



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. 6 May/June 2019



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### In this issue

#### Foreword

#### Cover Story

- ◇ “China Rural Revitalization: Challenges and Solutions”, by Dr. Pan Tao, Ecoland Club Shanghai

#### Good to Know

- ◇ “Seeding the future” German Pavilion at International Horticulture Expo 2019 in Beijing
- ◇ China released strategy to overcome rural-urban digital divide
- ◇ African Swine Fever update – China could lose as much as 200 million pigs
- ◇ Chinese consumers ignore calls to eat less beef

#### Upcoming DCZ Activities

- ◇ S&T platform conference and study tour “Digital tools for organic and small-scale farming” to Germany
- ◇ Planning workshop for the study tour on “Rural Land System Reform”
- ◇ Kickoff-workshop for the additional DCZ component “German-Chinese Cooperation on Agriculture and Climate Change”

#### DCZ Activities

- ◇ Agriculture Policies and Climate Change – APD Conference in Potsdam
- ◇ DCZ Workshop on Smart Farming at CAAS
- ◇ Sino-German Agribusiness Conference (June 14, Beijing)
- ◇ DCALDP Field Day (June 15-16, Huanghai Farm Jiangsu)

#### Review of Publications

#### Useful Websites

#### Call for Papers

#### Calendar - Upcoming Events

#### Imprint

# Sino-German Agricultural and Food Update

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## Foreword

### Dear readers,

These two months had several highlights, in particular two visits to China by the Federal Minister of Food and Agriculture, Ms. Julia Klöckner. The first in May in the context of the International Horticulture Expo 2019 and the German Pavilion, and a longer stay in June with a comprehensive agenda, including the DCZ Agribusiness Conference and the 5<sup>th</sup> Field Day of the Sino-German Crop Production and Agrotechnology Demonstration Park (DCALDP). Summaries of all three events you find in this Newsletter.

For the DCZ it was an honor and encouragement that both Ms. Klöckner and China's Vice Minister of Agriculture and Rural Affairs (MARA) Mr. Qu Dongyu addressed the 250 participants of the conference in the Opening Session of the DCZ Agribusiness Conference.

In May, the Project Steering Committee of the DCZ convened, this time in Germany, to discuss the previous year's performance and to determine the focus areas of the coming project year. In line with Chinese policy priorities described in Document No. 1 published earlier this year, the main focus of the DCZ's Agricultural Policy Dialogue will be placed on the Rural Land System Reform and the new component "Climate Change and Agriculture".

Both subjects are addressed in upcoming events with preparatory and kick-off workshops which will be held in early July.

We will provide you with follow-up news and results of these work areas in the coming editions of the DCZ newsletter.

Just before finalizing this edition of the DCZ Newsletter the news reached us that Mr. Qu Dongyu, China's Vice Minister of Agriculture and Rural Affairs (MARA), was elected as Director-General of the Food and Agriculture Organization of the United Nations (FAO) on 23<sup>rd</sup> of June. We offer him our congratulations and wish him a successful term as head of FAO.

With our best regards

Dr. Jürgen Ritter

Managing Director

Sino-German Agricultural Centre (DCZ)

## Sino-German Agricultural and Food Update

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### Cover Story

#### **China Rural Revitalization: Challenges and Solutions**

Dr. Pan Tao, Ecoland Club Shanghai

Following the German ‘Schrebergarten’ Model could help to promote the revitalization of China’s country side writes Dr. Pan Tao, Founder and Managing Director of the Institute for Sustainable Environment and Energy (ISEE) & Ecoland Club Farm.

China is still experiencing a fast urbanization and industrialization, as every year more than 10 million of the rural population move to the cities for better jobs and better living conditions. For the past four decades, rural China has gradually degraded and traditional rural society roots have been cut in many places. For a sustainable future, China needs a balanced development between urban and rural areas. Therefore, the Central Government has put forward the “Rural Revitalization” as a national strategy.

The big challenge is how to revitalize rural economy to increase households’ income. The total revenue of Chinese agriculture nowadays is 6 trillion RMB per year, meaning that the average Chinese agricultural household income is approximately 3000 euros per year. Currently, the average rural household income is only 37 percent compared to that in urban areas. Rural households need to find new sources of income besides agriculture business and off-farm jobs.

There are two major factors limiting the rural economy growth. One limiting factor is that prices of Chinese agricultural goods such as grains are much higher than in the international market. The further increase of Chinese farmers’ income becomes difficult, unless the Government gives more subsidies to farmers, which is unfortunately against WTO rules.



*Photo by the author*

Another limiting factor is that the properties in the rural area are not allowed for sale to a person if not from the same village. This prevents most of rural households from gaining property market values. Since over 100 million rural households have moved to cities one can imagine how many rural houses are empty and abandoned. The Central Government recognizes the problems and is taking action for a rural land reform. CPC No.1 annual document has proposed an innovative land reform framework called “Three Rights Split” which means that land ownership right, contract right and usage right can be separated. The ownership and contract rights remain with the rural community and farmers, respectively, and the usage right can be transacted on the market in order to attract private capital and talents to invest in the rural area in the long run. An amendment of land law reflecting the reform has been passed by the people’s congress and will hopefully be approved by the end of 2019 or 2020 at the latest. Actually, the land reform has been very cautiously tested in 33 pilot counties for 2 years already, however, there is no clear schedule when the land reform will be put forward to the entire country.

We cannot say that the rural land property will be privatized, but at least it will be handled like urban land with a 70-year usage right, which is long enough to attract private investment bringing the rural economy to another level.

The land issue will be solved sooner or later. But then, what are the most promising new models for rural economy? China can learn from the experience from the German Schrebergarten model with millions of little garden allotments for urban families, which started in the mid-19th century and spread to many countries in the world. China can expand the German Schrebergarten model by a farming service and second home development on a large scale. A lot of urban people

are looking for second homes in the countryside, especially those living in the megacities like Shanghai, Beijing, Shenzhen, etc. In an aging society, a lot of retired people are also looking for affordable places where friends can live together, enjoying diversified culture and beautiful nature. The community-based and service-based garden homes on a farm or in a village will be the ideal solution for promoting rural economy. This model not only creates rural property values, but also offers employment opportunities for the local farmers. With the new money flowing into rural areas every year, 700 million of the current rural population who only have a very limited social welfare coverage, could pay off the standard social insurance package at the price of 2000 RMB per year per person for 25 years. This would lay a solid foundation for social stability and further lead to a rural revitalization with the rising of service-based farming.

We have not talked about many other challenges such as land use planning, public services, upgrading of farming facilities, ecological rehabilitation, local governance, etc. As long as the rural economy keeps rising in a sustainable way, the Chinese rural revitalization will be the foreseeable future.

About the author: Dr. Pan Tao has been working in the sustainable development sector for over 15 years and served as an expert for various international organisations. Pan Tao holds a PhD in Environmental Planning and Management (Nanjing University), a MSc on Environmental and Resource Management (University of Cottbus/Germany) and a BE on Geotechnical Engineering (Tongji University/Shanghai).

During his studies in Germany Pan Tao got inspired by the German ‘Schrebergarten’ (allotment gardens, named after Daniel Schreber, naturopath and their initiator in the 19<sup>th</sup> century). Back in China, Dr. Pan Tao was driven by the vision to realize a Chinese

## Sino-German Agricultural and Food Update

‘Schrebergarten’ and set up Ecoland Club Farm, a family-style membership farm in Shanghai’s Fengxian district. The Ecoland Club Farm has a total area of 8.5 ha and is divided into membership Schrebergartens, a rice field and public activity areas. The farm provides fresh organic vegetables and organizes natural education programmes for kids during the farm season.

### Good to Know

#### “Seeding the future” German Pavilion at International Horticulture Expo 2019 in Beijing

On April 29, the International Horticulture Expo 2019 opened in Yanqing district, in the northwest of Beijing. The world’s largest horticulture exposition “Live Green, Live Better” will run until October 7, 2019 and demonstrates on 960 ha exhibits related to horticulture and sustainable technologies from different regions of China and 86 nations. Germany is represented with the theme of “Seeding the future” in the German pavilion which was officially opened by the Parliamentary State Secretary Hans-Joachim Fuchtel on April 29. On May 13, on the occasion of the German National Day, Federal Minister of Agriculture Ms. Julia Klöckner visited the German Pavilion. DCZ Managing Director Dr. Jürgen Ritter attended the evening reception at the Pavilion.



Photos: Sternfeld

<https://www.bmel.de/SharedDocs/Pressemitteilungen/2019/096-Gartenbau-EXPO.html>



Minister Klöckner at the International Horticulture Expo (BMEL, Expo 2019)

## Sino-German Agricultural and Food Update

### China released strategy to overcome rural-urban digital divide

On May 17, the central committee and the state council released a strategic outline for promoting digital technologies in rural areas. It envisages massive investments in the build-up of a highly efficient digital infrastructure. According to the guideline until 2020, 4G internet shall be available in 98 percent of administrative villages, and online public service facilities shall be made accessible. By 2025 accessibility to 4G shall be further expanded, with 5G being gradually introduced. In this way, the rural-urban digital divide shall be resolved. More in Chinese: [http://www.gov.cn/zhengce/2019-05/16/content\\_5392269.htm](http://www.gov.cn/zhengce/2019-05/16/content_5392269.htm)

### 如何分阶段实施《数字乡村发展战略纲要》？



Map illustrating China's rural internet strategy. Source: Xinhua

### African Swine Fever update - China could lose as much as 200 million pigs

By the end of April 2019 China had reported 129 cases of ASF from all over the country, and about 1.02 million pigs had been culled as precaution against the disease. Experts believe that official numbers only reflect the peak of the iceberg, since almost all but 6 of the 129 reported cases related to small or medium-sized farms. However, it is believed that larger farms have been affected as well. In an attempt to early detect the disease MARA allows large farms and breeding centers to test for ASF since mid-April. Previously MARA had required that testing should be conducted by governmental agencies.

The overall impacts already seem to be very serious. By March 2019, the total number of sows had plunged by 21 percent compared to the same month in 2018. According to the China National Bureau of Statistics China counted 375 million sows in March 2019, compared to 428 million in December. A sharp decline in swine numbers is also reflected by a sharp decline in feed production. For the first quarter of 2019, Shandong province, China's leading producer for swine feed, reported a 27.5 percent reduction compared to the same period last year. The same report, however, showed an increase of poultry feed indicating that consumers turn to alternatives for pork.

Shortage of domestic pork consequently resulted in price increases and an increased demand for imported meat. Pork imports have already increased by 10 percent in the first two months of the year. According to estimates of MARA's market and economy department the price for pork could rise by as much as 70 percent in the second half of 2019. Pork inflation already contributes to general inflation, so the consumer price index rose by 2.3 percent in March 2019. Experts of

## Sino-German Agricultural and Food Update

Rabobank believe that China could lose as much as 200 million pigs to the disease. This could consequently have serious implications for the global meat market, as EU's major pig producing countries such as Germany with 27 million pigs and Denmark (20 million) could not cover China's rising demand for imported meat.

Source: <https://scmp.com/news/china/politics/article/3006364/china-urges-large-pig-farms-carry-out-own-tests-african-swine>

<https://scmp.com/economy/china-economy/article/3007359/chinas-african-swine-fever-crisis-very-serious-stocks-falling>

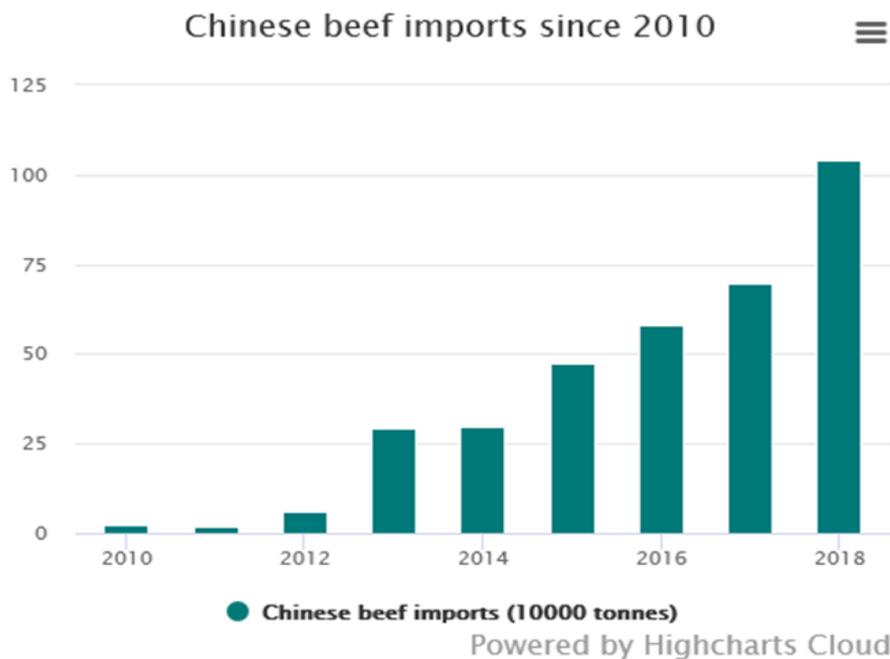
<https://scmp.com/economy/china-economy/article/3007069/african-swine-fever-has-now-spread-all-parts-china-posing>

### Chinese consumers ignore calls to eat less beef

While Chinese pork industry is suffering from the African Swine Fever crisis, consumers turn to alternative meat instead, and especially the demand for beef is increasing. While domestic farmers haven't been able to keep pace with the rising demand, beef imports are on the rise. Already in 2018 imports reached about one million tons compared to only 23,700 tons in 2010.

While until 2013 Australia was China's main source for imported beef, South American countries, especially Uruguay, Argentina and Brazil advanced to the main suppliers in recent years, and China has become the most important buyer of South American beef.

More: <https://www.chinadialogue.net/article/show/single/en/11166-Chinese-consumers-ignore-calls-to-eat-less-beef>



Source: Wang Cheng. China Dialogue

### Upcoming DCZ Events

#### **S&T platform conference and study tour “Digital tools for organic and small-scale farming” to Germany (30.06. – 05.07.2019 Potsdam, Müncheberg, Frankenhausen)**

In the DCZ’s Science Dialogue component a conference and excursion on “Digital Tools for organic and small-scale farming” will be organized from June 30 to July 5 in cooperation with the CAAS Institute for Agricultural Resources and Regional Planning (IARRP). 15 participants from China, agricultural scientists from Beijing, Jinan and Nanjing as well as representatives from agricultural enterprises will participate in this activity. The topic of the conference and study tour is taking up the successful dialogue on digitalization in agriculture that was initiated during the Sino-German Agricultural Week in 2018. On July 1-2, Prof. Weltzien and her team will host a two-day conference at the Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB) at the institutes in Potsdam Bornim and the ATB Field Lab for Digital Agriculture. On July 3, the delegation will visit the Leibniz Centre for Agricultural Landscape Research in Müncheberg (ZALF). Scientists from ZALF will introduce the centre’s recent projects on digitalization, including data management for the long-term field trial V210 (since 1963) and use of data acquired from drones. In the afternoon of July 3 a tour of the organic farming village Brodowin in northern Brandenburg is scheduled.

On July 4, the organic-field days (Ökofeldtage), a biannual event with representation of more than 200 companies and organisations at the Staatsdomäne Frankenhausen near Kassel, co-organized by the Hessian Ministry of Agriculture, University of Kassel and the Foundation for Ecology & Farming (SÖL) will be visited.

#### **Planning workshop for the study tour on “Rural Land System Reform” (1 July 2019)**

Research on German and Czech Rural Land System for the purpose of promoting China’s Rural Land System Reform

#### **Kickoff-workshop for the additional DCZ component “German-Chinese cooperation on agriculture and climate change (2-3 July 2019)**

German-Chinese cooperation on climate-friendly agricultural technologies and measures to mitigate the effects of climate change

### DCZ Activities

#### **Lecture at Göttingen University**

On May 6, on invitation of the University of Göttingen DCZ science advisor Eva Sternfeld introduced the DCZ and gave a lecture on “Transforming China’s Agriculture and Food Sector – on Path to Sustainability?”. The lecture was organized by the Centre for Modern East Asian Studies and the Academic Confucius Institute at Göttingen University.



*Photo: Qu Chang*

## Sino-German Agricultural and Food Update

### Agriculture policies and climate change

On May 8 and 9, Dr. Jürgen Ritter, Karin Tränkner-Bensilimane and Eva Sternfeld on behalf of DCZ participated in the Conference on Agriculture Policies and Climate Change in the framework of the bilateral cooperation projects of BMEL in Potsdam. The conference included presentations by practitioners and scientists as well as visits to the Potsdam Institute for Climate Impact Research (PIK) and the Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB). Dr. Wolfgang Zornbach, at BMEL in charge of global climate policies in the field of agriculture and forestry, gave an introduction about the political framework for climate change mitigation and adaptation. Dr. Claudia Heidecke (Thünen Institute) presented German strategies in this field and Dr. Daniel Müller (Humboldt University Berlin and IAMO) looked at impacts of climate change on agriculture in post-Soviet societies. Prof. Hermann Lotze-Campen introduced the work of PIK. In addition, the team leaders of projects in China, Kazakhstan, Mongolia, Russia and Ukraine provided short overviews of the climate change challenges and policy strategies in their project countries.

### Workshop on Smart Farming: Tools for digitization and data management in agricultural research

On May 15, on invitation of CAAS, DCZ short-term expert Dr. Carsten Hoffmann, a soil and data scientist at the Research Platform “Data” of the Leibniz Centre for Agricultural Landscape Research (ZALF), gave a workshop about “Smart Farming: Tools for digitization and data management” at the Institute for Agricultural Resources and Regional Planning of CAAS for scientists and PhD researchers at CAAS. The topic of the workshop related to an upcoming conference and excursion to Germany organized by DCZ and



*Workshop at CAAS on May 15 (photo: Sternfeld)*

CAAS. In this workshop, different aspects of data management for smart farming were presented, obstacles and open questions on data ownership and security were discussed and current limitations, e. g. missing data platforms and different standards for data exchange, were presented. In the third part of the workshop the current German research initiative BonaRes (“Soil as a sustainable resource for the bioeconomy”) was introduced. Possible solutions to meet requirements of researchers, such as data infrastructures to make data findable, accessible and interoperable for re-use, and of farmers, such as data licenses, data embargo, and fuzziness for spatial information were presented.

Forty faculty members, professors, PhD students and international students from CAAS graduate school participated in the half-day event. Dr. Hoffmann’s presentation was followed by a roundtable discussion where Dr. Hoffmann and the IARRP professors Zhang Bin, Wu Wenbin, Zhang Huimin, Xu Aiguo and Yu Qingyi exchanged about issues on data accessibility and management, data management of long-term field experiments, digital databases for soil mapping and related topics.

## Sino-German Agricultural and Food Update

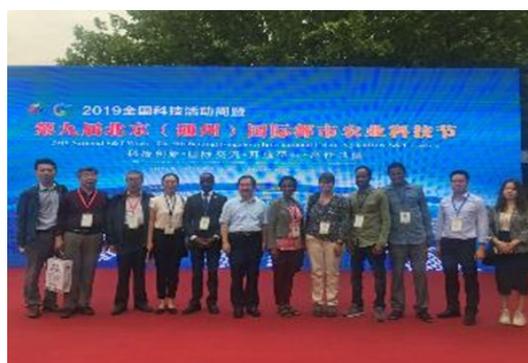


### 9th Beijing (Tongzhou) International Urban Agricultural S&T Festival

On May 19, Eva Sternfeld on behalf of DCZ participated in the opening ceremony of the 9th Beijing International Urban Agricultural Science & Technology Festival, which was organized on the occasion of the National Science & Technology Week (May 19-26). The Urban Agriculture S&T Festival is taking place throughout the summer season and is held at the Beijing International Urban Agricultural Science and Technology Park in Tongzhou district. The park is an 8 ha demonstration and production site of Zhongnong Futong. Futong is a company attached to China Agricultural University. Eva Sternfeld shortly introduced the DCZ and opportunities for digitalisation in agriculture. Following the opening ceremony, participants were invited for a guided tour to see Futong's recent experiments in the field of green-house horticulture cultivation.



*Photos: Futong Adam*



### New Developments, New Opportunities: 2019 Sino-German Agribusiness Conference held in Beijing (14 June 2019)

On the occasion of the China visit of the German Federal Minister of Food and Agriculture, Ms Julia Klöckner, the 2019 Sino-German Agribusiness Conference was held on 14 June in Kunlun Hotel, Beijing. The conference organized by the DCZ team was jointly sponsored by the Chinese Ministry of Agriculture and Rural Affairs (MARA) and the German Federal Ministry of Food and Agriculture (BMEL). About 250 participants attended the conference, among them governmental officials of MARA, BMEL, the German Embassy in China, representatives of Chinese and German food and agribusiness enterprises, agricultural policy research institutions and technology research institutions, Chinese and German public media and news agencies as well as the delegation accompanying the German minister.

Mr. Qu Dongyu, Vice Minister of MARA, and Ms. Julia Klöckner, Minister of BMEL, attended the conference opening session and delivered welcome speeches. In the keynote session high-ranking Chinese government officials and representatives of Chinese think tanks delivered an informative overview of the impressive development of Chinese agriculture and the related policy framework. According to Prof. Ye Xingqing, Director General of the Rural Economic Research Department of the Development Research Center

## Sino-German Agricultural and Food Update

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Photos: FECC

(DRC) of the State Council, China's agricultural sector is confronted with challenges such as the overuse of fertilizers and pesticides or the limited productivity and efficiency due to small-scale and household-based farming. Mr. Liu Guangming, Division Director, Department of Policy and Reform of MARA, explained how China is addressing these issues with the ongoing land use right reform. For instance, in the past four decades, the household land contracting period ranging between 15 and 30 years has been extended to the maximum of 75 years. The separation of the "three rights" (namely the collective ownership, the household contract ownership right and the land management right) will allow the land transfer and circulation from smallholders to cooperatives and large land managers. The Chinese government expects that the reform of land tenure will increase productivity and encourage investment into agriculture. The land tenure reform is intended to increase the size of farms and accelerate the adoption of modern agricultural technologies, such as digital agriculture and precision farming technologies.

In the session on sustainable agriculture development delegates of large German and Chinese companies (such as CLAAS, Alibaba, Syngenta, BASF, Bayer and Debont) presented the sustainability strategies of their respective companies. Johannes Buschmeier,



Managing Director of Agriculture & Finance Consultants GmbH (AFC), gave information of the Sino-German Crop Production and Agrotechnology Demonstration Park (DCALDP) in Jiangsu. In this project, nine German agribusiness partners demonstrate machinery and provide extension services to promote sustainable agriculture.

In the afternoon session, projects and experiences of enterprises in the field of sustainable and environmentally friendly animal husbandry were presented. Company presentations were given by Boehringer Ingelheim, the pig farm Beijing Liuma and Big Dutchman, a German company providing equipment for pig and chicken farms. According to Mr. Benz, CEO of Big Dutchman China, his company has accomplished several achievements in improving farm animal welfare. For example, Big Dutchman promotes the dual-purpose chicken, a chicken race that can be used as layer hen as well as broiler. The dual-purpose hens lay 50 eggs less per year than specialized layer hens and need to be fed longer for meat production, however, introducing the dual-purpose chicken offers a solution for the questionable and widely criticized practice of sorting out and shredding male chicks. Dr. Sven Grupe, team leader of the Sino-German Animal Husbandry Cooperation Project – a project that cooperates with 19 Chinese pig and dairy farms – reported on the project's major

## Sino-German Agricultural and Food Update

activities including the training workshops on manure management and an inventory on greenhouse gas emissions and mitigation strategies.

In the final panel discussion moderated by Ms. Hu Zhe from China Daily, Ms. Li Yumei from the China Agriculture University, Mr. Gao Yong from Bayer, Mr. Stephan Lange from Boehringer Ingelheim, Ms. Alexandra Brand from Syngenta and Mr. Liu Hanwu from Debont discussed the question “Who learns what from whom?”

Ms. Brand suggested that Germany could learn from China in terms of speed, whereas Germany could be a model for safety precautions. Mr. Lange from Boehringer agreed and recommended biosafety as a topic where both countries should collaborate. Prof. Li Yumei referred to German environmental policy and suggested that China could learn from Germany that agriculture is also a lifestyle and a traditional culture that need to be preserved. Mr. Liu Hanwu mentioned cost management as a factor where China could learn from Germa-

ny, whereas China’s recent achievements in information technology could be a model for the German side.

The panelists concluded that China and Germany are facing similar challenges, such as coping with environmental pollution as a result of intensive agriculture and ensuring food safety. In order to find solutions, both countries need to share experiences and best practices.

In addition, the panelists suggested a continuation and intensification of the Sino-German cooperation in the fields of digital and smart agriculture, environmentally friendly livestock production and technology development, machinery manufacture, e-commerce, food safety, adaptation of agriculture to climate change, as well as a further intensification of the policy dialogue. However, as Ms. Brand remarked collaboration in these fields needs investment and, therefore, she suggested that also financial institutions should be invited to future agribusiness dialogues.



Photo: FECC

## Sino-German Agricultural and Food Update



*Photo: Karin Tränkner (a full list of the DCALDP project partners can be found on our website)*

### **5<sup>th</sup> Field Day of Sino-German Crop Production and Agrotechnology Demonstration Park (DCALDP) (15-16 June 2019)**

The 5<sup>th</sup> Field Day of the “Sino-German Crop Production and Agrotechnology Demonstration Park” has been highlighted by the visit of Germany’s Federal Minister of Agriculture and Food, Ms. Julia Klöckner, as well as high ranking members of the German and Chinese ministries of agriculture and a delegation of German agrarian entrepreneurs. Chinese and German journalists accompanied the approximately 300 guests. From DCZ, Dr. Ritter and Ms. Tränkner took part at the event.

In her opening address Ms. Julia Klöckner emphasised the importance of Sino-German friendship and cooperation as well as the importance of modern and sustainable agriculture. Deputy Director Wang Hongqian delivered an opening speech on behalf of the Chinese Ministry of Agriculture and Rural Affairs (MARA).

The “Sino-German Crop Production and Agrotechnology Demonstration Park” has been launched in August 2015 within the scope of BMEL bilateral cooperation programme and is currently in its 2<sup>nd</sup> phase.

It is carried out to work towards more efficient and sustainable farming techniques by means of modern agricultural machinery and adapted cultivation methods. The Chinese project partner SKIAD (Jiangsu Provincial Agricultural Reclamation and Development Corporation) provide an area of about 150 hectares on the Huanghai State Farm to the project for the implementation of demonstrations. DCALDP is an ideal platform to demonstrate and discuss innovations around agriculture, policy and business. (For more details, see the DCZ website <https://dcz-china.org/en/dcaldp-project.html>)

During the field visit, the visitors learned about the main work areas, achievements and results of the demonstrations and trials.

This year special focus was placed on soil fertility and how professional agri-tech can prevent soil compaction by good soil preparation and post-harvest processing, for example how to solve the problem of wheat straw residues on large scale. At six trial and demonstrations visitors gained insight into differences, pros and cons of a variety of machineries.

## Sino-German Agricultural and Food Update

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Photo: Karin Tränkner

As Mr. Bunge, the moderator of the field visit pointed out, each soil condition requires different tractors or equipment. For this reason, it is highly important for machinery-sellers to have a thorough understanding of the soil and environmental conditions at the potential customers or farmers.

### Reviews of Publications

**Cropscapes and History.** By Francesca Bray. *Chinese Annals of History of Science and Technology*, 2018, Volume 2, No. 2, p. 1-10

**Archaeobotanical Data for Research on Introduction of Wheat into China.** By Zhao Zhijun. *Chinese Annals of History of Science and Technology*, 2017, Volume 1, No.1, p. 59-79

**The Introduction and Spread of Pumpkin in China.** By Li Xinsheng et al. *Chinese Annals of History of Science and Technology*, 2017, Volume 1, No. 2, p. 94-112

These three papers dive into China's agricultural history and the history of science. They explore how crops from other parts of the world found their way into China and helped to improve food security.

In her contribution **Francesca Bray** (University of Edinburgh) introduces into the research collaboration and the forthcoming book by historians from Asia, Europe and North America "Moving Crops and the Scales of History". Case studies range from dryland and wet-rice systems in Imperial China to American tobacco plantations, Indian tea industry and breeding of 'fascist pigs' in Portugal of the 1940s. As Bray notes, crops are a very special human artifact or technological product, in their dual nature as being rooted in their local environments and at the same time moveable. To explore the dynamics of knowledge and technology transfer related to crops Bray and her collaborators developed the concept of "cropscape" for investigating the movement of crops: "*the heterogeneous elements of actors assembled in a specific spatial and chronological location in order to make and grow the crop: plants, people, ideas, skills, tastes, environment, equipment, labor, pests, markets, etc.*" (p. 2) Derived from the concept of "landscape", "cropscape" is consequently not taken as natural fact but as a

product and outcome of interactions between humans and between humans and land. For example, in her case study on rice Bray looks into ways how humans have manipulated the life cycle of rice, sometimes in case of rationed rices extending it, and – more often – to produce multi-cropping varieties abbreviating it.

Another case related to China is millet, one of the early indigenous cereals in China. After it was gradually replaced by wheat and rice around 800 CE, it lost its importance as staple food but had a place in state rituals. Today, as Bray observes, millet in China is undergoing a revival as authentic and healthy food.

**Zhao Zhijun** looks at recent archeological findings on the introduction of wheat to China. According these findings wheat, which gradually replaced millet in Northern China, was introduced around 4500 to 4000 years ago on two routes from West Asia via Central Asia and Northern Xijiang to North China and via the oasis route on both sides of the Tarim Basin and the Gansu Corridor to the Loess Plateau and the middle and lower reaches of the Yellow River.

Originally wheat has its origin West Asia (Turkey and Middle East) where archaeological discoveries can proof early domesticated wheat back to 10500 BP. The eastward spread of wheat was than comparatively slow, about 7000 years ago it reached Turkmenistan and needed about 3000 years more to reach Central China. Reasons for the slow advance are probably climatic issues. Whereas West Asia enjoys a Mediterranean climate, East Asia is influenced by the continental monsoon climate, with cold dry winters and hot and humid summers. Nevertheless, archaeological findings proof that in ancient China wheat gradually replaced millet, and oracle bone inscription of the Shang period (1200-1050 BP) already uses characters for wheat and barley.

**Li Xinsheng** and **Wang Siming** trace back how pumpkin, originally native in the Americas, was introduced to China in the early 16<sup>th</sup> century and became a common vegetable and staple food all over China. By analyzing local gazetteers from Ming, Qing and Republican China they sleuth the spread of pumpkin throughout China. The introduction of pumpkin provided an effective relief from famine in years of bad harvests and it was eaten as staple food when there was shortage of grain. Pumpkin seeds became a popular snack.

### Useful Websites

**AGRARstudieren.de** This website by VDL-Bundesverband – Berufsverband Agrar, Ernährung, Umwelt e.V. provides a complete overview of the possibilities of studying agriculture, agricultural sciences and related areas in Germany. It provides links to universities with agricultural sciences departments, universities of applied sciences and universities of cooperative education.

### Call for papers

International Workshop and Special Issue on **Automating the Future of Farm Work? Precision and Smart Agriculture Technologies Across East Asia in the Twenty-First Century**

The Hong Kong University of Science and Technology, Division of Social Science, 20<sup>th</sup> and 21<sup>st</sup> February, 2020

This workshop will investigate the automation of farm work and the emergence, development and deployment of precision and smart agriculture technologies (hereafter referred to as precision agriculture, or PA) — Internet of Things (IoT), sensors, integrated circuits, drones, robotics and artificial intelligence (AI), GPS and satellite imaging and so on —

## Sino-German Agricultural and Food Update

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across East Asia in the twenty-first century.

The goal of this workshop is to deliberate on theoretical and empirical research findings with a view to identifying regulations and policies that can facilitate the broad-based development of PA technologies and their implementation across regional and rural economies. This may include, but is not limited to, questions pertaining to business models, efficiencies, ethics, profitability as well as transparency. We seek to explore, in short, just how smart is “smart” agriculture?

In particular, this workshop seeks to go beyond the topic of technical componentry and explore the *processes* and *outcomes* of precision and smart agriculture technologies.

Scholars interested in participating in this workshop and a special issue of a science & technology-related journal devoted to precision and smart agriculture technologies and their application across East Asia in the twenty-first century should submit an abstract (at least 1,500 words) by August 30, 2019.

For more detailed information about the workshop please contact Sacha Cody ([sachacody@ust.hk](mailto:sachacody@ust.hk)).

## Sino-German Agricultural and Food Update

### Calendar - Upcoming Events

Date	Location	Event	Contact
<b>April – October 2019</b>			
29	Beijing, Yanqing District	Opening <b>International Horticulture Expo Beijing</b> (until October)	<a href="http://www.horti-expo2019.org/">http://www.horti-expo2019.org/</a>
<b>June</b>			
3-5	Nice, France	<b>ISF World Seed Congress 2019</b>	<a href="http://www.worldseedcongress.com/2019/">http://www.worldseedcongress.com/2019/</a>
6-8	Shenzhen	<b>PAG Asia 2019 Plant and Animal Genome Conference</b>	<a href="http://www.intlpagasia.org/2019/index.php/en/">www.intlpagasia.org/2019/index.php/en/</a>
14	Beijing	<b>Sino-German Agribusiness Conference 2019</b>	Register until June 3 <sup>rd</sup> at <a href="mailto:info-dcz@iakleipzig.de">info-dcz@iakleipzig.de</a>
15-16	Huanghai Demofarm, Dayou Town, Yan-cheng City Jiangsu	<b>Sino-German Crop Production and Agrotechnology Demonstration Park (DCALDP) Field Days</b>	Register at <a href="mailto:hexx@dlg.org.cn">hexx@dlg.org.cn</a>  Or: <a href="mailto:Liu-afc@dlg.org.cn">Liu-afc@dlg.org.cn</a>
24-26	Berlin	<b>eCommerce of Food International Conference on Trends and Official Control</b>	<a href="http://www.bvl.bund.de/eCommerce2019">www.bvl.bund.de/eCommerce2019</a>
<b>July</b>			
1-4	Beijing	<b>Agribenchmark Pig/Inter PIG conference</b>	CAAS Thünen
<b>August</b>			
21-25	Shanghai	<b>Pet Fair Asia</b>	Shanghai New International Expo Centre (SNIEC)  <a href="http://www.petfairasia.com/en/">http://www.petfairasia.com/en/</a>
<b>September</b>			
3	Hong Kong	<b>12th International FRUTIC Symposium 2019: Innovations in Pre- and Post-harvest Supply Chain of Fresh Produce</b>	<a href="https://frutic.atb-potsdam.de">https://frutic.atb-potsdam.de</a>
16-19	Berlin	<b>15<sup>th</sup> International Rapeseed Congress</b>	<a href="https://www.irc2019-berlin.com/">https://www.irc2019-berlin.com/</a>
19-20	Qingdao	<b>3<sup>rd</sup> World Conference on Animal Welfare</b>	International Cooperation Committee of Animal Welfare (ICCAW)  VNU Exhibitions Asia  <a href="http://www.wcfaw.com">www.wcfaw.com</a>

## Sino-German Agricultural and Food Update

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19-21	Qingdao	<b>Asia Agro-Food Expo 2019 VIV</b> Qingdao	VNU Exhibitions Asia <a href="http://www.vivchina.nl">http://www.vivchina.nl</a>
19-21	Qingdao	<b>EuroTier China</b>	DLG <a href="http://www.dlg-messen.de/expo/eurotier-china/?L=1#!/">www.dlg-messen.de/expo/eurotier-china/?L=1#!/</a>
<b>October</b>			
14-18	Hanoi, Vietnam	<b>2019 International Conference on Chinese Food Culture</b> – Cross-Cultural Interaction and Chinese Foodways in Southeast Asia. Vietnam National Institute of Culture and Arts Sto-	<a href="http://foodconference2019.fcdc.org.tw/enaspx/default.aspx">http://foodconference2019.fcdc.org.tw/enaspx/default.aspx</a>
19-21	Zhengzhou	<b>Leman China Swine Conference</b>	<a href="http://en.lemanchina.com">http://en.lemanchina.com</a>
30-	Qingdao	<b>CAMDA CIAME</b> fair 2019	
<b>November</b>			
10-16	Hanover, Germany	<b>Agritechnica</b> – world leading trade fair for agricultural technology	<a href="https://www.agritechnica.com/en/">https://www.agritechnica.com/en/</a>
12-14	Shanghai	<b>International Meat Industry Exhibition</b>	<a href="http://www.meatexpo.com.cn">www.meatexpo.com.cn</a>
20-22	Beijing	<b>World of Food</b>	<a href="http://www.anu-foodchina.cn">www.anu-foodchina.cn</a>
18-24	Beijing	<b>Sino-German Agricultural Week</b>	<a href="http://www.dcz-china.org">www.dcz-china.org</a>
<b>February 2020</b>			
20-21	Hong Kong	<b>Automating the Future of Farm Work? Precision and Smart Agriculture Technologies Across East Asia in the Twenty-First Century</b> – International Workshop	Hong Kong University of Science and Technology Deadline for papers: Aug. 30, 2019 Submission: <a href="mailto:sachacody@usthk">sachacody@usthk</a>

## Sino-German Agricultural and Food Update

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### Imprint

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

Any news about upcoming events and conferences to share? Please send your information to [e.sternfeld@iakleipzig.de](mailto:e.sternfeld@iakleipzig.de)

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