Editorial

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Biological Control for Sustainable Agriculture

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The production of food grain should increase to 250 million tonnes by the year 2020 in order to meet the needs of the growing population. Beyond good agronomic and horticultural practices, growers often rely heavily on chemical fertilizers and pesticides. However, the environmental pollution caused by excessive use and misuse of agrochemicals has led to considerable changes in people's attitudes towards the use of pesticides in agriculture. A concomitant increase in the proportion of pests and diseases resulted in the increased use of toxic chemicals for their management. The number of species resistant to insecticides and fungicides is increased due to unrestricted use of pesticides. The agricultural pest control method known as biocontrol, or "bug vs. "bug," has been considered among the most viable alternatives to the excessive use of chemical pesticides in agricultural systems. Working via the cautious introduction of the natural enemies of crop pests such as microorganisms and insect, parasitoids, predators and biocontrol occupies a unique niche as a flexible alternative to conventional pesticide reliant techniques as well as stringent organic agriculture. Despite these considerable advantages, the global rate of reliance on biocontrol agents as the prime pest control method remains relatively insignificant, comprising only one to three per cent of the worldwide annual turnover of plant protection products. Several common obstacles to a wider adoption of biocontrol will be identified as the low levels of investment in research and development (R&D) for improving biocontrol agents, the lack of coordination among growers in adopting this method, the weak or conflicting regulatory framework and the absence of market incentives accompanied by consumer awareness about the advantages of this method. In recent years after signing of the general agreement of trade and tariff of world trade organization more emphasis is given to the use of eco-friendly pesticides for crop production in view of their least toxic nature, low levels of disease resistance and low residue problems. However, Biological control should be integrated with other control measures because different methods are effective at different times and locations under varying conditions. Integrated Pest Management (IPM), with biocontrol being core component, emerged as early as the 1950s in response to problems caused by the commercial use of synthetic chemical pesticides in irrigated agricultural systems, which had an adverse impact on human and environmental health. A small fraction of organic growers have not been very supportive for Integrated Pest Management mostly because the IPM does allow for some usage of chemical pesticides, which is incompatible with the purist concept of "organic" agriculture. Food and Agriculture Organization, the World Bank and others have continuously promoted "farmer driven ecologically based pest control", the actual national implementations of these global policy recommendations are weak. Yet the world's agricultural systems need to adopt these methods more than ever.