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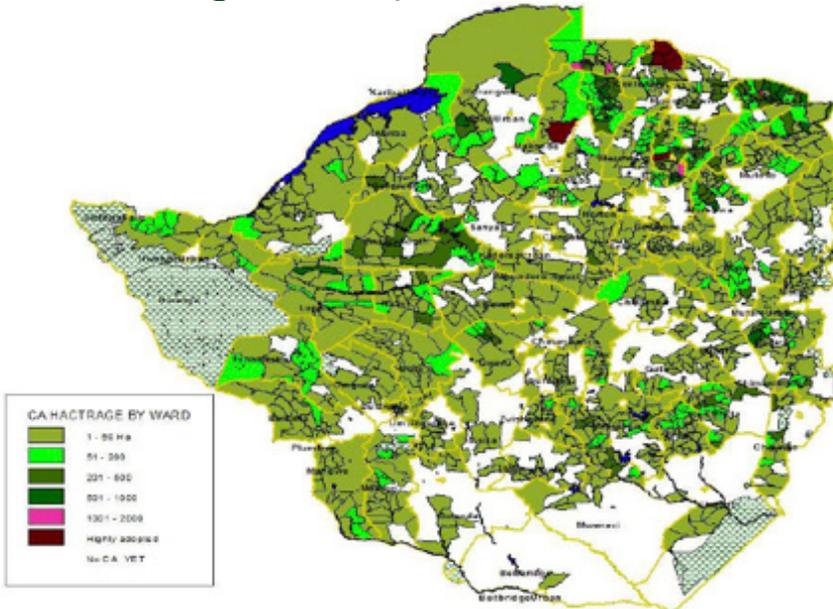
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Introducing the September 2016 CA Alert



Intensity of Conservation Agriculture Activities in Zimbabwe by Ward (Source: Marongwe, Agritex, 2016)

Conservation Agriculture (CA) is a combination of tested scientific technologies and/or principles in agricultural production. The practice of CA in Africa is now maturing with increasing demand for more sustainable agricultural practices and better natural resources management and conservation. It takes many adapted forms and can be practiced by smallholder-farmers using hand tools to large scale farmers in highly mechanized big farms. CA dictates combined application, in a locally adapted sequence, the three interlinked fundamentals principles of no or minimum mechanical soil disturbance; maintenance of organic soil cover and diversified crop rotations or associations, where farmers choose what is best for them. In essence,

CA is an approach that advocates the concept of sustainable intensification of production by picking the best possible options that farmers can apply at their own conditions. It is regarded as a sustainable land management tool for agricultural lands and is based on enhancing natural biological processes above and below the ground.

CA has been shown to increase productivity, help to build resilience to climate shocks, and protect the soil. It has been accepted as one strategy for "Climate Smart Agriculture (CSA)". CA in 2013 was practiced on nearly 157 million ha of glob cropland, and since 2008/09, it had increased at a rate of some 10 million ha per year.

Like in many developing countries food security in Zimbabwe is a function of own production and the resilience of the production systems to continuously supply the food chain. There is a close link between local production and food insecurity. Therefore, investments in the agricultural sector that increase food availability and strengthen resilience of the production systems will have an immediate impact on all elements of food security aspects in the food insecure regions. CA in Zimbabwe has been seen as one such approach that would inject life in the food production sector so as to increase the physical availability of food. Zimbabwe was the first country to form a vibrant National CA Task Force (NCATF) and launch a Conservation Agriculture Strategy. Learning from the successful commercial large scale farmers in the Country and neighbouring South Africa, Zimbabwe were among the first African countries to formally support smallholder CA.

The past 10 years have seen a massive wave of enthusiasm for CA among scientists, NGOs and development partners in the quest for coping strategies to climate change challenges and tillage induced land degradation. With technical leadership from the Food and Agriculture Organization of the United Nations (FAO), CA has spread in most parts of Zimbabwe with support of international research centres, Regional organizations (ACT, SADC and COMESA), and Development partners.

Documented impact and the feedback from practicing farmers has shown that CA significantly increase yields and

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agricultural productivity in a sustainable manner even for poorly resourced farmers. This enables them to improve their food security and often obtain a surplus to sell. In addition, there are noticeable changes in farm input costs and better adaptation to the vagaries of climate change. It is from this background that CA has been promoted as a way of reducing poverty in Zimbabwe. Such promotions have had variable impacts to the different communities and ecological settings involved. The type of CA promoted, the quality of the capacity development support availed to farmers and service providers, and the approaches used did all induce variabilities in the rate of adoption and even the magnitude of benefits reaped from adoption of CA.

This September issue features on adoption and practice of CA in Zimbabwe. ACT acknowledges the contributions from various sources, authors, reporters and organizations who have their articles captured here. The notable contribution of **Johan Habig** (ARC South Africa) in his second article with an attempt to “visualize” soil microbiology and understanding of the soil fauna and flora as critical components in the practice of CA. The Africa Agriculture Status Report 2016 is courtesy of the Alliance for a Green Revolution in Africa (AGRA). The contributions of various authors and practitioners on how CA is adopted, practiced and performing in Zimbabwe are highly appreciated. Links are also provided to previous publications and information materials on CA in this Country.

From these collections, it is critical to note the great role that has been played by international organizations such as FAO, CIMMYT, ICRISAT, the Canadian FoodGrains bank, CONCERN Worldwide and many others in promoting CA in Zimbabwe. Their efforts are yielding fruits; more strategically as evidenced by mainstreaming of CA in private sector and Government programmes.

As you get to understand more on what is happening in CA in Zimbabwe, ACT (The CA Network for Africa), wishes to inform you that the November and December issues will focus on Kenya and Botswana respectively. Thus, we encourage you to share your CA views and articles in time for the planned CA news alerts in those countries. We also encourage bookings for proposed focus country articles for 2017. Please submit articles, links or views to: kim@act-africa.org

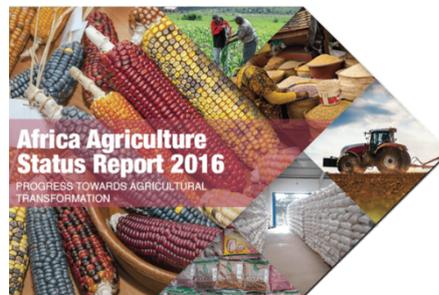
African Conservation Tillage Network CEO calls for high level support of Conservation Agriculture

EL BATAN, Mexico (CIMMYT), 29 September 2016 – Regional and national support for Conservation Agriculture is key to achieving widespread sustainable production intensification, said Saidi Mkomwa, CEO of the [African Conservation Tillage Network](#) (ACT). Increased uptake of [conservation agriculture](#), soil management practices involving minimal soil disturbance, permanent soil cover and crop rotations used to boost sustainable agriculture and add to its profitability, will benefit from coordinated promotion through regional bodies and national governments, said Mkomwa, who will speak at a [conference](#) to mark the 50th anniversary of the CIMMYT research and programs supporting conservation agriculture’s greater sustainable productivity have helped organizations, governments and their institutions expand efforts, but to have real impact against challenges climate change and reduced resources increased high-level action is needed, he said.

Mkomwa will take part in a panel discussion titled, “The contribution farming systems research in scaling improved management practices and technical innovations” during the CIMMYT 50th anniversary conference in Mexico.

Get the details of his interview on: <http://www.cimmyt.org/african-conservation-tillage-network-ceo-calls-for-high-level-support-of-conservation-agriculture/>

Launch of Africa Agriculture Status Report 2016: Progress towards Agricultural Transformation in Africa



Over the last decade, millions of small family farms in Africa have experienced big changes. These farms are the continent’s main source of food, employment, and income. Many African governments have put agriculture back to the top of the development agenda, and from a growing revenue base, they have increased the proportion of their national budgets going to this vital sector. Private companies have invested heavily in Africa’s agriculture value chains in recent years, paving the way for a renaissance in Africa’s agri-food systems that multiplies the options for farmers in terms of the

seeds they plant, the fertilizers they use, the markets they can now tap into, and the information services now available to help them manage their farming activities.

Much more must be done, however, to sustain and deepen the agricultural transformation process that has started in Africa, as laid out in the Malabo Declaration and the Sustainable Development Goals (SDGs). The continent is still faced with many challenges such as food insecurity, emerging effects of climate change and rampant land degradation make these challenges especially daunting particularly as rapid population growth and rising urbanization increase the pressure on agriculture to deliver more and better food.

For more information and read: <http://agra.org/aasr2016/public/assr.pdf>

Conservation Agriculture as Practiced in Zimbabwe: promoting information, articles, and publications



Stezen Mudenda (the care taker at KMTC, Kulima Mbobumi Training Center) is using mulch, one of the practices of conservation agriculture, to conserve moisture in the soil. MCC partner KMTC (Kulima Mbobumi Training Center) in Zimbabwe. MCC Photo/Matthew Sawatzky

Conservation Agriculture: Islands of hope

A huge crisis unfolds as millions of people around southern Africa are facing extreme food and nutrition insecurity due to successive years of droughts, made worse by the El Niño this year (2016). This climatic shock has disrupted people's lives and ruined their livelihoods. In typical years families normally have enough food to eat after the main harvests begin in late March and April; that however was not the case for most this year.

In Zimbabwe, a drive through southern areas of the country in April revealed a prevalence of failed crops that have been

ravaged by the drought. In the midst of an apparently hopeless situation, Mr. Sibindi - a conservation agriculture farmer from Matebeleland North Province is gearing for a bumper harvest of diversified crops that include maize, butternuts, and tomatoes. The crisis has called for innovative ideas and new approaches to agriculture, as the conventional farming methods are no longer sustainable.

For more information watch the video on CA: Islands of hope on <https://youtu.be/IEf-5WUHoyo>

Maize productivity and profitability in Conservation Agriculture systems across agro-ecological regions in Zimbabwe: A review of knowledge and practice

Conservation Agriculture (CA) is increasingly promoted in southern Africa as a strategy to improve food security and reverse soil degradation in the face of climate change. However, the performance of CA under different environments and its ability to improve ecosystem services is still unclear. The effects of the CA options; direct seeding, rip-line seeding, and seeding into planting basins on maize grain yield, soil health and profitability across agro-ecological regions in Zimbabwe were evaluated through a review of literature in combination with meta-analysis. Overall, CA improved maize yield over conventional agriculture. Compared to conventional agriculture, direct seeding, rip-line seeding, and seeding into planting basins increased yield by 445, 258 and 241 kg ha⁻¹, respectively. However, there was an initial yield decline in the first two years. CA practices reduced soil erosion and bulk density, and increased soil water content in most studies. Under high levels of residue retention (6 Mg ha⁻¹), CA systems exhibited greater macro fauna abundance and diversity than conventional agriculture, particularly termites. Weed pressure tended to increase labour requirement for hand-hoe weeding under CA compared to conventional agriculture. However, the use of herbicides reduced weeding labour demand during the early season. The benefits of CA are tied to the farmers' management intensity including: time of planting, weeding, fertiliser and herbicide application, and adequate training on equipment use. Economic analysis results showed that on average, a farmer incurs losses for switching from conventional agriculture to CA in the main maize growing regions of Zimbabwe. Based on the six seasons' data, the losses were least with the ripper in drier areas and worst with the direct seeder in wetter areas.

For more information: <http://www.sciencedirect.com/science/article/pii/S0167880916300251>

Zimbabwe Conference Allows Sharing of Conservation Agriculture Challenges, Successes

Over 120 people representing 15 African countries from Canadian FoodGrains Bank-supported organizations recently gathered in Zimbabwe to share learnings and successes around the practice of conservation agriculture. "Having Foodgrains Bank members and local partner organizations coming together and supporting each other is a bold new way of programming," says Neil Rowe-Miller, Foodgrains Bank Conservation Agriculture Technical Officer in Eastern Africa. "The conference was a great opportunity for the Conservation Agriculture network to grow and expand by learning from one another."

Conservation Agriculture is a farming approach that uses minimal soil disturbance, crop rotations, and cover crops to improve soil health and increase production. According to Miller, Conservation Agriculture is especially important in the face of things like El Niño and climate change, where erratic and changing weather patterns make it difficult for farmers to know when to plant and how to survive in the midst of drought.

For More information: <http://foodgrainsbank.ca/news/zimbabwe-conference-allows-sharing-of-conservation-agriculture-challenges-successes/>

Conservation Agriculture contributes to Zimbabwe economic recovery



The economy of Zimbabwe – once considered the breadbasket of southern Africa – has begun to turn around after a decade-long recession that saw a sharp drop in agricultural production, falling incomes and increasing food shortages. With some 70 percent of people relying on agriculture for their livelihoods, the strength of this sector is key to economic recovery. FAO has worked with the government to increase farmers' uptake of conservation agriculture – a no-till system that increases yields while protecting fields from erosion, improving soil quality and mitigating the effects of drought. In its initial stages, conservation agriculture is more labour-intensive than conventional methods, so FAO has initiated a programme of training and demonstrations, and introduced labour-saving mechanical planters to win over farmers. As a result, Zimbabwe has seen “spontaneous adoption”, meaning farmers see gains on their neighbours' farms and make the decision to adopt Conservation Agriculture (CA). Today more than 300 000 Zimbabwean farmers are practising this method and have nearly tripled their production.

The Government of Zimbabwe supports CA because of its success in mitigating the adverse effects of climate change and in conserving soil and water resources. The Ministry of Agriculture, Mechanization and Irrigation Development co-chairs the National Conservation Agriculture Task Force with FAO, and meets regularly with farmers, extensionists, researchers and the private sector to discuss, refine and advance research on CA. An estimated 300 000 Zimbabwe farmers have now adopted CA.

Once farmers pass the initial labour intensive, start-up seasons, their CA techniques cut down on waste of inputs and thus reduce their costs. While only five percent of Zimbabwe's maize-growing area is currently under CA, those farmers who have adopted it have been able to harvest more from their small plots, averaging around two tonnes per hectare for maize, which is nearly triple what they produced under conventional agriculture. Meanwhile legume production has doubled.

For more information: <http://www.fao.org/in-action/conservation-agriculture-contributes-to-zimbabwe-economic-recovery/en/>

Building a sustainable future: A history of conservation agriculture in southern Africa

This story is one of a series of features written during CIMMYT's 50th anniversary year to highlight significant advancements in maize and wheat research between 1966 and 2016.

HARARE, Zimbabwe (CIMMYT) — when practiced unsustainably, agriculture has led to environmental degradation and famine, which have plagued civilizations [through the centuries](#). Innovations such as irrigation or the plow (since circa 6,000 and 3,000 BC) increased productivity, but often deteriorated long-term soil fertility through erosion and other forms of degradation.

We are now facing historically unprecedented challenges to food

security. We must increase food production by [70 percent to feed nine billion people by 2050](#), without damaging our finite and often already degraded natural resource base. In addition, farmers face more frequent drought and water scarcity, which makes it increasingly difficult to grow crops, and extreme weather events such as the 2015-2016 El Niño, which has already caused large-scale crop failures and soaring maize prices in southern Africa.

For more: <http://www.cimmyt.org/building-a-sustainable-future-a-history-of-conservation-agriculture-in-southern-africa/>

Effects of relay cover crop planting date on their biomass and maize productivity in a sub-humid region of Zimbabwe under Conservation Agriculture

Relay cropping of cover crops is a strategy of increasing biomass yields and productivity of maize-based systems. However, there is need to strategically plan the relay cropping to avoid competition between the main crop and the relay cover crops while at the same time obtaining optimum yields from both crops. A study was carried out in a clay soil in a sub-humid region of Zimbabwe to investigate the effect of introducing different relay cover crops at 8, 11 and 15 weeks after planting maize (WAPM) into a standing maize crop on biomass yield of the relay cover crops, their emergence and maize yields in the 2012–13 and 2013–14 seasons. From the results of the study, it was observed that the introduction of relay cover crops late in the season compromises their emergence and hence biomass yields (as low as 0.8 kg ha⁻¹ for blue lupins (*Lupinus angustifolius* var. *angustifolius* (L.)). In a season where longer mid-season dry spells were experienced (2013–14), biomass yields of the relay cover

crops were lower than in 2012–13 season. Delays in planting of relay cover crops (i.e. from 8 to 11 and from 11 to 15 WAPM) resulted in yield reductions of around 50%. Relay cover crops introduced at different periods of the season had no significant effects on maize grain and biomass yields. However, there are relay cover crops such as the velvet bean (*Mucuna pruriens* (L.) DC) and common oats (*Avena sativa* L.) that showed better emergence even in the sub-optimal conditions (with emergence as high as 90%). Of all the investigated relay cover crops, none could contribute to significant amounts of biomass thus insignificant increases in total plot biomass. There is need to investigate on other earlier planting dates that do not compromise the biomass productivity of such relay cover crops.

For more information: <http://www.sciencedirect.com/science/article/pii/S1573521416300252>

Are Conservation Agriculture (CA) systems productive and profitable options for smallholder farmers in different agro-ecoregions of Zimbabwe?

Continuous conventional tillage coupled with unsystematic cereal/legume rotations has promoted low crop productivity on smallholder farms. A multi-locational study was established in three agro-ecoregions (AEs) of Zimbabwe. The aim of the study was to determine the effect of four tillage systems (conventional plowing, planting basins, rip-line and animal traction direct seeding systems) on maize (*Zea mays* L.),

cowpea [*Migna unguiculata* (L.) Walp] and soybean [*Glycine max* (L.) Merrill] yields, and evaluate the economic performance of the conservation agriculture (CA) systems relative to conventional plowing. Each farmer was a replicate of the trial over the three cropping seasons. In the high (750–1000 mm per annum) and low (450–650 mm) rainfall AEs, conventional practice and CA systems gave similar

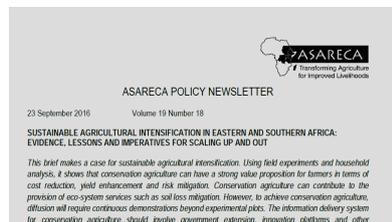
maize grain yield. Under medium rainfall conditions (500–800 mm) planting basins, rip-line and direct seeding systems gave 547, 548 and 1690 kg ha⁻¹ more maize yield than the conventional practice. In the high and low rainfall AEs, conventional practice and planting basins had the lowest maize production risk. Cowpea yield was 35 and 45% higher in the rip-line and direct seeding than conventional practice. Soybean yield was higher in rip-line (36%) and direct seeding (51%) systems than conventional practice. Direct seeding system gave the highest net benefits in all AEs. A combination of long-term biophysical and socio-economic assessments of the different cropping systems tested in our study is critical in order to fully understand their performance under different AEs of Zimbabwe.

For more information on the research: <https://cgspace.cgiar.org/handle/10568/73665>

Some of the previous publications and information materials on Conservation Agriculture in Zimbabwe

- a). Farming for the future; A guide to Conservation Agriculture in Zimbabwe: <http://www.foodgrainsbank.ca/uploads/Farming%20for%20the%20Future%20-%20A%20Guide%20to%20Conservation%20Agriculture%20in%20Zimbabwe.pdf>
- b). An African success: the case of conservation agriculture in Zimbabwe: http://www.fao.org/ag/ca/ca-publications/ijas2010_556_zim.pdf
- c). Conservation Agriculture and Sustainable Crop Intensification: A Zimbabwe Case Study: <http://www.fao.org/docrep/017/i3160e/i3160e.pdf>
- d). Conservation Agriculture and micro-dosing in Zimbabwe: https://www.ard-europe.org/fileadmin/SITE_MASTER/content/eiard/Documents/Impact_case_studies_2013/ICRISAT_-_Conservation_agriculture_and_micro-dosing_in_Zimbabwe.pdf
- e). Using conservation agriculture to help Zimbabwe's farmers produce more: https://youtu.be/E1IJ_C64O60 (Watch the Video)
- f). Factors influencing adoption of conservation agriculture by smallholder farmers of domboshawa, Mashonaland Central, Zimbabwe: <http://www.journalijdr.com/sites/default/files/4522.pdf>

Sustainable Agricultural Intensification in Eastern and Southern Africa: Evidence, Lessons and Imperatives for Scaling Up and Out



The challenge of feeding a growing world population projected to reach 9 billion by 2050 has to involve sustainable agricultural intensification, with the key principles of resource conservation, resilient production systems and economic viability of those systems. These are some of the guiding principles behind the Sustainable Intensification of Maize and Legume Systems for Food Security in Eastern and Southern Africa (SIMLESA) project. The project is funded by the Australian Centre for International Agricultural Research (ACIAR) and managed by the International Maize and Wheat Improvement Centre (CIMMYT). It is implemented by National Agricultural Research Systems in Ethiopia, Kenya, Tanzania, Malawi and Mozambique.

Lessons from these five core countries are implemented in spillover countries of Botswana, Rwanda and Uganda.

This brief makes a case for sustainable agricultural intensification. Using field experiments and household analysis, it shows that conservation agriculture can have a strong value proposition for farmers in terms of cost reduction, yield enhancement and risk mitigation. Conservation agriculture can contribute to the provision of eco-system services such as soil loss mitigation. However, to achieve conservation agriculture, diffusion will require continuous demonstrations beyond experimental plots. The information delivery system for conservation agriculture should involve government extension, innovation platforms and other information providers. The brief concludes by highlighting four important principles for policy and research aimed at facilitating value chain development

For more Information: <http://tinyurl.com/z2pxlpw>

The Positive Side of Our Soils

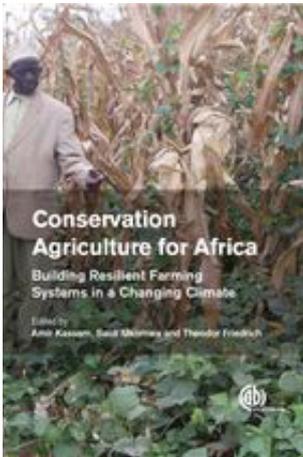
The initial reaction of farmers and gardeners when they hear the words “bacteria, fungi, nematodes” is to reach for the closest bottle of pesticide and rush off to their fields to apply that pesticide in abundance. Fortunately, only a very small portion of microorganisms present in a healthy soil causes damage to crops, whereas the biggest portion of microorganisms in healthy soils actually benefits our crops (and us) in ways that we are not even aware of. In the July edition of the ACT Newsletter, we talked about the sensitivity of the biological (living) component of our soils to changes inside and around the soil environment. We also referred to the co-existence of the good (beneficial) and bad/ disease-causing (pathogenic) soil microorganisms. In this edition, we will be having a closer look at the beneficial soil microorganisms.

Soil microorganisms such as bacteria, fungi, yeasts and nematodes

work belowground to break down contaminants, decompose organic material (also called mineralization), mediate carbon, phosphorous, nitrogen and sulfur cycling, thus contributing to soil fertility and quality. Since chemical elements and minerals are required to fulfill numerous functions in the soil ecosystem, these elements and minerals need to be cycled continuously throughout the ecosystem by means of various interrelated biological processes. Microbial communities are therefore crucial in nutrient cycling in order to unlock essential elements from complex organic compounds that could be taken up by other organisms and plant roots for growth. This intricate relationship between microorganisms and minerals enhances effective nutrient cycling which also contributes to the resilience of soils by supporting soil microbial diversity and activity.

For more Information: <http://tinyurl.com/h4pnwpt>

Conservation Agriculture for Africa: Building Resilient Farming Systems in a Changing Climate



CABI has announced the following book: **Conservation Agriculture for Africa: Building Resilient Farming Systems in a Changing Climate** edited by A Kassam, Food and Agriculture Organization of the United Nations, Italy and University of Reading, UK, S Mkomwa, African Conservation Tillage (ACT), Nairobi, T Friedrich, FAO Representative in Cuba, with a Foreword by Howard Buffett. This book is expected to be launched in **November 2016**.

This book:

- Focuses on research and development initiatives in Africa aimed at building resilient farming systems based on Conservation Agriculture principles and practices.
- Summarizes the status of Conservation Agriculture in Africa today and prospects for its future development in Africa as a basis for sustainable agriculture intensification.
- Describes case studies involving the performance of Conservation Agriculture in Africa.

The book will be available for order on the following:

December 2016 / Hardback / 450 Pages / 9781780645681	£95.00 / €125.00 / \$133.33
With 10% online discount:	£85.50 / €112.50 / \$120.00
Not yet published. Enter your email address and click ' Notify me ' to find out as soon as it becomes available.	

More details are available on: <http://www.cabi.org/bookshop/book/9781780645681> or <http://act-africa.org/news.php?com=68&com2=6&item=359#.V5r3DaLcfIA>

Upcoming Events

AFRHINET project Symposium

The project AFRHINET “a technology-transfer network on rainwater harvesting irrigation management for sustainable dryland agriculture, food security and poverty alleviation in sub-saharan Africa” is hosting the Symposium on “Fostering the Use of Rainwater for Food Security, Integrated Landscape Restoration and Climate Resilience, and Poverty Alleviation”. The event will be held in Hamburg, Germany, on 21st -22nd February 2017. The Symposium is hosted by the coordinator of the AFRHINET project, namely the Hamburg University of Applied Sciences, in cooperation with the Research and Technology Transfer Centres at Eduardo Mondlane University (Mozambique), Addis Ababa University (Ethiopia), University of Nairobi (Kenya), and University of Zimbabwe (Zimbabwe), as well as with other initiatives and projects. Deadline for submission of abstracts is 30th October 2016. Expressions of interest to attend the event, consisting initially of a 200 words abstract, containing the names and all contact details of the authors should be sent to Josep de la Trinchera at: JosepMaria.DeTrincheraGomez@haw-hamburg.de by 30th October 2016.

Advanced Course - Asia: Conservation Agriculture: Gateway for Sustainable Intensification of Smallholders



Conservation Agriculture (CA) practices are increasingly accepted across the globe and are considered as harbingers for sustainable intensification of smallholder production systems. Its positive impact on natural resources, and adaptation to and mitigation of climate change effects are widely acknowledged. In Asia, CA is a relatively new introduction and hence capacity development is vital for adaptation and scaling-up CA-based technologies to achieve impact on smallholder farmers.

This course on CA shall offer unique capacity development opportunity to the scientific community associated

with natural resource management research for development. It was initiated during 2010 and is seventh in a series being organized by CIMMYT and BISA under the aegis of CGIAR Research Programmes on WHEAT, CCAFS, and in close collaboration Indian NARS. The course links the advances and multidisciplinary approach for sustainable intensification of maize and wheat based system, restoration of natural resource degradation and climate resilient production systems with expertise across Asia, Africa and Americas. The course has become a regular flagship activity wherein selected young men and women CA researchers from NARS as well as international organizations and NGOs can be benefit. It is offered at [CIMMYT-BISA Ludhiana, Punjab, India, beginning November 7th 2016](#).

For more information http://www.cimmyt.org/wp-content/uploads/2016/06/Seventh-Advanced-Course-on-CA-in-Asia-Announcement_-2016-1.pdf

The 22nd Session of the Conference of Parties to the United Nations Framework Convention on Climate Change (COP22): Marrakech COP22/CMP12 UN Climate Change Conference 2016



The 22nd Session of the Conference of Parties to the United Nations Framework Convention on Climate Change (COP22) will be held in **Marrakech, November 7 to 18, 2016**.

COP22 will focus on action items in order to achieve the priorities of The Paris Agreement, especially related to

adaptation, transparency, technology transfer, mitigation, capacity building and loss and damages.

For Salaheddine Mezouar, President of COP22, this conference is an “opportunity to make the voices of the most vulnerable countries to climate change heard, in particular African countries and island states. It is urgent to act on these issues linked to stability and security,” he declared. COP22 will be one of action.

Get more Information: <http://www.cop22.ma/>

25th National No-Tillage Conference 2017 Dates Announced

More than 100 cutting-edge, money-making sessions over 4 days, delivering insightful learning and unlimited networking with the best of the no-till community.



Early Bird registration is open for the 25th annual conference to be held January 10-13, 2017, at the **Hilton St. Louis at the Ballpark. Register!**

2nd Agriculture and Climate Change Conference: Climate ready resource use-efficient crops to sustain food and nutritional security



Maintaining crop production to feed a growing population during a period of climate change is the greatest challenge we face as a species. The increased crop yields during the last century and especially the Green Revolution, were brought about through breeding for increased harvest index and disease resistance, as well as by using more irrigation water and agrochemicals. Improved cultivars were adopted readily during this period of relative climate stability. While genetic gains continue, albeit at reduced rates, productivity is in decline in many regions. Given the multiple challenges of climate change, reduced water supplies, and declining soil fertility in many regions, new approaches to produce climate resilient crops are desperately needed. The **2nd Agriculture and Climate Change Conference: Climate ready resource use-efficient crops to sustain food**



and nutritional security will focus on the likely impact of climate change on crop production and explore approaches to maintain and increase crop productivity into the future.

This Conference will be held on **26 – 28 March 2017 at the Meliá Sitges, Sitges (near Barcelona), Spain.**

For more information and important dates, link: <http://www.agricultureandclimatechange.com/>

For more information, please contact: **Executive Secretary | African Conservation Tillage Network**
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Email: info@act-africa.org | Web: www.act-africa.org