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Federal Ministry of Food and Agriculture

by decision of the German Bundestag

Sino-German Agricultural Centre (DCZ)

中德农业中心

Sino-German Agricultural and Food Update

中德农业与食品通讯

No. 16 August - October 2021

GFA CONSULTING GROUP
General Agent BMEL
Berlin Office

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Published by

DCZ 中德农业中心
Deutsch-Chinesisches Agrarzentrum

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Implemented by

IAK AGRAR CONSULTING

iamo Leibniz Institute of Agricultural Development in Transition Economies

In partnership with

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CAAS

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Foreword

Dear partners and friends of the Sino-German Agricultural Centre,

It is not really news, but the figures nevertheless are disturbing: About one third of the world's food production is lost or wasted while food security and undernourishment are still a problem in many regions. Besides this, the economic and environmental impact of food loss and waste (FLW) is considerable although more difficult to quantify. The Sustainable Development target 12.3 states "By 2030, to halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."

We are grateful that two excellent researchers agreed to contribute to our newsletter with a cover story on this increasingly important topic. Dr. Felicitas Schneider and Stefan Lange of the Thünen Institute are directly involved in addressing this issue through the "Collaboration Initiative Food Loss and Waste" which was launched at the 4th Meeting of G20 Agricultural Chief Scientists (MACS-G20). The coordination of this initiative is located at the Thünen Institute in Braunschweig, and Dr. Felicitas Schneider is the coordinator. Their article provides an overview of this initiative's work and includes a wealth of links for further information.

FLW has not been one of the key topics in the DCZ up to now, but it certainly is increasingly acknowledged as an important issue and it was addressed in previous DCZ events in 2020 and 2021, by presentations of Dr. Felicitas Schneider at the Agricultural Week 2020 and Dr. Ren Yanjun at the Sino-German Agribusiness Conference 2021. Both presentations are still available on our website – and they certainly are still as interesting and timely as they were at that time.

https://www.dcz-china.org/6th-sino-german-agricultural-week-2020.html
https://www.dcz-china.org/agribusiness-conference-2021.html

LATEST NEWS: Sino-German Agricultural Week postponed!

Just before finalizing this Newsletter and at the time when we were about sending out the announcement and invitation to the **"7th Sino-German Agricultural Week, 11-12 November"** in Shenzhen we received the information that all events, including the "World Expo on Digital Agriculture" (WEDA) have to be **POSTPONED** due to most recent COVID-19 restrictions.

We hope to receive further information shortly and will inform you about new arrangements as soon as possible.

As always, I hope you find some interesting and valuable information in this edition of our Newsletter and wish you happy reading.

With best wishes

Dr. Jürgen Ritter
Managing Director
Sino-German Agricultural Centre (DCZ)

Cover Story

Food Loss and Waste – An Urgent Global Topic Tackled by Joint Sino-German Activities

By Dr. Felicitas Schneider and Stefan Lange, Thünen Institute

In recent years, awareness on food loss and waste (FLW) is increasing along the entire food supply chain. Since the UN Sustainable Development Goal 12.3 asks for cutting food waste from retail, food service and the household sector into halve and to reduce upstream food losses, policy makers recognise more and more the global, interdisciplinary and cross-sectoral impact of FLW, which has environmental, economic and social consequences. According to the present official definition used by UN Food and Agriculture Organisation (FAO) "food loss and waste is understood as the decrease in quantity or quality of food along the food supply chain". The term "food loss" includes the decrease from primary production up to but excluding retail while "food waste" covers retailers, food services and consumers. Newest figures from FAO and the UN's Environmental Programme (UNEP) indicate that food loss amounts to 14% and food waste to 17% of global food production. Total greenhouse gas (GHG) emissions caused by global FLW aggregates to 10% of global GHG emissions while 28% of the world's agricultural land area is occupied by food products which are finally not eaten.

Only two months prior to the final commitment towards SDGs in September 2015, the Collaboration Initiative Food Loss and Waste was launched at the 4th Meeting of G20 Agricultural Chief Scientists (MACS-G20) in Turkey. The Turkish G20 presidency focused on this topic among others and the final communiqué prepared the floor for enhanced future cooperation at the G20 level. At policy level,

Surplus and non-marketable vegetables donated by Berlin supermarkets for redistribution to deprived people (photo: Felicitas Schneider)

it was important to bring attention to the interaction of FLW with all three pillars of sustainability – economy, environment and society. As a result of the stocktaking presented during the meeting, FAO and the International Food Policy Research Institute (IFPRI) developed a comprehensive website related to all FAO documents and activities related to FLW called "Technical Platform on the Measurement and Reduction of Food Loss and Waste". In parallel, Germany took over the lead in the above mentioned Collaborative Initiative initiated by MACS-G20 and launched a global FLW expert and projects database. This database aims to provide simplified identification of knowledge for specific questions and a better overview of the global FLW research community. Since then, 146 experts from 32 countries were registered together with their general FLW expertise and more detailed project information. All interested persons are very welcome to register free of charge and add further expertise to the database to enhance direct contacts as well as global knowledge sharing.

The initiatives' coordination is located at the Thünen Institute in Braunschweig, the headquarter of the Federal Research Institute for Rural Areas, Forestry and Fisheries under the auspices of the German Ministry of Food and Agriculture. The objective of the initiative is

to unite G20s strong potentials and make significant contribution to real progress towards global FLW reduction. Although based at G20 level, the initiative is not restricted to cooperate only within G20 states; rather it collaborates also with other countries or organisations. Joint activities include support of the development and implementation of national strategies, providing experience on elaborating methodologies for specific research questions, spreading national research results on global level and conduct individual capacity building on the topic. The bi- and multilateral activities between the Thünen Institute and ministries, universities, NGOs and other stakeholders are summarised in annual reports and published on the website. As announced at MACS Meeting 2016 in Xi'an/China, the core activity is to organise annual regional workshops in cooperation with the rotating G20 presidency aiming to strengthen regional networks, building critical mass for changing mindsets and implementation of prevention measures along the entire food supply chain. The workshops target the G20 presidency country as well as neighbouring countries. Since 2017, workshops in Berlin/Germany, Buenos Aires/ Argentina, Tokyo/Japan and Riyadh/Saudi Arabia attracted more than 230 contributors directly and led to further joint activities among participants such as the "Call to Buenos Aires Action on Food Loss and Waste" targeting Latin American and Caribbean Countries.

A Sino-German cooperation on food loss and waste started already during the above mentioned workshop in Berlin in June 2017. Two representatives from the Chinese Academy of Agricultural Sciences (CAAS) shared their valuable knowledge on FLW status quo and research in China with international participants. The willingness to achieve further progress by implementing joint activities was formalised only one month later by signing a Memorandum of Understanding between CAAS and Thünen Institute which includes the FLW topic among other agricultural issues. Further exchange of knowledge was facilitated in the course of the initiatives' regional workshop in 2019 in Tokyo/Japan where seven Chinese participants from CAAS, China Chain Store & Franchise Association, Inner Mongolia Xibei Catering Group, Ultra Clean Waste Services Limited as well as SANDS contributed with their valuable scientific and practical business experiences in presentations and within the working group discussions. In this way, promising FLW prevention ideas, developed during discussions with other participants, have been taken home to China to see their suitability for the Chinese national conditions.

In the course of the 6th Sino-German Agricultural Week organised by DCZ, the Thünen Institute was invited to contribute to the Forum on "Food Security and Nutrition in a Changing World" on 3 December 2020. The initiative's coordinator, Felicitas Schneider, reported on the "The Role of Food Loss and Waste in Food Supply Chain and Impact on Sustainability" including updated FLW activities in China and Germany. In total, 140 participants joined this interesting event including people from China and Germany as well as international students.

The impact of the global COVID-19 crisis in early 2020 with restricted human labour and commodity mobility and accompanied by natural disasters such as flooding or landslides increased peoples' and decision makers' awareness towards fragile global food production and supply chains. The need to optimise the efficiency and effectiveness of global food production, processing, distribution and intake was clearly recognised as a chance to reshape food systems with respect to sustainability and resilience. Those activities could be supported by reducing FLW

which means a more efficient use of natural resources and already produced food. The shift to online conferences and webinars also increased the number of international participants in events tackling diverse challenges of FLW prevention. Due to the raised interest on the topic, a FLW session with participants from German Universities and research institutes was included in the Exchange Forum on Sino-German collaborations in agricultural sciences organised at the Agriculture Information Institute (AII) of CAAS on 29 April 2021. Several research focuses and interests were presented and potential cooperation partners and topics identified.

By citing an ancient Chinese poem "Who knows that on the dining plate, every single grain means hardship", Chinese president Xi Jinping called for fighting national FLW in a more systematic manner in August 2020. In response, the new Chinese FLW law was officially approved by the Standing Committee of the National People's Congress (NPC) by the end of April 2021. The 32 clauses address the whole food supply chain and ask for strong cooperation and exercise responsibility by different stakeholders.

There are efforts underway to reform the federal FLW awareness raising campaign "Too good for the bin" implemented in Germany since 2012. The upper house parliament of the German parliament, the Bundesrat (Federal Council) released a resolution in September 2021 requesting the German Government to assess different options of legal regulations in addition to the voluntary approaches anchored within the National Strategy. As a member of the UN and the EU, Germany faces twofold obligations for reporting FLW towards superordinated authorities on the one hand and to fulfil also interrelated frameworks such as the European Green Deal, the German Sustainable Development Strategy or the German Climate Action Programme on the other hand. In various national projects and pilot studies, the Thünen Institute further develops and tests its methodology on sustainability assessment aiming to identify effective and efficient FLW prevention measures by considering also trade-offs as good as possible.

"Clean plates look better". Poster in a Beijing restaurant (photo: DCZ)

The urgent need for global joint action and willingness to cooperate on multi-stakeholder level in order to achieve real progress in FLW prevention on national and cross-border food supply chains was already reflected by several initiatives such as Champions 12.3, FAO Save Food, UNEP Think.Eat.Save. Reduce Your Foodprint campaign, diverse G20 agri ministers' and leaders' declarations and recently recalled by the Jinan Initiative in September 2021. The latter listed 10 goals to tackle FLW on a global scale including raising awareness, forging global consensus, mobilising public participation, strengthening infrastructure, increase R&D investments and building policy frameworks and long-term international cooperation. For sure, Thünen Institute and CAAS will further strengthen their cooperation tackling FLW in both countries and to contribute to international knowledge and experiences. Another step along that common pathway was the joint FLW session organised at the UN Food Systems Summit Independent Dialogue "Innovative Partnerships and Value Co-creation" which clearly identified knowledge gaps (e.g. food loss for different

commodities), methodological challenges (e.g. related to reporting towards FAO Food Loss Index and UNEP Food Waste Index, harmonising national monitoring along food supply chain) and further need for policy action (e.g. related to implementing the new law) in the Chinese context.

The Collaboration Initiative FLW is open for collaborations to tackle global FLW while reducing negative impacts by implementing evidence-based action. You are very welcome to contact our coordinator, Felicitas Schneider. Contact: Felicitas.schneider@thuenen.de

More information:

Collaboration Initiative Food Loss and Waste launched at MACS-G20: https://www.macs-g20.org/about-macs/macs-activities/collaboration-initiative-on-food-losses-food-waste-launched-at-macs-g20/

Global FLW expert and projects database: http://global-flw-research.org

UN Food Systems Summit Independent Dialogue "Innovative Partnerships and Value Co-creation": http://fc.facisp.cn/live-topic/tunfssid

FAO Technical Platform on the Measurement and Reduction of Food Loss and Waste: http://www.fao.org.platform-food-loss-waste/en/

Good to Know

Politics and Law

UN Biodiversity Summit Split in Two Phases

As the Chinese Ministry of Ecology and Environment (MEE) confirmed end of August, the biggest biodiversity summit in a decade will be split in two phases. The first phase of the meeting to be held in Kunming on 11-15 October will be largely procedural, with most participants attending virtually. The second part of the meeting with the possibility of face-to-face negotiations between countries is now scheduled for 25 April to 8 May 2022 in Kunming. The COP 15 is expected to decide on an ambitious framework for biodiversity protection by 2050. Drafts include 21 targets and 10 "milestones" to be achieved by 2030. The proposals include reduction of pesticide use by two-thirds, eliminate plastic pollution and protect 30% of the Earth's land and sea. The targets also include the restoration of at least 20% of degraded ecosystems.

Sources: https://www.globaltimes.cn/page/202108/1231952.shtml

White Paper on Biodiversity Conservation in China Released

On 9 October, shortly before the official opening of COP 15 negotiations, the State Information Office released a white paper outlining on 26 pages China's achievements and current policy on biodiversity. , The most important messages and information are summarized below:

- *In-situ protection*. According to the white paper, China has established more than 10,000 protected areas which account for 18% of its land area, including 10 national parks covering a land area of 220,000 km^2 (more than two thirds of the area of Germany). Measures include protection of natural ecosystems, biological resources and endangered species. There are remarkable achievements in protecting endangered species. The population of the wild panda, the iconic animal for biodiversity protection, has grown from 1,114 to 1,864 in the past 40 years and thus the panda could be downgraded on the IUCN list from "endangered" to "vulnerable" species. Another success story is the crested ibis.

Its population grew from only seven to over 5,000 birds. The population of Asian elephants in the wild grew from 180 to 300 animals in recent years.

- *Ex-situ protection.* In addition, China is developing its ex-situ conservation system including botanical gardens, wildlife rehabilitation and breeding centers, germplasm resource centers and gene banks. At present, there are about 200 botanical gardens all over the country This includes 22 integrated genetic resource banks of multiple tree species and 13 gene banks for single tree species as well as 294 national centers for forest superior tree varieties.
- *Protection of genetic resources.* China has also rolled out plans for strategic biological resources to improve bio-resource collection and to create platforms for germplasm resource innovation as well as libraries for derivatives of genetic resources. By the end of 2020, China had put in place a national crop genetics protection system with national long-term banks and 43 germplasm fields. It built 199 state-level livestock and poultry germplasm resource preservation fields and prepares state-level sites for conservation of germplasm of over 90% of breeds under the National Catalogue of Livestock and Poultry Genetic Resources. There are over 520,000 copies of crop germplasm resources and 960,000 copies of livestock and poultry genetic resources in long-term storage. In addition, 99 state-level germplasm resource banks for trees and two state-level germplasm resource sub-centers for trees and grass in Xinjiang and Shandong have been established, 31 germplasm preservation fields and two germplasm resource centers for medicinal plants have been built. By end of 2020, the Germplasm Bank of Wild Species in Southwest China, which is coordinated by the Kunming Institute of Botany had preserved 85,000 wild plant seeds of 10,601 species.
- *Biosecurity Governance.* Apart from the Biosecurity Law that came into force in 2021, China has issued several regulations concerning the prevention of an invasion of invasive alien species and regulations for the administration of genetically modified organisms (GMO).
- *Surveys on biogenetic resources.* At present, China organises several surveys on biogenetic resources including the fourth national survey on Traditional Chinese Medicine, the third national survey and collection on germplasm resources (2021 to 2023), the third national survey on livestock and poultry resources and the first national survey on forest and grass germplasm resources (launched in 2019). In the past decade, Chinese researchers identified about 200 new plant varieties per year.
- *Eco-environmental conservation and restoration projects.* Efforts focus on sandstorm and desertification control (the Three-North Shelterbelt Afforestation Programme and the protection of key eco-system zones such as the Qinghai-Tibet Plateau, Yellow River Eco-Zone, Yangzi River Eco-zone and the coastal shelterbelt (1,200 km of coastline and 23,000 ha of coastal wetlands).
- *Biodiversity governance.* The *China National Committee for Biodiversity Conservation* (CNCBC) has been established to coordinate the conservation actions and is composed of 23 departments under the state council. The *China National Biodiversity Conservation Strategy and Action Plan (2011-2030)* provides guidance for policy and legal framework. Regulations that had been passed

recently include the *Decision to Comprehensively Prohibit the Illegal Trade of Wild Animals and Eliminate the Bad Habits of Wild Animal Consumption.* Based on nationwide biodiversity surveys China has released the *China Red Data Book of Plants, the China Red Data Book of Endangered Animals, the China Red Species List* and the *China's Red List of Biodiversity.*

- *Monitoring and observation networks.* Since 1988, China has set up the *Chinese Ecosystem Research Network (CERN)* with 44 research station in different ecological zones all over the country. In 2011, the *China Biodiversity Observation Network (BON)* has been established with 380 observation plots for birds, 159 for amphibians, 70 for mammals and 140 for butterflies.
- The white paper further elaborates on activities of encouraging public participation such as special public awareness campaigns and the participation in the Global Partnership for Business and Biodiversity.

The final chapter is devoted to China's contribution to the Global Cooperation on Biodiversity protection, including bilateral cooperation mechanisms on biodiversity with Germany and other countries.

Full text:

https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.chinadaily.com.cn%2Fpdf%2F2021%2F20211008.docx&wdOrigin=BROWSELINK

Seed Law Draft Revision

On August 17, a draft amendment to the Seed Law was submitted to the Standing Committee of the National People's Congress for review. The revised law is intended to improve the protection of intellectual property rights of new plant varieties and encourage breeding innovations. The seed law, which was revised last time in 2015 regulates licensing conditions, licensing principles, variety naming and compulsory licensing of new plant varieties. The protection of intellectual property rights of new plant varieties is intended to guarantee the protection of rights and interests of breeders and to promote the innovation and development of the seed industry. However, it needs to be seen if the amendment is sufficient to encourage original innovation and not mere improvements of existing varieties.

Digital Village Development Guideline 1.0

On 23 July 2021, the Chinese National Development and Reform Commission, Ministry of Agriculture and Rural Affairs, Ministry of Technology, Ministry of Industry and Information, Office of Central Cyberspace Administration, State Market Regulation Bureau and National Rural Revitalisation Bureau jointly released the "Digital Rural Development Guideline 1.0".

The document provides a road map for digital village development in China. The guideline requires various localities to use this document as a reference and adapt it to real onsite conditions. It provides comprehensive and authoritative suggestions for both provincial and country levels to promote digital village development and also contains selected case studies from various provinces.

The whole document comprises 117 pages including 10 chapters which address different aspects of rural digitalisation such as *Information infrastructure*, *Public support platforms*, *Village digital economy*, *Digital green village*, *Village internet culture*, *Village digital governance* and *Social benefiting services.*

(Aihemaitijiang Rouzi, DCZ)

Reference: http://www.cac.gov.cn/2021-09/03/c_1632256398120331.htm

Five-year Plan for Agricultural Green Development

On 23 August 2021, the Chinese government unveiled a plan for the green development of the country's agricultural sector over the next five years. The plan, jointly issued by six departments including the Ministry of Agriculture and Rural Affairs, identified resource protection, pollution control, restoration of agricultural ecology, and the development of a low-carbon agricultural industrial chain as the key tasks for the 14th Five-Year Plan period (2021 to 2025).

With high-quality development as the theme, deepening structural reform of the agricultural supply-side as the main line, and building a green, low-carbon and circular agricultural industrial system as the focus, the plan makes systematic arrangements for the green development of agriculture during the 14th Five-Year Plan period. By 2025, China aims to significantly improve the utilisation of agricultural resources, the environmental quality of producing areas, the agricultural ecosystem, the supply of green products, and the ability to reduce emissions and sequester carbon.

The plan focuses on key areas and weak links in green development, focusing on strengthening the protection and utilisation of agricultural resources, strengthening the prevention and control of agricultural nonpoint source pollution, strengthening the protection and restoration of agricultural ecology, and building a green and low-carbon agricultural industrial chain.

For the protection of cultivated land, the plan calls for strict adherence to the red line of 120 million ha of cultivated land, resolutely curbing the conversion of cultivated land into non-agricultural land and especially preventing the conversion into non-grain land. The quality of cultivated land.

Especially the black soils in northeast China, will be protected and improved. The plan encourages to preserve the soil in agricultural production and strives to also make use of up to 93% of polluted soils until 2025 without compromising food safety.

To prevent agricultural nonpoint source pollution, the plan is strengthening the governance of key river basins and promotes the reduction of agricultural inputs, cleaner production, recycling of waste, and ecological industrial models.

Regarding the issue of carbon peak and carbon neutrality, which is widely concerned by society, the plan strictly implements the requirement of striving for carbon peak by 2030. It states three measures to achieve this: 1) organise expert teams to scientifically measure the potential of carbon sequestration, 2) formulate practical implementation plans with clear priorities, timetables and road maps and 3) establish a monitoring and evaluation system, set up monitoring stations in different regions and production scenarios, and carry out long-term positioning and monitoring of greenhouse gas emissions and farmland carbon sequestration capacity. At the same time, in terms of technical support, the plan focuses on both carbon reduction and carbon fixation.

The plan proposes to strengthen the driving force of both major factors, science and technology as well as policies. On the one hand, China will improve the green technology innovation system and strengthen the driving force of science and technology for green agricultural development, accelerate independent innovation for green agricultural development, establish a technological

system for green agricultural development, promote a precise reduction in input of factors of production, intensive and efficient production technologies, ecological recycling of industrial models, complete facilities and equipment, and promote the green transformation of agricultural science and technology. On the other hand, the central government will make efforts to improve institutions and mechanisms to increase the institutional momentum for green agricultural development, establish targeted accountability, assessment systems, and reward and punishment mechanisms for green agricultural development, strengthen institutional force to comply with the rules, improve market mechanisms, and encourage public participation. China will accelerate the shift from quantitative to quality-oriented agricultural development, and effectively change the development model of agriculture that relies too much on resource consumption.

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State Council Issues “Opinions to a Reform of the Eco-compensation Scheme”

On 12 September 2021, the General Offices of the Communist Party of the China Central Committee and the State Council jointly released the “Guideline on Deepening Reform of Eco-compensation Mechanism for China”.

Key points in the document are:

- *Overall goal:* According to the document, by 2025, an ecological compensation mechanism that is aligned with the economic and social development should be established. The classified compensation system is targeting ecological elements such as rivers, natural forests and wetlands. The comprehensive compensation system that features fiscal support will be improved. In the meantime, a market-oriented and diversified compensation scheme will be formed with the whole society more actively participating in ecological protection.
- *Improving classification based on compensation system:* Classification-based compensation of various ecosystems should prioritise water and biological resources. River, natural forest, wetlands and grassland ecosystems should be the focus of the compensation mechanism. Compensation measures targeted at soil erosion, forest destruction, grassland degradation and desertification should be improved. Agri-ecological compensation based on green ecology should also be improved.
- *As key focus of national ecological security, establish an integrated compensation mechanism:* Vertical compensation schemes should focus on key ecological regions and projects such as the Tibetan plateau, South-North water diversion, and improve the cost calculation of ecological factors in big projects. Assisting rural residents’ migration into urban areas with financial rewards, should result in an orderly migration of people from highly stressed ecological regions to the less stressed ones. A horizontal compensation scheme should initiate cross provincial and cross ecological regions compensation measures to cover broad areas.

- *Market-based and diversified compensation system:* According to the document, the country will accelerate the building of a national market for trading energy use rights and carbon emission rights, which is to involve voluntary emission reduction projects on greenhouse gases in the fields of forestry, renewable energy and methane utilisation. Water rights and water pricing mechanisms should encourage saving water and preventing water pollution. According to the document, financial markets will play an essential role in achieving many of the targets mentioned. Diverse other alternatives should also be considered.

(Aihemaitijiang Rouzi, DCZ)

Sources:

https://mp.weixin.qq.com/s?__biz=MzA3MjA0ODc3Mg==&mid=2650222003&idx=1&sn=8bf2d12a9f8530bbd86cd0173eea07d5&chksm=8727c458b0504d4e62a43976a1f75b7ab3a97ee65a5113fe9596069490813ea6cdc223ac5756&mpshare=1&scene=23&srcid=0912N3UwX2mZ8Fiq68fF9eLj&sharer_sharetime=1631606515273&sharer_shareid=32213698ecad5e1c4de8a8e4a3f590c7%23rd

China Eases Environmental Regulations for Small Hog Farms and Revises Slaughtering Regulations

To fasten the recovery of China's pig farming industry after the African Swine Fever outbreak, the government has relaxed the environmental impact regulations for smaller pig farms. According to MARA, pig breeding projects with an annual output of less than 5,000 pigs can fill out the environmental impact registration form online, without requiring environmental impact assessment approval required.

Together with the *Food Safety Law* and the *Law on Animal Epidemic Prevention,* a revised regulation on hog slaughtering came into effect on 1 August. It shall tighten the epidemic prevention and control and defines the responsibilities of hog-slaughtering enterprises, including a system of entry checks, quality management, recording of outbound pork products and risk monitoring.

Sources: Reuters 12 July 2021, Gov.cn 24 July 2021

Economy and Trade

2021 National County Digital Agriculture Rural E-commerce Development Report

On 9 September 2021, the Information Center of the Ministry of Agriculture and Rural Affairs and the China International E-commerce Center released the "2021 National County Digital Agriculture Rural E-commerce Development Report" online.

The report shows that by 2020, online retail sales in 2,083 counties reached a volume of 353 billion (RMB) Yuan (about 50 billion EUR), an increase of 14% over the previous year. The report believes that during the pandemic of COVID-19 in 2020, rural e-commerce relied on the advantages of online, non-contact, rapid matching of supply and demand, and an efficient combination of production and marketing. It plays a prominent role in ensuring stable production and supply at county level, resuming work and production and ensuring people's livelihood. New promotion styles and marketing models such as live streaming and online group-buying in communities are emerging, and cross-border e-commerce has opened the door for counties to integrate into the international market.

The report pointed out that as 2021 is the first year of the implementation of the 14th Five-Year Plan, comprehensively promoting rural revitalisation will provide a broader stage for the development of county

e-commerce and the great potential of rural e-commerce will be released at an accelerated pace. The transformation of digital lifestyle will reshape the county rural market. The innovative development of e-commerce will help the digital transformation of agriculture and rural areas. County e-commerce will also provide new momentum for the construction of a new development pattern of a "dual circulation economy" with the domestic consumption as the main body and international economic activities which are supposed to mutually reinforce each other.

(Li Yumei, DCZ)

Source: http://www.moa.gov.cn/was5/web/search?searchword=2021%E5%85%A8%E5%9B%BD%E5%8E%BF%E5%9F%9F%E6%95%B0%E5%AD%97%E5%86%9C%E4%B8%9A%E5%86%9C%E6%9D%91%E7%94%B5%E5%AD%90%E5%95%86%E5%8A%A1%E5%8F%91%E5%B1%95%E6%8A%A5%E5%91%8A&channelid=233424&prepage=10&orderby=-DOCRELTIME

Increased Demand for Imported Corn Due to Structural Change in Chinese Hog Production

Since mid-2020, a massive increase of global agricultural commodity prices is observed due to an increased demand for feed grain, especially corn from China. According to Agri Benchmark expert Jurgen Hijink, the structural change from backyard production to large industrial hog farms in the aftermath of the African Swine Fever crisis is the main reason for the sharp rise in demand for imported corn. While backyard farms only marginally used commercial grain feed (20 to 30%), the commercial hog production needs more than twice as much corn or wheat to feed a pig. By 2025, this shift will raise the demand for feed grain to more than 20% of the current global corn trade volume. Meanwhile, it is also reported that China's large meat producers are experiencing difficulties because the large investments in new industrial farms are facing increasing global prices for grain feed and a slump in prices for pork meat.

Source: Agri Benchmark Cash Crop Newsletter

The presentation from Jurgen Hijink can be downloaded here: http://www.agribenchmark.org/fileadmin/Dateiablage/B-Cash-Crop/Newsletter/news22/HogFarming_2.pdf

Downpours Flood Villages and Disrupt Corn Harvest in Northern China

At the end of September and in early October, Shandong, Henan, Hebei, Shanxi and Liaoning provinces were hit by heavy rainfalls. Most disastrous news was reported from Shanxi province in early October where 1.76 million people were affected, 120,000 persons had to be evacuated and 189,000 ha of crops were damaged. The unusual wet weather caused a serious disruption and delay of harvest activities in areas that are regarded as part of China's major corn belt. In many regions, corn fields were flooded and could not be harvested by machines. On social media, videos show farmers collecting corn in baby bathtubs and by boat. In other areas, they tried to pump water out of the flooded fields and in Hebei, some villagers used special harvesters with excavator tracks. There are worries about the quality of the corn as farmers cannot dry the freshly harvested corn. Moreover, power shortages may hinder large scale industrial crop drying. It is reported that prices for corn silage increased by almost one third compared to last year, making it increasingly difficult for livestock farms to make ends meet.

Source: https://www.reuters.com/article/china-corn-floods-idAFL4N2R41UM

Source: Screenshots from farmers' videos shared on WeChat in October 2021

Power Shortages Drive up Feed Cost

The power shortages that this autumn affected Guangdong and several provinces in Northern China have also an impact on supply and costs of feed. As Reuters reports, several soybean crushing plants in northern and northeastern China had been shut down in the last week of September due to power shortages. The volume of crushed soybeans fell by almost 10% compared to August and soymeal prices increased. Experts also expect that the power crisis will have an impact on drying of corn crops.

https://www.thedairysite.com/news/57500/chinas-farmers-face-more-pain-as-power-crunch-drives-up-feed-costs/

"Veggy Day in China" – Plant-based Seafood Introduced in Shanghai

End of August, the Hongkong based company *"Green Monday"* launched a new product series called OmniSeafood which features "fish" and "crab meat" made from soybean and peas. As China Daily reports, the new series includes frozen meals such as plant-based fish fillet, crab cake and tuna. These meals are now offered at the company's restaurant Green Common at Raffels City, Changning district, and will soon be available in Shanghai supermarkets. At the end of the year, the company plans to open its first factory in mainland China and two more Green Common restaurants in Shanghai. The *"Green Monday"* targets people who adopt a "flexitarian diet" and encourages them to go vegetarian at least one day a week. At present, the company sells its products in 20 countries and regions.

Source: http://www.chinadaily.com.cn/a/202108/25/WS6125f47ba310efa1bd66b12d_1.html

Plant-based crab meatballs (photo: China Daily)

Plunge of Sales in Supermarket and Hypermarket sector

According to Bloomberg, sales in China's supermarket and hypermarket sector fell more than 7% in the second quarter of 2021 compared to a year ago, as more Chinese shoppers shift online. In contrast, the membership-based sector is rapidly growing in popularity as consumers seek out imported goods at lower prices. Sam's Club's strong growth has seen it plan to have 100 stores in China by 2028 from its current 33.

Source: https://www.bloomberg.com/news/articles/2021-09-08/challenge-from-alibaba-forces-walmart-to-rethink-china-strategy

Surging Fish Prices

A 50% jump in fish prices from a year ago mark the latest shake-up to China's food sector. Fish had previously been among the cheapest sources of protein in China, but now, it is more expensive than chicken and recently also than the staple pork. A widespread environmental clean-up drive has led China to restrict fish farming along major waterways in recent years, leading to a drop in the number of fish farms.

Source: Weekly China Skinny, 14 September 2021

Science

14th Five-Year Plan on Agricultural Science and Technology Innovation

In September, the Chinese Academy of Agricultural Science (CAAS) has released a plan promoting key subjects during the 14th Five-Year plan period (2021 to 2025) for agricultural science and technology innovation.

The subjects involve food security, nutrition and health, cultivated-land conservation, disease prevention and control, green development, intelligent agricultural machinery and others. In future, CAAS will focus on developing basic research issues such as biological nitrogen fixation, apomictic reproduction, pathogenesis and transmission mechanisms of animal diseases, and cutting-edge technologies, such as gene editing, synthetic biology, pest monitoring and early warning. It will also focus on developing high-yield and high-quality grain crops.

Source: https://www.yicaiglobal.com/news/china-to-strengthen-agricultural-sci-tech-innovation

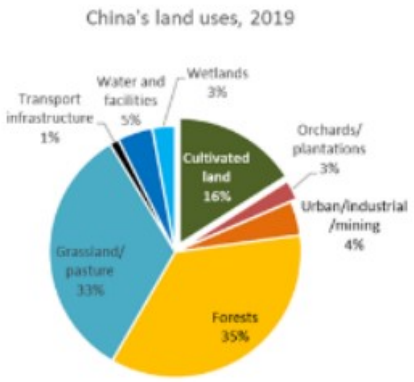
China Lost 7.5 Million Ha of Cropland in the Past 10 Years – Results of Land Use Survey

The results of the latest land survey that was published in late August by the Ministry of Natural Resources and National Bureau of Statistics reveal that 16% of national land use was identified as cultivated crop land, another 3% have been classified as orchards and plantations, while 68% of land were covered by forests and grassland.

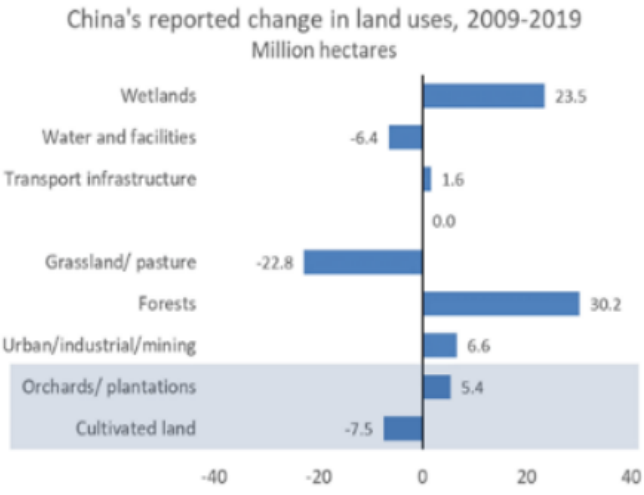
The data for the recent survey had been gathered in 2019. Compared to the previous survey, which had been conducted in 2009, there are significant changes in land use. While there is a significant increase of land

used for orchards, wetlands and forests, cultivated land decreased by 7.5 million ha and grassland and pastures by 22.8 million ha. During this decade, also 6.6 million ha of land had been converted to urban and industrial land.

According to the communique, in 2009, China had 127.86 million ha under cultivation. This also indicates that China needs to undertake strict measures to slow down the pace of land loss otherwise within a few years, the area of cultivated land might fall below the 120 million ha, which are defined as "red line" necessary to ensure food security.



Source: dimsums blogspot.



Source: dimsums blogspot.

More: http://dimsums.blogspot.com/2021/09/chinas-loss-of-cropland-75-mil-ha-over.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+DimSumsRuralChinaEconomicsAndPolicy+%28Dim+Sums%3A+Rural+China+Economics+and+Policy%29

http://www.news.cn/fortune/2021-08/26/c_1127797196.htm

Breakthroughs in Rice Research

Chinese media report the successful cultivation of "giant rice" which grows up to 2 m – twice as tall as regular rice. The "giant rice" is cultivated by the Chongqing branch of the Hybrid Rice Research and Development Center in Chongqing's Changhong village on an area of 15 mu (10,000 m^2) and is expected to be harvested in September. According to the institute, the yield per mu is expected likely to reach 750 to 900 kg (11,250 to 13,500 kg per ha, double of the average rice yield in China). The average height of each rice plant is between 1.8 and 2.25 m. The rice has sturdy and tall rice stalks and is resistant to flooding and salt alkali soil. "Giant rice" fields can store 60 to 80 cm depth of water and by this, the fields can be used to raise fishes, shrimps or craps at the same time.

Meanwhile, scientists of the Institute of Urban Agriculture and the China National Rice Research Institute under the CAAS report to have achieved progress in harvesting rice in controlled conditions in only 60 days in a plant factory, by this halving the traditional growth cycle of more than 120 days in field condition. The variety used in the trial was a dwarf variety which has shorter plant size making it suitable for multi-layer and three-dimensional cultivation in a plant factory environment. The experiment was conducted in a fully artificial LED lit plant factory with four

layers of cultivation racks. The rice was planted in nutrient solution cultivation tanks and environmental factors such as light, temperature and humidity were precisely regulated.

Source: https://www.globaltimes.cn/page/202108/1232703.shtml, https://www.globaltimes.cn/page/202108/1232095.shtml

DCZ Activities

2nd Exchange Forum on Sino-German Collaboration in Agricultural Sciences

On 24 September, the Chinese Academy of Agricultural Sciences (CAAS) hosted the second Exchange Forum on Sino-German collaboration in agricultural sciences. Like in the last Exchange Forum held in April (see DCZ newsletter No. 14), several CAAS research institutions met up with potential research partners from German institutions in an online meeting, organised by the S&T Platform of the Sino-German Agricultural Centre (DCZ) and the CAAS Department for International Cooperation, Division for Bilateral Partnership.

This time, researchers from three Beijing CAAS institutes participated: the Institute for Food Science and Technology (IFST), the Institute of Apicultural Research (IAR) and the Institute of Environment and Sustainable Development in Agriculture (IEDA). On the German side, four institutes presented current research topics to their Chinese counterparts: the Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), the Helmholtz Centre for Environmental Research (UFZ), the Bee Research Institute Hohen Neuendorf (BRI), the Humboldt University and the Julius Kühn Institute (JKI) for Epidemiology and Pathogen Diagnostics. Furthermore, the structure and potential fields of collaboration of the Federal Institute for Risk Assessment (BfR) were presented. The event was opened by Dr. Chen Tianjin from the International Department of CAAS, by Dr. Jürgen Ritter, German managing director of DCZ and Dr. Eva Sternfeld, the coordinator of the S&T Platform of the DCZ.

Chen Tianjin introduced the two main types of funding schemes available for research projects in China: competitive and non-competitive funding schemes. Competitive funding schemes are usually offered by the Chinese government, e.g. by the National Natural Science Foundation (NSFC), in open calls which are also accessible for Sino-German projects who address mutual interests of both countries. Furthermore, the NSFC is collaborating with the German Research Fund (DFG) to jointly finance projects

Photos: CAAS/ DCZ

with a focus on basic research. Non-competitive funding is provided by CAAS itself. Even though these funds are considerably smaller, they aim to support collaboration of early-stage CAAS scientists with international institutions. Currently, the funding list for next year is compiled. Moreover, companies like Syngenta are also offering funding for seed technology projects.

The German participants shortly introduced their institutions and expressed interest for future Sino-German research collaboration, often followed by a short presentation of Chinese CAAS researchers from a corresponding field. In the following, the topics are summarised. For more information or contacts of the researchers involved, please feel free to enquire with the DCZ: l.siebert@iakleipzig.de

Topics for potential collaboration:

1) Bio-based packaging

On behalf of Prof. MU Taihua, Dr. SUN Hongnan from IFST introduced the institute and their current research on making use of wastewater and leaves which are discharged during the processing of potatoes and sweet potatoes. As these waste products still contain high amounts of starch and total dietary fibre, the Sino-European NoAW project conducted research on alternative high-value uses of these products. Currently, the research team focuses on bio-based food packaging coatings.

Dr. Namrata Pathak, post-doc researcher at the Department of Horticultural Engineering (ATB), presented current research of the "Packaging and Storage Group". So far, they mainly focused on how to manage temperature, humidity and ethylene inside of fresh produce packaging in order to delay the process of decay.

2) Ecotoxicology

On behalf of LI Minmin, LU Jia from the IFST Food Nutrition and Functional Component Utilisation Team introduced the institute's risk assessment lab as well as current research topics around risk assessment of pesticides in the environment and in food processing.

Xiao Liu from the Department of Isotope Biochemistry (UFZ) presented his research on the uptake and metabolism of xenobiotics in plants examined by isotope and enantiomer fractionation. He found that the uptake happens through both the roots and the leaves and that pollutants are accumulated in the rhizosphere.

Wenna XU, coordinator for international cooperation at BfR introduced the Federal Institute for Risk Assessment (BfR) which was established with its current structure in 2002, just after the mad cow disease crisis. It is an independent research institution for scientific assessment, research and communication with an annual budget of 120 million EUR. To avoid biases, the institute can only accept additional funding from public institutions. It already has extensive collaboration with China, including a MoU with CAAS. Events like the annual BfR-Summer Academy encourage international scientists to gather – due to COVID-19 this year's event was online and free of charge.

3) Bee research

Prof. Dr. Kaspar Bienefeld**,** director of the German Bee Research Institute Hohen Neuendorf, Humboldt University Berlin, presented his institute's latest research. In the light of a global loss of genetic diversity of honeybees due to human activities, new breeding and conservation strategies are necessary. In China, the native species A. cerana is only abundant by 25%. Climate change, rising temperatures and diseases also increase the loss of genetic diversity. Breeding with regard to specific traits, like ability to collect honey or gentleness, are a good approach to respond to these processes. However, breeding

honeybees is also very difficult. The BRI developed a software to model controlled mating in short- and long-term scenarios. Furthermore, they are also working on genes involved in varroa resistance.

In response to Prof. Bienefeld's presentation, two researchers from the Genetic Resources and Breeding Innovation Team of CAAS Institute of Apicultural Research (IAR) presented their current work.

CHEN Xiao, associated professor at IAR, currently researches the accurate identification of genes associated with economical traits and genome breeding in honeybees. She presented an outline and a timetable for a potential collaboration project, aiming at genome breeding in honeybees with a focus on two species: the Sinyuan bee species with their genes correlating to high honey production and varroa resistance and Zhejiang Royal Jelly bees.

Chao CHEN gave an overview of the situation of honeybees in China. Originally, China has no indigenous population and hence the diversity of A. cerena is low compared to Europe. However, due to high diversity in different terrains and climates within China, a high diversity in honeybees can be expected, which is not yet fully researched. He is conducting research on A. mellifera populations in Western China and identified a new subspecies: A. m. sinisxiyuan which is winter-tolerant with a lower temperature threshold and which therefore might be seriously affected by climate change. Furthermore, he found that to protect species diversity it is important to ensure habitat connectivity and not only the protection of certain secluded habitats. In the future, he focuses on conservation and utilisation of genetic resources of honeybees by conservation in gene banks and through sustainable genetic breeding.

4) Crop microbiome and its contribution to environmental adaptation

Prof. Dr. Dongfei HAN from the Dryland Farming Group of the IEDA Crop microbiome and drought adaptability research team introduced their current work. Their research focuses on crop microbiome and its contribution to environmental adaptation. Moreover, they have already conducted research on the impact of general cultivation and fertilisation on the microbiome.

Prof. Dr. Kornelia Smalla from the JKI for Epidemiology and Pathogen Diagnostics introduced the JKI and the BONARES projects as well as their research methods (microbial community analysis, plant gene expression analysis, root exudate/rhizophere solution sampling) to analyse the link between soil microbiome and the plant.

Finally, Dr. Ahmed Abedelfattah from the ATB and currently also working at the Technical University of Graz, introduced his current project on microbiome management for one health. Within the working group of Prof. Gabriele Berg (also ATB and TU Graz) he is studying microbiomes potential to improve health.

There will be more Exchange Forum events! Until the end of this year, the DCZ is planning to organise an exchange with the CAAS Agricultural Genomics Institute (AGIS) in Shenzhen, the Rice Research Institute of GDAAS in Guangzhou as well as the Shanghai Academy of Agricultural Sciences and Zhejiang Academy of Agricultural Sciences and the specialised Tea Research Institute (TRI) in Hangzhou. However, due to the ongoing COVID-19 pandemic, last-minute changes are possible. (Lea Siebert, DCZ)

Activities of Other Bilateral Cooperation Projects

Scientists of DBFZ and CAU Winners of the Biogas Innovation Award 2021

As part of the Biogas Innovation Congress, the annual German Agriculture Biogas Innovation Award was again presented in 2021. Together with their Chinese colleagues Hui Sun and Jianbin Guo from the China Agricultural University (CAU) in Beijing, Prof. Dr Walter Stinner and Dr. Britt Schumacher from Deutsches Biomasseforschungszentrum (DBFZ) in Leipzig, Germany, received this year's Innovation Award for the joint study "Straw silage with liquid digestate – a cost-efficient storage and processing method for biogas production" in the "Science" category.

The official award ceremony took place on 24 June 2021 during the Biogas Innovation Congress. As every year, the Biogas Innovation Prize of German Agriculture has been awarded to the two most innovative entries in the two categories of science and business. The science prize is provided by the Landwirtschaftliche Rentenbank and endowed with 10,000.00 EUR. The prize winners have been selected from among the entries within the framework of the call for papers.

https://www.dbfz.de/en/projects/china-res/project

Contact: Walter.Stinner@dbfz.de

PhD, Associate Professor Jianbin Guo and Hui Sun (China Agricultural University)

Prof. Dr. Walter Stinner (DBFZ, Germany)

DCZ Publications and Publications of Bilateral Projects

Brief Analysis: The German Seed Sector and the Seed Policy of BMEL by Andreas Hansen.

This DCZ paper provides a concise overview over the structure of the German seed sector and the policy strategy of the German Ministry for Food and Agriculture. It can be downloaded at https://www.dcz-china.org/dcz-publications.html

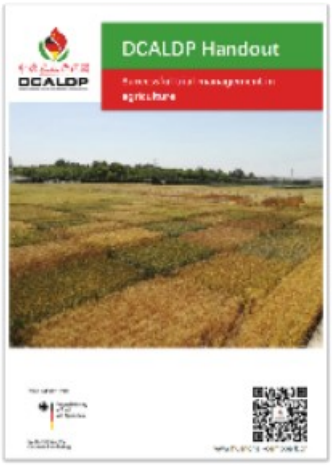
Brief Analysis: Seed Industry Strategy in China by Li Yumei.

This DCZ paper provides an overview over the Chinese seed industry sector. It can be downloaded at https://www.dcz-china.org/dcz-publications.html

DCALDP-Handout on the Successful Field Trial Management in Agriculture

Field trials are an important tool for every farm to introduce new technologies, varieties, different fertilizer regimes or pesticide applications to increase efficiency by reducing cost and taking more care about the environment.

The Sino-German Crop Production and agro-technology Demonstration Project (DCALDP) in Jiangsu has developed a short guideline how to conduct field experiments and what to consider when implementing these kind of trials. The handout can be downloaded at http://huanghai-demopark.cn/upfiles/files/202108/2516298856925053.pdf



DCALDP-Handout on Macro-Micro Nutrients

Macronutrients in plant nutrition are those elements that are required in larger quantities for plant growth and development. While micronutrients are minerals that are vital for plants too, their concentrations in plant tissue is very low, only a few µg per Kg of dry matter of each element.

When seeing yellow looking crops, the first thing farm managers and farmers think about is a Nitrogen deficiency, but is this always the case? The Sino-German Crop Production and agrotechnology Demonstration Project (DCALDP) in Jiangsu has developed a handout how to find out. For free download please go to http://huanghai-demopark.cn/upfiles/files/202108/2316296956206568.pdf

DCALDP-Handout on the Use and Benefits of Tramlines

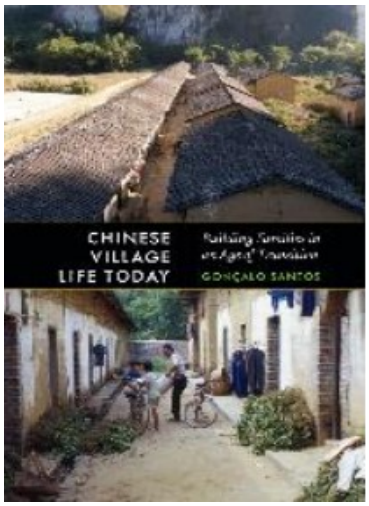
A proper set up of tramlines offers great improvement in efficiency in every crop farming operation, especially if no advanced GPS Tractor technology is available yet. That is why the DCALDP Team worked on a short handout promoting the "use of tramlines". The handout can be downloaded here: http://huanghai-demopark.cn/upfiles/files/202108/1316288452538709.pdf

Publications

Chinese Village Life Today – Building Families in an Age of Transition by Goncalo Santos, University of Washington Press, August 2021

China has undergone a remarkable process of urbanisation, but a significant portion of its citizens still live in rural villages. To gain better access to jobs, health care and consumer goods, villagers often travel or migrate to cities, and that cyclical transit and engagement with new technoscientific and medical practices is transforming village life. In this thoughtful ethnography, Goncalo Santos paints a richly detailed portrait of one rural township in Guangdong Province, north of the industrialised Pearl River Delta region. Unlike previous studies of rural-urban relations and migration in China, *Chinese Village Life Today* – based on Santo's more than twenty years of field research – starts from a rural community's point of view rather than the perspective of major urban centers. Filled with vivid anecdotes and keen observations, this book presents a fresh perspective on China's urban-rural divide and a grounded theoretical approach to rural transformation.

(blurb – University of Washington Press)



The Underappreciated Role of Agricultural Soil Nitrogen Emissions in Ozone Pollution Regulation in North China by Xiao Lu et. al. *Nature communication* open source

In this paper a research group lead by the Laboratory for Climate and Ocean-Atmosphere Studies, Peking University present their findings on the impact of agricultural soil nitrogen oxide (NO_X) emissions on ozone pollution. The focus of the research is the North China Plain where intensive intensive agricultural activities cause substantial NO_x emissions from soil. According to their findings the presence of NOx emissions from soil significantly reduce the sensivity of ozone to anthropogenic emissions and by this reduce the achievements in controlling air pollutants. They therefore argue that since NOx emissions from fuel combustions are more or less controlled, the NOx emissions from soil should be more prominently targeted.

Available at https://www.nature.com/articles/s41467-021-25147-9.pdf

Community Seed Banks in China: Achievements, Challenges and Prospects by Xin Song, Guangqi Li, Ronnie Vernooy and Yiching Song, *Frontiers in Sustainable food Systems* open source, published 29 April 2021

China's rich agrobiodiversity is under unprecedented threat, experiencing a dramatic loss of local varieties and wild relatives of main crops. In 2018, the third national crop germplasem resource survey launched by MARA's Seeds Administration Bureau revealed that of 11,590 grain crop varieties planted in China in 1956, only 3,271 varieties remained in 2014, thus indicating a loss rate of almost 72%. Although the ministry has heavily invested in a "Seed Project" to

enlarge the national genebank conservation facilities, which now include a national long-term genebank, one national duplication genebank, 10 national medium-term genebanks and 43 national germplasm nurseries the country's formal conservation system of *ex situ* genebanks faces serious challenges to address this loss. In February 2020 MARA pointed out that "*many ancient local varieties and endemic resources are sustained and adapted in people's home gardens, fields and remote mountains and forests"* and therefore for the protection of agricultural germaplasm resources *"the broad participation and support of the whole society"* is required. (quoted from the article). These farmers are not only seed-savers but conservation and utilisation are closely linked to local farmers life and to traditional farming and knowledge systems.

This article looks into the importance of community seed banks for conservation activities for on-farm seed conservation and local distribution. In recent years, due to the efforts of the China Farmers' Seed Network, almost 30 of these community seed banks have been set up, although they have not yet been incorporated into the national genebank system, they are increasingly playing a role for conserving local species and related traditional knowledge as well as for consumers' demand for healthy, diversified and local food. Based on a participatory action research, the authors have investigated 27 community seedbanks. These seedbanks are very diverse in terms of functions and services, management and institutional linkages. Compared to community seed banks in other countries, China is bringing an important design innovation through two new functions: adding value to seed and produce through innovative marketing strategies, and building regional and national seed system linkages and fostering collaboration.

The history of China's community seed bank goes back to 2010 when the first seedbank with support of the Yunnan Agricultural University was established in Xiding township in Menghai county, Xishuangbanna. In 2013, the Farmers Seed Network (FSN) was established with support of the Center for Chinese Agricultural Policy of the Chinese Academy of Sciences and the Maize Research Institute of the Guangxi Academy of Agricultural Sciences. Since that time FSN has supported the foundation of *about* 30 community seed banks in 10 provinces across China. They work closely with the UNEP International Ecosystem Management Programm (UNEP-IEMP), The Institute of Crop Science of CAAS, the China Agricultural University, the Yunnan Agricultural University, the Kunming Institute of Botany and civil society organisations such as the Beijing Farmers Market. Over the years the network not only helped to promote seed banks but also published two handbooks for farmers explaining how to develop and manage seedbanks. The article presents three case studies that describe in detail the diverse functions and services of the seedbanks: Guzhai village in Guangxi is a women-led cooperative, Wangjinzhuang village in Hebei province focuses on the conservation of the cultural heritage of Shexian Dryland Terrace system and Yuefendao Organic Farm in Kunshan, Jiangsu Province is specialised in banking seeds for organic agriculture.

The article concludes that community seedbanks not only help to conserve seed including traditional varieties, but also provide smallholder farmers and organic farms with low cost and high-quality seeds. However, the seedbanks face *two* challenges, 1) keeping the seeds healthy and qualified for inspection and quarantine as well as 2) have effective participation of farmers and management mechanisms.

Full text available at https://www.frontiersin.org/articles/10.3389/fsufs.2021.630400/full

Upcoming Events 2021-22

With the ongoing Corona crisis all dates of conferences and trade fairs tbc.

Date	Location	Event	Contact
October			
11-13	Shanghai	**AgroChemEx & CIFE & Agrotech**	Shanghai World Expo Exhibition and Convention Center
11-15	Kunming	**UN Biodiversity Conference** COP 15 of Convention on Biological Diversity (first	virtual
15-17	Shanghai	**FMA** China International Food, Meat and	http://www.fmachina.cn/expo/cn/
18-20	Kunming	**China Agricultural Science and Technology Expo**	Kunming International Convention and Exhibition Center
18-20	Chengdu	**EuroTier China**	Chengdu Century City New International Convention and Exhibition Center DLG AgroTech service www.eurotierchina.com https://www.dlg-messen.de/nc/de/messe/eurotier-china/#!/ s.karaoglan@dlg.org
26-28	Qingdao	**CIAME Exhibition**	Qingdao International Convention
27-28	Beijing	**International Food Safety & Quality Conference**	JW Marriot Hotel Beijing Central, Beijing
27-29	Beijing	**China International High and Health Grain & Oil Exhibition**	China International Exhibition Center
27	Beijing	**AMR Control in Food Producing Animals** – China International Food Safety and Quality Conference	JW Marriot Hotel Beijing Central, Beijing
28-30	Shenzhen	**SIAL** China South	Shenzhen World Exhibition & Convention Center
29-31	Yantai	**International Fruit and Vegetable Food Expo**	Yantai International Expo Center

November			
5-7	Beijing	**China International Grain&Oil Products Industry Expo**	China International Exhibition Centre
9-11	Shanghai	**iFresh Shanghai Fru&Veg Expo**	Shanghai New International Expo Center (SNIEC)
9-11	Shanghai	**ProWine China 2021**	Shanghai New International Expo Center (SNIEC) Messe Duesseldorf GmbH/ Informa Markets E-mail: ProWein@messe-
9-11	Shanghai	**SME Shanghai Meat Exhibition**	Shanghai New International Expo Center (SNIEC)
11-12	Shenzhen	**Sino-German Agricultural Week**	www.dcz-china.org
12-14	Shenzhen	**World Expo on Digital Agriculture**	fecctzcj@126.com
16-18	Shanghai	**CBST** 10th China International Beverage	http://www.cbst.com.cn/
25-27	Fuzhou	**Food & IT China 2021** China International Food Processing & Packaging Equipment Exhibition	Fujian Strait (Haixia) International Convention and Exhibition Center http://www.fm-nc.com/
March 2022			
30-1	Beijing	**China International Smart Agricultural Equipment Exhibition**	Beijing National Agricultural Exhibition Center
April 2022			
25-May 8	Kunming	**UN Biodiversity Conference** COP 15 of Convention on Biological Diversity (2nd	
May 2022			
11-13	Shanghai	**Biofach Shanghai**	Shanghai World Expo Exhibition and Convention Center
June 2022			
28-30	Villmar, Germany	**Organic Field Days** (Ökofeldtage)	Hessische Staatsdomäne Gladbacher Hof www.oeko-feldtage.de

About DCZ

The **Sino-German Agricultural Centre's** (DCZ) activities are bridging the interest between politics, academia and businesses between China and Germany in the spheres of agriculture and food.

As a joint initiative of the **German Federal Ministry of Food and Agriculture (BMEL)** and the **Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA)** the DCZ was established in March 2015 as a central contact and information office to foster a dialogue between Germany and China in the agricultural and food sector. In April 2018, the project entered its 2nd phase.

In charge of project execution are the **IAK Agrar Consulting GmbH** (leadership) and the **Leibniz Institute of Agricultural Development in Transition Economies (IAMO)**. Operative project partners in China are the **Foreign Economic Cooperation Center (FECC)** and the **Chinese Academy of Agricultural Sciences (CAAS)**.

With its specific key issues, the DCZ intensifies the dialogue with and among relevant stakeholders of the agriculture and food sectors.

For more information and regular updates please check the dcz-website: www.dcz-china.org

Imprint

This issue was compiled by the international DCZ team. For enquiries and subscription please send an email to info-dcz@iakleipzig.de

Any news about upcoming events and conferences to share? Please send your information to e.sternfeld@iakleipzig.de

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Website: www.dcz-china.org

DCZ on LinkedIn: https://www.linkedin.com/company/dcz-china/

The Sino-German Agricultural Centre (DCZ) (project no.: CHN 18-01) is supported with funds from the Federal Ministry of Food and Agriculture (BMEL) via GFA Consulting Group GmbH and implemented by IAK Agrar Consulting GmbH as leading company in a consortium with Leibniz Institute for Agricultural Development in Transition Economies (IAMO).

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