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Policies

14th Five-Year Plan for Agricultural and Rural Modernization

[GOV.CN, 04-11-2021] The State Council's executive meeting chaired by Premier Li Keqiang on Nov 2 adopted the 14th Five-Year Plan for Agricultural and Rural Modernization, to advance rural revitalization and fairly fast income growth of rural residents.

During the 14th Five-Year Plan period (2021-2025), the country will advance agricultural and rural modernization in a science-based, region-specific manner, in line with the national realities and agricultural conditions, the meeting noted.

Efforts will be made to enhance the capacity of agriculture in supporting and underpinning economic and social development, and raise farmers' living standards on a sustained basis.

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China reaps bumper 2021 harvest with grain output up 2 pct

[Xinhua, 06-12-2021] China secured yet another bumper harvest this year, with grain output up 2 percent year on year, the National Bureau of Statistics (NBS) said Monday 6 December.

China's grain output reached nearly 683 billion kg in 2021, up 13.4 billion kg from last year.

This is the seventh consecutive year that the country's total grain production has exceeded 650 billion kg.

The bumper harvest comes despite extreme regional weather conditions, including record rainstorms in Henan Province and periodical droughts in the northwestern areas, said an NBS official.

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China issues action plan on saving food amid warnings of global shortage

[GT, 01-11-2021] China has issued an action plan on saving food to push forward the implementation of the Anti Food Waste Law that was adopted in April on the backdrop of a potential world food shortage.

The action plan has 28 specific requirements and on the consumption end, it urged the catering industry and canteens to offer small-sized food, advising customers on ordering and monitoring the purchase and use of food.

A diet of whole grain will be promoted among the public to replace the past diet depending heavily on deeply processed grains.

China will also enhance cooperation on reducing food waste with the world, including exchanges on techniques and personnel.

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China Food Security: Government looks to seed industry as population grows

[CGTN, 11-12-2021] With China's massive population, food security has always been a priority area for the government. It's once again expected to be high on the agenda at this year's Central Economic Work Conference with officials aiming for more scientific breakthroughs in seed production.

China has invested huge amounts of resources to ensure food security. Yet its yields of soybeans and corn are less than 60 percent of the United States and 13 percent of China's vegetables are foreign varieties.

As demand in China increases, agricultural experts are being asked to develop more seed varieties to not just increase output, but also improve quality.

This September, the national crop seed bank began trial operations. It has 1.5 million copies in storage, which can be preserved for 50 years, a global leader. Meanwhile, the private and the public sectors are being asked to work together in seed production technology to drive innovation.

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China issues circular on further prevention, control of pollution

[Xinhua, 07-11-2021] Chinese authorities have issued a circular on further promoting the nationwide battle to prevent and control pollution, while strengthening ecological protection.

The circular, jointly released by the Communist Party of China Central Committee and the State Council, details major targets for improving the country's ecological environment, with the total discharge of major pollutants continuously declining for 2025 and 2035.

By 2025, carbon dioxide emissions per unit of the country's GDP will be reduced by 18 percent from the level in 2020, according to the circular.

By 2035, a green way of life and production will have been formed, carbon emissions will stabilize and decline after reaching a peak, and the country's ecological environment will see fundamental improvement, said the circular.

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China proposes new rules to ease GMO approvals

[Reuters, 14-11-2021] China is planning changes to its seed regulations that will make it easier to approve genetically modified crops, a move seen as a critical step towards commercialising GM corn.

The Ministry of Agriculture and Rural Affairs published a draft document proposing a series of amendments to several different regulations that cover GM crops.

The changes implement decisions by the Communist party's powerful Central Committee and the cabinet on safe management of genetically modified organisms, or GMOs, and development of a modern seed industry, according to the statement.

China's leadership last year called for an urgent "turnaround" in the country's seed industry, which is struggling with overcapacity and rampant infringement of intellectual property that has stifled innovation in the sector.

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China publishes draft rules on herbicides for GM crops

[Reuters, 03-12-2021] China published draft rules on 3rd December outlining registration requirements for herbicides used on genetically modified crops, in another sign that Beijing is gearing up to allow greater use of GM technology in agriculture.

The rules include guidelines on efficacy trials for herbicides used on herbicide-tolerant corn and soybeans, according to the statement on the Ministry of Agriculture and Rural Affairs' website.

China currently does not permit planting of any GM varieties of major feed or food crops, though most of its cotton is genetically modified.

Last month it drafted new rules that lay out requirements for integrating a GM trait into conventional seed varieties, which was seen by the industry as a major step towards greenlighting commercial production of GM corn.

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China to encourage social capital in ecological protection, restoration

[GOV.CN, 10-11-2021] The State Council has issued a guideline on encouraging social capital to participate in ecological development, according to a notice released by the General Office of the State Council on Nov 10.

Aimed at promoting high-quality development in ecological protection and restoration and raising supplies of quality ecological products, China will encourage and support social capital to engage in the whole process of ecological protection, including investment, design, restoration, and management, and carry out activities such as ecological product development, industrial development, sci-tech innovation, and technical services.

According to the notice, social capital can engage in ecological conservation individually, as a group or through cooperation with governments, and public welfare organizations are also welcome.

Social capital will be allowed to profit through developing industries by rights to use natural resource assets or franchise rights, making carbon sink transactions, and comprehensively utilizing resources approved by the government.

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China specifies plans to reduce methane emission

[GT, 25-11-2021] China will enhance the reduction of methane emission through targeted actions including undertaking studies on methane control, setting related standards, and encouraging pilot projects, as a key work in the implementation of the latest China-US joint declaration on confronting climate change.

During the 14th Five-Year Plan (2021-25) period, China will promote the implementation of China's methane emission control actions in combination with the formulation and implementation of relevant plans and policies, Lu Xinming, a vice director at the Department of Climate Change of the Ministry of Ecology and Environment, told media on 25th November during a press conference.

China will investigate the situation of methane emission control and study and formulate effective emission reduction measures in the fields of coal mining, agriculture, urban solid waste, sewage treatment, and oil and natural gas, said Lu.

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Science, Technology and Environment

Nation among leaders in agricultural technology

[China daily, 20-11-2021] China is in the world's leading group in terms of general agricultural science and technology, the Ministry of Agriculture and Rural Affairs said.

Frontier research and breakthroughs in cutting-edge technologies, such as crop genomics and biological breeding, have exerted significant influence on global agriculture, said Yang Xiongian, director of the center of science and technology development under the ministry.

With the support of projects on genetically modified organisms, domestically produced insect-resistant cotton accounts for 99 percent of total cotton production,

Moreover, China tops the world in the number and operational area of plant protection drones, driving the global development in plant protection through aerial applicators.

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China unveils 10 most significant advances in agricultural science

[Xinhua, 19-11-2021] China has released the country's 10 most significant advances in agricultural science in 2020 at a conference in Beijing 19 November.

The advances cover the molecular regulation mechanism of high-yield crops, mechanism of crop disease resistance and susceptibility of domestic livestock and poultry to SARS-CoV-2, among others.

Chinese researchers identified a gene NGR5 and found rising NGR5 levels can increase rice tillering and yield without more nitrogen-rich fertilizer.

In another study, researchers investigated the susceptibility of ferrets and animals in close contact with humans to SARS-CoV-2. They found that SARS-CoV-2 replicates poorly in dogs, pigs, chickens, and ducks, but ferrets and cats are permissive to infection.

Other selected advances include studies in intercropping, the simultaneous production of multiple crops on the same field, haplotype-resolved genome analyses of a heterozygous diploid potato, construction of high-quality graph-based soybean genome and causes of legumes' symbiosis with nitrogen-fixing rhizobia.

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Agricultural germplasm resources census in China achieves phased success

[GT, 23-11-2021] There has been phased success for China's three-year agricultural germplasm resources census, the Ministry of Agriculture and Rural Affairs said in a press release on 23 November.

China has undertaken a three-year census of domestic crop, livestock, poultry and aquatic germplasm resources since March as it seeks to ensure self-reliance on seed resources to secure national security.

As of present the census has covered crops in 2,323 Chinese counties and livestock and aquatic in over 95 percent of Chinese villages and counties, with major breakthroughs in protecting species living in the Qinghai-Xizang Plateau.

After completing a month-long process, the ministry released a list of top 10 premium germplasm resources respectively for crops, livestock and poultry, and aquaculture, as well as top 10 excellent livestock and poultry genetic resources in Qinghai-Xizang Plateau, which were not covered in the previous census which was undertaken once in the 1980s and again in the early 2000s.

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Chinese scientists generate stable pig stem cells for gene-editing

[Xinhua, 02-12-2021] Chinese scientists have generated stable pig stem cell lines that allow multiple gene-editing.

The breakthrough brightens prospects for organ transplant and livestock breeding.

Researchers from China Agricultural University, Sichuan Agricultural University, Northeast Agricultural University and Beijing Institute of Genomics cultivated stem cell lines that can

"give birth to" healthy off-spring over more than 200 generations, according to a recent study published online in the journal Cell Research.

Pigs have more similarities with human beings in terms of embryo development, anatomy and physiology, so their stem cell lines can be used as models for animal-to-human organ transplant, according to the study.

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Consolidation of agricultural land can contribute to agricultural sustainability in China

[Nature Food, 16-12-2021] China's agricultural sector is dominated by smallholder farms, which mostly exhibit relatively low nutrient use efficiency, low agricultural income and substantial non-point-source pollution. A research team led by Baojing Gu of Zhejiang University assessed the spatial feasibility and cost-effectiveness of agricultural land consolidation in China by integrating data from over 40,000 rural surveys, ecological modelling and geostatistical analysis. They found that 86% of Chinese croplands could be consolidated to establish a large-scale farming regime with an average field size greater than 16 ha. This would result in a 59% and 91% increase in knowledge exchange and machinery use, respectively, contributing to a 24% reduction in total nitrogen input, an 18% increase in nitrogen use efficiency and a 39% reduction in labour requirement, while doubling labour income. Despite requiring a one-time investment of approximate US\$370 billion for land consolidation, total agricultural profits would double due to agricultural production costs being halved.

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Benefits of China's land consolidation

[Nature Food, 16-12-2021] The merging of small farms into fewer large ones is a key part of China's food security and rural revitalization strategy. Yet, the benefits of implementing large-scale farms vary under different land consolidation pathways.

It is important to note that the formation of large-scale farming per se does not deliver the green outcomes. An integrated farm management approach should be employed to take account of all aspects of the farm business plan, soil and water management, pollution control, and landscape and biodiversity conservation.

It is equally important to note that smallholder farms will exist in China for a long time into the future, to produce a large share of food and provide a safety net for millions of people living in rural areas. Facilitating and enabling smallholder farms to adopt improved practices for production, marketing and environment protection, and therefore gain better livelihoods, is still a vitally important part of China's agriculture modernization.

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China's crops at risk: Climate change boosts spread of crop pests and diseases

[Science daily, 09-12-2021] Crop pests and diseases in China have significantly increased, with climate change being one of the relevant drivers, new research finds.

Based on a unique, previously unpublished data set ranging from 1970 to 2016, an international team compared long-term statistical records about pest and disease occurrence in China with potential climatic driving factors - such as temperature, precipitation, humidity - as well as factors from farming practices, including for instance fertilizer application, irrigation, use of pesticides. Since the 1970s, the occurrence of crop pests and diseases in

China has increased by a factor of four. Climate change is responsible for likely about 20 percent of the observed increase, with great variations between different Chinese provinces.

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Meat-heavy diets in China pose both health and environmental risks

[Sustainability Times, 17-12-2021] A team of scientists examined how dietary patterns in China worsened rates of fine particulate matter (PM2.5) in the air between 1980 and 2010 when meat production ballooned by 433% from 15 megatons to 80 megatons.

The researchers found that changes in dietary composition alone increased ammonia emissions from local agriculture by 63% owing to the extensive use of nitrogen-based fertilizers for animal feed. Meanwhile, increases in livestock manure have also meant that particulate matter air pollution has grown through chemical processes in tandem with higher rates of PM2.5 generated by agriculture.

If the average Chinese diet today was replaced by a less meat-intensive one, ammonia emissions would decrease significantly and nearly 75,000 premature deaths could be avoided each year.

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How China tackles air pollution through agricultural straw recycling

[CGTN, 07-11-2021] After the harvest season, there is as much straw as grain. In China, farmers tend to burn the waste, creating another problem: air pollution. To tackle this, the government has been testing more eco-friendly ways to dispose of crop waste.

Cainiu Farm in Liaoning Province was one of the many straw-recycling experiment areas approved by the central government. After nearly a decade, crop yield was boosted while carbon emissions were cut.

In 2016, the central government began providing subsidies to encourage the recycling of straw in ten provinces. The program has helped Cainiu Farm invest in the machinery needed to implement the project - something not all farms can afford. Local officials understand that to achieve sustainable results requires more than just subsidies.

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Facial recognition for goats rolled out in Shanghai

[GT, 09-11-2021] An ecological goat farm in Shanghai is developing a facial recognition system specific for goats to improve work efficiency and quality of livestock.

The Wanhe ecological goat farm possesses the only organic white goat farm nationwide and is developing a facial recognition system for identifying goats. It is planned to be put into use in 2022.

The facial recognition will raise working efficiency and improve the breeding quality and health condition of the goats. The farm only needs to hire seven people to manage 10,000 goats.

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FAO, Zhejiang University release joint report on Chinese digital agriculture

[ECNS, 07-12-2021] Earlier in December, the Food and Agriculture Organization of the United Nations (FAO) and Zhejiang University jointly released “The Digital Agriculture Report - Rural E-Commerce Development Experience from China.”

The report summarizes the history, models, case studies and analysis of e-commerce in China.

It explores the role of rural e-commerce in transforming the agri-food systems in China, through the development of an innovative ecosystem that has led to market integration for agricultural producers and rural populations, improving incomes and reducing poverty.

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China's food sector adapts digital supply-side transformation

[CGTN, 11-11-2021] China's food sector is among industries adapting digital transformation by embracing advanced technologies like 5G and artificial intelligence to improve their businesses.

High-tech equipment is crucial to the operations of many food processing companies. There is also growing use of hi-tech in other areas of the food industry, like packaging and transportation.

China's commitment on carbon neutrality and peak emissions is another factor encouraging manufacturing industries to bring in more new technologies to enrich energy efficiency.

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China industrializes humic acid to improve soil quality

[Xinhua, 18-12-2021] A type of biological humic acid, featuring high purity and high activity, extracted from agricultural and forestry waste has been industrialized and used for soil restoration in China. Humic acid is an internationally recognized green and effective environmental material for soil restoration that is in urgent need.

Industrialization of rapid pyrolysis of humic acid has stably served the bulk and high-value utilization of agricultural and forestry wastes since 2012, said Tian Yuanyu, professor at China University of Petroleum.

Based on the humic acid, the research team led by Tian has developed a remediation agent of heavy metal contaminated soil, saline-alkali soil conditioner, and degradable humic acid mulching films.

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Shared Farms: An important cornerstone of rural revitalization in Hainan

[PR Newswire, 17-12-2021] In 2017, China's southern island province of Hainan, with its advantages on tropical agricultural resources and rural ecological environment, was the first place in the country to propose the development of 'shared farms', with the aim of boosting the shared prosperity of rural areas and farmers.

As a part of China's modern 'sharing economy', shared farms promote the use of fallow fields. This new approach to agriculture is driving deeper integration of several industries, including agriculture, tourism, education, culture, health care, and scientific research.

The development of shared farms has been a boon for locals. Placing their fallow land and vacant houses under unified management, they have been able to increase their income via

salaried work while still being able to sell their homegrown agricultural products. This creates a solution which benefits the entire village economy.

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China, Africa pledge to strengthen cooperation on tackling climate change

[Xinhua, 02-12-2021] China and Africa has issued a declaration on climate change cooperation, recognizing that climate change has become a major challenge to the natural ecological environment and social and economic development of China and Africa.

Both sides unanimously recognize the initiatives and great contributions made by China, the largest developing country, and Africa, the continent with the largest concentration of developing countries, in cooperation on adapting to and mitigating climate change, said the declaration.

Noting that addressing climate change and the resulting migration activities is a challenge facing all mankind, both China and Africa urge the world to work together under the multilateral framework.

The two sides agreed to advocate innovative, coordinated, green, open and shared sustainable development, and will work for the "green recovery" of the post-epidemic world economy, it added.

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Trade and Business

Further guidance on overseas food facility registration

[National Law Rev, 16-12-2021] On December 14, 2021, the Chinese General Administration of Customs (GAC) released GAC Announcement No. 103/2021 ("Announcement"), providing additional details of GAC Decree 248 - Regulations on Registration and Administration of Overseas Manufacturers of Imported Food and GAC Decree 249 - Administrative Measures on Import and Export Food Safety.

Per the Announcement, as of January 1, 2022, it will be necessary for overseas manufacturers of imported food to fill in their Chinese registration number under the Product Qualification of the customs declaration form during customs clearance. Import declaration without the Chinese registration number will not be accepted. Since the January 1, 2022 deadline is soon approaching, overseas food manufacturers subject to the decrees are encouraged to apply and obtain a Chinese registration number as soon as possible.

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China produces urea in full swing for fertilizer use, emissions reductions amid global shortage

[GT, 19-12-2021] China is boosting production of urea, a raw material for and a necessity for vehicle emissions reductions, amid a global shortage, but exports to countries like Australia, which is facing a severe shortage, could be limited due to tightening domestic supplies as well as surging transport costs, industry practitioners and insiders said.

Urea is widely used as nitrogen fertilizer in the agriculture industry, and it is the raw material for a wide range of chemical products such as AdBlue, or diesel exhaust fluid, which is used to reduce the nitrous oxide emissions of diesel engines under international standards.

Industry data showed that urea production in China from January to November decreased by more than 1 million tons year-on-year. But in the same period, China's exports of urea increased 400,000 tons to 5.26 million tons, customs data showed.

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China to step up efforts in high-quality development of foreign trade

[GOV.CN, 23-11-2021] The State Council has approved a plan to promote high-quality development of foreign trade during the 14th Five-Year Plan period (2021-2025), according to an official reply released on Nov 23.

With deepening reform of supply-side structure as the mainstay and promoting innovative development of trade as the driving force, the plan is aimed at pushing for high-quality development of foreign trade through coordinating trade development and security, and advancing high-level opening-up.

To make China a modern socialist country and build a community with a shared future for mankind, the plan calls for cultivating new advantages in global economic cooperation and competition, and creating a new prospect for international trade featuring openness, cooperation, inclusiveness, benefits for all, sharing and win-win outcomes, and facilitating dual circulation.

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China agricultural service firms eye overseas market

[China daily, 27-10-2021] Trade in agricultural services will become a fresh growth point for domestic companies to invest in related projects abroad, as well as help ensure the world's food supply going forward, said government official.

The global agricultural products market has been challenged by hindered international circulation, volatile trade policies and increased labor shortages since the outbreak of COVID-19, said Peng Yanjun, deputy director-general of the department of international cooperation at the Ministry of Agriculture and Rural Affairs.

To tackle these issues, the official said that promoting high-quality growth of China's trade in agricultural products requires industry players to focus on trade in agricultural services and build an advanced domestic base for business of this kind.

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France, China agree regional approach to pig disease and trade

[Reuters, 13-12-2021] France on 13 December signed an agreement with main export customer China to ensure pork trade can continue even if an outbreak of African swine fever (ASF) occurs, potentially providing a blueprint for European countries threatened by the pig disease.

Blanket bans on meat trade by China and other importing countries due to outbreaks of ASF and other diseases, such as bird flu, have regularly disrupted exports from livestock exporting zones in Europe and the Americas.

China is the largest pork export market for France and the European Union, with Chinese demand surging in the last two years as ASF devastated its domestic herd.

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China seeks to expand imports from Africa: MOFCOM official

[GT, 17-11-2021] China-Africa trade has been well-balanced over the long run, and China never aims for a trade surplus with Africa and will take steps to expand imports from the continent, a senior official with China's Ministry of Commerce (MOFCOM) said, as China steps up communication and cooperation with Africa, despite certain foreign interference.

"China will continue to support African countries and Chinese companies to take advantage of measures to further expand the scale of imports from Africa, and promote the high-quality development of China-Africa trade," Qian Keming, vice minister of the MOFCOM, said during a press conference on 17 November, when responding to a question about concerns among some African countries over their trade deficits with China.

According to Qian, China has encouraged Chinese enterprises to invest in Africa's agriculture, manufacturing and services sectors, with industrial parks becoming an important platform for China-Africa investment and cooperation.

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China to buy \$150b in farm goods from ASEAN, almost double current level

[GT, 22-11-2021] President Xi Jinping announced on 22 November several major initiatives to boost economic cooperation between China and the Association of Southeast Asian Nations (ASEAN), including striving to import \$150 billion worth of agricultural products from ASEAN members over the next five years, offering additional financial assistance to the bloc's economic recovery and anti-epidemic efforts, as well as providing advanced technology.

The initiatives, particularly the plan to nearly double imports of ASEAN agricultural products, demonstrate China's determination to boost bilateral cooperation and help revive the bloc's economy while also injecting certainty into the world amid global geopolitical complexities, analysts said.

China has signed more than 30 bilateral agricultural cooperation agreements with ASEAN members and implemented more than 200 agricultural technology exchange projects. In 2020, bilateral trade of agricultural products reached \$43 billion, accounting for 17.2 percent of China's total foreign agricultural trade, official data showed.

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