

BANGLADESH

Plant Protection Activities

Country Report

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Plant Protection Activities in Bangladesh

Executive Summary

People's Republic of Bangladesh is a country in south Asia. It is a small country with an area of about 147,570 sq km with about 160 million people. Ensuring food security for the vast population of Bangladesh is directly associated with the agricultural development of the country. Feeding the ever-growing population remains the critical challenge for the country. Rice production has reached about 38 million metric tons from 10 million MT at the dawn of our emergence as an independent country. Climate of Bangladesh favours the rapid development of various pests and diseases on crops. Estimated crop loss by pest and diseases are 10-15% annually.

The plant protection activities of the country at national level are under the Director of Plant Protection Wing and Directorate of Plant Quarantine Wing of the Department of Agricultural Extension under the Ministry of Agriculture. Bangladesh has to import a huge quantity of food, seeds and other plants and plant products. Annually on an average 10 million metric tons of plants and plant products are imported through the Plant Quarantine Stations of Plant Quarantine Wing. On an average ten metric tons of agricultural commodities are inspected by the plant quarantine stations per annum for the purpose of export and also need to issue huge number of phytosanitary certificates. With the introduction of some restriction by the European Union (EU) on sanitary and phytosanitary issues might have created adverse effects on the country's exports. But we have taken initiative to address the issue raised by the EU. We are implementing a program titled Exportable citrus and vegetable production, Eradication of sulmonila of betel leaf to meet the EU requirements. We have selected some places (north-west region) of low pest prevalence area for mango production, where we implementing Good Agricultural Practices(GAP), mangoes are now exporting to England.

The existing plant quarantine legislation known as "Destructive Insects and Pests Rules, 1966 (Plant Quarantine) was framed as per provisions delineated under Sub-section (I) of Section-3, Section-5 of the Destructive Insect and Pests Act, 1914 (II of 1914). Plant Quarantine Act, 2011 has been approved by the Parliament in April, 2011. Making rules under the Act is yet to complete. It is expected that by the end of this year the existing "Destructive Insects and Pests Rules, 1966 (Plant Quarantine)" will be repealed by the newly passed. "Plant Quarantine Act, 2011". There is a provision for establishment of a separate authority titled "Plant Quarantine Authority" in the Act. Recently we have developed 10 (ten) Plant Quarantine Centers laboratory and we have increased Land border check post from 18 to 30. In the last two years we organized 25 training program for the Quarantine officials to build their capacity. According to revised IPPC convention and the Agreement on the Sanitary and Phytosanitary Measures (SPS) we have formulated our 'Quarantine Act-2011'. To implement the International Standards for Sanitary and Phytosanitary Measures (ISPMs) we have taken a project for titled "Strengthening phytosanitary capacity in Bangladesh".

Under "Strengthening Phytosanitary Capacity in Bangladesh" project the following activities have been taken:-

Activities	No. of event	Starting year of implementation	Year of completion	Remarks
Construction of Central Packing House for export of fruits and vegetables	1 (6000 m ²)	2013-14	2014-15	Sorting, grading, treatment, packaging, inspection etc. in one place under the direct supervision of the inspector
Establishment of post entry quarantine centre	7 (250 m ²)	2013-14	2015-16	
Workshop	20	2012-13	2014-15	For building awareness among the stakeholders
Study tour (Abroad)	20	2012-13	2013-14	Policy makers

Training (In country)	40	2012-13	2015-16	Plant quarantine official (8 different events)
	150	2012-13	2015-16	4500 Exporters, packers and handlers
Training (Abroad)	36	2013-14	2014-15	Quarantine officials esp. working in lab.
Procurement of Lab. Equipment	296 equipments for 10 labs.	2013-14	2015-16	Lab equipments for detection of bacteria, virus, nematode and fungi etc (at the cost of 7.00 million dollar)
Establishment of heat treatment plant	4	2012-13	2013-14	
Establishment of Methyl bromide fumigation plant	4	2012-13	2014-15	
Capacity building for e-Phytosanitary Certificate	HQ	-	2014-15	

Table: Showing activities under Strengthening Phytosanitary Capacity in Bangladesh” project

Pest surveillance and forecasting system of the country have been upgraded recently. The infestation of Brown Plant Hopper (BPH) and Stem borer were high during last two years. Besides, outbreak of Bacterial Leaf Blight and Blast in rice crop during 2009-10 and 2012-2013 crop seasons created some threats on the total rice production in the country. Fruit and shoot borer infestation of vegetable and fruits also noticed this year. Different species of Mealy bug and White fly are also noticed in various crops. We are providing Plant Doctor Clinics to the farmer with the technical assistance of CABI.

Different pest control approaches are being practiced to manage the pest incidence in the country. Among these Integrated Pest Management (IPM) approach is given more emphasis for the management of pests in the country. In view of the importance of IPM in Bangladesh, a National IPM Policy has also been developed. Research institutions have developed several new IPM technologies. The research institutions are now putting emphasis on IPM particularly on bio-control and non-chemicals (bio-pesticides) for pest management.

Private sectors have also come forward for mass rearing and marketing of parasitoids and predators. Pesticide free vegetables and some fruits are available in a limited scale but marketing channel need to be developed. The Government has started the GAP particularly of exportable vegetables and fruits. Safe food production through IPM approach created a great enthusiasm among the producers and consumers under the guidance of the different Government agencies.

“The Pesticide (Amendment) Act, 2009 and the Pesticide Rules 1985 amended up to 2010” are in force. A total of 243 generic pesticides have been registered for use in agriculture and 60 for use in public health. Total number of trade name of agricultural & public health of these pesticides is 4122. There is a Pesticide Technical Advisory Committee headed by the Executive Chairman of Bangladesh Agricultural Research Council (BARC), Ministry of Agriculture. Based on formulation, the Government has banned nine pesticide compounds under WHO class 1a and 1b for agricultural purposes.

1. GENERAL INFORMATION:

Agriculture is the backbone of Bangladesh economy. The warm and humid climate of Bangladesh is conducive for the rapid development of various pests and diseases on crops. One of the main constraints to increasing crop production is the pests. According to an estimate, annual yield loss due to insect pest alone is 16 percent for rice, 11 percent for wheat, 20 percent for sugarcane, 25 percent for vegetables, 15 percent for jute and 25 percent for pulse crops. In a conservative estimate indicate that 10-15% of the crops are damaged by pests and disease annually. It is obvious that Bangladesh agriculture is threatened by numerous harmful organisms and it has become necessary to combat all these disorders already present in the country in the best possible way but it is equally important to try keep out of the country from new exotic and serious plant disorders as it otherwise will add to the burden of defeating those already presents.

In Bangladesh, at the national level, the Director, Plant Protection Wing under the Department of Agricultural Extension (DAE) co-coordinate and supervise plant protection activities with the assistance of two Additional Director and four Deputy Directors. Surveillance, Integrated Pest Management, Pesticide Administration and Quality control, each section is headed by a Deputy Director. Besides, there is an Additional Director who assists the Director in various activities of Pesticide Administration and Quality control. Another Additional Director supervises Surveillance and Forecasting activities. In addition, in each of 64 zones (district level) there is one Additional Deputy Director (PP) who is assigned to look after plant protection activities in the district under the control of Deputy Director, AE. ADD(PP) maintain liaison with Plant Protection Wing and Upzela for the plant protection activities. In Upzela and Metro level 502 Agricultural Extension Officer, 502 SAPPO and in block level 14032 SSAO are engaged in plant protection activities.

The Directorate of Plant Quarantine Wing of DAE now working under an individual Director since 2014. Quarantine activities are assisted by an Additional Director. One Deputy Director supervises export section and another one supervises import section activities of Bangladesh agriculture. There are 30 Plant Quarantine Centers in Bangladesh. Out of which 12 is in category-1, 8 is in category-2 and 10 is in category-3. 12 Deputy Directors are in charge of category-1 centers, category-2 centers are headed by 8 Additional Deputy Directors (ADD) and Plant Quarantine Pathologists are the in charge of rest 10 category-3 centers.

Bangladesh though an agro-based country still it has to import a small quantity of food, seeds and other plants and plant products. Annually on an average 10 million metric tons of plants and plant products are imported through the Plant Quarantine Stations of Plant Protection Wing of DAE. The major agricultural exports of the country are- jute, jute products, tea, indigenous fruits and vegetables, potato, processed agricultural products and rice. On an average 1 million metric tons of agricultural commodities are inspected per annum for the purpose of export and phytosanitary certificate are issued for that purpose. We are also trying to implement guidelines for regulating wood packaging material in international trade. It is expected that export of vegetables and plant products will be increased with the implementing the International Standards for Sanitary and Phytosanitary Measures (ISPMs).

2. PLANT QUARANTINE:

2.1 Present status of Plant Quarantine in Bangladesh

The Plant Quarantine Wing (NPPQ) has followed the IPPC guidelines on the Phytosanitary Export Certification and Phytosanitary Import Regulatory Systems in international trade. NPPQ is also implementing the International Standards for Phytosanitary measures (ISPMs) of IPPC into Bangladesh.

The Plant Quarantine Wing is procuring modern equipments for diagnosing the pests of quarantine importance. Laboratory equipments have already been procured in ten quarantine centers including headquarter laboratory and these laboratories have started functioning. Another laboratory will be equipped soon.

We have selected some pest free places of production of Mango. Moreover, we have undertaken a program for production of citrus and vegetables to meet the EU requirements. This program has started since 2012. Recently we introduce GAP for mango production. This year we already exported mangoes to UK and other countries.

The existing plant quarantine legislation known as 'Plant Quarantine Act, 2011'. It is an act to make provisions, in the context of international traffic in plants and plant products. Destructive Insects and pests Rules, 1966 (Plant Quarantine) was framed as per provisions delineated under sub-section (1) of Section 3, Section 5 of the destructive Insect and Pests Act, 1914 (11 of 1914). After the establishment of sovereign state of Bangladesh in 1971, these rules have been amended up to July, 1989. Plant Quarantine activities have been strengthened to safe the country from the entry of exotic pests and diseases. A linkage between quarantine stations and research institutes has been strengthened in recent years to identify the exotic pests' association with imported products.

2.2 Institutional Structure for Plant Quarantine Section

Plant quarantine services in Bangladesh have been running by the Plant quarantine Wing of DAE under the Ministry of Agriculture. Deputy Directors and ADDs assisted by Plant Pathologist, Quarantine Pathologists, Quarantine Entomologist, Plant Quarantine Inspectors and the junior technical and supporting staff. Including six new land border check posts, at present 30 plant quarantine stations are functioning in the following entry points of Bangladesh-

A) Airports:

1. Hazrat Shah Jalal International Airport, Dhaka.
2. Hazrat Shah Amanat International Airport, Chittagong.
3. Osmani International Airport

B) Seaports:

1. Chittagong Seaport, Chittagong.
2. Mongla Seaport, Khulna.

C) Land Border Check Post:

1. Benapole, Jessore
2. Darshana, Chuadanga.
3. Tamabil, Sylhet.
4. Burimari, Lalmonirhat.
5. Teknaf, Cox's Bazar
6. Akhaura, Brammanbaria
7. Hilli, Dinazpur
8. Sonamosjid, Chapinababgonj

9. Rohan pur, Raishshi
10. Bhomra, Satkhira.
11. Bangla Bandha, Panchagarh.
12. Jakiganj, Sylhet
13. Bibirbazar, Comilla
14. Kamalpur, Jamalpur
15. Belunia, Feni
16. Betli (Fultali), Moulvi bazaar
17. Chaltapur, Moulvibazar
18. Haluaghat, Mymensingh
19. Birol, Dinajpur
20. Nakugaon, Sherpur
21. Bhurungamari, Kurigram
22. JibanNagar Chuadanga
23. Mujib Nagar, Meherpur

D) River Port:

Narayangonj.

E) ICD, Kamalapur

Plant Quarantine activities have been strengthened with the establishment of additional four Plant Quarantine out-Stations at land border to keep the country from the entry of exotic pests and diseases with the imported plants and plant products. Chittagong sea port and Benapole land border check post have been upgraded due to high load of export and import. Before a consignment enter into Bangladesh, health inspections done visually by the inspector of the plant quarantine section and through post-entry quarantine observation. There is a Glass house and a laboratory at head quarters, Dhaka to perform post entry quarantine observations. Moreover, quarantine stations send their unidentified and suspicious samples for details study to different research institutes of the country. A linkage between quarantine stations and research institutes has been strengthened in recent years. After the fulfillment of all the phytosanitary requirements, the consignment of seed, plant and plant products are released. On the other hand, re-exportation or destruction of the consignment is also practiced.

3. SUEVEILLANCE, PEST OUTBREAKS AND INVASIVE SPPECIES MANAGEMENT

Pest surveillence and forecasting system of the country have been up graded recently. This section is responsible for collection, analyzing and interpreting data regarding pest and diseases incidence. Surveillence section is responsible for the determination of the severity of pest and diseases. This section is responsible for forecasting and early warning about the pest and diseases incidence. In the year 2014-15, under the program Strengthening of surveillence and forecasting for safe food production, 2418 DAE officials trained up as surveillence expert and also 38250 farmers were directly received a training on Pest surveillence and forecasting system. Every rice season we are setting about 2430 surveillence plots in different location of the country with the aim of identification trend of insect and diseases of crops.

The most common insect pests of six crops and diseases of four crops are as follows:

Insects

Crop	Common Name	Scientific Name	
Rice	Brown planthopper	<i>Nilaparavata lugens</i>	
	Green leaf hopper	<i>Nephotettix nigropictus</i> <i>N. virescens</i>	
	Rice hispa	<i>Dicladispa armigera</i>	
	Stem borer	<i>Scirpopaga incertulas</i> <i>Sesamia inferens</i> <i>Chilo traea polychysus</i>	
	Swarming caterpillar	<i>Spodotera mauritia</i>	
	Earcutting caterpillar	<i>Mythimna separate</i>	
	Leaf roller	<i>Cnaphalocrocis medinalis</i>	
Jute	Jute hairy caterpillar	<i>Spilosoma oblique</i>	
	Jute semilooper	<i>Anomis sabulifera</i>	
	Cricket	<i>Tarbinskiellus portentosus</i>	
	Jute stem weevil	<i>Apion corchori</i>	
	White mite	<i>Polyphagotarsonemus latus</i>	
Wheat	Cut worm	<i>Agrotis spp</i>	
	Termites	<i>Odontotermes obesus</i>	
	Aphid	<i>Schiraphis graminum</i>	
Sugarcane	Top shoot borer	<i>Scirpophaga excerptalis</i> <i>Chilo tumidocostalis</i> <i>C. infuscatellus</i> <i>C. auricilius</i> <i>Sesamia inferens</i>	
	Root borer	<i>Emmalocera depressela</i>	
	Leaf hopper	<i>Pyrilla perpusilla var pusana</i>	
	Termite	<i>Odontotermes obesus</i>	
	Wooly aphid	<i>Rhopalasiaphum padi</i>	
	White grub	<i>Holotrichia spp</i> <i>Brahmena spp.</i> <i>Adoretus spp.</i>	
	Vegetables	Potato	Cut Worm <i>Agrotis ipsilon</i>
		Potato	Potato tuber moth <i>Phthorimaea opsculella</i>
		Brinjal	Red ant <i>Dorylus orientalis</i>
		Brinjal	Shoot Fruit borer <i>Leucinodes orbonalis</i>
Brinjal		Epilachna beetle <i>Epilachna eupunctata</i>	
Tomato		Aphids <i>Aphis craccivora</i>	
Tomato, Papaya		Mealy bug <i>Pseudococcus virgatus</i>	
Cucurbits		Pumpkin	<i>Aulacophora foveicollis</i> <i>A. abdominalis</i>
		Fruit flies	<i>Bactrocera caudatus</i> <i>B. cucurbitae</i>
Crucurbits		Prodenia caterpillar <i>Prodenia Litura</i>	
Crucifers		Diamond back moth <i>Plutella xylostella</i>	
Beans		<i>Aphis madicagenis</i>	
Fruits		Mango	Fruit borer <i>Stemochetus frigidus</i>
	Mango	Fruit fly <i>Bactrocera dorsalis</i>	
	Mango	Hopper <i>Idioscopus atkinsoni</i>	
	Mango	<i>L. niveosparsas</i>	
	Mango	<i>L. clypealis</i>	

Mango	Leaf defoliator	<i>Cricula trifenestrata</i>
Mango	Leaf gall psyllid	<i>Apsylla cistellata</i>
Mango	Orange fruit fly	<i>Chaetodacus spp.</i>
Citrus	Psyllid bug	<i>Euphalerus citrii</i>
Citrus	Mealy bug	<i>Pseudococcus vigatus</i>
Banana	Banana beetle	<i>Nodostoma viridipennis</i>
Coconut	Rhinoceros beetle	<i>Oryctes rhinoceros</i>
Coconut	Red palm beetle	<i>Rhynchorus ferrugineus</i>

Diseases

Crop	Common Name	Scientific Name
Rice	Blast	<i>Pyricularia oryzae</i>
	Sheath blight	<i>Rhizoctonia solani</i>
	Sheath rot	<i>Sarocladium oryzae</i>
	Stem rot	<i>Sclerotium oryzae</i>
	Bacterial leaf blight	<i>Xanthomonas campestris pv. oryzae</i>
	Tungro	Virus
Jute	Ufra	<i>Ditylenchus angustus</i>
	Stem rot	<i>Macrophomina phaseolina</i>
	Black band	<i>Botryodiplodia theobromae</i>
	Anthracnose	<i>Colletotrichum corchori</i>
	Dieback	<i>Glomerella cingulata</i>
	Clorosis	Virus
Wheat	Root knot	<i>Meloidogyne incognita</i> <i>M. javanlica</i>
	Leaf blight	<i>Bipolaris sorioquiniana</i>
	Rust	<i>Puccinia recondite</i>
Sgar cane	Loose smut	<i>Ustilago tritici</i>
	red rot	<i>Colletotrichum falcatum</i>
	white leaf	Mycoplasma
	Wilt diseases	<i>Cephalosporium saccharum</i>

3.1 Recent status of pest outbreak in the country

Although it is reported several insect pest and diseases of rice in Bangladesh but seven major insect pests and seven diseases are most prevalent. Among the insects, the incidences of Brown plant hopper (BPH) and Stem borer were high during last two years. In recent years, the major rice diseases are Bacterial leaf blight (BLB) and Blast. The outbreak of Bacterial leaf blight and Blast in rice during 2009-12 and 2010-13 seasons and the BPH created some threats on the total rice production in the country. Among the fungal diseases of jute stem rot, black band and anthracnose are very important. Though stem rot was a devastating fungal disease of jute during the past but anthracnose is very frequent in jute (capsularis) now a days. On the other hand, die back caused by *Glomerella cingulata* is very prominent in jute (olitorious). Occurrence of leaf rust of wheat was as similar as the previous year but the incidence of yellow rust in some susceptible variety was very high. Outbreak of common cutworm (*Spodoptera litura*), a cosmopolitan pest, has been occurred causing enormous losses of some pulses and vegetable crops in different region of the country. Outbreak of papaya mealy bug also been noticed throughout the country from last year. White fly infestation is now more in Guyava than before. Gummosis of Jack fruit becoming a threat for some

confined region. In oilseed and vegetables crops, incidence of white mould (*Sclerotinia sclerotiorum*), a serious soil and seed-borne pathogen, have been reported during last two to three years as a new diseases of the crops.

Pest Risk Analysis (PRA) is very important for exporting agricultural products. We already completed PRA of Wheat, Lemon, Potato and Mango crops. PRA for other crops are progressing.

3. PEST MANAGEMENT

In Bangladesh, IPM activities first started in 1981 with the introduction of the first phase of FAO's inter-country program (ICP) on IPM in rice crop. However, it was in 1987 that IPM activities began to expand and became a popular topic among people from all walks of life. From 1989 to 1995, the ICP played a strong catalytic role in promoting the IPM concept and approach among the government officials and donor community. This program provided IPM training to build the training capacity of the Department of Agricultural Extension (DAE) and introduced Farmer Field Schools (FFS) for training of farmers. A number of persons from the non-government organizations (NGOs) were also given training on IPM. As a result of the success of this program and on the basis of the need for IPM in Bangladesh, a number of IPM projects in rice and vegetables have come into existence which is being executed by different government departments and NGOs. Through the activities of such projects, a large number of core IPM trainers have been produced in Bangladesh. In 2001, a total of 1,137 persons from DAE and about 300 from different NGOs trained as IPM trainers. Also, DAE/UNDP/FAO Project and DAE/DANIDA SPPS Project have so far produced 829 farmer trainers (FTs). In addition to these activities on human resources development, the IPM projects have been active in establishing IPM field schools for the male and female farmers and school children; development and promotion of IPM farmer clubs and in the testing and usage of bio-pesticides, bio-control agents, etc. Thus, with the strong support of the Government, an effective IPM base has already been established in Bangladesh.

The National IPM Policy

In the context of Bangladesh the term IPM includes elements contributing to an effective, safe, sustainable and economically sound crop protection system. It is not limited to pest management system alone.

Clearly, IPM conserves the natural resources such as the soil, flora and fauna and ensures reliability and stability of agricultural production. Ecological and economic sustainability of agricultural production is the long-term goal of IPM.

In fact effective IPM.

- increases self-reliance of farmers by promoting locally developed and adapted crop management practices;
- reduces the risks to farmers, general public and the environment; these include the risks of crop loss and all risks related to the use of pesticides;
- brings enormous savings by reducing the use of farm chemicals;
- reduces use of pesticides at the national level;
- improves the field conditions for beneficial insects and generate extra income as well as nutritious food for the farmers; and
- promotes community activities and the formation of farmer groups (e.g. IPM clubs) and facilitates empowerment of both female and male farmers

Strategies for Implementing IPM Activities and Institutional Set-up of the National IPM Program.

• Strategies for Implementing IPM Activities

- A National IPM Program together with necessary institutional set-up for its implementation will be established.
- The ongoing IPM projects of DAE will continue their activities and expand until a critical mass of at least 20 percent of the farmers in each block would receive adequate training so that they can practice IPM.
- Availability of adequate government and donor funds for the continuation of IPM activities by the DAE projects and for the implementation of the National IPM Program is to be ensured.
- For the expansion and sustainability of IPM community IPM activities (such as farmer to farmer training, establishment of IPM Clubs, etc.) are to be promoted.
- Collaboration among DAE, NGOs and all other agencies and institutions involved in IPM will be strengthened.
- International Code of Conduct on the Distribution and Use of Pesticides.
- Coordination of activities among different Ministries (Agriculture, Fisheries and Livestock, Health, Environment and Forestry, Education, Local Government, etc.) and NGOs will be ensured.
- The Convention on Persistent Organic Pollutants (POP) in reducing or eliminating the production and use of certain pesticides would be observed and implemented.
- IPM related publicity will be promoted through the mass media and awareness on dangers of pesticides, pesticide residues in food, health and environmental hazards of pesticides will be created.
- A mechanism to monitor pesticide residues in food and the environment will be established.
- A system for certification of pesticide-free agricultural products will be introduced.
- Pest diagnostic centers at each Upazila are to be established.
- IPM Congress will be organized for the IPM trained farmers on yearly

Dissemination techniques of IPM

In order to extend IPM technologies all over the country, there is a need to develop some approaches which assist the farmers to get information about IPM, and DAE finally developed some dissemination techniques like, Extension Agent Visit, Farmers Field School (FFS), IPM Club and Field Days. Until the present, approximately 12,640 extension agents, who are the treated as Sub Assistant Agricultural Officers (SAAO), are influencing farmers to adopt IPM technologies. Annually they reach around 11 million farmer household. The Agricultural Extension Component (AEC) of DAE conducted 2,313 FFS program in 2009. FFS assist farmers to develop their analytical skills, creativeness, and critical thinking, and also help them to learn how to make better decisions. At present, there are over 16,000 IPM clubs existing in different regions of the country and the number of members in each club size ranges usually 50 to 100 . Besides these, government uses different print and electronic media like TV, Radio, Newspaper and Magazine to disseminate information regarding IPM practices. These media can be serving as the cheapest form of information diffusion and at the same time they have the potentiality to reach a large portion of a population. The NGOs also inform the farmers to cultivate crops with IPM practices and provide training. Moreover, the farmers get information regarding IPM practices from SAAO and their neighbors.

Eight-IPM projects/programs successfully operated in Bangladesh. These projects implemented either by the Government or NGOs with funds received from different donors.

The projects those were operated in Bangladesh listed below:

1. DAE-UNDP/FAO IPM Project (BGD/95/003)
2. DAE-DANIDA Strengthening Plant Protection Services (SPPS) Project
3. Command Area Development Project (CAD)
4. CARE-New Options for Pest Management (NOPEST)
5. CARE-Integrated Rice & Fish Project (INTERFISH)
6. AID-Comilla's Integrated Pest Management Project
7. USAID funded IPM Collaborative Research Support Program (IPM CRSP)
8. FAO's Regional Cotton IPM Project

At present, two projects are running namely, Safe Crop Production through IPM technology and Integrated Farm Management Component under the Department of Agricultural Extension (DAE), aiming disseminate safe food production through IPM techniques and for sustainable agriculture. These two projects already trained up 2357 departmental master trainer and 2864 farmer trainer. We already established 22060 FFS on rice, vegetables and fruits. Moreover, 9251 IPM-clubs are running well.

The National IPM Policy calls for executing appropriate actions on pesticides. Although the policy has not yet fully implemented but the government has already banned 2 pesticides under WHO category 1a and 7 under 1b, based on formulations, for agricultural purpose.

The FFS is now considered by the government as an effective vehicle for extension work. As such the government and other development agencies in Bangladesh have started using FFS approach in their extension activities. For sustainability of IPM activities in Bangladesh, it was felt badly that these FFS trained farmers need to be kept united in the community. As such they were encouraged to form IPM clubs (IPM farmers associations) at the end of the FFS season so that they can work as a group and also increase their voice in the community.

The research institutions are now putting emphasis IPM particularly on bio control and non-chemicals (bio-pesticides) for pest management. They have developed package technologies on IPM for several pests. Recently BARI found that pheromone trap is very effective for the control of fruit flies in bitter melon, gourd, and cucumber and also for shoot and fruit borer of egg plant. Moreover, they have developed BARI Begun (eggplant)-6 resistant to Jassid and 8 to bacterial wilt and develop Bt.Brinjal . Bangladesh Rice Research Institute (BRRI) entomologists have identified 175 species of rice insect pests of which 20 are major, 99 species of parasites and 108 species of predators. Stem borers, hispa beetles, brown plant hoppers and rats have been identified as the most damaging insect and vertebrate pests of rice. Entomologists recommended measures for 20 major insect attacks. The magnitude of yield loss due to pest infestation in farmers' fields has been assessed. Sampling methods for determining the economic threshold levels of some of the major pests have been developed. Entomologists have helped plant breeders in developing twelve MVs with resistance/tolerance to five major insects, such as, brown plant hopper, rice stem borers, rice hispa, white-backed plant hopper, and green leafhopper. Ten technologies based on the integrated pest management (IPM) approach have been developed to control rice insects. Forty insecticides that are effective against different insects have been identified. Simple techniques for controlling rats by trapping have been devised. BRRI pest management group developed management packages consisting of cultural,

mechanical, physical, biological and chemical measures (IPM) against major insect and diseases. To control the yellow stem borer, the sleeve trap (pheromone) is a very effective IPM tool. BRRI has developed BRRI dhan 26, 31 and 35 resistant to Brown plant hopper (BPH), BRRI dhan 28 and 45 to blast and BRRI dhan 37,41 and 42 to Tungro virus, BRRI dhan 32,44 and 45 to Blast & Sheath blight. They have also developed several varieties resistant to other insects and diseases. Couple of private companies has started rearing and marketing of parasitoids and predators in the country.

4. PESTICIDE MANAGEMENT

Bangladesh does not produce any active ingredients, it only imports and formulates. The marketing channel of pesticides in Bangladesh consists of pesticide companies, distributors, wholesalers, wholesaler-cum-retailers, retailers and farmers. At the top, there exist approximately 75 officially registered companies, with 8 of these being multinational in nature. Distributors buy almost all of their products from pesticide companies. However, the pesticide companies also directly sell to wholesalers. Distributors, in turn, sell their products to the wholesalers-cum-retailers, retailers and large farmers. Wholesalers sell to retailers as well as farmers. Retailers, in turn, sell their product to farmers, but farmers frequently buy directly from the distributors as well as wholesalers.

In the past, general perception had been that the pesticides alone would provide effective control of crop pests. However, besides being unfriendly to the environment, pesticides could also cause serious health hazards to human beings. Furthermore, long-term dependency on pesticides is inevitably a serious threat to the sustainability of agricultural production. Therefore, a number of specific actions regarding the use of pesticides included the following:

- Government of Bangladesh (GOB) has banned all World Health Organization (WHO) Class 1a (extremely hazardous) pesticide compounds, based on formulations, for agriculture purposes and eliminated compounds in Class 1b (highly hazardous). New proposals for registration of any pesticide fall under the above categories will be declined.
- For the registration of any pesticide in future, experimental toxicity data on beneficial insects, fish and other aquatic animals under Bangladesh conditions must be taken into consideration.
- GOB will not provide free pesticides to the farmers for ground applications, except under exceptional circumstances.
- Aerial application of pesticides for the control of crop pests shall not be undertaken, except if the National Council of IPM deems it necessary under very exceptional circumstances.
- GOB will avoid receiving any aerial formulation of pesticides as overseas development assistance.
- GOB will provide support and incentives to the private sector organizations for producing bio-control agents (parasitoids, predators and insect pathogens such as fungi, bacteria and viruses) and botanical pesticides locally.
- GOB will review pesticide rules and regulations and amend the same as and where necessary.
- GOB will monitor any misleading advertisement toward using pesticides and will initiate appropriate legal actions against such malpractice. The Pesticide (Amendment) Act 2009 and the Pesticide Rules 1985 amended up to 2010 are in force.

Pesticides are imported in finished form and also as raw materials for local formulation. At present no pesticide is exported from Bangladesh. Botanical pesticides and bio-pesticides are under special consideration for registration. Pesticides Residue Laboratory at Plant Protection Wing of DAE has established earlier but in recent year, a modern and sophisticated Toxicology laboratory has been established at Bangladesh Agricultural Research Institute (BARI), Gazipur for residue analysis and supporting present phytosanitary requirements. This laboratory is functioning very well.

Government has already banned nine pesticides under WHO category 1a and 1b. These are as follows:

Name of pesticide	Class	Registration No.
Aldrin	1b	
CCA	1a	AP-221, 300
Chlordane	1b	AP- 40
Dichlorvos	1b	AP-03, 13, 26, 27, 41,46,57, 74,79,151,245, 274,325
Dieldrin	1b	AP-42,73,82,83
Heptachlor	1b	AP-39
Methamidophos	1b	AP- 19,25,188
Monochrotophos	1b	AP-07,18,175,275,284,328,331, 336, 339,340,341,342,388
Phosphamidon	1a	AP-06,22,148

Source: PPW, DAE, Khamarbari, Dhaka-1215, Bangladesh

Besides, the government also cancelled the registration numbers of some pesticides companies and restricted them for not marketing those pesticides (Appendix 2).

Bangladesh is one of signatories of the FAO Code of Conduct on the distribution and use of pesticides. The Director, Plant Protection Wing (PPW) of the Department of Agricultural Extension is the regulatory authority of Pesticide Regulation in the country for smooth implementation of the Code with its limited manpower. After determining active ingredient and conducting efficacy test of a product PPW issue registration certificate.

Registered Pesticides in Bangladesh

SL	MITICIDE	Total No. of Trade Products
	Generic Name	
1	Bromopropylate	2
2	Ethion	3
3	Fenpropathrin	2
4	Hexathiazox	1
5	Propergite	7
6	Sulphur	206
Total Generic name - 06		221
SL	FUNGICIDE	Total No. of Trade Products
	Generic Name	
1	Azoxystrobin (25%)	3
2	Azoxystrobin (20%) + Cyproconazole (8%)	3
3	Azoxystrobin (20%) + Difenconazole (12.5%)	17
4	Azoxystrobin (20%) + Tebuconazole (15%)	2
5	Azoxystrobin (20%) + Tricyclazole (6%)	1
6	Benalaxyl (8%) + Mancozeb (64%)	1
7	Bismerthiazol (20%)	1
8	Carbendazim (50%)	139
9	Carbendazim (32.5%) + Hexaconazole (2.5%)	2
10	Carboxin (17.5%) + Thiram (17.5%)	3
11	Carbendazim (17.5%) + Iprodione (35%)	2
12	Chlorothalonil (50%)	2
13	Chlorothalonil (30%) + Cymoxanil (6%)	2
14	Copper hydroxide (77%)	7
15	Copper oxychloride (50%)	25
16	Dichloran (8%)	1
17	Difenconazole (25%)	6
18	Difenconazole (15%) + Propiconazole (15%)	38
19	Dimethomorph (9%) + Mancozeb (60%)	3
20	Dimethomorph (30%) + Cymoxanil (5%)	1
21	Pyraclostrobin (6.7%) + Dimethomorph (12%)	1
22	Ametoctradin (30%) + Dimethomorph (22.5%)	1
23	Diniconazole (12.5%)	1
24	Edifenphos (50%)	1
25	Epoxiconazole (7.5%)	1

26	Epoxiconazol (12.5%)+ Carbendazim (12.5%)	1
27	Fusilazole (40%)	1
28	Fusilazole (12.5%) + Carbendazim (25%)	1
29	Hexaconazole (5% and 10%)	100
30	Tricyclazole (22%) + Hexaconazole (3%)	6
31	Iprodione (50%)	29
32	Iprodione (35%) + Carbendazim (17.5%)	3
33	Iprodione (12.5%) + Mancozeb (37.5%)	1
34	Isoprothiolane (40%)	1
35	Kasugamycin (2%)	1
36	Mancozeb (80%)	184
37	Mancozeb (63%) + Carbendazim (12%)	28
38	Mancozeb (12%) + Copper (30%)	1
39	Mancozeb (64%) + Cymoxanil (8%)	26
40	Mancozeb (45%) + Fosetyl AI (25%)	1
41	Mancozeb + Metalaxyl (72 % & 68%)	99
42	Mancozeb (48%) + Metalaxyl (6%) + Chlorathalonil (18%)	1
43	Monopotassium salt of phosphorus acid (24%) + Metalaxyl (7%)	1
44	Mandipromid (25%)	1
45	Metalaxyl (25% & 35%)	4
46	Metiram complex	1
47	Mismarthiozol (20%)	1
48	Mancozeb (50%) + Phenamidone (10%)	2
49	Propamocarb (72%)	6
50	Propiconazole (25%)	51
51	Propiconazole (12.5%) + Tricyclazole (40%)	2
52	Propineb (70%)	6
53	Propineb (70%) + Cymoxanil (6%)	1
54	Propineb + Iprovalicarb (66.8%)	1
55	Pyraclostrobin (5%) + Metiram (55%)	2
56	Quaternary Ammoniam	1
57	Streptomycin Sulphate (9%) + Tetracycline Hydrochloride (1%)	3
58	Tebuconazole (25%)	8
59	Tebuconazole (50%) + Trifloxystrobin (25%)	15
60	Tetraconazole (125%) + Carbendazim (150%)	1
61	Thiophanate-methyl (70%)	1
62	Tri Basic Copper Sulphate (34.5%)	1
63	Cymoxanil (2.74%) + Tri Basic Copper Sulphate (26.95%)	1
64	Tricyclazole (75%)	14
65	Tridemorph	1

66	Zineb	1
67	Zineb (68%) + Hexaconazole (4%)	1
Total Generic name - 67		875
SL	INSECTICIDES	Total No. of Trade Products
	Generic Name	
1	Abamectin (1.8%)	64
2	Abamectin (1%) + Acetamiprid (3%)	7
3	Abamectin (1%) + Beta Cypermethrin (2%)	28
4	Abamectin (2%) + Matrine (1%)	1
5	Abamectin (0.3%) + Propergite (39.7%)	2
6	Abamectin (2%) + Imidacloprid (36%)	1
7	Acephate (75%)	30
8	Acephate (50%) + Imidacloprid (1.8%)	1
9	Acephate (45%) + Imidacloprid (25%)	2
10	Acephate (45%) + Imidacloprid (25%)	2
11	Acetamiprid (20%)	17
12	Alpha Cypermethrin (2% & 2.5% & 5% & 10%)	9
13	Amitraz (25%)	1
14	Azadirachtin	1
15	Beta Cypermethrin (2.5% & 4.5%)	2
16	Beta Cypermethrin (0.83%) + Malathion (36.3%)	1
17	Bifenthrin (2% & 2.5%)	6
18	Bifenthrin (50.00%) + Abamectin (6.00)	1
19	Bismarthazole (20%)	1
20	Buprofezin (50%)	5
21	Buprofezin (5%) + Isoprocarb (20%)	2
22	Cadusafos (10%)	1
23	Carbaryl (85%)	34
24	Carbofuran (3% & 5%)	256
25	Carbosulfan (6% & 20%)	37
26	Carbosulfan (10%) + Cypermethrin (10%)	1
27	Cartap (50%)	160
28	Acetamiprid (3%) + Cartap (92%)	4
29	Acetamiprid 20% + Emamectin Benzoate 5%	1
30	Chlorfenapyr (10%)	1
31	Chlorpyrifos (20% & 48%)	244
32	Chlorpyrifos (50%) + Cypermethrin (5%)	124

33	Chlorpyrifos (20%) + Methomyl (10%)	1
34	Chlorpyrifos (18%) + Phoxim (30%)	1
35	Cyhexatin (60%)	1
36	Cypermethrin (10%)	227
37	Cypermethrin (5%) + Dimethoate (40%)	3
38	Deltamethrin (2.5% & 10%)	19
39	Deltamethrin (1%) + Triazophos (35%)	4
40	Diazinon (10% & 60%)	110
41	Dimethoate (40%)	40
42	Dinotefuran (20%)	1
43	Emamectin Benzoate (5% & 10%)	127
44	Abamectin (2%) + Emamectin Benzoate (4%)	20
45	Beta Cypermethrin (2%) + Emamectin Benzoate (4%)	6
46	Emamectin Benzoate (0.3%) + Chlorpyrifos (29.7%)	1
47	Emamectin Benzoate (5%) + Chlorpyrifos (50%)	2
48	Emamectin Benzoate 5% + Lambda Cyhalothrin 10%	1
49	Endosulfan (35%)	1
50	Esfenvalerate (5%)	1
51	Ethion (40%) + Cypermethrin (5%)	1
52	Ethion (5%) + Thiamethoxam (20%)	1
53	Fenazaquin (10%)	1
54	Fenbutation Oxide	1
55	Fenitrothion (50%)	15
56	Fenthion (50%)	3
57	Fenvalerate (20%)	52
58	Fipronil (3% & 5%)	102
59	Fipronil (5%) + Lambda Cyhalothrin (5%)	1
60	Flubendiamide (24%)	2
61	Gama Cyhalothrin (1.5%)	1
62	Hexythiazox (5.45 % & 10%)	2
63	Imidacloprid (70% & 20% & 17.8%)	159
64	Imidacloprid (2.5%) + Methomyl (7.5%)	1
65	Imidacloprid (2%) + Monomehypo (58%)	1
66	Imidacloprid (4%) + Cypermethrin (1%)	1
67	Imidacloprid (40%) + Ethoprol (40%)	1
68	Imidacloprid (5%) + Chlorpyrifos (20%)	1
69	Imidacloprid (15%) + Lambda Cyhalothrin (5%)	2

70	Indoxacarb (14.5%)	5
71	Isoprocarb (MIPC) (75%)	7
72	Lambda Cyhalothrin (2.5% & 2.8% & 5%)	128
73	Lufenoron (5%)	2
74	Malathion (57%)	41
75	Matrine	1
76	Monomehypo	1
77	Novafuron (10%)	1
78	Nitenpyram (10%)	2
79	Nitenpyram (20%) + Pymetrozin (60%)	1
80	Osfencarb (BPMC) (50%)	4
81	Phenthoate (50% & 5%)	13
82	Phosphorous Acid	1
83	Profenofos (50%)	3
84	Profenofos (40%) + Cypermthrin (2.5%)	5
85	Pymetrozine (50%)	3
86	Pyriproxyfen (10.8%)	1
87	Quinalphos (25%)	43
88	Quinalphos (20%) + Cypermethrin (3%)	3
89	Spinosad (2.5% & 4.5%)	24
90	Spirotetramat (1.5%)	2
91	Thaimethoxam (14.1%) + Lambda Cyhalothrin (10.6%)	5
92	Thiacloprid (24%)	3
93	Thiamethoxam (25% & 70%)	26
94	Thiamethoxam + Chloraniliprole (0.6% & 30% & 40%)	3
95	Thiamethoxam 25% + Imidacloprid 45%	2
96	Chloraniliprole (0.4% & 18.5%)	2
97	Thiamethoxam (20%) + Emamectin Benzoate (20%)	36
98	Thiamethoxam (20%) + Lambda Cyhalothrin (5%)	1
99	Thiamethoxam (12%) + Fipronil (6%)	3
100	Thiodicarb (75%)	1
101	Triazophos (40%)	2
102	Validamicine (10%)	1
103	Zeta Cypermethrin (5%)	1
104	Cyromazine (75%)	1
105	Imidacloprid (25%) + Thiram (20%)	4
106	Tebuconazide (20%)	1

107	Fenpyroximate(5%)	1
108	Lufenuron (10%) + Thiamethoxam (30%)	2
109	Lufenuron (5%) + Emamectin Benzoate (5%)	1
110	Dimehypo (18% & 40%)	2
111	Acitamiprid (20%) + Cypermethrin (10%)	1
Total Generic name - 111		2351
SL	HERBICIDE	Total No. of Trade Products
	Generic name	
1	2,4-D (48% & 72%)	18
2	Bensulfuran methyl (4%) + Acetachlor (14%)	42
3	Bensulfuran methyl (18%) + Pretilachlor (4%)	1
4	Bensulfuran methyl (3%) + Mefenacet (50%)	8
5	Bensulfuran methyl (4%) + Quinclorac (28%)	3
6	Bensulfuran methyl (18%) + Bispyribac Sodium (12%)	9
7	Bispyribac Sodium (20%)	7
8	Butachlor (5%)	43
9	Butachlor (35 %) + Propanil (35%)	3
10	Carfentrazone Ethyl (50%) + Isoproturon (0.75%)	1
11	Carfentrazone-ethyl (40% & 24%)	2
12	Carfentrazone Ethyl (5%) + Glyphosate (36%)	1
13	Cyhatop-butyl (10% & 15%)	2
14	Ethoxysulfuran (15%)	2
15	Fenoxypop-p-Ethyl (9%)	18
16	Fluazifop-p-butyl (15%)	1
17	Glyphosate (41%, & 48% & 71%)	54
18	Glyphosate (24%) + 2,4-D (12%)	2
19	Glyphosate (41%) + Paraquat (20%)	1
20	MCPA-500	2
21	Glyphosate (34%) + MCPA (6.5%)	1
22	Metamifop (10%)	1
23	Metribuzin (70%)	9
24	Clomazone (5%) + Metribuzine (20%)	1
25	Atrazine (50%)	1
26	Meta Sulfuron Methyl (20%)	1
27	Nicosulfuran (4%)	2
28	Orthosulfamuron (50%)	1

29	Oryzatin (85%)	1
30	Oxadiargyl (40% & 80%)	2
31	Oxadiazon (25%)	13
32	Oxyfluorfen (24%)	1
33	Paraquat (20%)	73
34	Pendimethalin (33%)	12
35	Penoxulam (24%)	1
36	Indaziflam (50%)	1
37	Pretilachlor (50%)	83
38	Pyrazosulfuran Ethyl (10%)	101
39	Pyrazosulfuran Ethyl (0.6%) + Pretilachlor (34.4%)	16
40	Pyrazosulfuran Ethyl (34.4%) + Pretilachlor (0.6%)	1
41	Pretilachlor (50%) + Trisulfuron (2%)	1
42	Pyrazosulfuran-ethyl (3%) + Quinclorac (47%)	1
43	Quizalofop-p-Ethyl (5% & 8.8%)	16
44	Quizalofos-P-tefuryl (4.41%)	1
45	Triasulfuran (75%)	1
Total Generic name - 45		562
SL	BIO PESTICIDES	Total No. of Trade Products
	Generic name	
1	Abamectin	1
2	Cuelure	2
3	Phyacion	1
4	Pheromone lure	5
5	Azadiractin	5
6	Potassium salt of fatty acids	1
7	Attractant Lune-Butanone	1
8	1,2-Dimethoxy-4-(2-propenyl)Benzene	1
Total Generic name - 08		17
SL	STORE GRAIN PRODUCTS	Total No. of Trade Products
	Generic name, Condition: <i>Only for Institutional Use</i>	
1	Aluminium Phosphide (56% & 57%)	73
2	Bristifluron	1

3	Methyl Bromide	1
4	Pirimiphos methyl	8
Total Generic name - 04		83
SL	RODENTICIDE	Total No. of Trade Products
	Generic name	
1	Bromadiolone	6
2	Zinc Phosphide	7
Total Generic name - 02		13
Total Generic Product - 243		4122

Pesticide Consumption for the year 2007-2014 (*Figures in MT/KL*)

YEAR	Insecticide			Miticide	Fungicide		Herbicide	Roden ticide	T O T A L
	Granular	Liquid	Powder		General	Sulphur			
2007	19,963.23	3,104.19	519.36	62.11	-	10,227.66	3,825.29	10.36	37,712.20
2008	25,230.58	4,190.40	694.20	64.28	-	14,417.78	4,024.77	68.18	48,690.19
2009	22,118.87	4,274.89	606.80	55.97	4,125.16	10,227.27	3,699.85	62.38	45,171.19
2010	20,967.86	3,954.94	571.82	50.71	3,554.81	9,714.62	3,346.00	79.80	42,240.56
2011	20,335.12	3,574.83	673.50	73.85	3,007.65	12,804.28	3,895.60	58.50	44,423.33
2012	16,539.35	3,455.46	641.37	55.20	3,182.60	13,295.21	3,623.94	89.81	40,882.94
2013	13,443.44	3,462.65	691.34	71.54	3,517.96	13,536.44	2,949.06	108.63	37,781.06
2014	11,741.00	3,590.25	753.74	79.32	3,575.05	12,563.32	3,419.97	78.73	35,801.38

6. ADDITIONAL INFORMATION AND GENERAL COMMENTS AND CONCLUSION

The Good Agricultural Practices (GAP) which is now being practiced in our country. With the recent increase of export of vegetables, the Government of Bangladesh and also private sector are seriously working to adopt GAP for exportable vegetables and fruits. In some places, pesticide free vegetables and fruits are now available but on a limited scale. The linkages to market access and food security need to be emphasized.

GMO crop like Bt. Brinjal is now growing in Bangladesh. A guideline for GMO crops has been approved by the Government recently. Agricultural Biotechnology Support Project Phase II (ABSP-II) is operating in Bangladesh under the technical guidance of Cornell University, USA. The project is funded by USAID. It is predominantly working for two technologies, (a) Resistance to Brinjal (egg plant) shoot and fruit borer- it is Bt technology, and (b) Potato resistance to late blight disease-Rb gene technology. The project is working in collaboration with Bangladesh Agricultural Research Institute (BARI). Confined field trials have already been completed for both the crops for one season. Besides, the following some general comments on other issues are:

- In Bangladesh, we have the regulated Pest lists and NPPO are working for updating the regulated pest list.
- As per guidelines of IPPC & Plant Quarantine Rules-1966 amended in July 1989, pest risk assessment is on progress. The list of provision and restriction for the entry of planting materials and plant products is given in Annexure-2.
- A few private organizations already established pest free production sites at some selected locations (Pabna, Jessore, Comilla, Sherpur and Thakurgaon) in the country. Plant & plant products are exported from those sites. In some pest free sites customs inspection has already started.
- International Plant Protection Portal (IPP) has already started functioning.
- Bio-pesticides use increasing day by day in the farm level.

Plant Protection services is the apex body in the country to combat the insect-pests & diseases of different crops. Safe food production through IPM approach created a great enthusiasm among the producers and consumers under the direct and positive guidance of the different Government agencies. Government is also considering about large scale implementation of GAP for the production of exportable vegetables and fruits.

During recent years, outbreak of BPH, Bacterial leaf blight (BLB) and Blast in rice and white mold incidence in different oilseed and vegetables crops, mealy bug of papaya in the country faces some emerging threat of some pests risks. On the other hand, health hazard, specifically some recent incidence of child death due to residual toxicity of pesticides in Litchi is a threat to the country. Therefore, considering all these factors, the Government is giving more emphasis to strengthen the Plant Protection Sector for ensuring safe food as well as food safety of the country. Bangladesh is producing a huge amount of Mangoes and other fruits. So it's an urgent need to establish a Hot Water Treatment Plant for mangoes. We need technical support to establish a well-equipped Bio-pesticide Laboratory and a MRL Lab.

**LIST OF SPECIFIC PROHIBITIONS AND RESTRICTION OF THE ENTRY OF PLANTS
AND PLANT PRODUCTS**

Crop	Quarantine Pests & Diseases	Special condition for import
Rice(<i>Oryza sativa</i> & <i>Oryza</i> sop.)	<i>Balance Oryza sativa</i> (fungus) <i>Agential indicia</i> (weed) <i>Christi soma wightii</i> (weed)	AD2, Tr. IP, PC, AD, Tr. ”
Wheat (<i>Triticum aestivum</i> / <i>durum</i>)	Barley stripe mosaic virus <i>Tilletia indica</i> (fungus) <i>Anguina tritici</i> (nematode) <i>Tyrophagus putrescentiae</i> (mite)	AD2 ” ” ”
Sorghum(<i>Sorghum bicolor</i>)	<i>Gloeocercospora sorghi</i> (fungus) <i>Sorghum halepense</i> (weed)	AD2 ”
Millets(<i>Setaria italica</i> , <i>Panicum miliaceum</i>)	<i>Sclerospora graminicola</i> (fungus) <i>Claviceps fusiformis</i> (fungus)	AD2 ”
sMaize (<i>Zea mays</i>)	<i>Erwinia stewartii</i> (bacterium) <i>Peronosclerospora maydis</i> , <i>P. philippensis</i> , <i>P. raysae</i> v. <i>zeae</i> , <i>P. sacchari</i> (fungi) <i>Prostephanus truncatus</i> (insect)	AD2 ” ” ” ”
Tuber Crops: Potato(<i>Solanum tuberosum</i>)	Potato spindle tuber viroid <i>Globodera rostochiensis</i> (nematode) <i>Synchytrium endobioticum</i> (fungus) <i>Globodera pallida</i> (nematode) <i>Ditylenchus destructor</i> (nematode) <i>Leptinotarsa decemlineata</i> (insect)	PC, ADI AD2 ” ” ” ”
Oil Seeds: Groundnut (<i>Arachis hypogea</i>) (unshelled seed only)	<i>Caryedon serratus</i> (insect)	AD2
Soybean(<i>Glycine soja</i>)	Soybean Mosaic Virus Tobacco Ring Spot Virus <i>Globodera glycine</i> (nematode)	AD2 ” ”
Sunflower (<i>Helianthus annuus</i>)	<i>Plasmopara halstedii</i> (fungus) <i>Septoria helianthi</i> (fungus)	AD2 ”
Pulse: Lentil(<i>Lens culinaris</i>) Cow pea(<i>Vigna unguiculata</i>)	Pea Seed-borne Mosaic Virus <i>Xanthomonas campestris</i> pv. <i>vignicola</i> (bacterium)	ADI AD2

Crop	Quarantine Pests & Diseases	Special condition for import
Fibres:		
Cotton(<i>Gossypium</i> spp.)	<i>Xanthomonas campestris</i> pv. <i>malvacearum</i> (bacteriaum)	IP, PC, AD2, Tr.
	<i>Glomerella gossipii</i> (fungus)	”
	<i>Anthonomus grand is</i> (insect)	”
Fruit Crops:		
Banana(<i>Musa sapiens</i>) (Vegetative planting material)	Banana Bract Mosaic Virus	
	Banana Streak Virus	IP, PC, ADI, PQE
	<i>Pseudomonas solanacearum</i> (bacterium)	”
	<i>Mycosphaerella fijiensis</i> (fungus)	”
	<i>Radopholus similis</i> (nematode)	”
Sugar cane(<i>Saccharum Officinarum</i>) (vegetative planting material)	Fiji disease virus	IP, PC, ADI, PEQ
	Sereh virus	”
	Chlorotic Streak Virus	”
	<i>Xanthomonas campestris</i> pv. <i>Vasculorum</i> (bacterium)	”
	<i>Sphacelotheca</i> spp.(fungus)	”
	<i>Heterodera sacchari</i> (nematode)	”
	<i>Aulacapsis tegalensis</i> (insect)	”
	<i>Diatraea saccharalis</i> (insect)	”
	<i>Perkinsiella vastatrix</i> (insect)	”
	<i>Aeginetia indica</i> (weed)	”
	<i>Striga hirsuta</i> & <i>S. lutea</i> (weeds)	”
	<i>Chiristisoma wightii</i> (weed)	”
Tobacco(<i>Nicotiana tabacum</i>)	<i>Ephestia elutella</i> (insect)	IP, PC, AD2
Tea(<i>Camellia sinensis</i>)	Phloem Necrosis Virus	IP, PC, AD1
Coconut(<i>Cocos nucifera</i>)	Coconut Foliar Deacay Virus	IP, PC, AD1
	Cadang Cadang and Tinangaja Viroids	”
	Lethal Yellowing (Mollicute)	”
	Root or Kerala wilt nematode	”
Rubber (<i>Hevea brasiliensis</i>) (Seed and vegetative planting material)	<i>Microcyclus ulei</i> (fungus)	IP, PC, ADI, AD2
	<i>Phytophthora botryosa</i> (fungus)	”
Vegetables:		
Tomato(<i>Lycopersicon esculentum</i>)	Potato Spindle Tuber Viroid	IP, PC, ADI, AD2
	<i>Clavibacter michiganensis</i> spp. <i>michiganensis</i> (bacterium)	”
		”
Cucumber(<i>Cucumis sativus</i>)	Cucumber Green Mottle Mosaic Virus	IP, PC, AD2
	<i>Didymella bryoniae</i> (fungus)	”

Crop	Quarantine Pests & Diseases	Special condition for import
<i>Watermelon (Citrullus lanatus)</i>	<i>Squash Mosaic Virus</i>	IP, PC, AD2
	<i>Didymella bryoniae</i> (fungus)	”
	<i>Glomerella lagenaria</i> (fungus)	”
Squash(<i>Cucurbita spp.</i>)	Squash Mosaic Virus	IP, PC, AD2
	Musk Melon Mosaic Virus	”
	<i>Didymella bryoniae</i> (fungus)	”
Cabbage, Cauliflower, Broccoli, Kohlrabi, Turnip, Chinese Cabbage, Caisic etc. (<i>Brassica oleracea & B. campestris</i>)	<i>Xanthomonas campestris pv. Campestris</i> (bacterium)	IP, PC, AD2
Radish (<i>Raphanus sativus</i>)	<i>Xanthomonas campestris pv. Campestris</i> (bacterium)	IP, PC, AD2
	<i>Xanthomonas campestris pv raphani</i> (bacterium)	”
	<i>Raphanus raphanistrum</i> (weed)	”
Bean (Common, French, Lima, Didney) (<i>Phaseolus</i> spp.)	<i>Pseudomonas syringae pv. Phaseolicola</i> (bacterium)	IP, PC, AD2
	<i>Delia platura</i> (insect)	”
Pea(<i>Pisum sativum</i>)	Pea seed - borne Mosaic virus	IP, PC, AD2
	<i>Pseudomonas syringae pv. pisi</i> (bacterium)	”
	<i>Cydia nigricana</i> (insect)	”
	<i>Anagalis arvensis</i> (weed)	”
Beet root (<i>Beta vulgaris</i>)	<i>Perenospor farinosa f. sp. Betae</i> (fungus)	IP, PC, AD2
Carrot (<i>Daucus carota</i>)	Carrot Mottley Dwarf Virus	IP, PC, AD2
	<i>Xanthomonas campestris pv. Carotae</i> (bacterium)	”
Celery (<i>Apium graveolens</i>)	<i>Septrovia apiicola</i> (fungus)	IP, PC, AD2
Lenttuc e(<i>Lactuca sativa</i>)	Tobacco Ring Spot Virus	IP, PC, AD2
	Lettuce Mosaic Virus	”
	<i>Senecio vulgaris</i> (weed)	”

Crop	Quarantine Pests & Diseases	Special condition for import
Miscellaneous:		
Orchids (<i>Orchidaceae</i> spp.) (Seedlings)	Cymbidium Mosaic Virus Cattely Flower Break Virus <i>Erwinia cypridedii</i> (bacterium)	IP, PC, ADI, AD2 ” ”
Forest Trees Seeds (<i>Lucern</i>)	Aflalfa Mosaic Virus <i>Clavibacter michiganensis</i> spp. <i>Indisciosis</i> <i>Ditylenchus dipsaci</i> (nematode)	IP, PC, PEQ IP, PC, ADI ” ”
Silk worm(<i>Bombyx mori</i>) eggs	<i>Botrytis bassiana</i> (fungus) <i>Muscardine</i> spores	AD2 ”

Note:

IP = Import permit

PC = Phytosanitary Certificate

ADI = Additional Declaration to Phytosanitary Certificate

AD2 = Additional Declaration to Phytosanitary Certificate

PEQ = Post Entry Quarantine

Tr. = Treatment

List of Registration Cancelled Pesticides

SL	Trade name of Products	Registration Number	Name of Company
1	Diazinon 14G	AP-08	Shetu Coporation Limited
2	Bizguard 2P	AP-09	Ciba-Geigy (Bangladesh) Limited
3	Roxion 40 EC	AP-11	International Services (BD) Limited
4	Dankavapon 100 EC	AP-13	Shetu Corporation Limited
5	Damfin 2P	AP-19	Ciba-Geigy (Bangladesh) Limited
6	Diazinon 90L	AP-20	Ciba-Geigy (Bangladesh) Limited
7	Danmfin 950 EC	AP-25	Ciba-Geigy (Bangladesh) Limited
8	Dichlorvos	AP-27	Bayer (Bangladesh) Limited
9	Curaterr 3G	AP-30	Bayer (Bangladesh) Limited
10	2,4-D Na Salt	AP-34	Bayer (Bangladesh) Limited
11	Folithion ULVC 98	AP-36	Bayer (Bangladesh) Limited
12	Methybron	AP-38	Excell Trading Company
13	Heptachlor 40 WP	AP-39	Krishi Banijya Protisthan
14	Chlordane 40 WP	AP-40	Krishi Banijya Protisthan
15	Aerovap 100 EC	AP-41	Liza Enterprise Limited
16	Aerodriel 20 EC	AP-42	Liza Enterprise Limited
17	Aeromal 57 EC	AP-44	Liza Enterprise Limited
18	Padan 10G	AP-52	Data Enterprises Limited
19	Fenitrothion 98	AP-53	Farm Chemical Corporation Limited
20	Carbin 85 WP	AP-54	Farm Chemical Corporation Limited
21	Diamal 57 EC	AP-55	Farm Chemical Corporation Limited
22	Detia Gas EXT	AP-56	Farm Chemical Corporation Limited
23	Dichlorvos 100 EC	AP-57	Farm Chemical Corporation Limited
24	Methyl Bromide 98	AP-57	Farm Chemical Corporation Limited
25	Malathion 57 EC	AP-68	BPI Limited
26	Curaterr 3G	AP-69	Bayer (Bangladesh) Limited
27	Dieldrin 20 EC	AP-73	Shell Company of Bangladesh Limited

28	Bidrin 24 WSC	AP-74	Shell Company of Bangladesh Limited
29	Malathion 57 EC	AP-78	Burmah Eastern Limited
59	Cekuthoate 40 EC	AP-225	Premier Traders
60	Arifos 20 EC	AP-229	Bari & Company Limited
61	Malathion 57 EC	AP-230	Sabrina Trading Corporation
62	Cardan 5G	AP-234	Bari & Company Limited
63	Diazinon 14G	AP-236	Liza Enterprise Limited
64	Rizinon 60 EC	AP-239	Bari & Company Limited
65	Zincphosphide	AP-258	Liza Enterprise Limited
66	Davison Glyphosate	AP-266	Shete Pesticides Limited
67	Morestan 25 WP	AP-269	Beximco Agrochemicals Limited
68	Manzate 200	AP-301	Auto Equipment Limited
69	Dimecron 100 SL	AP-22&276	Novartis (Bangladesh) Limited
70	Pillarcron 100 SL	AP-148	Shetu Pesticides Limited
71	Benicron 100 WSC	AP-06	Sabrina Trading Corporation
72	DDVP 100 W/V	AP-03	ACI Formulations Limited
73	Chemo DDVP 100 EC	AP-245	Chemsfil Bangladesh Limited
74	DDVP 100 EC	AP-151	McDonald Bangladesh (Pvt) Limited
75	Nogos 100 EC	AP-26&274	Novartis (Bangladesh) Limited
76	Phosvit 100 EC	AP-56	Data Enterprises Limited
77	Daman 100 EC	AP-325	Petrochem (Bangladesh) Limited
78	Azodrin 40 WSC	AP-336	BASF Bangladesh Limited
79	Nuvacron 40 SL	AP-18&275	Novartis (Bangladesh) Limited
80	Megaphos 40 SL	AP-175	McDonald Bangladesh (Pvt) Limited
81	Phoskil 40 SL	AP-339	United Phosphorus (Bangladesh) Ltd
82	Kadette 40 WSC	AP-284	Bisco Pesticide & Chemical
83	Monophos 40 WSC	AP-328	Alpha Agro Limited
84	Monodrin 40 WSC	AP-07	Sabrina Trading Corporation
85	Corophos 40 SL	AP-342	Corbel International Limited
86	Luphos 40 SL	AP-388	ACI Formulations Limited
87	Amcodrin 40 SL	AP-340	Atherton Imbros Company Limited

117	Anvil 5 SC	AP-472	Syngenta Bangladesh Limited
118	Ridomil Gold MZ 68 WG	AP-377	Syngenta Bangladesh Limited
119	Folio Gold 440 SC	AP-1133	Syngenta Bangladesh Limited
120	Dolma 5G	AP-1226	Syngenta Bangladesh Limited
121	Sonnet 50 SP	AP-1488	Syngenta Bangladesh Limited
122	Basudin 10GR	AP-532	Syngenta Bangladesh Limited
123	Ricon 60 EC	AP-533	Syngenta Bangladesh Limited
124	Paprika 50 EC	AP-1250	Syngenta Bangladesh Limited
125	Touchdown	AP-404	Syngenta Bangladesh Limited
126	Touchdown HiTech 500SL	AP-873	Syngenta Bangladesh Limited
127	Dual Gold 960 EC	AP-1111	Syngenta Bangladesh Limited
128	Lintur 70 WG	AP-633	Syngenta Bangladesh Limited
129	Koranda	AP-794	Auto Crop Care Limited
130	Seda 50 SP	AP-420	Auto Crop Care Limited
131	Lorsban 15G	AP-371	Auto Crop Care Limited
132	Autoguard 25 EC	AP-1147	Auto Crop Care Limited
133	Focus 50 SC	AP-828	Auto Crop Care Limited
134	Alert 50 EC	AP-648	Auto Crop Care Limited
135	Quinguard 25 EC	AP-1106	Auto Crop Care Limited
136	Fendor 5G	AP-279	Auto Crop Care Limited
137	Edfen 50 EC	AP-191	Sea Trade Fertilizer Limited
138	Malatox 57 EC	AP-286	Sea Trade Fertilizer Limited
139	Edthoate 50 EC	AP-307	Sea Trade Fertilizer Limited
140	Metasystox R 25 EC	AP-493	United Phosphorus (Bangladesh) Ltd
141	Sumithion 3% Dust	AP-156	Shetu Corporation Limited
142	Sumibas 75 EC	AP-255	Shetu Corporation Limited
143	Arozin 30 EC	AP-383	Bayer CropScience Limited
144	Basta SL 15	AP-265	Bayer CropScience Limited
145	Baycarb EC 500	AP-488	Bayer CropScience Limited
146	Curaterr 5G	AP-490	Bayer CropScience Limited
147	Cupravit 50 WP	AP-489	Bayer CropScience Limited
148	Hinosan EC 50	AP-491	Bayer CropScience Limited
149	Labaycid 50 EC	AP-492	Bayer CropScience Limited
150	Sunrice Super 315 EC	AP-1777	Bayer CropScience Limited
151	Benefiter 315 SC	AP-2105	Bayer CropScience Limited
152	Thiodan 35 EC	AP-1147	Bayer CropScience Limited
153	Fantush 300 EC	AP-2569	Asia Trade International
154	Ultima 40 WG	AP-2560	Mimpex Agrochemicals Limited
155	Abate 15 G	PHP-118	BASF Bangladesh Limited
156	Fendona 1.5 SC	PHP-84	BASF Bangladesh Limited
157	Edfen 50 EC	PHP-40	Sea Trade Fertilizer Limited
158	Coopex 25 WP	PHP-191	Bayer CropScience Limited
159	Sislin 2.5 EC	PHP-192	Bayer CropScience Limited

SL	Trade name of Products	Registration Number	Name of Company
30	Vapona	AP-79	Shell Company of Bangladesh Limited
31	Bidrin 85 WSC	AP-80	Shell Company of Bangladesh Limited
32	Dieldrin 50 WP	AP-82	Shell Company of Bangladesh Limited
33	Dieldrin 40 WP	AP-83	Shell Company of Bangladesh Limited
34	Furadan 3G	AP-85	FMC International S.A.
35	Actellic 2% Dust	AP-99	Bangladesh Manufacturers Limited
36	Quickphos	AP-102	Agrani Traders
37	Torque 550g/I	AP-115	International Services (BD) Limited
38	Ridan 3G	AP-131	Rupali Sangstha Limited
39	Bkzne 14G	AP-135	B. K. Traders
40	Aerocypermethrin 10 EC	AP-137	Liza Enterprise Limited
41	Karmex	AP-145	Beximco Agrochemicals Limited
42	Carbaryl 85 WP	AP-147	Shetu Corporation Limited
43	Agridan 3G	AP-154	Shetu Pesticides Limited
44	Tecto 2% Dust	AP-157	Alco Pharma Limited
45	Manex-II	AP-163	Shetu Corporation Limited
46	Phytox MZ 80	AP-164	Liza Enterprise Limited
47	Uniflow TM Sulphur	AP-167	Shetu Corporation Limited
48	Fenkil 20 EC	AP-169	Agrani Traders
49	Sunfuran 3G	AP-171	Shetu Corporation Limited
50	Hekthion 57 EC	AP-178	Farm Chemical Corporation Limited
51	Poligor 40 EC	AP-180	Farm Chemical Corporation Limited
52	Melbromid 98	AP-185	Horizon Trade Limited
53	Mebrom	AP-186	Bengal Wings Trade Limited
54	Agrine 85 WP	AP-187	Edgro (Private) Limited
55	Drawizon 60 EC	AP-190	Keeco Pesticides Limited
56	Gastoxin	AP-195	Bright Corporation
57	Cekomethrin 10 EC	AP-219	Premier Traders
58	Cythrin	AP-220	Bari & Company Limited
88	Vitacron 40 SL	AP-341	Shetu Marketing Company

89	Monotaf 40 WSC	AP-331	Auto Equipment Limited
90	Tamaron 40 SL	AP-188	Haychem (Bangladesh) Limited
91	Folithion 50 EC	AP-32	Haychem (Bangladesh) Limited
92	Macuprax 65%	AP-65	Bayer CropScience Limited
93	Zithiol 57 EC	AP-126	Rhone Poulenc Bangladesh
94	Delapon Na-84	AP-66	Rhone Poulenc Bangladesh
95	Anthio 25 EC	AP-64	Rhone Poulenc Bangladesh
96	Zolone 35 EC	AP-67	Rhone Poulenc Bangladesh
97	Rentokill CC Type 75%	AP-221	Getco Limited
98	Paramount CC Type	AP-300	BD Associate and Company
99	Darsban 20 EC	PHP-5	Auto Equipment Limited
100	Darsban 20 EC	PHP-85	Auto Equipment Limited
101	Basudin 10G	AP-23	Syngenta Bangladesh Limited
102	Diazinon 60 EC	AP-24	Syngenta Bangladesh Limited
103	Mortin King Mosquito Coil	PHP-54	Reckitt Benckiser Bangladesh Limited
104	Mortin Mosquito Coil	PHP-101	Reckitt Benckiser Bangladesh Limited
105	Sarfium 56%	AP-689	Sar Trade Fertilizer Limited
106	Sicofen 20 EC	AP-624	Genetica
107	Cythriner 10 EC	AP-310	ACI Formulations Limited
108	Diazonyl T-60	AP-283	ACI Formulations Limited
109	Salmathion 57 EC	AP-1066	Agrimax Bangladesh Limited
110	Basamid Granular	AP-205	BASF Bangladesh Limited
111	Ducord 17 EC	AP-793	BASF Bangladesh Limited
112	Argold 10 EC	AP-409	BASF Bangladesh Limited
113	Dicofol 18.5 EC	AP-359	McDonald Bangladesh (Pvt) Limited
114	Carbaryl 85 WP	AP-150	McDonald Bangladesh (Pvt) Limited
115	Amitage 20 EC	AP-476	McDonald Bangladesh (Pvt) Limited
116	Neoron 500 EC	AP-551	Syngenta Bangladesh Limited

160	Crack down	PHP-193	Bayer CropScience Limited
161	Resigen 50 E	PHP-194	Bayer CropScience Limited
162	Resigned OS	PHP-196	Bayer CropScience Limited
163	Bilshot M 46.5 EC	AP-586	Pharma & Farm
164	Pharzeb 80 WP	AP-784	Pharma & Farm
165	Phartap 50 SP	AP-605	Pharma & Farm
166	Cypercid 10 EC	AP-523	Pharma & Farm
167	Glyphar 41 SL	AP-896	Pharma & Farm
168	Topsin M 70 WP	AP-193	Data Enterprises Limited
169	Homai 80 WP	AP-179	Data Enterprises Limited
170	Padan 50 SP	AP-555	Data Enterprises Limited
171	Diazinon 14G	AP-554	Data Enterprises Limited
172	Diazinon 60 EC	AP-557	Data Enterprises Limited
173	Diazinon 90 ULVC	AP-560	Data Enterprises Limited
174	Trebon 10 EC	AP-161	Data Enterprises Limited
175	Bassa 50 EC	AP-142	Data Enterprises Limited
176	Elsan 50 EC	AP-556	Data Enterprises Limited
177	Elsan 92 ULVC	AP-558	Data Enterprises Limited
178	Vitavax 200B	AP-559	Pioneer Equipment & Chemical Co.
179	Pyriban 20 EC	AP-381	Agro Development Services Co. (Pvt) Ltd
180	Aimal 57 EC	AP-1136	Agro Development Services Co. (Pvt) Ltd
181	Asset	AP-364	Agrodev United
182	Padan 4 G	AP-372	Krishi Kallyan Limited
183	Diazinon 10GR	AP-385	Krishi Kallyan Limited
184	Limithion 57 EC	AP-264	ACI Formulations Limited
185	Knockout Liquid Insect Sprya	PHP-28	Shetu Pesticides Limited
186	Victor 1G	PHP-340	Shetu Pesticides Limited
187	Night Queen Mosquito Coil	PHP-46	Shetu Pesticides Limited
188	Sovathion 50 EC	AP-240	Shetu Pesticides Limited
189	Pillartex 50 EC	AP-414	Shetu Pesticides Limited
190	Kap 50 EC	AP-216	Shetu Pesticides Limited
191	Dipterex 80 SP	AP-561	United Phosphorus (Bangladesh) Ltd
192	Cekufon 80 SP	AP-257	Shetu Pesticides Limited
193	Palash 57 EC	AP-312	Petrochem (Bangladesh) Limited
194	Pounce 1.5G	AP-419	FMC Chemical International AG
195	Acekro 20 EC	AP-318	McDonald Bangladesh (Pvt) Limited