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Report Name: Agriculture Key Component of Bio-economy Five-Year Plan

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Report Highlights:

On May 10, the National Development and Reform Commission (NDRC) issued the “14th Five-Year Plan for Bioeconomic Development,” with the intention to accelerate breakthroughs and achieve scientific and technological self-reliance in four key areas of bioeconomic development, including bio-agriculture and bioenergy. The plan promotes pilot programs for biodiesel and bio-jet fuel and aligns with recent People’s Republic of China (PRC) measures to advance cultivation of locally developed genetically engineered (GE) food crops, including corn and soybeans. This report provides an unofficial translation of select portions of the plan.

Summary:

On May 10, the National Development and Reform Commission (NDRC) issued the “[14th Five-Year Plan for Bioeconomic Development](#)” (link in Chinese, hereinafter referred to as the “Plan”), establishing a national biotechnology framework to boost the bio-economy during the next five years. The plan is designed to help meet rising domestic demand for healthcare and better lives, foster high-quality economic development, prevent and control biosecurity risks, and modernize China's system and capacity for governance. The plan prioritizes four areas for bio-economic development: bio-agriculture, bioenergy, bio-pharmacy, and bio-security risk prevention and control systems.

As is the case with most PRC “Five-Year Plans,” few specifics are provided on how objectives will be achieved. Instead, the plan focuses on broad goals and outcomes. In this regard, such plans tend to read like wish-lists rather than concrete, actionable items with metrics for gauging success or failure. Still, the plan serves the purpose of providing general direction to government offices, research institutions, and industry on where to focus attention and useful insight into areas where the PRC intends to allocate resources in the coming years.

See below an unofficial translation of the portions of the plan related to bio-agriculture (including seed industry/germplasm improvement) and bioenergy.

Related Reports on PRC Plans Touching Agriculture:

PRC Emphasizing Grain and Food Security in 2022 | [CH2022-0029](#)

Geographic Indications Five-Year Plan Issued | [CH2022-0032](#)

Agricultural and Rural Modernization Plan Reiterates Prior Pledges | [CH2022-0023](#)

Plan for Green and Sustainable Ag Development | [CH2021-0130](#)

Begin Unofficial Translation

Overview

Focusing on ensuring the production and supply of important agricultural products such as grain, and adapting to the increasingly diverse consumer needs of nutritious and healthy food, focusing on biological breeding, biological fertilizers, biological feeds, biological pesticides, etc., China will launch a new generation of agricultural biological products, and establish demonstration and promotion of biological agriculture systems, improve the industrial system for the protection, development and utilization of germplasm resources, better ensure national food security, meet the upgrading of residents’ consumption and support the sustainable development of agriculture, and build a more complete whole-chain supervision system to ensure food safety.

Promote the Development of Biological Agriculture Industry

Improve the production capacity and quality of important agricultural products such as grain. On the premise of respecting science, strict supervision, compliance with laws and regulations, and ensuring safety, the industrial application of biological breeding and other fields will be promoted in an orderly manner, and the supply of important agricultural products such as grain, meat, eggs, dairy, and oil will be guaranteed. Orderly develop

whole-genome selection, systems biology, synthetic biology, artificial intelligence, and other biological breeding technologies, focus on improving the capabilities of breeding, production and processing, and popularization and application of improved varieties, and accelerate the construction of a commercial breeding innovation system. Actively promote high-quality corn and soybean grain crops with high resistance and carry out research and scientific breeding of high-quality live pigs, white-feathered broilers, dairy cows and other livestock and aquatic products. Develop synthetic biology technology, explore and develop new foods such as “artificial protein,” realize the iterative upgrading of the food industry, and reduce the pressure on environmental resources brought about by traditional aquaculture.

Improve agricultural productivity. Develop green agriculture and develop agricultural products such as agricultural waste biological preparations, natural agricultural biological drugs, precise multi-target biological pesticides, and soil improvement biological products. Promote the integration of cutting-edge biotechnology in the agricultural field and promote the creation and industrialization of technologies such as feed antibiotic substitutes, woody feed, animal genetic engineering vaccines, biological veterinary drugs, plant immune regulators, high-efficiency detection reagents, and high-efficiency carbon and nitrogen fixation products, improve the efficiency of land and resource use. Develop enzyme preparations, microbial preparations, fermented feeds, feed amino acids and other biological feeds to solve major problems in the field of aquaculture such as feed safety, lack of raw materials and environmental pollution.

Modern Seed Industry Improvement Project

1. Protect germplasm resources.

Focusing on the long-term and medium-term banks (resource gardens) of national crop germplasm resources, livestock and poultry gene banks and protection farms, aquatic germplasm resource banks and resource farms, etc., efforts are made to create internationally advanced germplasm resources protection system, which supports scientific research institutes, universities and enterprises in the collection, preservation, identification, evaluation, development and utilization of germplasm resources, and provides high-quality resources and materials for scientific research and breeding.

2. Drive innovation in breeding.

Focusing on the innovation service platform and identification platform for crop molecular breeding, the innovation platform for livestock and poultry breeding, and the joint aquatic breeding platform, etc., develop original breeding technologies, support the construction of a number of enterprises with integrated business of breeding, production and marketing, and strive to build basic scientific research and commercial breeding system at the international level, improve the conditions for scientific research and innovation, promote the deep integration of production and research, and promote the efficient allocation of innovation elements.

3. Conduct test evaluations.

Focusing on the Crop Variety Testing and Evaluation Center (Station), the Livestock and Poultry Genetic Evaluation Center, the Variety Testing Station, and the Aquatic Product Variety Testing Station, benchmark against the international advanced level, and comprehensively improve the facilities and equipment conditions and variety testing (determination) capabilities.

4. Promote the breeding of fine breeds.

Focusing on national-level crop breeding bases and regional bases for fine-seed breeding, male and animal breeding stations, and aquatic breeding bases, efforts will be made to build a national production base for crops, livestock and poultry, and fine-seed aquatic products, effectively guaranteeing the supply of fine-seeds, and comprehensively improving the coverage of fine-seeds.

Promote the Development of Bioenergy and Bio-environmental Protection Industry

Actively develop bioenergy. Develop biomass power generation in an orderly manner and promote the transformation and upgrading of combined heat and power generation. Carry out research and development and cultivation of new biomass energy technologies, promote the development of biofuels and the integrated development of biochemical industry and the establishment of biomass combustion and blending standards. Optimize and improve mid-high temperature anaerobic fermentation strains, improve biomass anaerobic treatment processing technique and the level of complete sets of equipment for anaerobic fermentation, to speed up the key technology development and equipment manufacturing with regard to bio-natural gas, cellulosic ethanol, and algae-based biofuels, etc. Actively promote the replacement, promotion and usage of advanced biofuels in municipal operation, transportation and other important areas. Promote the transformation of fossil energy to green, low-carbon and renewable energy.

Pilot Projects on Bioenergy Environmental Protection Industry

Target the selection, promotion, and application of new varieties of high-yield, high-resistance, fast-growing oil plants and energy forests, construction of bioenergy bases according to local conditions, enhancement of thermochemical technology innovation, and promotion of high-efficiency and low-cost bioenergy applications. Carry out demonstrations of cellulosic ethanol, biodiesel, and biogas industries pilots in urban and rural areas where organic waste is concentrated. Open up important links such as biomass raw material collection, organic fertilizer production and use, and increase the scale of biofuel production. Construction of industrial parks using renewable energy as main energy source such as biomass heat electricity cogeneration, biomass briquette fuel and other renewable energy. Support qualified counties to carry out biomass energy clean heating instead of coal combustion, steadily develop urban domestic waste incineration cogeneration, and promote other biomass energy clean heating such as biogas and biomass briquette fuel. Carry out pilot projects for the promotion of biodiesel in areas where conditions permit and promote the demonstration and application of bio jet fuel.

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Attachments:

No Attachments.