

and Rural Development,

DECIDES:

Article 1. To approve the Scheme on development of hi-tech agriculture through 2020 (below referred to as the Scheme), with the following principal contents:

I. VIEWPOINTS

1. Development of hi-tech agriculture must be associated with the process of industrialization and modernization in agriculture and rural areas and in accordance with the sector's and localities' policies and strategies on agricultural development.

2. Development of hi-tech agriculture must be based on selective and coordinated investment and harmonious combination between research and development and application of high technologies to producing agricultural commodities of high productivity, bio-quality and -safety and competitiveness.

3. Development of hi-tech agriculture must tap and efficiently utilize domestic resources and selectively absorb the world's hi-tech achievements in order to master modern sciences and advanced technologies in agriculture while modernizing traditional technologies.

4. Development of hi-tech agriculture must mobilize participation of research and training forces of different branches and fields and economic sectors, first of all enterprises and science and technology institutions; and attract foreign investment.

5. Development of hi-tech agriculture must

Decision No. 176/QĐ-TTg of January 29, 2010, approving the Scheme on development of hi-tech agriculture through 2020

THE PRIME MINISTER

Pursuant to the December 25, 2001 Law on Organization of the Government

Pursuant to the November 13, 2008 Law on High Technologies;

Pursuant to the Government's Resolution No. 24/2008/NQ-CP of October 28, 2008, promulgating the Government's Action Program to implement the Resolution of the Xth Party Central Committee's 7th plenum on agriculture, farmers and rural areas;

At the proposal of the Minister of Agriculture

attach importance to training sufficient and quality human resources for high technologies in agriculture.

II. DEVELOPMENT OBJECTIVES

1. General objectives

To contribute to building a comprehensively developed agriculture toward modernization, large-scale commodity production, high productivity, quality, efficiency and competitiveness, achieving an annual growth rate of over 3.5%, and firmly assuring national food and foodstuff security in both short and long terms.

2. Specific objectives

The 2010-15 period

a/ To conduct initial research and development of some new high technologies in agriculture; to approach and master some world high technologies in agriculture which may be applied to Vietnam's practical conditions; to contribute to increasing the level of our country's agricultural technology to reach the advanced level of the ASEAN countries and above the average level of Asian countries. By 2015, to create 4-5 genetically modified agricultural and forest plant varieties with prospect and 2-3 aquatic animal breeds with prospect by hereditary techniques; to recognize and put into production 1-2 high-productivity and quality cross-bred varieties for each staple plant, livestock or aquatic animal and 1-2 hi-tech processes in each sub-sector;

b/ To incrementally build and form a hi-tech agriculture with hi-tech agricultural enterprises and zones as the core. By 2015, each province in

a key economic region will have built 3-5 enterprises and 2-3 zones of this type, and there will be 3-5 hi-tech agricultural parks in some agricultural ecological regions;

c/ To step by step produce a number of hi-tech agricultural commodities which are of high yield, quality and added value; to increase the proportion of hi-tech agricultural production to 10-15% of total national agricultural production value.

The 2016-20 period

a/ To intensify research and development of high technologies in agriculture, focusing on creating new high technologies; to contribute to increasing the level of our country's agricultural technologies on par with the fairly good level in Asia. By 2020, to create 2-3 genetically modified agricultural and forest plant varieties and 2-3 aquatic animal breeds by hereditary techniques and bio-technology; to recognize and put into production 2-3 cross-bred varieties for each staple plant, livestock or aquatic animal and 2-3 new hi-tech processes in each sub-sector;

b/ To vigorously step up the comprehensive development of hi-tech agriculture, including a system of high-tech agricultural enterprises, parks and zones. By 2020, each province in the key economic regions will have built 7-10 enterprises and 5-7 agricultural production zones and each ecological region will have 1-3 hi-tech agricultural parks;

c/ To further promote extensive application of high technologies to agriculture to produce agricultural commodities of high yield, quality and competitiveness; to increase the proportion of hi-tech agricultural production to 30-35% of total national agricultural production value.

III. MAJOR TASKS

1. Research and development of high technologies in agriculture

During 2010-15 and 2016-20, to research and create high technologies in agriculture, focusing on the following tasks:

a/ Selectively creating and propagating plant varieties and animal strains and aquatic animal breeds of high yield and quality

- For agricultural plants: To intensively research and apply cross-bred advantages and gene technologies to creating new plant varieties, genetically modified plants with superior agronomic properties in response to market requirements; and micropropagation technologies to meet the demand for high-quality and disease-free seed plants;

- For forest trees: To research and widely apply cell and micropropagation technologies to quickly propagate forest tree species with high growth rates and quality timber; to conduct scientific research, develop and apply gene technologies to creating seed forest trees resistant to pests and diseases;

- For livestock breeds: To research and renovate breeding technologies, especially animal cell technologies in sperm and embryo freezing and zygote transplant and *in-vitro* fertilization; to apply molecular marker methods and gene technologies to selecting and creating new livestock breeds of high yield and quality; to apply gene technologies to determining the sex of embryos of some major cattle;

- For breeding aquatic animals: To concentrate on studying the combination of traditional methods with gene technologies to select and

create a number of major breeding aquatic animals with high growth rates, to create unisexual breeding aquatic animals and disease-free breeding aquatic animals.

b/ Preventing and eliminating plant, livestock and aquatic animal epidemics

- Preventing and eliminating agricultural and forest tree diseases: To research and apply microbiology technologies and enzyme and protein technologies in order to produce on an industrial scale bio-products used in plant protection; to study and develop kits for diagnosis and screening of plant diseases; to study and apply bio-technologies, remote sensing technologies and aviation technologies to the management, prevention and combat of forest epidemics and pests;

- Preventing and fighting livestock epidemics: To study and apply biotechnologies to diagnose diseases at molecular level; to study and produce veterinary vaccines, especially vaccines against such dangerous diseases as bird flu and cattle foot-and-mouth disease;

- Preventing and fighting aquatic animal diseases: To study and produce some kits for quick diagnosis of aquatic animal diseases; to study and apply molecular biology, immunology and microbiology to preventing and treating some dangerous diseases in aquatic animals.

c/ Researching and developing technological processes in agricultural, forest and aquatic production for high economic value

- In cultivation: To study and develop integrated and automated technological processes in the cultivation and harvest of plants in net houses and greenhouses, such as growing medium, hydroponic technology, economical

watering, automatic regulation of nutrient and light, tending and harvest. To study and develop technological processes in intensive cultivation and integrated management of plants; and technological processes in the production of safe plants according to VietGAP;

- In forestation: To study and develop integrated and automated technical processes in intensive forestation;

- In husbandry: To study and develop integrated and automated technological processes in industrial-scale husbandry, using the systems of closed raising facilities, air-conditioning and appropriate humidity and feed distribution and quantification in raising facilities;

- In aquaculture: To study and develop technological processes in intensive and super-intensive aquaculture with automatic environmental control for some aquatic animal species.

d/ Creating agricultural supplies, machines and equipment

- To study and create supplies, machines and equipment for the production of agricultural plants and forest trees, especially plants to be grown in greenhouses and net houses, such as special-use fertilizer, growing medium, bioproducts, net house frames, covering nets, watering system, tending and harvesting equipment, and air ventilation system;

- To study and create supplies, machines and equipment for husbandry and aquaculture, such as feedstuffs, bioproducts; house frames, systems of lighting, feed distribution and harvesting in husbandry; systems of wastewater and solid waste treatment, system of water circulation regulation, system of floating ditches, and system

of man-made ponds in aquaculture.

e/ Preserving and processing farm produce

- Farm produce preservation and processing technologies: To study and develop irradiation technology, hot steam treatment technology, thermal water treatment technology, cold-drying and quick-drying technology in farm produce preservation; technologies for preliminary processing and preservation of fresh vegetables, flowers and fruits on a consolidated scale; controlled atmosphere packaging technology; technology for fast cold preservation combined with ethylenic absorbents of fresh vegetables, flowers and fruits; filming technology for the preservation of vegetables, fruits, meat and eggs; fermenting technology, deep processing technology, technology for the production of functional foods; biology and microbiology technologies for the production of bioproducts and natural coloring substances and additives in farm produce preservation and processing;

- Forest product preservation and processing technologies: To study and apply information and automation technologies to saving energy and time and increasing timber use efficiency; wood modification technology, eco-drying technology, soaking and impregnation technologies in timber preservation; biotechnology for producing new-generation preservatives and termite killers; technology for producing environment-friendly films;

- Aquatic product preservation and processing technologies: To study and develop cold storage technologies for long-term preservation of aquatic products on offshore fishing vessels; biotechnology for producing additives in aquatic product processing and quick fermenting

technology for producing traditional aquatic products.

f/ Importing high technologies in agriculture

To select and import a number of high technologies in agriculture which are not available in the country; to study, experiment, master and adapt imported high technologies to Vietnam's ecological and practical conditions, especially those in cultivation, husbandry and aquaculture.

2. Development of hi-tech agriculture

a/ Developing hi-tech agricultural enterprises

- The 2010-15 period: To initially form and recognize a number of hi-tech agricultural enterprises in provinces with advantages in some hi-tech sub-sectors, such as flower and vegetable growing in net houses; production of seed trees and breeding animals on an industrial scale; raising of pigs and chicken on an industrial scale; intensive aquaculture, production of fertilizers and bioproducts on an industrial scale;

- The 2016-20 period: To step up development of hi-tech agricultural enterprises in provinces with favorable conditions in order to apply and develop high technologies in agriculture; to step by step expand the size and operation of these enterprises; to combine research, experimentation and production of hi-tech agricultural products; to encourage development of hi-tech agricultural enterprises to operate in multiple business lines and fields.

b/ Developing hi-tech agricultural parks

- The 2010-15 period: To plan development of hi-tech agricultural parks in different ecological regions. To consolidate and increase operations of established hi-tech agricultural

parks; to attach importance to the experimentation and demonstration of high technologies, training of human resources and production of hi-tech agricultural products. To step by step build new hi-tech agricultural parks in some ecological regions with advantages, such as the Red River delta, central coast, eastern South Vietnam and Mekong River delta;

- The 2016-20 period: To support the construction and development of hi-tech agricultural parks in some provinces and centrally run cities with advantages and sufficient conditions in different ecological regions. To expand operations within hi-tech agricultural parks, such as research and application, experimentation and demonstration of hi-tech agricultural production models; production of hi-tech agricultural products; training of human resources for high technologies in agriculture; organization of fairs, exhibitions and demonstration of hi-tech agricultural products; attraction of domestic and foreign investment sources and human resources for the application of high technologies to agriculture.

c/ Developing consolidated agricultural production zones to apply high technologies to producing one or several agricultural commodities of high quality, yield and economic value

- The 2010-15 period: To plan hi-tech agricultural production zones in provinces and centrally run cities. To encourage development of existing agricultural production zones where high technologies are applied independently or in combination with traditional ones. To support investment in building infrastructure in some hi-tech agricultural zones in provinces and centrally run cities;

- The 2016-20 period: To provide more supports for investment in and expansion of hi-tech agricultural production zones in provinces and centrally run cities in order to develop one or several kinds of farm produce of high yield, quality and economic value, such as intensive production of quality rice and specialty rice; production of safe vegetables, tea and fruits; hi-tech production of flowers and bonsai; intensive forestation; hi-tech raising of cattle and poultry; and hi-tech aquaculture.

3. Development of hi-tech services in agriculture

To step by step form a system of hi-tech service establishments to serve agricultural production, such as brokering, consultancy and assessment services; technical, investment, legal, financial, insurance and intellectual property rights protection consultancy services; supplies, machine and equipment supply services; and product sale services.

IV. SOLUTIONS

1. Planning development of hi-tech agriculture

a/ The Ministry of Agriculture and Rural Development shall formulate a master plan on hi-tech agricultural parks nationwide for submission to the Prime Minister;

b/ Provincial-level People's Committees shall implement projects to develop hi-tech agricultural parks and zones in their localities.

2. Carrying out researches to create high technologies in agriculture

The Ministry of Agriculture and Rural Development shall continue performing

scientific and technological tasks under key programs and schemes already approved by the Government, including the key program on development and application of biotechnology in agriculture and rural development through 2020 and the scheme on development and application of biotechnology in aquaculture through 2020. It shall coordinate with the Ministry of Science and Technology in performing scientific and technological tasks in other hi-tech fields in agriculture.

3. Training human resources for high technologies in agriculture

a/ Overseas training: To train annually 10-15 doctors and 20-25 masters; to retrain, for from 6 months to one year 15-20 qualified technological researchers and experts and managers of high technologies in agriculture who are from scientific and technological institutions, enterprises and localities, excluding those to be trained under plans on training human resources for agricultural and aquatic biotechnologies under the approved programs and schemes;

b/ Domestic training: To train annually 300-500 qualified technical officers, managers and technicians in the hi-tech fields in agriculture who come from scientific and technological institutions, enterprises and localities;

c/ Project- and scheme-based training: Every state-funded scheme or project on the application and development of high technologies in agriculture must earmark funds for overseas training of 2-3 staffs for maximum 6 months in high technologies in line with its approved objectives, contents and tasks.

4. Developing the markets of information and services in support of hi-tech activities in

agriculture

a/ To step by step form an exchange for high technologies in agriculture with the participation of providers of brokering, consultancy and assessment services; to create favorable conditions for providers of technical, investment, legal, financial, insurance and intellectual property protection consultancy and other services to promote hi-tech activities, sale and use of hi-tech products in agriculture;

b/ The Ministry of Agriculture and Rural Development shall build a database on high technologies in agriculture; create favorable conditions for public access, use and sharing of information on high technologies in agriculture; and organize and participate in domestic or overseas markets, fairs and exhibitions on high technologies in agriculture;

c/ The Ministry of Agriculture and Rural Development shall coordinate with provincial-level People's Committees in supporting and creating favorable conditions for domestic and foreign organizations and individuals to hold or participate in markets, fairs and exhibitions on high technologies in agriculture;

d/ To intensify public information work in the mass media and on the internet to enable public access to high technologies, results of application of high technologies, models of development of high technologies and hi-tech agricultural products.

5. International cooperation

a/ To expand international cooperation in research, development and application of high technologies in agriculture through implementing international cooperation protocols and projects,

especially with foreign countries, territories, organizations and individuals with advanced scientific and technological levels;

b/ The State shall create favorable legal procedures for Vietnamese organizations and individuals to participate in international cooperation programs and projects and join international associations and other organizations to develop high technologies in agriculture;

c/ To increase international cooperation in the development of human resources for high technologies in agriculture, giving priority to university and postgraduate training in high technologies in agriculture in advanced universities, colleges and vocational schools in the region and the world through specific international cooperation projects;

d/ To implement the roadmap for international integration in science and technology, step up the exploration and transfer of advanced technologies into Vietnam with a view to building the capacity of mastering and creating high technologies of domestic hi-tech research and development institutions and agricultural enterprises.

6. Funding sources for developing high technologies in agriculture

To diversify funding sources for the development of high technologies in agriculture, including:

a/ Funding sources allocated for non-business scientific and technological activities shall be used only for scientific and technological tasks approved by competent authorities;

b/ Funding sources allocated for non-business training activities shall be used for overseas and

domestic training of human resources;

c/ Funding sources allocated for capital construction investment shall be used for investing in and supporting investment in infrastructure and equipment of scientific and technological institutions and hi-tech agricultural enterprises, parks and zones;

d/ Other funding sources, including state budget funds for the national program on hi-tech development; capital from the national hi-tech venture investment fund; capital from international cooperation; and financial contributions and donations of organizations and individuals.

7. Mechanisms and policies

a/ Policies in support of research and development to create high technologies in agriculture

- Organizations and individuals engaged in researching and developing high technologies in agriculture are entitled to the highest incentives and supports from the State under Clause 1, Article 12 of the Law on High Technologies and other laws; to the highest level of non-refundable funding supports from the state budget for projects to manufacture on a trial basis new home-made technologies or imported technologies during the first two years of application;

- Investors of projects to build facilities to research, develop and apply high technologies to agriculture are entitled to the highest land use levy and tax incentives under the land law;

- To consider allocation of state budget funds at the highest level for public science and technology institutions and other organizations

to procure equipment for laboratories and research facilities formed as a result of association between organizations and individuals to serve the research and development of high technologies in agriculture under investment projects approved by the Ministry of Agriculture and Rural Development;

- The State shall provide funding supports at the highest level for the import of high technologies and hi-tech machinery and equipment in agriculture which cannot yet be manufactured at home, for implementing a number of important hi-tech research, development and demonstration projects approved by the Ministry of Agriculture and Rural Development.

b/ Policies in support of training attraction and employment of human resources for high technologies in agriculture

- To prioritize and support training of human resources for high technologies in agriculture under Clauses 1, 2 and 3, Article 27 of the Law on High Technologies and other laws;

- To provide special incentives to attract and employ human resources for high technologies in agriculture under Clause 1, Article 29 of the Law on High Technologies and other laws;

- The State shall adopt preferential treatment policies to attract foreign organizations and individuals and overseas Vietnamese to carry out hi-tech agricultural activities like domestic organizations and individuals.

c/ Policies in support of development of hi-tech agricultural enterprises

- Hi-tech agricultural enterprises are entitled to incentives and supports from the State under

Clause 2, Article 19 of the Law on High Technologies, and other incentives decided by provincial-level People's Committees according to their competence;

- Scientific and technological institutions that establish or cooperate with other organizations and individuals in forming hi-tech agricultural enterprises are entitled to other incentives and supports under Clause 2, Article 20 of the Law on High Technologies and other laws.

d/ Policy in support of investment in the development of hi-tech agricultural parks

Investors building technical infrastructure in hi-tech agricultural parks are entitled to the highest incentives and supports from the State under Clauses 2, 3, 4 and 5, Article 33 of the Law on High Technologies and other laws.

e/ Policies in support of development of hi-tech agricultural zones

- To enjoy the highest incentives under the land law for land areas for the production of hi-tech agricultural commodities and the construction of service establishments to serve hi-tech agriculture in the zones;

- The State shall support construction of intra-field transport and irrigation infrastructure in hi-tech agricultural zones;

- To enjoy other incentives prescribed by provincial-level People's Committees according to their competence.

V. ORGANIZATION OF IMPLEMENTATION

1. The Ministry of Agriculture and Rural Development shall:

a/ Assume the prime responsibility for, and coordinate with concerned ministries and

branches and provincial-level People's Committees in, organizing the implementation of the Scheme on development of hi-tech agriculture through 2020, and annually report thereon to the Prime Minister;

b/ Assume the prime responsibility for, and coordinate with concerned ministries and branches in, approving and managing scientific and technological schemes and projects and investment projects related to development of high technologies in agriculture funded with the state budget and managed by the Ministry;

c/ Assume the prime responsibility for, and coordinate with concerned ministries and branches in, formulating plans for training domestic human resources for high technologies in agriculture.

2. The Ministry of Science and Technology shall assume the prime responsibility for, and coordinate with the Ministry of Agriculture and Rural Development in, approving and managing state-funded state-level scientific and technological schemes and projects related to development of high technologies in agriculture.

3. The Ministry of Education and Training shall assume the prime responsibility for, and coordinate with the Ministry of Agriculture and Rural Development and concerned ministries and branches in, formulating overseas postgraduate and short-term training plans for human resources for high technologies in agriculture.

4. The Ministry of Planning and Investment shall assume the prime responsibility for, and coordinate with the Ministry of Finance and Ministry of Science and Technology in, balancing and allocating, and guiding the use of, state funds

for the effective and timely implementation of contents, tasks, programs and projects under the approved Scheme.

5. The Ministry of Finance shall assume the prime responsibility for, and coordinate with the Ministry of Agriculture and Rural Development, the Ministry of Science and Technology and concerned ministries and branches in, guiding mechanisms and policies to support development of hi-tech agriculture.

6. The Ministry of Natural Resources and Environment shall assume the prime responsibility for, and coordinate with the Ministry of Agriculture and Rural Development, other ministries, branches and provincial-level People's Committees in, appraising environmental impact assessments and environmental criteria of projects on the establishment of hi-tech agricultural parks.

7. Provincial-level People's Committees shall:

a/ Approve and manage locally managed state-funded scientific and technological tasks and investment projects;

b/ Assume the prime responsibility for or coordinate in recognizing hi-tech agricultural enterprises based in their localities and hi-tech agricultural zones; to decide to establish hi-tech agricultural parks in their localities or submit the establishment thereof to competent authorities for decision.

Article 2. This Decision takes effect on the

date of its signing.

Article 3. Ministers, heads of ministerial-level agencies, heads of government-attached agencies and chairpersons of provincial-level People's Committees shall implement this Decision.-

For the Prime Minister
Deputy Prime Minister
NGUYEN SINH HUNG