

Accelerating Building of Modern Plant Production System

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INTRODUCTION

Modern plant production system is a new type of crop pest and disease prevention and relief system tasked with serving modern agriculture and supported by modern equipment, human resource and policy. It is also aimed at sustainable treatment of crop pests and diseases as required by economy, society and ecology. The major task of building the system is to, with the help of modern technology and equipment, informatize monitoring and early warning, modernize material and equipment, integrate prevention and treatment technology, socialize relevant service specialize personnel and teams and regulate industrial management while promoting priorities shift of prevention and treatment strategy from targeting single pest and disease, crop and area to carry out coordinate cross-area prevention and sustainable treatment, shift of mode from scattered and independent household-based prevention and treatment to unified actions and shift of measures from singly relying on chemical pesticides to resorting to green and comprehensive prevention and treatment.

In 2012, the MoA formulated Opinion on Accelerating Building of Modern Plant Protection System, the 5th MoA document of the year on agricultural development, requiring local authorities to fully understand the significance and urgency of building modern plant protection system as it is of great importance to ensure national food security, effective supply of major agro-products, their safety and quality and sustainable development of agriculture, while making specific requirements for the building of the system

Building and improving plant protection information platform

Efforts are required to improve national monitoring and early warning network, prevention controlling network and quarantine and supervision network for major pests and diseases in crops. At the national level, priorities are required to be given to regional monitoring stations for cross-border and cross-region migratory, epidemic and quarantine of pests and diseases of crops. All provinces, autonomous regions and municipalities are required to strengthen themselves according to their local conditions building of their local pest monitoring network by building county-level monitoring fields and village-level monitoring stations and densify stations in major pest and disease suffering areas and major epidemic areas. With the help of modern information technologies including the Internet of Things, Global Positioning System, Geographic Information System, radar and remote sensing, the building of a national and provincial pests and disease crops monitoring and early warning information system, pest and disease crop diagnosis and prevention and control system, and quarantine review and approval and epidemic situation tracing system are required to be accelerated, with greater level of information to be achieved comprehensively.

Strengthening prevention and control ability for major pests and diseases in crops

Efforts are required to be made to build and improve the control system for emergency prevention and control of major pests and diseases in crops at the county-level and above with emphasis on improving emergency prevention and treatment facilities and equipment in key areas, improving emergency plan for dealing with epidemics of major pests and diseases in crops and strengthening classified management.

With priorities given to strengthening cross-area unified prevention and control of migratory and epidemic pests and diseases including rice plant hopper, rice leaf roller and wheat scab, the source treatment and unified treatment and control are required to be both implemented; with emphasis on strengthening emergency control of outbreak of pests including locusts, *Cixys*, and army worms, competent teams for emergency prevention and control are required to be set up with strengthened ability to deal with emergency situation via regular drill; with significance attached to guiding prevention and control of major pests and diseases in crops of regular outbreak including wheat scab, rice blast, wheat midge and field rat, abilities of unified prevention and treatment and collective prevention and treatment are required to be boosted; with priorities given to building of buffer zone and non-epidemic area against major pests and diseases in crops, epidemic information release and disease and pest extermination compensation mechanism is required to be improved with eye to strengthen abilities of interception, prevention and control of pests and diseases in crops.

Strengthening law-enforcement and monitoring of plant protection

In a bid to strengthen management of quarantine review and approval of imported seeds and seedlings, a tracing system of production area and transfer quarantine is required to be established with emphasis on strengthening quarantine measures taken in seedling breeding bases. In order to strengthen management of quarantine in key links including seed breeding enterprises, wholesale seed markets and big sellers, a joint law-enforcement, inspection and punishment mechanism is required to be put in place to effectively prevent epidemic from spreading; Efforts are required to be made to strengthen management of quarantine inspectors by strengthening systems of examination, performance appraisal, access and exit system, requiring quarantine inspectors to perform their duties with relevant certificates and regulating their uniforms and law-enforcement. Efforts are also required to be made to strengthen pesticide supervision and management, monitoring of pesticide quality and risk evaluation and pesticide-using guidance and cracking down fake and shoddy pesticides and illegal activities that did damage to farmers' interest.

Strengthening technological innovation in plant protection

Efforts are required to be made to strengthen technological innovation in plant protection and team building. With closer cooperation between agricultural production, research and education units for universalizing agricultural knowledge and promoting agricultural education, fundamental researches and application studies on outbreak patterns of pests and diseases in crops, their monitoring and early warning and comprehensive treatment are required to be boosted; With focus on building laboratories and field observatory stations for prevention and treatment of major regional crop pests and diseases, and pest-resistant strains of crop and new high-techs including aerial plant protection and those involved with the Internet of Things, so as to resolve primary, pioneering and practical issues of plant

protection.

Efforts are required to be made to accelerate application of achievement of scientific studies and encourage experts from research and educational institutes to promote and demonstrate application of new plant protection technology at the grass-roots level. Efforts are required to be made to strengthen integrated applicants of key practical technologies including those of biological treatment and control, ecological control, physical and chemical prevention and control, combination of agricultural machineries and techniques and that of fine seeds and their breeding methods while strengthening guidance on scientific use of pesticides and pesticide-resistant monitoring and evaluation, vigorously promoting green plant protection technology and comprehensively boosting pesticide utilization and scientific prevention and treatment of pests and diseases in crops.

Strengthening plant protection public service team

Efforts are required to be made to build and improve plant protection public service system, strengthen the role of plant protection body as public good and service provider and building of professional team for pests and disease in crops monitoring and early warning, comprehensively prevention and treatment, plant quarantine and guidance of use of pesticide. More emphasis is required to be put on fostering professional plant protection personnel working at grass-roots level, with assignment of at least one professional plant protection personnel for every 6,667 hectares of farmlands and more for areas of complicated situation or suffering frequent and severe outbreak of pests and diseases in crops. Ensuring assignment of at least one professional plant protection personnel in major agricultural towns and villages, a team of plant protectors made up of farmers is required to be set up at village level.

The employment system of plant protectors is required to be deepened with an open recruitment and employment system, under which the best and the most competitive candidates would be chosen, so as to ensure that only professional technicians with solid knowledge and skills are included into the public-serving plant protection team and that the number of professional plant protectors account for at least 80% of the total at the county level. Priorities are also required to be given to fostering talents specializing in scientific research, law-enforcement, foreign exchange and technology promotion of plant protection in a bid to continuously enhance the overall quality of the plant protection team.

Supporting vigorously development of socialized plant protection organization

Efforts are required to be made to accelerate diversified and regulated socialized plant protection organization and encourage research and educational institutes, farmer cooperatives, agricultural-related enterprises and agro-tech promoting organizations to carry out socialized plant protection service. Efforts are also required to be made to improve pests and diseases in crops prevention and treatment service by government, promote modes of service including combination of technology introduction and field operation in real situation and whole-process prevention and treatment contracting, and prioritize support for specialized and unified prevention and treatment in major crop production areas, leading commercial crop production areas and sources of major pests and diseases in crops.

Efforts are required to be made to establish specialized and unified pests and diseases in crops prevention and treatment service registration, effect appraisal and supervision and

management systems, further require prevention and treatment operators to perform their duties with relevant certificates and regulated service, strengthen information service and guidance for prevention and treatment of pests and diseases in crops and guide sustainable and sound development of specialized plant protection service providers, thus promoting development of public service of plant protection to a new height.

Strengthening improvement of plant protection facilities and equipment

As plant protection projects are still be implemented, efforts are required to be made in building major crop pests and diseases monitoring, prevention and treatment facilities, and improving county-level crop pest and disease monitoring stations, with a group of national-level regional emergency prevention and treatment centers and aerial operation fields and stations in place at key channels for spread of migratory pests and diseases. Facilities and equipment for research and monitoring, information transmission, inspection and quarantine and prevention and treatment of pests and diseases in crops are required to be provided.

Priorities are required to improve operational conditions for major pests and diseases and prevention and treatment by using medium- and large-sized high-effect plant protection machinery accounting to local conditions while encouraging use of drones, helicopters and fixed-wing aircrafts in preventing and treating pests and diseases in crops. The research and development of new kinds and types of pesticides and machineries is required to operate at a faster speed. Active support is required to develop products specially those which are used for monitoring, prevention and control of crop pests and diseases, industrial development of green plant protection products including natural enemies of pests, biological agents, and high-effect low-toxic pesticide, enriching material foundation of plant protection and improving methods of crop pests and diseases prevention and relief and equipment for modern plant protection.

Strengthening training for plant protectors

A class-based training system for plant protection service providers is required to be established and improved at all levels, ensuring on-job management and professional technical personnel working in public service bodies of plant protection at county level above receive training sessions in rotation every five years and county-level and village-level plant protectors receive at least one training session in their respective term of employment. The MoA will be responsible for training for major heads of provincial and city-level plant protection bodies while training for others will be undertaken by local agricultural administrative authorities and plant protection bodies. Active efforts are required to be made to launch training campaigns of comprehensive prevention and treatment of pests and diseases in crops at farmer field schools and strengthen trainings for personnel specialized in unified prevention and treatment of pests and diseases in crops, ensuring tangible improvement of service ability of plant protection personnel and universalization of new technologies.

Date submitted: Feb. 26, 2016

Reviewed, edited and uploaded: March 1, 2016