

Agricultural Biosecurity: An integrated and preventive avenue

Anshika

UIAS Chandigarh University, Gharuan, Mohali

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Abstract:

Agriculture is the key sector for economy for various countries and it can be exposed to major attacks which have dramatic economic consequences in food, feed and fiber sectors. As per the research from the few past years, the prevention and overcome of pests, diseases and other biological factors is the concerned issue in Agriculture and the big challenge for farmers, scientists and government because it affect the health ,production ,life and many more. As the threat increases, the need for its prevention increasing day by day. According to the Agricultural Biosecurity Bill, 11 March 2013 by the Minister of Agriculture Mr. Sharad Pawar, an integrated national Biosecurity structure encloses all the plant, animal and marine problems to resist the bio-terrorism from pest infection and weeds. This system not only protects the agriculture production but also the human health. So, Biosecurity is essential for stimulating the sustainable agriculture, food, livelihood security, regional and international trade and uniform economical development. This article describes the concepts of Biosecurity, its need and threats in agriculture.

Keywords: Biosecurity, Bioterrorism, Prevention, Sustainable agriculture, threat

Introduction:

Biosecurity is the integrated programme that analyses and manages the risk to plants, animals and human. As Biosecurity provides the prevention, control, eradication and management of pests and diseases of plant and animals and unwanted organisms for ensuring agriculture security. Biosecurity covers the pests, diseases, zoonoses, genetically modified organisms (GMO'S), the occurrence and management of invasive alien species and genotypes. Biosecurity was also added as an area of cooperation under the US-India Agricultural knowledge Initiative in June 2006, which aims to address the issue, starting with threat posed to crops by invasive alien species up to averting the release of bioagents of mass-destruction. As per the research study the pest, weeds and diseases like coffee berry borers in

coffee beans and warts in potato in Netherland cause the economic loss at larger extent to reduce this lose The Department of Agriculture and cooperation made the Agricultural Biosecurity Bill, 2013.

Concept of Biosecurity:

Biosecurity means protection from the toxic effect of organism (human organisms, plant, animal and terrestrial or aquatic organisms). FAO (2003) has adopted that Biosecurity is a holistic term and encompasses the policy and the norms, regulations to protect Agriculture, food and the environment from the biological risks and threats.

- ❖ According to the Department of Agriculture and Cooperation the Farmer's Commission Report in 2006 had made a recommendation in the establishment of the authority. The Agricultural Biosecurity Bill, 2013 was introduced in Lok Sabha on March 11, 2013.
- ❖ The Bill repeals the Destructive Pests and Insects Act, 1914 and Livestock Importation Act, 1898.
- ❖ From the past years and for the future years; system has been developed for the protection of Plants, animals, marine and human health.
- ❖ Today's Agricultural Biosecurity systems were made for covering /protecting the national agriculture and food security. The Agricultural Biosecurity Bill would sufficiently booster the agricultural Biosecurity by incorporating the following features:
 - 1) Integration of Plant and Animal Quarantine services.
 - 2) Regulation for export of plants, animals, aquatic organisms and essential microorganisms.
 - 3) Provision to declare 'Controlled area' to enable control measures for eradication of infestations.
 - 4) Declaration of Biosecurity emergency actions and procedures to deal with it.
 - 5) Power of Authority to give directions to importers /exporters.
 - 6) Join activity by Agricultural Biosecurity Authority of India and State Governments to meet the challenges of pest's outbreaks and conduct pest eradication campaigns.

The Goal of Biosecurity:

Major goal of Biosecurity is to prevent, control and manage the threats, risks to health and life to Biosecurity sector. The strengthening of Policy and Regularity framework for Biosecurity in Food and Agriculture must be among the top priorities. These policy and legislative frameworks need to be extended include biosafety needs within the overall framework of Biosecurity.

This will provide:

- a) Optimization of scarce human and financial resources.
- b) Improving the cohesiveness of advice on all aspects of Biosecurity, including biosafety.
- c) Recognition of the special importance of biosafety to food and agriculture as well as the special impacts of food and agriculture on biosafety.

Animal Biosecurity:

The Biosecurity problem is most acute in livestock, particularly the threat from transboundary animal diseases (TAD).

TADs results in:

- Increase poverty of nations which are highly dependent on livestock farming for sustenance.
 - Significant production losses for livestock products reducing farm incomes.
 - Threaten food/feed safety and nutritional security through loss of animal protein as well as draught animal power for agriculture.
 - Adversely affect the public health system when TADs are of zoonotic nature and can be transmitted to humans.
 - Pain and suffering for affected animals; and ultimately emotional distress to human population as a consequence of TADs.
 - Seriously disrupt or inhibit trade in livestock and livestock products either within a country or internationally.
- Some other diseases are endemic like pestesdespetits ruminants (PPR), bluetongue, classical swine fever, infectious bovine rhinotracheitis/infectious pustular vulvo-vaginitis (IBR/IPV), caprine arthritis/encephalitis (CAE), equine rhinopneumonitis, bovine viral diarrhea (BVD) and bovine immunodeficiency (BIV). These diseases are responsible also for

enormous economic losses and, therefore, need Biosecurity plan to be in place. Emergence of these diseases is well known and, therefore, Biosecurity is essential.

Here is the case study about: 'India's Poultry Industry Faces Unprecedented Crisis, as per National Egg Coordination Committee, April, 2006

India's Poultry industry contributes Rs.35, 000 crores to the GNP and provides employment to more than 3million persons-this is the only segment of our agriculture economy which has been growing rapidly at about 17%annum is facing the worst ever crisis in the history and situation of total collapse due to Avian Influenza caused by H5N1.This has dealt a severe blow, not only farmers but every input industry related to Poultry farming, breeders-integrators, feed-mills etc.

If the breeders decided not to continue in the business, it will have adverse impact on indigenous pure line research and breeding activity and the country will be totally exposed to total dependence on imported breeding stock –which will be nothing short of negation of all the good work done by indigenous genetic research for the past 3 decades .More than 1,000hatcheries in the country will face total closure.

Study by a renowned economist from USA revealed that in terms of competitiveness, India ranks No.1 while UAS is places at ranks No.4 .And presently India is Ranks No.2 - in the cost of chicken production which will soon the cheapest source of chicken production in the World and overtake Brazil .

It is projected that if the present rate of growth in the industry is sustained ,in the next 5 years ,Poultry can be second largest industry in our country .It is very unfortunate that industry ,which built based on Indigenous research over 3 decades, is destroyed by H5N1 and country is forced to depend upon imports of egg and chicken .An all out effort, including interim relief measure by the Government to the affected parties ,should urgently be made to save this vital industry and put it back on the track.

Plant Biosecurity:

India has been striving to become a biosecure nation. As regards plants, according to the National Bureau of Plant Genetic Resources (NBPGR) several Invasive alien species have been introduced into the country along with grain, seed and planting material imports. These introduced pests include, banana bract and streak viruses, American serpentine leaf miner, peanut stripe virus, cotton leaf curl, sunflower downy mildew, coffee pod borer, apple San.

Jose scale, Biotype B of white fly and invasive weeds like Lantana 10camara. Six of these were introduced in 1990s. With the increasing intensification of agricultural production, productivity and trade, such invasive alien species will further threaten our crops. A new wheat stem rust pathotype Ug 99 is causing serious damage in Uganda, Kenya and a few other countries, and threatens to reach India. Wheat being our main pillar of national food security and rural economy, India must take proactive steps to prevent entry and establishment of this race in India.

- There are other 24 plant quarantine stations for the upgrading of which an initial effort has been made for need assessment in terms of laboratory and green house facilities required under a FAO-TCP proposal.
- The establishment of national standards on sanitary and phytosanitary measures in line with the international standards is of critical concern to meet the stiff challenges under the international agreements.

Some Factors Influencing Biosecurity are:

- Globalization,
- New agricultural production and food processing technologies,
- Increased trade in food and agricultural products,
- Legal obligations for signatories of relevant international agreements,
- Increasing travel and movement of people across borders,
- Advances in communications and global access to Biosecurity information,
- Greater public attention to biodiversity,
- The environment and the impact of agriculture on both,
- Shift from country independence to country interdependence for effective Biosecurity,
- Scarcity of technical and operational resources,
- High dependence of some countries on food imports.

Conclusion:

Improved health and well being of human populations are the ultimate results of functioning Biosecurity systems. Poor practices in agriculture results direct favour on Biosecurity threats, food security threat and human health. This article shows how biosecurity in the world and India will helpful in overcoming many challenges in past and will help in

future in regards of plants, animal life and health problems. We have to focus on the areas where the Biosecurity is not properly adapted.

