

Notice: Any private company or corporation registered in India and providing a donation or grant for the purpose of scientific research to ICRISAT, can now receive approximately 150% tax rebate. This is due to ICRISAT being recently approved by the Government of India as a 'Scientific Research Association' under section 35(1)(ii) of the Income Tax Act, 1961. This is effective from assessment year 2017-2018 onwards.

Feature Stories

International Women's Day celebrations at ICRISAT

Women scientists at ICRISAT expressed their hopes and highlighted their struggles in their area of work in a series of videos called "What it's like to be a woman working in science". [Watch here](#).

At ICRISAT-India, we celebrated with a week of activities with a workshop to empower self-beliefs; a self-defense training session; a panel discussion titled Health | Nutrition | Fitness; and a cooking show underlining millet as a source of nutrition and diversified food choices.



Photo: G Shashikanth

Participants at the 'How Can I?' workshop.



Photo: S Punna

The Health | Nutrition | Fitness panelists: (L-R) Ms Joanna Kane-Potaka (Director of External Relations and Strategic Marketing, ICRISAT), Ms Purnima R (Athlete Founder, WOW Fitness), Dr Jyothi Kankanala (Consultant Obstetrician and Gynecologist, Citizen's Hospital) and Mr Sridhar Iriventi (Founder Director, GoBhaarati Agro).



Photo: S Punna

Mr Sridhar Iriventi also gave a live demonstration of cooking a millets-based dish.

In Bamako, Mali, the ICRISAT Women’s Forum discussed (i) Development plans for women’s scientific careers as well as work-life balance and (ii) Women’s contributions to the UN Sustainable Development Goals – especially SDGs 1 (Zero Hunger) and 5 (Gender equality).

At the Lycée Notre Dame du Niger college for Girls, Bamako, the Women’s Forum held inspiring discussions on women in science, with many Forum members sharing their experiences as women scientists in today’s world.



Photos: A. Diama

The discussion, a tree-planting event and a hands-on self-defense session for women by Mr Batta Maiga (ICRISAT Security Officer) were part of a conference inaugurated by Dr Lilian Nkengla (Visiting Scientist – Gender Research) and attended by ICRISAT Regional Director and many other scientists.



Dr Keita Djeneba Konaté holding the attention of young women at Lycée Notre Dame du Niger.

In Kenya, visiting schoolchildren suffering from cerebral palsy, women staff from ICRISAT-Nairobi learnt about inclusive diversity, targeting of effort and meeting community needs.

To underscore the important event, Dr Peter Carberry, Director, CGIAR Research Program on Grain Legumes and Dryland Cereals, delivered a poignant message and stressed on going beyond diagnosis to transforming women’s lives in drylands. He spoke on how the gender perspective is embedded in the research design, planning and outcomes. [Watch his video message here.](#)

All in all, it was an eventful and insightful couple of days of celebrating women, their achievements, challenges and aspirations, across the world in India as well as Africa. ■

They then spent time at Pouponnière, a center for abandoned children and orphans, where they also donated cereals and groundnut flour 'Misola' prepared by a women’s association and ICRISAT partner in Kolokani.

Finally, the Women’s Forum paid a visit to the Bollé Center for Female Detention, Reeducation and Reintegration. The Center asked for assistance in reopening their ‘Agropastoral Unit’ which has been closed down due to lack of resources.



Women’s Forum members at a children’s center.



Photos: A. Diama

ICRISAT-Nigeria staff at Dr Ribiero Primary School, Nairobi.



Photo: EM Njuguna

ICRISAT-Nigeria staff at Dr Ribiero Primary School, Nairobi.

Bridging two continents: Ethiopian Ministerial delegation visits India



Figure 1 HE Abraha Alle interacts with a local farmer.

March 2018: A high-level ministerial delegation from Ethiopia recently visited India to observe and learn from best practices in dryland agriculture, rainwater conservation techniques and agribusiness development.

The visit was facilitated by ICRISAT to strengthen partnership and knowledge sharing between the two countries that have similar climates, landscapes and agricultural practices.

His Excellency Eyasu Abraha Alle, Cabinet Minister, Ministry of Agriculture and Natural Resources (MoANR) of the Federal Republic of Ethiopia, emphasized the importance of agriculture as the driver of the economy in Ethiopia. He

stated that 41% of Ethiopia's GDP, 90% of exports, and over 80% of employment in Ethiopia was dependent on agriculture. "Our focus right now is to transform our agriculture and make Ethiopia not only food secure but also nutrition secure," he said.

The delegation visited the site of [Mission Kakatiya](#), a flagship project by the state of Telangana to rejuvenate water bodies in the state. They looked at how irrigation infrastructure development could contribute to better livelihoods for small and marginal farmers. About 66% of arable land in Ethiopia lies untapped by irrigation, which could be made productive to make Ethiopian farmers more resilient.



Figure 2. HE Abraha Alle studies information about a rejuvenated water body.



Figure 3. HE Abraha Alle with officials at the Narsapur reservoir (tank).



Figure 4. Narsapur reservoir (tank).



Figure 5. The Ethiopian delegation interacts with local farmers.



Figure 6. The visitors shown locally caught fish.

Being welcomed with dazzling shawls and garlands, and treated to traditional dance/drama performances by local artists was just one part of an exciting and eventful trip for the visitors.

At ICRISAT's Agribusiness and Innovation Platform the delegation looked at how agri-based small and medium enterprises could be encouraged for a ready and sustained market for agricultural produce. Ethiopian agriculture policy makers are striving to move from a production-oriented mindset towards a market-oriented one to support smallholder farmers with a sustainable, profitable market.

The team interacted with farmers and officers at Mulkanoor Cooperative Rural Bank – a 60-year-old financial institution that provides loans, welfare schemes and assistance to farmers in Karimnagar, Telangana. This helped

them understand how the Cooperative used digital technology and agribusiness ventures.

The delegation also explored areas of collaboration on farm mechanization with the National Academy of Agricultural Research Management (ICAR-NAARM) – an institution of the Government of India, for scientists and farmers in Ethiopia through e-learning.

Making a special mention of ICRISAT's expertise in drought management and drought-tolerant crops, the Minister said that they were very interested at the [Smart Food](#) approach of building demand for these crops by collaborating with food processors and the food service industry.

He hoped that the Smart Food concept could be replicated in Ethiopia too. Expressing happiness at finally being able to visit ICRISAT – 'a dream come true' for them, he hoped that the Ethiopian Government and ICRISAT could work towards a fruitful association in the coming years.

The delegation, which included HE Mr Tesfaye Mengiste Dori, (State Minister, MoANR, Ethiopia), Dr Diriba Gelete Chali (Deputy Director General and Acting Director General, Ethiopian Agricultural Research Institute), and other senior officials, visited ICRISAT from 8-12 March 2018.

[Click here to know more about ICRISAT's work in Ethiopia](#) ■

This work contributes to UN Sustainable Development Goals

1 NO POVERTY 	2 ZERO HUNGER 	8 DECENT WORK AND ECONOMIC GROWTH 	17 PARTNERSHIPS FOR THE GOALS 
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New groundnut varieties increase profits with 50% cost reduction and better post-harvest management



Photos: P. Janha, ICRISAT

Groundnut threshers could help tackle labor scarcity in Odisha.

“Compared to the local groundnut variety, I earned INR 2,000-3,000 (USD 31-46) more per acre from the new improved variety ‘Devi,’” says Bhubaneswar Biswal, a farmer group leader from Kalahandi district in Odisha, India.

Groundnut is an important cash crop for Odisha state. It is cultivated on about 280,000 ha and is a key crop supporting crop-livestock production system. Rich in protein and edible oil, groundnut is also important for the nutritional and financial well-being of farmers and consumers. Yet, farmers have been facing a major problem in terms of accessing quality groundnut seeds.

To tackle the issue of quality seed availability and to strengthen the local seed system, about 4,000 kg breeder seed of ICGV 91114 (Devi) and ICGV 00351 were supplied by ICRISAT during 2017 to the Odisha State Seed Corporation Limited and the National Seeds Corporation, respectively to produce foundation seeds.

Tackling labor scarcity

Threshing, a laborious post-harvest activity, involves separation of pods from the groundnut haulms. This key activity is cost intensive and is often challenged by shortage of labor availability during the peak season. To tackle this challenge, ICRISAT introduced dry plant threshers in Ganjam and Bolangir districts of Odisha.

The results from the farmer’s fields indicate 50% reduction in cost for threshing when dry plant threshers are used as compared to manual threshing.

Over a span of 6-7 hours, the machine can thresh two hectares of groundnut plant (about 3,500 kg). Small heaps of plants are dried by keeping plants upside down to ensure easy threshing. This practice also contributes to better quality pods as they are away from the soil during the drying process.

From this successful pilot, the use of threshers will be scaled out in 12 major groundnut-growing districts (Jajpur, Jagatsinghpur, Balasore, Kendrapara, Dhenkhanal, Gajapati, Puri, Cuttack, Naupada, Ganjam, Kalahandi, Bolangir) of Odisha.

As creating awareness and training on new technologies is an essential part of scaling out, ICRISAT recently conducted a one-day training program on ‘Opportunities for Mechanization of Groundnut Production in Odisha’. While interacting with farmers, Dr Pradhan from Farm and Implements Unit of the Orissa University of Agriculture Technology (OUAT) discussed the importance of using seed drills to ensure line planting to facilitate inter-cultural operations, plant diggers, decorticators and graders.

Dr M Muthu Kumar, Director of Agriculture and Food Production, Government of Odisha, described the collaboration between ICRISAT, the Department of Agriculture, and OUAT in piloting the dry plant threshers in the state as a critical move to strengthen the groundnut seed systems. He emphasized on the need to mechanize groundnut threshing as it is highly labor intensive.

Reducing post-harvest loss

[Generally groundnut seeds are prone to quality deterioration and damage due to improper storage.](#) Purdue Improved Crop Storage (PICS)-based triple layer plastic bags can be used to store groundnut pods without loss of viability for a period of eight months.

“This cost-efficient environment-friendly technology is of immense help to farmers as they can now save and reuse their own seeds for the next season. It helps regulate moisture content and insect activity. The PICS bags can not only protect the pod quality but also prevent aflatoxin contamination,” explains Dr Hari Sudini, Scientist-Groundnut Pathology, ICRISAT.



Photo: P Janila, ICRISAT

Farmer group leader Bhubaneswar Biswal from Karmat village, Kalahandi District, Odisha shares his experience after experimenting with the new groundnut variety.

"It is not possible to supply seed for all the cropped area of groundnut in Odisha as it requires huge quantities of seeds, approximately 30,000 t to plant 200,000 ha. Even at 150 kg per ha and an average yield of 1.7 t per ha, an area of 18,000 ha has to be planted for seed production. Therefore, farmers are encouraged to save and reuse seeds as an alternative, provided good storage options are available," adds Dr P Janila, Principal Scientist - Groundnut Breeding, ICRISAT.

Dr Swain Braja presented the opportunities of using groundnut-based feed and fodder to increase livestock

productivity. An earlier study on the same subject conducted in Anantapur, Andhra Pradesh, indicated an 11% increase in milk yield when groundnut haulms of the new variety Devi (ICGV 91114) were fed to cattle.

The training program was conducted at Bhubaneswar for members of the Department of Agriculture, Government of Odisha; NGOs; Farm Engineering Department, Government of Odisha; fabricators; National Seed Corporation; Odisha State Seed Corporation Limited; faculty members from OUAT and eight farmer group leaders. A total of 61 participants were trained. ■

Project: Scaling-up of Improved Groundnut Varieties through Established Seed System in Various Cropping Systems of Smallholder Farmers in Odisha

Funder: Department of Agriculture, Government of Odisha

Partners: Department of Agriculture, Government of Odisha; Orissa University of Agriculture Technology (OUAT); National Seed Corporation; Odisha State Seed Corporation Limited; International Livestock Research Institute (ILRI); and ICRISAT

This work contributes to UN Sustainable Development Goals



Joining hands with the biggest rural bank to make agriculture more efficient and climate smart



Photo: PS Rao, ICRISAT

Vinod Kumar Samanthul, Director, Aegis, demonstrates a drone.

India's apex rural bank and the international crops research institute explored science-driven digital technology options to transform the rural sector.

In a unique initiative, [ICRISAT ihub](#), an incubator for agri-tech entrepreneurs, conducted a three-day training for senior officials from the National Bank for Agriculture and Rural Development (NABARD), India's foremost financial institution for sustainable and equitable rural development.

More than 50% of NABARD's senior staff trained at ICRISAT are trainers themselves, who are a significant link in scaling-out Information and Communication Technologies (ICTs) and the benefits of digital agriculture across India.

Digital technologies for agriculture can be a promising pathway for smallholder farmers to make farming more profitable. It is therefore critical to scale-out proven digital technologies to engage every farmer.

The training on 'Digital Agriculture and Internet of Things (IoT)' took place from 12th to 14th March and was significant because capacity and skill building focused on ICTs to increase income and attract youth is one of the priority areas for NABARD.

During the training, ICRISAT scientists presented climate-smart agriculture using geographic information system, remote sensing and climate models. Partners discussed

real time applicability of ICTs, precision agriculture and IoT.

Digital technologies have the potential to positively transform agriculture by delivering need-based context-specific and timely information to smallholder farmers. With the help of ICT, farmers can better manage risks (climate, production and market risks). [By using the Sowing App developed by ICRISAT and Microsoft, 150 farmers increased their yield by 30%.](#)

"Farmers can also opt for ICRISAT's intelligent agricultural systems advisory tool (iSAT), a Big Data-driven technology and receive a whole range of farming

advice through text messages in their language automatically every week throughout the cropping season," says Dr Dakshina Murthy Kadiyala, Senior Scientist-Systems Modeling, ICRISAT.

The potential for digitizing agriculture is huge. 'Kalgudi', a social media platform for information exchange in the local language connects one million farmers with agriculture value chain stakeholders. 'Khetinext' digital platform connects 30,000 farmers directly to quality inputs, consumers and financial institutions. Through Khetinext, farmers could reduce input costs by 30%.

'Kisan Raja' an innovation that allows farmers to remotely control agricultural motors to manage water more efficiently was demonstrated during the training.

"We are happy with the training and would like to organize a series of knowledge transfer sessions with ICRISAT to our staff and partners," says SK Jahagirdar, senior faculty from NABARD's National Bank Staff College in Lucknow and a primary initiator of the training program.

In the past, ICRISAT and NABARD have worked to [enhance technical capacity of stakeholders in agribusiness](#). While NABARD has expressed interest in collaborating with ihub partners, this unique and successful training initiative may have set off a trajectory for a strong partnership with ICRISAT. ■



FG To Upgrade Local Farmers Status To Mechanised Farming



The Nigerian Federal Government is set to elevate the status of local farmers in the country from subsistence to a commercially oriented farming through its [Agricultural Transformation Agenda Support Programme](#) Phase I (ATASP-1) project.

The country representative of the International Crop Research Institute for Semi-Arid Tropics (ICRISAT), Dr Hakeem Ajeigbe disclosed this at a 2-day zonal meeting of the Kano-Jigawa Staple Crop Processing Zone, held in Kano.

Dr Ajeigbe said the project is being funded by the Federal government through the African Development Bank (ADB), would be implemented in four selected Staple Crops Processing Zones across the country which include Adani-Omor (Enugu/Anambra), Bida-Badegi (Niger), Kebbi-Sokoto and Kano-Jigawa zones. [Read more](#)



2,520 Kano, Jigawa farmers to benefit from ATASP-1



No fewer than 2,520 farmers from Kano and Jigawa states will benefit from the Agricultural Transformation Agenda Support Programme phase-one (ATASP-1).

This was disclosed by the Monitoring and Evaluation Specialist of International Crop Research Institute for Semi-Arid Tropics (ICRISAT), Malam Shu'aibu Abubakar Ummah. [Read more](#)

Site-specific nutrient management can double grain yields contributing to food security



Farming systems in Ethiopia are plagued by soil-related problems which lead to poor productivity, declining soil fertility and soil erosion. Other common farming-related challenges include low fertilizer use and reduced farmlands because of population pressure.

Government efforts to address these problems by importing fertilizer, creating

a soil fertility atlas, and setting up fertilizer blend plants, have not led to significant increases in crop production in rural areas.

A recent study by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in the Africa RISING research sites in Ethiopia shows that site-specific nutrient management, which combines plant nutrient requirements at each growth stage of a crop and the soil's ability to supply those nutrients, could increase food productivity in the country.

Site-specific soil nutrient management technology in Ethiopia is helping farmers get out of subsistence farming and grow better crops. [Read more](#)

Videos



Preserving seeds for posterity.

[Dr Hari D Upadhyaya](#), Head, Genebank, ICRISAT, highlights the importance of conserving crop seeds for the future generations. He was recently awarded the Crop Trust Legacy Award for his work on crop diversity. [Read more here](#) about his work in the area of preservation of important crop seeds.

New Publications

QTLs for resistance to *Fusarium* wilt and *Ascochyta* blight in a recombinant inbred population of chickpea (*Cicer arietinum* L.)

Authors: Garg T, Mallikarjuna BP, Thudi M, Samineni S, Singh S, Sandhu JS, Kaur L, Singh I, Sirari A, Basandrai AK, Basandrai D, Varshney RK and Gaur PM

Published: 2018, *Euphytica*, 214(3) (45). pp. 1-11. ISSN 0014-2336

Abstract: *Fusarium* wilt (FW; caused by *Fusarium oxysporum* f. sp. *ciceris*) and *Ascochyta* blight (AB; caused by *Ascochyta rabiei*) are two major biotic stresses that cause significant yield losses in chickpea (*Cicer arietinum* L.). In order to identify the genomic regions responsible for resistance to FW and AB, 188 recombinant inbred lines derived from a cross JG 62 × ICCV 05530 were phenotyped for reaction to FW and AB under both controlled environment and field conditions. The QTLs and linked markers identified in this study can be utilized for enhancing the FW and AB resistance in elite cultivars using marker-assisted backcrossing.

<http://oar.icrisat.org/10426/>

Plant vigour QTLs co-map with an earlier reported QTL hotspot for drought tolerance while water saving QTLs map in other regions of the chickpea genome

Authors: Sivasakthi K, Thudi M, Tharanya M, Kale SM, Kholova J, Halime MH, Jaganathan D, Baddam R, Thirunalasundari T, Gaur PM, Varshney RK and Vadez V

Published: 2018, *BMC Plant Biology*, 18(1) (29). pp. 1-18. ISSN 1471-2229

Abstract: Terminal drought stress leads to substantial annual yield losses in chickpea (*Cicer arietinum* L.). Adaptation to water limitation is a matter of matching water supply to water demand by the crop. Therefore, harnessing the genetics of traits contributing to plant water use, i.e. transpiration rate and canopy development dynamics, is important to design crop ideotypes suited to a varying range of water limited environments. With an aim of identifying genomic regions for plant vigour (growth and canopy size) and canopy conductance traits, 232 recombinant inbred lines derived from a cross between ICC 4958 and ICC 1882, were phenotyped at vegetative stage under well-watered conditions using a high throughput phenotyping platform (LeasyScan).

<http://oar.icrisat.org/10427/>

Harvesting plant and microbial biodiversity for sustainably enhanced food security

Authors: Laplaze L, Sparvoli F, Masmoudi K and Hash CT

Published: 2018, *Frontiers in Plant Science*, 9 (42). pp. 1-27. ISSN 1664-462X

Abstract: According to the United Nations, the World population will reach 9 billion by 2050, with the majority of

this growth occurring in developing countries. More than half of global population growth is expected to occur in Africa. On the other hand, one in nine of the World's population suffers from chronic hunger, the vast majority of which live in developing countries (FAO et al., 2015). We therefore need to find new and sustainable solutions to feed this increasing population and alleviate the predicted negative impact of global changes on crop production. This e-Book summarize current research to improve food security and livelihoods in rural communities, reduce vulnerability, increase resilience, and mitigate land degradation in developing countries...

<http://oar.icrisat.org/10428/>

Effect of input credit on smallholder farmers' output and income

Authors: Iddrisu A, Ansah IGK and Nkegbe PK

Published: 2018, *Agricultural Finance Review*, 78 (1). pp. 98-115. ISSN 0002-1466

Abstract: The purpose of this paper is to examine the effect of input credit on smallholder farmers' output and income using Masara N'Arziki support project in Northern Ghana.

A cross-sectional primary data set was used to estimate the effect of project participation on farm output, yield and income using propensity score matching (PSM) methods. The findings are that project participation is skewed towards experienced farmers with big-sized households and farms. The effect of project on outcomes is somewhat unsatisfactory in the sense that participation only raises output and yield, but not income.

<http://oar.icrisat.org/10429/>

Ecology and genomics of an important crop wild relative as a prelude to agricultural innovation

Authors: von Wettberg EJB, Chang PL, Başdemir F, Carrasquilla-Garcia N, et al.

Published: 2018, *Nature Communications*, 9 (1) (649). pp. 1-13. ISSN 2041-1723

Abstract: Domesticated species are impacted in unintended ways during domestication and breeding. Changes in the nature and intensity of selection impart genetic drift, reduce diversity, and increase the frequency of deleterious alleles. Such outcomes constrain our ability to expand the cultivation of crops into environments that differ from those under which domestication occurred. We address this need in chickpea, an important pulse legume, by harnessing the diversity of wild crop relatives. We document an extreme domestication-related genetic bottleneck and decipher the genetic history of wild populations.

<http://oar.icrisat.org/10431/>

**Achieving sustainable cultivation of grain legumes.
Volume 2: Improving cultivation of particular grain legumes**

Authors: Sivasankar S, Bergvinson D, Gaur PM, Kumar S, Beebe S and Tamo M

Published: 2018, Burleigh Dodds Series in Agricultural Science (36). Burleigh Dodds Science Publishing Limited, Cambridge, UK. ISBN 9781786761408

Abstract: This book contains 15 chapters assessing key research on particular types of grain legumes, such as common beans, chickpeas, lentils, soyabeans, groundnuts, cowpeas, faba beans and pigeon peas. Information on the development of improved cultivars as well as improvements in cultivation techniques of these grain legumes are also presented.

<http://oar.icrisat.org/10432/>

Science & Technology and Startups in Agriculture

Author: Bergvinson D

Published: 2018, In: National Conference on Agriculture 2022 - Doubling Farmers' Income, February 19 - 20, 2018, New Delhi, India.

Abstract: The Indian economy is largely agrarian, with around 55% of the population dependent for their livelihoods on agriculture and allied sectors that generate 15% Gross Value Added (GVA) (GoI 2017a). Indian farmers are vulnerable to impacts of climate change, water scarcity and land degradation. In addition, increasing fragmentation of holdings, extreme weather events, rising input costs and post-harvest losses pose an enormous challenge to sustaining agricultural growth. There has been considerable expansion and change in the research and extension system but the key questions remain: 'Is this sufficient to Double Farmers' Incomes by 2022? Is there a need for a different mindset to ensure agriculture science empowers farmers to reach their full economic potential? Can such be achieved while delivering nutrition to the nation as well as within the ecological boundaries of India's natural resources?

<http://oar.icrisat.org/10438/>

Killing the goose? The value chain for sorghum beer in Kenya

Authors: Orr A

Published: 2018, Journal of Agribusiness in Developing and Emerging Economies, 8 (1). pp. 34-53. ISSN 2044-0839

Abstract: The decision by the Government of Kenya in 2013 to increase tax revenue by imposing excise duty of 50 percent on sorghum beer resulted in economic losses for smallholders, the brewery, and the government itself because it effectively killed the value chain. In 2015, the government reversed the policy decision and reduced

excise duty to 10 percent. The purpose of this paper is to analyze the impact of this policy decision on the value chain, adaptation by growers and the brewery, and the rationale for this policy change and its reversal. The author shows how the nature of politics in Kenya exposed the value chain to endogenous shocks as the result of conflicts between interacting agents, where smallholder farmer organizations were important for successful adaptation.

<http://oar.icrisat.org/10440/>

Introduction to special issue: smallholder value chains as complex adaptive systems

Authors: Orr A and Donovan J

Published: 2018, Journal of Agribusiness in Developing and Emerging Economies, 8 (1). pp. 2-13. ISSN 2044-0839

Abstract: The purpose of this paper is to introduce a new conceptual framework for smallholder value chains based on complex adaptive systems. The authors review the application of the framework to three case studies and explore their implications. The authors reflect on the value of a framework based on complex adaptive systems compared to alternative frameworks. The authors argue that the dynamics of smallholder value chains have received insufficient attention.

By focusing on these dynamics and on the capacity for adaptation among value chain actors the framework provides a new perspective on smallholder value chains. Complex adaptive systems provide a useful framework for analyzing value chain dynamics.

<http://oar.icrisat.org/10441/>

Smallholder value chains as complex adaptive systems: a conceptual framework

Authors: Orr A, Donovan J and Stoian D

Published: 2018, Journal of Agribusiness in Developing and Emerging Economies, 8 (1). pp. 14-33. ISSN 2044-0839

Abstract: Smallholder value chains are dynamic, changing over time in sudden, unpredictable ways as they adapt to shocks. Understanding these dynamics and adaptation is essential for these chains to remain competitive in turbulent markets. This paper develops an expanded conceptual framework to understand value chain performance based on the theory of complex adaptive systems. The framework combines seven common properties of complex systems: time, uncertainty, sensitivity to initial conditions, endogenous shocks, sudden change, interacting agents and adaptation. The authors outline how the framework can be used to ask new research questions and analyze case studies in order to improve our understanding of the development of smallholder value chains and their capacity for adaptation.

<http://oar.icrisat.org/10442/>

New Projects

Title: GeoNutrition

Funder: Bill & Melinda Gates Foundation through The University of Nottingham

Research Program: Eastern and Southern Africa

Principal Investigator: Tilahun Amede

Duration: 1 Mar 2018 - 31 Mar 2021

Title: Building Resiliency and Adaptation to Climate Extreme and Disasters-X (BRACED-X)

Funder: DFID through Blumont International

Research Program: Western and Central Africa

Principal Investigator: Birhanu Zemadim Birhanu

Duration: 1 Mar 2018 – 30 Apr 2019

Title: Enabling Value Chains to Create Sustainable Income for Vulnerable People in Crop-Livestock Systems of Burkina Faso and Niger

Funder: USAID/University of Florida Feed the Future Innovation Lab for Livestock Systems

Research Program: Western and Central Africa

Principal Investigator: V Bado

Duration: 26 Jan 2018 – 30 Sep 2020

Title: DST-ICRISAT Center of Excellence on Climate Change Research for Plant Protection (CoE-CCRPP): Pest and disease management for climate change adaptation

Funder: Department of Science and Technology, Govt. of India

Research Program: Asia

Principal Investigator: Mamta Sharma

Duration: 1 Apr 2018 – 31 Mar 2023

Title: Facilitating change in soil fertility management

Funder: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Research Program: Eastern and Southern Africa

Principal Investigator: Tilahun Amede

Duration: 1 Mar 2018 - 28 Feb 2021

Title: Technologies for African Agricultural Transformation (TAAT)

Funder: African Development Fund through IITA

Research Program: Western and Central Africa

Principal Investigator: Ramadjita Tabo

Duration: 19 Feb 2018 - 30 Nov 2021

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