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GOOD NEWS FOR SCI-TECH WORKERS

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Xi Plants Trees for 10th Year as Top Leader

President Xi Jinping planted trees in Beijing on March 30, marking the 10th year of his participation as the top leader in the annual tree-planting activity in the Chinese capital.

Xi said he did so to make his contribution to building a beautiful China and to encourage the whole of society, especially the young people, to push for ecological advancement so that China's environment will become even better.

The activity was also attended by other leaders. The leaders planted trees with people from Beijing at a city park in the southern district of Daxing.

While planting saplings of different types of trees, Xi asked the young students around him about their studies, motivated them to foster a sense of hard work, and told them to boost their awareness of the need to protect the environment and conserve resources.

"Since the 18th CPC National Congress, we have adhered to the notion that lucid waters and lush mountains are invaluable assets to fully promote the development of ecological civilization, advance afforestation and improve living environment in both urban and rural areas," Xi said, adding that "A beautiful China is becoming a reality."

The president also stressed continuous and arduous efforts to protect and restore the ecological system and achieve the fundamental improvement of the environment.

Xi pointed out that forests are crucial to conserving water, obtaining economic benefits, and safeguarding grain security, stressing that their vital role as carbon pools should also be valued.

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Staff members operate a drone in the field of a smart farm in Jiangxiang town, Nanchang county of east China's Jiangxi province. (PHOTO: XINHUA)

International Cooperation

China Awards Top Cooperation Honor to Foreign Scientists

By LI Hongce and TANG Zhexiao

China has bestowed its 2020 International Science and Technology Cooperation Award (ISTC Award) to eight foreign scientists from seven countries and the International Center for Tropical Agriculture. Due to the pandemic, the 2020 awards ceremony was held retrospectively by the Chinese embassies abroad.

The ISTC Award, recognizing scientists and institutions that have made great contributions to sci-tech progress of China, is a state-level annual award established by the State Council in 1994.

At the ceremony hosted on March 28 at the Chinese Embassy in France, Jacques P. Caen, a haematologist, and Alain J. Becoulet, a physicist specializing in fusion energy, received the award from Chinese Ambassador Lu Shaye.

Becoulet expressed his gratitude to the Chinese government and the Chinese Embassy in France, with special thanks to scientists in China's Hefei Institutes of Physical Science with whom he worked together.

"Science and technology can break through the obstacles of history, culture and the economy, narrow the distance between different ethnic groups, and jointly meet with the challenges of the times," he said, adding that, "I'm honored to witness the close cooperation and major achievements in the field of nuclear fusion research between China and France. We will continue to do a good job in international exchanges and cooperation for the common bright future of mankind."

Australian geoscientist Sue O'Reilly received the award from the Chinese Embassy in Canberra on March 24. Prof. O'Reilly has been committed to research collaborations in geosciences with Chinese universities and institutes since 1982. She has visited China many times and made important contributions to the development of China's geosciences, according to Chinese Ambassador to Australia Xiao Qian.

"This award proves that scientific collaboration is an important way to build lasting international bonds in a changing world, and we have a responsibility to shape the future together," said O'Reilly, a 76 year-old professor.

Xiao said that the door between China and Australia for exchanges and cooperation in science and technology was opened as early as 1960s, and the cooperation has, "promoted the advancement of science and technology undertakings and economic and social development of the two countries."

To date, 136 foreign experts, three international organizations and one foreign organization have won the ISTC Award.

Professor O'Reilly received the ISTC Award from Chinese Ambassador Xiao Qian. (PHOTO: THE EMBASSY OF THE PEOPLE'S REPUBLIC OF CHINA IN THE COMMONWEALTH OF AUSTRALIA)

Editor's Pick

Digital Villages: New Way to Common Prosperity

By WANG Xiaoxia

"To get rich, build roads first," was a slogan used to develop rural areas in China. Today, various networks are becoming the new roads for villagers to become more prosperous.

China's administrative villages had all been connected to broadband networks by the end of last year, which paves the way for construction of digital villages.

Digital villages, by promoting the application of digital technologies in rural areas, will boost the modernization of agricultural production and public services in rural areas, and narrow the urban-rural development gap.

Smart agriculture and farming

Smart agriculture is reshaping the traditional way of agricultural production from experience-based to data-driven.

At Changping pig farm in Yuqing county, southwest China's Guizhou province, an ear tag with a sensor board is attached to the ear lobe of individual pigs to measure vital parameters and send the data through a smartphone app to the cloud.

The big data system remotely monitors all the pigs on the farm and provides early alerts to the farm caretaker for situation that needs immediate attention.

Previously, the diagnosis of pig diseases could only be made after symptoms emerge, while the optimal treatment period has already been missed, said the farm manager Fei Rufen, adding that with a superior alert system, the survival rate of last drove of pigs has surpassed 96 percent.

Apart from the production process, digital tools are applied to products circulation, operation and supervision, which help agricultural products flow to the market more freely, increasing villagers' incomes.

In Baoding city, north China's Hebei province, all the villages get access to e-commerce services and the city's rural online retail sales reached 26.3 billion RMB in 2021, while the national volume exceeded two trillion RMB.

Improvement of public services

The application of digital technology has narrowed the gap between urban and rural areas in terms of healthcare, education and other public services.

Data from the Ministry of Industry and Information Technology shows that all primary and secondary schools (including teaching sites) across the country had broadband access in 2021.

In Baoding, online class connected pupils from rural schools with urban classrooms. "Thanks to the online guidance, my English pronunciation has improved a lot," said Li Zehan from Mingde primary school in Tuonan, a small town in the city.

Telemedicine platforms have been established in 29 provinces, and telemedicine services covered more than 90 percent of Chinese counties, districts and municipalities in 2021, according to the National Health Commission. ***See page 2***

Super Gene to Increase Grain Yield

By Staff Reporters

A joint group of scientists from Huazhong Agricultural University (HZAU) and China Agricultural University (CAU) have found a gene in both corn and rice, which could boost the grain yield by 10 percent and eight percent respectively when it is properly edited.

The gene in corn is named KRN2, and its ortholog in rice is called OsKRN2. Both underwent selection in the process of domestication and improvement, resulting in the reduction of their expression and an increased grain number through an increase in kernel rows.

Grain yield was raised by the knockout of KRN2 in corn, or OsKRN2 in rice as demonstrated by field tests, while other agronomic traits were not obviously compromised.

The scientists also conducted a deep analysis of the scope and mechanism concerning the convergent selection of corn and rice on a genome-wide scale. They identified a set of 490 orthologous genes that underwent convergent selection in the evolution of corn and rice, including KRN2/OsKRN2. These genes were significantly enriched in starch and sucrose metabolism, and in biosynthesis of cofactors.

Starch is the core ingredient that stores energy in crop seeds, which is an important reason for corn and rice to be domesticated as major food crops. The result of the research not only helps to better understand the evolution and improvement of crops, but also offers valuable information for accelerating the breeding process of crops and creating new crops via domestication.

From the perspectives of both gene and genome research, it took the joint group 18 years to reach this discovery and answer an important question of basic science. That is whether corn, rice and wheat, which offer more than 50 percent of the energy used by human beings, follow the same heredity laws in the long process of improvement and selection, since they are domesticated in different locations around the world with various ancestors.

Published in *Science* online on March 25, the study provided a crucial theory foundation for the analysis of mechanisms regarding crop domestication and breeding in the future.

ICV's Testing Speeds up

By Staff Reporters

Currently, the length of roads open for safety testing intelligent connected vehicles (ICV) in China exceeds 5,000 km and the total distance of such tests surpassed 10 million km, said Guo Shougang, an official from the Ministry of Industry and Information Technology (MIIT), at a forum held in Beijing on March 25.

According to Guo, the Ministry of Housing and Urban- Rural Development (MOHURD) and MIIT have jointly conducted pilot projects in 16 cities, in order to promote the coordinated development of smart city infrastructure and ICV.

Beijing was among the first batch of cities used for the pilot projects. Kong Lei, deputy director of the Beijing Economic and Technological Development Area (BDA) Administrative Committee, noted that Beijing began the construction of an internet-connected and cloud-control high - level autonomous driving demonstration zone in September 2020.

Phase 2.0 construction of the demonstration zone was basically completed, said Kong. ***See page 4***

WEEKLY REVIEW

Top 10 Archaeological Discoveries Revealed

China's Top 10 New Archaeological Discoveries of 2021 was released on Mar. 31. The highlighted discoveries included the exotic-looking gold and bronze masks from the Sanxingdui Ruins site in Sichuan province, and the most complete preservation of prehistoric wooden structure found in Jijiao city site in Hunan province.

National Energy Targets for 2022 Set

China has pledged to increase the share of non-fossil fuel in overall energy consumption to around 17.3 percent in 2022, with wind power and photovoltaic power generation accounting for about 12.2 percent, according to a guideline released by National Energy Administration on Mar. 29.

China Firstly Lead IEC Standards Revision

The International Electronics Commission (IEC) officially issued two quality standards of IEC IEC60477- 1: 2022 and IEC60477-2: 2022 recently. This was the first time that IEC international standards in electromagnetic laboratory measurement revised under the leadership of China.

Mouse Brain Research Made Significant Progress

Researchers from China have established the world's largest database of mouse single-neuron whole brain projectome, revealing the diversity of prefrontal neurons and providing organizing principles of neural circuits research. The study was published in *Nature Neuroscience* on Mar. 31.

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