DEVELOPMENTAL PERSPECTIVE OF ORGANIC AGRICULTURE AND IPM: A REVIEW OF BANGLADESH

M.A. Rahman¹, D. Omar² and M.H. Ullah³

¹ Regional Agricultural Research Stations (RARS), BARI, Rabmatpur, Barisal, Bangladesh,
² Department of Plant Protection, Faculty of Agriculture, Universiti Putra Malaysia (UPM), Selangor, Malaysia
E-mail address: mohammad_ent0@yahoo.com

Abstract

Organic agriculture and Integrated Pest Management (IPM) are widely perceived as being more environmentally friendly than conventional agriculture and plant protection practices. Insect Management using organic methods are a lot like IPM, with an emphasis on cultural practices and without the option of using synthetic insecticides. Newer botanicals such as azadiractin (neem extract), biologicals such as Bt (a bacterial toxin) and other materials including insecticidal soap, kaolin (clay) and a variety of plant-based repellents such as garlic and hot pepper sprays are available. In Bangladesh, organic agriculture research is at the very premitive stage. Infrastructure and marketing behaviour of these inputs are not so well organized. On the other hand, research on IPM is widely practising and also some new avenues especially biological control has developed against vegetable pests. Recently, peoples are getting aware about the advantages of organic food and few shopping malls especially in capital city Dhaka are introducing vegetables produced through using organic insecticides. Urban customers are gradually inclining to buy organic products with paying comparatively higher prices than the same produced by using synthetic fertilizers. Most organic farms use fewer pesticides than conventional farms. The five main pesticides used in organic farming are Bt, pyrethrum, rotenone, copper and sulphur. Fewer than 10% of organic vegetable farmers acknowledge using these pesticides regularly; 5.3% of vegetable growers in admit rotenone while 1.7% admits pyrethrum. Reduction and elimination of the use of chemical pesticides is technically unavoidable for practical reasons. Organic pesticides often act as a complement of other pest control methods. Less toxic but still effective organic insecticides include neem, spinosad, soaps, garlic, citrus oil, capsaicin (repellent), Bacillus popillae, myco-insecticides such as Beauvaria bassiana, and boric acid. Biological pest control uses natural predators or Parasitoid wasp/parasitoids such as praying mantis, Trichogramma sp, Trathala flavoortitalis, Bracon habetor, minute pirate bugs, big-eyed bugs, and to a lesser extent ladybugs (which tend to fly away), all of which eat a wide range of pests.

INTRODUCTION

Organic and IPM practices where different from of conventional practices is heavily dependent on the use of synthetic fertilizers and pesticides and integrated all plant protection approaches in an umbrella with the minimum use of pesticides. The reduction or non-use of synthetic chemicals with organic farming system can decrease the environmental hazards and possible adverse effects on wildlife. Organic materials improve the physical, chemical and biological properties of soil in contrast to synthetic fertilizers. Use of organic materials is, therefore, necessary to sustain the productivity of soils as well as soil health. The most common organic materials which are currently used throughout the world are biofertilizers, humate fertilizers, manure spreaders, crop residues, green manure, guano, bone meals, compost, farmyard manure, fish meal, fish wastes, liquid manure, sewage sludge, slurry, etc.

The agricultural sector is contributes around 21 percent of the country’s GDP and provides for 52 percent of its employment (Bangladesh Economic Survey Report 2007) and approximately 13% of the total cropped area is triple cropped, 50% double cropped and the remaining 37% areas are single cropped, settlement and water bodies. But agricultural practices without chemical fertilizers seem to be impractical because the country demands more production to
keep pace with increasing population rather than quality products. The ‘Hortex Foundation’ of Bangladesh has also developed a scheme to promote high value crops, particularly high-value non-traditional crops; and their sale to high-price, non-conventional international markets. Their aim is to improve the income of farmers and thereby contribute towards eliminating rural poverty (Hortex Foundation 2006). Yussefi and Willer (2003) have argued organic agriculture is not just a solution for rich countries, but can also be beneficial for poor countries, where it can contribute to purposeful and sustainable socio-economic and ecological development. Up until now, however, Bangladeshi farmers have not been able to benefit from the growing global organic market, and they have even failed to create a good domestic market of organic foods. So, considering the benefit of organic farming including IMP based plant protection-a review was undertaken to explore the environment friendly agricultural production in Bangladesh found in an umbrella.

MATERIALS AND METHODS

This piece of paper is absolutely a review paper. So that all of the information’s have been collected from the secondary sources. With a view to writing this paper various relevant books, journal, proceedings, periodicals, annual reports, internets and publications that were available in different libraries, website and personal contact were reviewed. Valuable information from resource personnel were also collected. Those collected information’s were compiled and this paper was prepared.

DISCUSSION

Organic farming including IPM based plant protection of Bangladesh is very complex. Developmental perspective of organic agriculture and IPM in Bangladesh are discussed below under the following sub heading-

Organic Farming and IPM in Bangladesh

In Bangladesh, organic farming still occurs largely on an experimental basis with few exceptions with organic cultivation has been estimated at 0.177 million hectares land (IFOAM, 2006), representing only 2% of the country’s total cultivable land. By 2005, only 100 of its traditional farms and 47 NGOs are engaged in practicing organic agriculture, among them Kazi and Kazi Ltd. is a leader. Kazi and Kazi Ltd. are marketed as “Meena Tea” (Tea International 2005) and also produce fresh organic vegetables and herbs in “Meena Bazar,” of Dhaka city. Moreover, PROSHIKA’s EAP (Ecological Agriculture Program) has involved around 0.8 million farmers in organic cultivation across 0.22 million acres of land. Out of these, 0.22 million farmers started to practice ecological agriculture on 0.08 million acres of land in the last five years.

Trained farmers spent US$ 9 (1 US$=Tk.70) per hectare less on pesticides compared to their untrained neighbouring farmers, which is a reduction of 87.0 per cent in T. Aman season. At the same time, they produced a 371 kilo higher yield per hectare, which is a yield increase of 10.6 per cent. Moreover, IPM trained farmers had reduced their pesticide use by 86 per cent. Since 1989, a number of IPM projects, executed by Government departments, international agencies and NGOs have come into existence in Bangladesh. Bangladesh has already produced some core IPM trainers and it is expected that, by the end of 2011, there will be about 2100 IPM trainers from Department of Agricultural Extension (DAE) alone and more than 400 from NGOs, particularly CARE. Also, about 1100 farmer trainers will be produced. So far, close to a 100,000 farmers have already received season-long practical in depth training in IPM but this represents only 0.27 per cent of the estimated 37 million farmers employed in agriculture in the country. As in all other Asian countries with similar IPM programmes, the IPM trained Bangladeshi farmers were able to reduce their pesticide use by as much as 80 per cent and yet produced about 10 per cent more yields.
Global Organic Market Scenario

The worldwide organic market sales were US$ 32.3 billion in 2009 and forecasts that by the year 2012, the global organic market is expected to reach US$133.7 billion (Bharat Book Bureau 2006). Increasing consumer awareness of health and environmental issues has been an important driving force for the recent growth in sales of organic food: 17 to 22% annually, compared with 2 to 3% for conventional foods. Throughout the world, over 100 countries are producing certified organic products on a commercial basis, including 30 countries in Africa, 30 in Asia, 20 in Central America and the Caribbean, 10 in South America, 5 in Australasia and the Pacific, most countries in Europe, as well as the United States and Canada (IFOAM 2006).

Socio-Economic Profile of Consumers

It is crucial to know about the Socio-economic profile of consumers of organic foods in Bangladesh e.g. 51% of the consumers were highly conscious regarding their personal health, around 40% were moderately conscious, 10% had low consciousness and 63% had medium awareness regarding the environmental hazards caused by agro-chemicals, around 30% were highly aware, and less than 8% had low awareness. Based on annual income in thousands of taka (taka is the Bangladeshi currency; 1000 BDT= US$14.61), most of the consumers who usually buy organic foods (93%) belong to either middle or rich class, whereas less than 8% were poor. Perhaps surprisingly, most of the consumers (90%) were willing to pay more than the present market price for certified organic foods.

Perception of Consumers about Organic and IPM

The most respondents (91%) want organic foods that are certified, since more than half (63%) were not confident that the available organic foods were really organic. Nearly two thirds of the consumers (63%) ‘partially agreed’ that “available organic food items are really organic” and that “quality is satisfactory”. However, only a third of respondents (31%) firmly believed that the available organic food items were really organic; and less than a third (29%) were completely satisfied with the quality of available organic food products. Moreover, only a quarter of our respondents (25%) ‘agreed’ that organic foods are highly priced, with two thirds (67%) ‘partially agreeing’ and only 9% ‘disagreeing’.

Drawbacks Associated with the Expansion of Organic Farming and IPM Practices

Organic farming in Bangladesh has four core problems such as poor farmers, poor farmer knowledge of organic farming and its benefits, insufficiency of organic inputs and poor marketing of organic foods. It is very difficult for poor smallholder organic farmers to resolve these problems alone, and to develop their organic farms. Organic agriculture practices expansion has remained limited but the organic agricultural movement has been active in Bangladesh since the 1980s. A mechanism for the establishment of national IPM for Bangladesh is suggested. At present, the plant protection wing of the Department of Agricultural Extension is directly involved in the implementation of IPM activities. No national IPM programme exists. An organizational setup would be needed to ensure the proper implementation of national IPM and green farming programmes.

REFERENCES


