellendam Municipality. It is a small missionary town, in a municipality, which has a very low-income population. According to Statistics South Africa, in Suurbraak itself, nearly two thirds of the population earn less than R 38,200 a year.

Wilmar has adopted this approach with sheer determination. In addition, he has had to encourage many in the community of Suurbraak that this new way of doing things is the best way – picking up some conflict along the way. For him, it has meant a lower income on some crops, in order to ensure crop rotation is taking place effectively. It has meant leaving the straw and not baling it for short-term profit and taking all livestock off the property on which he farms – again diminishing his returns.

Immediately after secondary school, Wilmar started working for his father, Oom Eddie, as a general worker on land hired from the municipality. In 2005, Wilmar started taking over the grain farming from his ageing father. Even then, their yields were not increasing and the wild grass stood higher than the wheat in the crop. In 2008, the Adams farming business struck disaster: Wilmar and his dad had a complete crop failure, mainly because of the farming practices they were employing.

In 2010, the Suurbraak Grain Farmers' Cooperative was born, and Wilmar's father (Oom Eddie Adams) joined the Cooperative as one of five members. Working with mentor, Dirk van Papendorp, the Cooperative members had to work extremely hard to bring life back into the land. Because the land is communal, very little investment had gone into the quality of the soil for more than four decades. The next five years were spent focusing on improving the soil fertility, to improve yields to the point where the five members would be able to support themselves. Wilmar officially joined the Cooperative in 2011 and slowly started to implement Conservation Agriculture into the land he farmed. So today, Wilmar continues with the Ad-

ams farming business – but approaches farming differently to his father. He farms on 295 hectares of communal land. Although it is a long-term rental agreement between the Grain Farmers' Cooperative and the municipality, there are conditions attached, including that farmers need to look after the land.

Suurbraak is beautiful, lush, and green and so farming this land should be beneficial. However, for 40 years, many poor farming practices were implemented by grain farmers on the dryland communal area. While around 15 families used to farm in the area, over a period of 25 years, the soil condition deteriorated to such an extent that only six families remained willing to farm here. The decrease was largely attributed to the fact that farmers did not own the land, and were unwilling to invest large amounts of their own capital into it. As a result, wrong cropping practices and incorrect (tillage based) machinery was used, and farmers at the time skimped on inputs (such as fertilizer, lime and herbicides) while new technology had surpassed the knowledge base of the farmers. With funding support and over five years, farmers and their mentor corrected the soil fertility status, with input costs of Rand (R) 5,500 per hectare being required, just to be able to start planting grain there.

In 2011, when Wilmar first joined the Cooperative, his canola, wheat and barley yielded 0.48, 1.6 and 1.6 tons per hectare respectively. In 2015, the picture looked decidedly different: his yields had increase to 1.1, 2.7 and 3.4 tons per hectare respectively. Wilmar says, "In one camp, I used much less fertilizer, and my diesel use decreased 20% last year and another 40% this year. When I start working on a new camp, it costs me double the amount of diesel." Despite the improving yields, mentor Dirk believes the emerging farmers can do even better. "The yield is still not completely there, so we will go back to the books – timing is a big part of the problem. You cannot be three weeks late. It has also been dry, and you can't compete with weeds."

Wilmar's vision is to farm 1,200 hectares of land that he owns.

To read more: <https://goo.gl/lzEAji>

Agronomists advocating for Conservation Agriculture

Agronomists are advocating for Conservation Agriculture (CA) and growing of crop varieties to improve crop yields. The specialists said this would boost commercial farming on a large scale and CA in particular would improve long-term environmental and financial sustainability in farming. The adoption of CA and crop varieties will see yields increase by between 30 to 60%, leading to huge savings in crop production, agronomists said. CA is a set of soil management practices that minimize the disruption of the soil's structure, composition and natural biodiversity. The practice of CA has become famous in other parts of the world, most notably Brazil where it has proven to improve crop yields significantly. The International Maize and Wheat Improvement Centre (CIMMYT) agronomists confirmed this to Standard business a couple of weeks ago.

"Basically, the point is that conservation agriculture is helping us save resources in terms of water, the energy that you use to get a crop in, and nutrients. That effectively comes down to costs," CIMMYT agronomist Isaiah Nyagumbo said.

CA systems include direct seeding, cross breeding maize for more drought resistant varieties, growing legumes and maize simultaneously to minimize weeds. In terms of crop varieties, research by CIMMYT showed that growing crop varieties could increase yields by an average of 675kg per hectare and provide \$368 in extra income. Further studies showed savings of between 30% and 40% could be made with conservation agriculture. This means that at an average cost of \$1 500 per hectare for maize or wheat, a farmer could save between \$450 and \$600 respectively.

CIMMYT agronomist Christian Thierfelder said the slow uptake by commercial farmers of conservation agriculture systems had to do with farmers fearing crop losses if they changed their routine. As such, he said farmers had to be mindful that these practices were more of a long-term growth and not short-term. The agronomists warned that timing in planting seed was an important part of the process of adapting CA systems to increase crop yields. For example, this year's early crop production forecasts for maize pointed to a strong rebound from last year's reduced output.



CA Field Pigeon Peas intercrop. ©ACT 2014

Calls for Zimbabwe's commercial farmers to adopt CA systems come at a time when FAO reported in March that Zimbabwe needed an estimated 1 million tons of cereal maize. At the end of January 2017 Zimbabwe had imported approximately 700 000 tons of maize, the bulk of which came from Mexico, South Africa and Zambia. The importation of maize is on the back of the disastrous 2015/16 agricultural season which was hit hard by the El Nino-induced drought. The importation of maize was despite Zimbabwe having 16 million hectares of agricultural land, according to the African Centre of Biodiversity.

CIMMYT country director, Cosmos Magorokosho said there were many aspects of conservation farming, which could also be extended to smallholder farmers.

"We think that one of the biggest benefits not just for commercial farming but also for smallholder farmers is when they combine agriculture conservation best practices with improved drought and heat-tolerant maize. That way, they can take advantage of two technologies at the same time," he said.

With CA, the moisture soaks into the soil profile and therefore you have a much more resilient crop. So effectively this means that the rainfall is contained more in the soil than when conventional tillage is used.

This article was written by Tatira Zwinoira and can be accessed at:

<https://www.thestandard.co.zw/2017/04/16/agronomists-push-conservation-agric>

Understanding the role of biodiversity in our soils



Earthworms at work. Picture credits: Blog Authors.

Soil Biodiversity encompasses a huge array of life on the planet. In some cases, five tons of animal life can live in one hectare of soil. The variety of soil biodiversity is also quite astounding ranging from bacteria, which are from 1-100 µm in size (i.e. completely invisible to the eye) through to the macro fauna which are on average 2 mm or larger in size and can be easily seen, such as earthworms, ants, woodlice, centipedes etc. The size of an organism is extremely important as this controls its life cycle and its impact on the soil functions. While an individual bacterium is tiny, it fits into minute spaces and there can be 3,000,000 to 500,000,000 bacteria present in 1 g of soil. The role of soil biota in the soil is essential for everyday functions and ecosystems services to take place such as water filtration, nutrient cycling, organ-

ic matter breakdown, development of soil structure, plant growth and pollination.

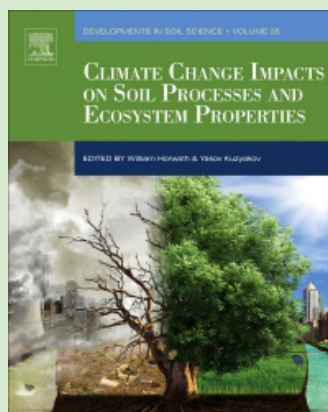
In terms of agricultural production, the intensification of management systems has led in some cases to reduced soil biodiversity due to increased mechanization, addition of chemical based fertilizers and application of monoculture systems. The organic farming approach acknowledges the key role of soil biodiversity in the production of food and fiber. However, in order to maintain yields in low input organic systems, every single addition needs to be used as efficiently as possible. As little of the nitrogen from a green manure, or carbon from the ploughing back in of stubble, should be lost. To ensure that none of these additions are lost, it is essential to achieve as diverse a below-ground com-

munity as possible. The more diverse the biological community i.e. more species, sizes of organisms, feeding habits, life cycles etc. the more potential to capture and cycle nutrients within farm and therefore provide an added source of nutrition to the organic production system.

There are some key groups of biology which are important in the delivery of these soil functions these include; bacteria and fungi (due to the large number present in soil and their role in decomposition of organic matter), nematodes (regulation of nutrient cycling) earthworms which are the “engineers” of the soil and are responsible for the large scale movement of soil particles and organic matter in the soil that define soil structure.

This article was originally published when Rachel Creamer (Professor, Wageningen University, Netherlands), Dorothy Stone (Leeds University) and Paul Massey were working at Teagasc, Johnstown Castle, Wexford, Ireland. The article was published in [Organic Matters Magazine](#) in 2013.

Read more of this article at: <http://blog.globalsoilbiodiversity.org/article/2017/02/24/understanding-role-biodiversity-our-soils>

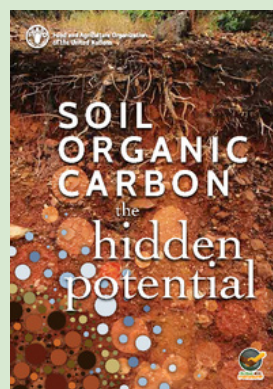


Climate Change Impacts on soil Processes and Ecosystem Properties, Volume 35

1st Edition; Series Volume Editors: William Horwath Yakov Kuzyakov. Published by Elsevier on 1st March 2017, 625 pages, ISBN: 9780444638656, price paperback € 165.00.

This book discusses Climate Change Impacts on Soil Processes and Ecosystem Properties. It presents current and emerging soil science research around the areas of soil processes and climate change, also evaluating future research needs. The book combines the five areas of soil science (microbiology, physics, fertility, pedology, and chemistry) to give a comprehensive assessment. This integration of topics is rarely done in a single publication due to the disciplinary nature of the soil science areas, so users will find it to be a comprehensive resource on the topic.

More details of this book can be accessed at: <https://www.elsevier.com/books/climate-change-impacts-on-soil-processes-and-ecosystem-properties/unknown/978-0-444-63865-6>



Soil Organic Carbon: the hidden potential - a New FAO Release

The soil Organic Carbon: the hidden potential a new publication released by FAO was launched at the Global Symposium on Soil Organic Carbon (GSOC) held at FAO headquarters (Rome, 21-23 March 2017). It provides an overview to decision-makers and practitioners of the main scientific facts and information regarding the current knowledge and knowledge gaps on Soil Organic Carbon. It highlights how better information and good practices may be implemented to support ending hunger, adapting to and mitigating climate change and achieving overall sustainable development.

This book can be downloaded <http://www.fao.org/documents/card/en/c/ed16dbf7-b777-4d07-8790-798604fd490a/>

Brazil's success in No Till cropping systems

You may be interested in watching a video celebrating the successes of developing No Till farming systems in the Paraná state of Brazil. The state agriculture research organization (IAPAR) has researched methods and impacts of direct seeding, crop rotations and cover crops for more than 30 years to observe both short term and long-term effects. They have found that No Till systems are not

simply direct seeding but developing a whole system of diverse crop rotation management. Analysis of some soil fertility parameters is not enough – a more comprehensive analysis and consideration of soil properties is needed. Positive results of long-term No Till by researchers and farmers has kept CA as a priority for IAPAR and the state of Paraná. The Video can be downloaded at the links below:

“TV IAPAR - Soil Tillage and Cover Crop Systems - Long Term Experiment” with English subtitles <https://www.youtube.com/watch?v=r8l6t7>

TV IAPAR - Experimentos De Longa Duração Em Manejo De Solo E Plantas De Cobertura (in Portuguese) <https://youtu.be/Yud6FQ7maZA>

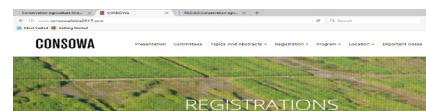
Upcoming Events

Drought Resilience in Sub-Saharan Africa

Dates: 6 April – 13 July 2017
Location: Bonn, Nordrhein-Westfalen, Germany. This event series is organized in the margins of the “One World – No Hunger” Initiative by the UNCCD, the German Development Institute (DIE), the University of Bonn, German Corporation for International Cooperation (GIZ), the Center of Development Research (ZEF), Deutsche Welle (DW), the Reconstruction Credit Institute (KfW) and the German Federal Ministry for Economic Cooperation and Development (BMZ). The event series will seek to shed light on four interconnected topics around drought: What role does drought particularly in Sub-Saharan Africa play for food security, for livelihoods in rural areas, for local and regional conflicts and for migration; How can drought resilience be strengthened, which sectors have to be addressed and contribute, what solutions exist in the various areas; Given the multi-faceted nature and interconnectedness of drought related issues, how can integrated approaches and institutional coherence be found in order to identify solutions, minimize cross-sectoral trade-offs and harnessing synergies; and The complexity of the issues also means that a particularly close dialogue is needed between scientists and development practitioners in order to challenge conventional wisdoms, to evaluate old and find new solutions.

www: <https://www.die-gdi.de/veranstaltungen/drought-resilience-in-sub-saharan-africa/>

1st World Conference on Soil and Water Conservation under Global Change



Venue: Lleida, Spain.

Date: June 12-16

For more information and registration visit: <http://www.consowalleida2017.com/>

7th World Congress on Conservation Agriculture: Submit your abstract

Date: August 1-4, 2017

Venue: Rosario - Argentina

The 7th World Congress on Conservation Agriculture takes place with the 25th Aapresid Congress, from August 1 to 4 in the Centro Metropolitano de Convenciones of Rosario, an event already consolidated as the most important technological reference meeting in the continent and recognized worldwide as a true network for update, exchange of knowledge and a showroom for advanced technologies.

Paper submissions are ongoing, from 20/03 to 17/05/2017, through an online system. Any contribution, information, case or study involving CA is welcome.

Submit your Abstracts related to the overall program theme. You must register to attend 7WCCA and 25 Aapresid Congress

For more details:

<http://congresoapresid.org.ar/>

Note: ACT is coordinating exhibitions of interested African Organizations at the

7WCCA. Contact info@act-africa.org if you desire to display your CA products under the ACT booth.

Pan African Society for Agricultural Engineering: Nairobi 2017 Conference Announcement

Venue: Southern Sun Mayfair Hotel, Nairobi, Kenya

Dates: 19th to 21st November 2017

The Pan African Society for Agricultural Engineering and its partners will host its Annual Conference in **Nairobi, Kenya, on 19-21 November 2017** under the theme **Engineering and Technology for Agriculture Transformation in Africa**.

The objective of the conference is to provide a forum for the private, public and academic sector stakeholders to meet and explore business opportunities through networking and exchange of experience and knowledge.

For more information: <http://www.pas-ae.org.za/images/docs/conference-announcement.pdf>

Second Africa Congress on Conservation Agriculture (IIACCA)

Date: March 2018

Venue: South Africa

Be on the look on <http://act-africa.org/events.php?com=68&com2=67&com3>

Promotion of Conservation Agriculture in Africa