



# Updates & News Alert

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## Editor's view: Introducing the February, 2017 CA Alert



Potato crop grown under conservation agriculture conditions.

Smallholder farmers in Africa continue to be constrained by high rainfall variability, poor access to agricultural inputs and services, poor soil fertility and invasive pests and diseases resulting in poor harvests and challenges from food shortages to malnutrition. Conservation agriculture (CA) practices such as minimal soil disturbance, permanent soil cover and the use of crop rotation have been promoted in the continent as a useful set of tools that could improve farmer resilience to these pervasive challenges. It is perceived by practitioners as a valid tool for Sustainable Land Management (SLM). CA holds tremendous potential for all sizes of farms and agro-ecological systems, but its adoption is perhaps most urgently required by smallholder farmers, especially those with degraded lands and facing acute labour shortages. It is a way to combine profitable agricultural production with environmental concerns and sustainability and it has been proven to work in a variety of agroecological zones and farming systems.

For any technology to be widely adopted, its needs to have benefits and advantages that attract a broad group of farmers

and practitioners who understand the differences between what they are doing and what they need. In the case of conservation agriculture these benefits can be grouped as (i) [Economic benefits](#) that improve production efficiency (ii) [Agronomic benefits](#) that improve soil productivity and (iii) [Environmental and social benefits](#) that protect the soil and make agriculture more sustainable. Conservationist, see CA as beneficial because there is an effort to conserve what people use every day. Since agriculture is one of the most destructive forces against biodiversity, CA can change the way humans produce food and energy. With conservation come environmental benefits of CA. These benefits include less erosion possibilities, better water conservation, improvement in air quality due to lower emissions being produced, and a chance for larger biodiversity in a given area.

There is, in summary, sufficient evidence that CA offers options for better and sustainable productivity of smallholder production systems as well as their profitability and resilience without compromising the environment. What remains

critical is demystifying Continental Agenda and Global Conventions on climate change and environmental degradation into actions related to or impacting on smallholder farmers. The end result should be policy incentives and/or government extension services responsive to the farmers challenges. On the other side, the private sector needs to play its rightful roles, when business opportunities in CA services provision are exposed and catalysed.

ACT acknowledges the various sources, authors, reporters, organizations and practitioners whose articles appear in this February 2017 issue. Special mention to Amir Kassam (of ICCAP-Africa); Harun Cicek, Mourad Rekik, Boubaker Dheibi and Aymen Frija all of ICARDA, Jordan; Raylene Nickel (Successful Farming Magazine); The World Bank; AGRA and CIMMYT. 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 CAAVAS and AAPRESID, 31st July to 2nd August 2017 at Rosario, Argentina; and the Second Africa Congress on Conservation Agriculture (2ACCA), Johannesburg, South Africa (exact dates to be announced later).

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

Apologies for any cross posting of some articles.

## Proven Benefits of No Till Conservation Agriculture Rising in the UK

Europe, like Africa, has been an under-developed continent when it comes to adoption of Conservation Agriculture (CA). In 2013, Europe had some 2.0 million hectares under CA compared to 1.2 million ha in Africa. However, since then the situation has been changing rather rapidly for both continents, as was confirmed by a team from the African Conservation Agriculture (ACT) Network during a visit on 8 February 2017 to Thurlby Grange Farm, Lincolnshire, and discussions with the owner Mr. Tony Reynolds. Tony, a CA farmer for the past 15 years, is also Chairman of the Conservation Agriculture Association for the United Kingdom (CA-UK).

The visit to the farm had been organised by Prof Amir Kassam, Moderator of the FAO-hosted Global Platform for Conservation Agriculture Community of Practice (CA-CoP) and Chairman of the International Conservation Agriculture Advisory Panel for Africa (ICAAP-Africa, <http://icaap.act-africa.org/>). The visiting group also included Eng. Saidi Mkomwa (ACT Executive Secretary), Mr. Philip Wanjohi (ACT Finance and Business Development Manager), Mr. Dan Bradley (Design Engineer) and Mr. Sam Kent, both of Weaving Machinery Ltd ([www.weavingmachinery.net](http://www.weavingmachinery.net)). Weaving Machinery are the manufacturers of the new Weaving GD inclined disc no-till seed drills.

Tony completely abandoned his ploughs and harrows in 2006, to transform his whole farm from high energy-and capital-demanding plough-based agriculture to 100 percent low-energy no-till farming system. After a small initial dip in yield in fields with high clay content (90% plus), his yields of cereals and oilseed rape have regained and surpassed pre-switch levels, as the soil regained its health and vigour. However, the initial impact on yield in medium and heavy soils could be avoided by increasing the seed rate and nitrogen application rate by some 10% in the initial years. Fields with lighter and medium textured soils showed no change in yield from year one onwards after switching to CA. Oilseed rape yields are now 5 ton/ha, and the combine harvester has recorded wheat yields hovering around the 13 ton/ha mark. Black oats, direct drilled as a cover crop after harvest, is gaining popularity in the UK and is practised by Tony Reynolds.

Tony takes pride in divulging the detail of the benefits of CA. For example, the 2013 level of soil organic matter at Home Farm reached 6.26 percent which is way above the average figure for the type of soil, as recommended by DEFRA (refer to his power point presentation at <https://goo.gl/xHIYQD>

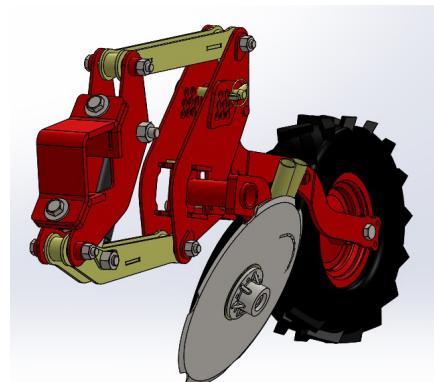


In photo left to right: Amir Kassam (ICAAP-Africa Chairman); Tony Reynolds (Chairman, CA-UK) and Saidi Mkomwa (Executive Secretary, ACT) at Thurlby Grange Farm, Lincolnshire, UK

[gl/ucfOMS](http://gl/ucfOMS)). Earthworm counts show many earthworms in CA fields and none in conventionally tilled fields. Water infiltration has improved exponentially and, of course, wild life numbers (for example, of hares, lapwings, starlings and skylarks) are soaring. Crop establishment costs have plummeted (from £266 to £30/ha for wheat): an important component is overall fuel use for all operations, which has dropped from 96 to 41 litres/ha over ten years.

Blackgrass (*Alopecurus myosuroides*), which has become a barely-controllable menace in the UK's cereal growing regions in conventional tilled fields, has been practically eliminated on Thurlby Home farm. As Tony explains, 80 percent of blackgrass seeds perish each year in undisturbed soil, so only 20 percent of the previous year's seed bank will germinate. After 10 years of no-till, the remainder can be hand-rogued as required.

In the Weaving GD6000T (Figure below) no-till seed drill, seed (and fertiliser if required) is delivered (via the pneumatic metering system) to the double offset disc soil openers. The novel aspect of this machine is that the discs are inclined at 26° from the vertical and trail the machine through being mounted on a kingpin system. The discs slice the soil and lift the top slice, allowing the seeds to be inserted and spread over a >50 mm band before the soil slice falls back in place under its own weight. A rear compacting wheel leaves the soil looking practically undisturbed with minimal straw hair pinning. Tony believes that the machine rep-



Weaving GD6000T no-till seed drill unit

resents a quantum leap forward in no-till drill technology.

The three farms owned by Tony have a total area of 1,250 hectares, of which 100 ha is under pasture, feeding 150 beef cattle and hens. There are 16,000 free-range Lohmann brown hens, which are brought in at 16 weeks old and sold off at 72 weeks. The poultry house produces 6-7 tonnes of manure per week. The birds produce "happy eggs" destined for the supermarkets in the UK. The manure, on the other hand, is destined for raising the fertility of the farm's soils in a neat integration of enterprises.

To read the full article visit: <https://goo.gl/xHIYQD>

# Some Insights on Conservation Agriculture Research in North Africa: Current Situation and Opportunities



**Stubble grazing in CA fields in the Mediterranean**

Large-scale upscaling of Conservation Agriculture in North Africa has yet to occur and extension efforts have been on-

going involving national and international organizations. ICARDA (International Center for Agricultural Research in Dry

Areas) has been in the forefront of CA research and development in North Africa during the last decade in partnerships with national agricultural research and extension systems. CA has been tested and introduced in North Africa during the past three decades and its adoption has been limited. This article describes the current situation of CA in North Africa and discusses the opportunities for up-scaling. It is authored by Harun Cicek (of Konya Food and Agriculture University, Konya Turkey; and Panellist International Conservation Agriculture Advisory Panel for Africa (ICAAP-Africa); and Mourad Rekik<sup>3</sup>, Boubaker Dheibi<sup>3</sup> and Aymen Frij<sup>3</sup> all of ICARDA, Amman, Jordan.

For more visit: <http://www.act-africa.org/news.php?com=6&item=384#.WP3t-62dRXIU>

## Rebuilding a Farm: Managing for soil health rebuilds fertility and increases yields

From the time he was a teenager, Rocky Bateman never doubted that he was meant to be a farmer. Yet, soon after getting started with his own operation in 1974, he began doubting his management methods. Like other farmers around New Salem, North Dakota, Bateman was growing wheat in rotation with summer fallow on marginal land. "That summer fallow-wheat rotation was driving me into bankruptcy," he says. "I had clouds of dirt blowing from the fields."

To stop wind and water erosion, Bateman switched to a cropping system of reduced tillage and continuous cropping of diverse crops. "I tried to keep the soil covered, and that did stop it from eroding," says Bateman. The cropping system continued to spiral downward, though. "In the early 1990s, soil tests showed the organic matter in my fields was .7% to .9% – not even a full percentage point," he says. "At that low of a level, there's not enough organic matter to feed the soil biology or to grow anything. It seemed I couldn't put on enough fertilizer, and yet I had crop

failure after crop failure after crop failure. My banker encouraged me to quit."

Despite the repetitive crop failures and dying earth, Bateman believed there was a way to breathe life into the soil and crops. A man of faith, he sat on a hill and prayed for ideas to find better ways of farming. Soon after, he participated in a tour of no-till farms in western North Dakota. "Like me, these farmers were farming marginal land, but they had phenomenal yields; their cropping systems were clearly working," he remembers. Inspired, Bateman tracked down no-till mentors and learned all he could about how to practice no-till in ways that would rebuild the biological life in the soil. Bateman has not looked back since. Soil organic matter on his farm now tests 4.5% to 5%, and yields have more than tripled. Per-acre fuel costs are 25% of what they were earlier.

Restoring biological life to the soil on his farm resulted from building organic matter, he says. Along with growing a diverse crop rotation of wheat, corn, soybeans, and sunflowers, he credits the elimination



of tillage with the building of organic matter.

For more: <http://www.agriculture.com/crops/cover-crops/rebuilding-a-farm>

## World Bank approves Sh25.9bn Kenya climate smart agriculture project



The World Bank has approved financing of a Sh25.9 billion smart agriculture project in Kenya that will run for five years. The project aims to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in the country. "In the event of an eligible crisis or emergency, the project will also provide

immediate and effective response," a statement from the World Bank says. The facility will also finance the development of agro-weather forecasting and marketing information system and their dissemination tools through three sub-components. Sixty percent of the financing will go towards rural services and infrastructure and water resource management.

Broken down, the project has five components.

- The first will include up-scaling climate smart agricultural practices, while the second component will involve the strengthening of climate-smart agricultural research and seed systems.
- The third component is the supporting agro-weather, market,

climate and advisory services.

- "This component will see work such as improving agrometeorological forecasting and monitoring; using big data to develop a climate-smart, agro weather and market information system and advisories among others," the statement reads.
- The fourth component is the project coordination and management. According to World Bank, this component will finance activities related to national and county-level project coordination and management, including developing annual work plans and budgets

For more information: <http://projects.worldbank.org/P154784?lang=en>

## Africa: Is Africa Really Undergoing a Smallholder Agricultural Revolution?

Good news stories about [transformation in African agriculture](#), are abound with [some positive statistics](#) to back them up. The general story is that farmers are adopting improved agricultural practices, that productivity is increasing and that rural economies are burgeoning.

But many of the stories tend to focus on the overall growth based on large scale commercial endeavours and gloss over the smallholder situation. While overall production in Africa has increased, there's [been little at the smallholder level](#). And much of the overall production increases are due to [land expansion](#).

So, is African smallholder agriculture really in the midst of a revolution?

In our [recent study](#), we tried to get a more granular understanding of the situation on the ground. Most studies frame adoption as a "yes" or "no" outcome. Instead, we proposed to view adoption as a process. Farmers learn about a technology, assess it and experiment with it. Then they act on their assessment, either dis-adopting, modifying, using on a limited area or fully utilizing.

What we found is that farmers are yet to fully embrace key practices that will help them increase their production. Despite many claims in the opposite, our study suggests that Africa has not (yet) started a smallholder agricultural revolution.

For more information:  
<http://allafrica.com/stories/201702050039.html>

## At last, evidence that African agriculture is powering economic transformation

The evidence is [now in](#) and the verdict is that Africa's agriculture is powering economic transformation in the region. African agriculture has shown remarkable improvement compared to its precarious state 15 years ago. However, progress is uneven across the region. Governments that have invested in their agricultural sectors, such as in Ethiopia, Rwanda and Burkina Faso, are reaping the benefits – stronger economic growth, declining poverty rates, better nutritional status and a more rapid shift of the labour force out of farming.

However, there is still much to do. This is especially true for countries that have not adequately promoted their smallholder farmers. In addition, this is not rocket science. The actions that governments need to take are well understood and backed by strong evidence. Implementation is now the priority. These are the main messages of the [Africa Agriculture Status Report 2016: Progress towards Agricultural Transformation in Africa](#), published by the [Alliance for a Green Revolution in Africa](#). The report provides an in-depth and unsparing review of the drivers of this dynamic period in African agriculture – one that the authors see as a prelude of bigger things to come.

For more information: <https://theconversation.com/at-last-evidence-that-african-agriculture-is-powering-economic-transformation-65656>

Africa Agriculture status report 2016 available at  
<http://agrinatura-eu.eu/2016/09/2016-african-agriculture-status-report-aasr/>

## New Publications: Study shows benefits and trade-offs of conservation agriculture in southern Africa

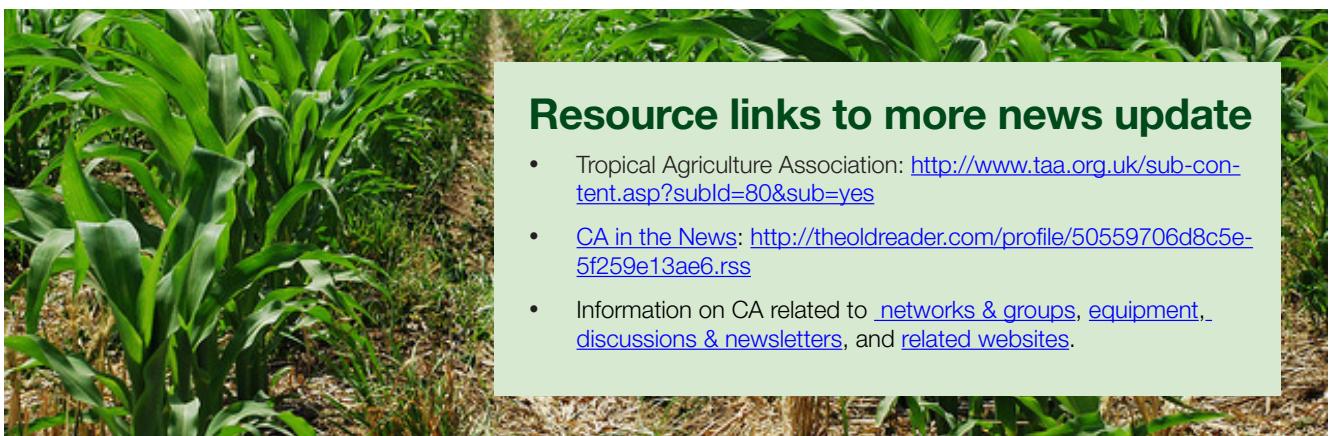


Smallholder farmers throughout southern Africa continue to be constrained by high rainfall variability and lack of access to agricultural inputs, resulting in poor harvests and challenges from food shortages to malnutrition. [Conservation agriculture](#) practices such as minimal soil disturbance, permanent soil cover and the use of crop rotation have been promoted as a useful set of tools that could improve farmer resilience to these challenges. However, matching CA practices to agro-ecological and socioeconomic conditions remain contentious.

In a recent [study](#) conducted by scientists at the [International Maize and Wheat Improvement Center](#) (CIMMYT) with other partners, empirical data and results from a cropping system model were combined to quantify benefits and trade-offs, in terms of sowing opportunity, yield, and yield variability, from adopting CA practices in southern Africa. Simulated results in the study showed that some practices like direct seeding and farming in a basin planting system prepared late and at the onset of the rains improved timeliness of

operations, and enabled earlier planting across all locations compared to conventional systems. Mechanized CA systems also offered farmers potential flexibility on when to plant.

For more information: <http://www.cimmyt.org/new-publications-study-shows-benefits-and-trade-offs-of-conservation-agriculture-in-southern-africa/>



### Resource links to more news update

- Tropical Agriculture Association: <http://www.taa.org.uk/sub-content.asp?subId=80&sub=yes>
- [CA in the News: http://theoldreader.com/profile/50559706d8c5e-5f259e13ae6.rss](http://theoldreader.com/profile/50559706d8c5e-5f259e13ae6.rss)
- Information on CA related to [networks & groups](#), [equipment](#), [discussions & newsletters](#), and [related websites](#).

## Upcoming Events

**1<sup>st</sup> 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/>

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For more information, please contact: **Executive Secretary | African Conservation Tillage Network**  
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