Sown & Reaped

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Bio-pesticides emerge as crop saviour

ISPAHANI

PHEROMONE TRAPS: Plastic containers with bio-pesticides inside are seen across a field of bitter gourds in Jessore.

"Farmers in Bangladesh are very much conservative to switch to a new system. Massive campaigns demonstrating the physical and financial advantages will require. The key challenge of the bio-pesticide is to make farmers aware of its use"

SOHEL PARVEZ

THE insect is smaller than a rice granule, but it can destroy eggs of many crop-damaging pests and help farmers save crops.

This tiny insect -- Trichogramma wasps -- is one millimetre or less in length.

Another parasitic insect is Bracon hebetor. It is bigger than Trichogramma but smaller than a mosquito.

These two creatures are dubbed as the natural enemy to numerous pests and friends to vegetables and crops.

They are now up for sale in the market.

Local tea-giant MM Ispahani has been breeding these bio-control agents for the last two years to offer an alternative to chemical pesticide to farmers to save crops from losses due to pest infestation and disease.

In addition, the company also sells other bio-pesticides such sex pheromone -- a biological chemical produced by female insects to attract males of the same species for mating.

The idea, as Ashraf Uddin Ahmed, business development manager of Ispahani Ltd, puts is to promote organic or environment-friendly farming and reduce farmers' dependence on the use of health-hazardous chemical pesticides.

Over the past several years, use of chemical pesticides increased many folds, as pest infestation and disease cause at least 25-30 percent of crop losses every year.

In 2000, the total use of chemical pesticide was 15,632 tonnes/kilolitres, according to Bangladesh Bureau of Statistics.

Since then, sales of pesticides trebled to 45,172 tonnes/kilolitres in 2009 and pulled the market for pest control input to Tk 1,150 crore, showed data of Bangladesh Crop Protection Association.

Between 1997 and 2008, per hectare application of pesticide rose six times, according to a paper presented by Syed Nurul Alam, chief scientific officer of Bangladesh Agricultural Research Institute (BARI), early this year.

A rise in crop production in recent years, credit-based sales by farms and ineffectiveness of pesticides because of adulteration have boosted the demand for pesticides, mainly insecticides that account for more than 60 percent of the pesticide market.

The bulk of the chemical pesticides is used in rice, but the intensity of use is higher in vegetables such as eggplants.

Entomologists say the increased use of the pest control chemical has helped the pests develop resistance and caused resurgence in their population. Its application also destroys beneficial insects, affects fisheries of open water bodies, and above all affects the harmony of flora and fauna.

The use of toxic chemical pesticide without protective gears also affects human health, causing various diseases.

On the other hand, bio-pesticides are environment-friendly, said Ahmed of Ispahani, adding that these pesticides are cheaper than chemical pesticides.

''It is 80-90 percent efficient in controlling pest,'' said the official of Ispahani, which runs bio-pesticide businesses under Ispahani Agro.

Ahmed also claimed that the use of bio product has no residual effect.

Ispahani entered bio-pesticide business at a time when many farmers have become aware of the benefits of biological control against pest infestation, thanks to the government's initiative of forming growers' groups on integrated pest and crop management practices.

Along with Ispahani, some other organisations such as Protegra Crop Care are also working to expand the use of bio-pesticide among farmers.

During 2005-06, pheromone and bio-control agent were used on only 140 hactares of vegetables land. The coverage of the bio-pesticide grew 120 times to 16,000 hectares in 2009-10, according to Syed Nurul Alam.

However, the government's agricultural institutions are still the main buyers of these bio-pesticides, said Ahmed of Ispahani that has established a lab in Gazipur to breed various biological control agents including Trichogramma and Bracon Hebetor.

Farmers have started buying bio-pesticides since 2010, said the official of Ispahani, which sells a gram of Trichogramma at Tk 100 for using on 7.5 acres of land per week.

According to Ispahani, the insect helps control at least 28 species of insect pests, including Brinjal Shoot and Fruit Borer. Bracon destroys larva of insect pests and it is sold at Tk 150. The company also sells sex pheromone for various vegetables at between Tk 20 and Tk 22.

Ahmed said Ispahani initially targeted maize, and vegetables like brinjal, tomato, cabbage and cauliflower, and fruits like mango and guava.

Mamunur Rashid, who grows brinjal and mango using bio-pesticides in Sherpur, Bogra, said he was benefited financially.

''Net profit goes up due to the use of bio-pesticides,'' he said, claiming that expenses for bio-pesticide are much lower.

Rashid said he gets 70-80 infestation-free brinjanls by using sex pheromone.

Only problem is that one has to visit fields every week to check whether there is water in the sex pheromone trap, he said.

Alam of BARI said the use of bio-pesticide is rising globally because of various advantages. ''The main advantage is its cost effectiveness. It kills the targeted insects only,'' he said. ''It is not hazardous to health.''

For Ispahani and others in bio-pesticide business, these benefits will help push up demand.

Ahmed of Ispahani said farmers will like bio-pesticides if they find those cost-effective.

He also said the cost of cultivation using chemical pesticide for brinjal exceeds Tk 65,000 per hectare, whereas the cost is Tk 11,000 for using bio-pesticide.

But he is aware about the attitudes of farmers about adopting any new technology.

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Too much is too bad

STAFF CORRESPONDENT, *Rajshahi*

FOR Saiful Islam, excessive use of chemical fertilisers and pesticides means securing his investment in potato farming.

He finds it a widely practised method, although he knows that he himself is exposed to various health risks while using chemicals 10 to 12 times in the land for boosting production.

Islam of Maria Boiloshing village in Bagmara upazila recently talked to The Daily Star. He said he has been growing potatoes on some three to four bighas of land for over a decade.

He spends Tk 20,000 to Tk 30,000 for growing potatoes on a bigha of land and earns almost double or more in every year.

Islam said he uses pesticides several times in a single season -- six or seven times in every 15 or 20 days in the total cultivation period of 90 to 100 days.

Finally when plants mature, Islam sprays pesticides and fungicides two to three times to protect crops from getting rotten in fields. He uses Kerate, Indofil and Metalix among many other chemicals.

"I know chemicals pose health risks, but we have nothing to do. All other farmers in my village do the same thing."

He gets an itch when he deals with pesticides in field, as he does not use any gloves or masks at that time.

When asked, if the government agriculture officials give them any advices, Islam said: "Their advices never work. I usually follow experienced farmers of the village who are in the profession for years and getting benefits."

Dipendra Mohon Saha, a crop specialist of Department of Agricultural Extension in Rajshahi, said the use of chemicals in vegetables is decreasing gradually, following different government campaigns.

Farmers use chemicals excessively without knowing them clearly, sometimes to make huge profits.

"But things are changing. Farmers now want to accept the advancement of technology. We are trying our best to make them believe that a good yield is possible without using much insecticide."