AgriCos e-Newsletter
ISSN: 2582-7049
AgriCos e-Newsletter
Open Access Multidisciplinary Monthly Online Magazine
Volume: 02 Issue: 12 December 2021 Article No: 05

Scope and Limitation of Bio intensive and Ecological Based IPM Programmes

Dwarka[1] and Anand Kumar Panday[2]

[1]Ph.D. Research Scholar, Department of Entomology, Jawahar Lal Nehru Krishi Vishwa Vidyalaya, Jabalpur, M.P.

[2]Assistant Professor, P.C. Unit Sesame and Niger, Department of Entomology, Jawahar Lal Nehru Agricultural University, Jabalpur, M.P.

SUMMARY

The various approaches of IPM are systems approach, comprehensive approach and a coordinated, compatible combination of suitable tactics. One can get information about IPM through print, mass media and electronic media. The major goals of IPM are to maintain environmental quality, economic reliability and reduce the risk of crop loss. The present IPM system differs from traditional and industrial pest management systems with respect to goal, principal methods, target, research and extension. IPM systems are knowledge intensive. Many steps are involved in developing an IPM programme. Analysis of current status of research is an important component for development of IPM system. Definition phase and experimental research phase are important components in formulating a research pathway. Farm owners, chemical industry, pesticide sales, cooperatives, public agencies and independent consultants are IPM practitioners.

INTRODUCTION

Now after studying four blocks you must have got a good understanding of IPM, i.e. its concepts, tactics, strategies, decision making. Simple application of individual tactics for pest management without considering other pests, their ecology, environment and society is not the goal of IPM. Individual tactics are the tools that serve is building blocks to create an IPM programme. In this unit you will study about goals of IPM and strategies for different pests, various steps involved in developing an IPM programme and its implementation and adoption. Societal, environmental and economic constraints to IPM tactics are also discussed at length.

IPM

Integrated pest control is a pest management system that, in the context of associated environment and population dynamics of the pest species, utilize all suitable techniques and method in as compatible manner as possible and maintains pest population at levels below those causing economic injury. (FAO, 1967)

Objectives:

- Explain goals and approaches of IPM,
- Discuss importance of different tactics of IPM to manage different pests,
- Describe development of an IPM programme,
- Explain critical issues in IPM programme implementation and its adoption and
- Describe societal, environmental and economic constraints to IPM tactics.

Goals of IPM

- The IPM programme must maintain economic reliability in managing pests.
- IPM practices should reduce the risk of crop loss.
- Due to the importance of pest resistance in pest management tactics, particularly with pesticides, an IPM programme must be designed to minimize selection pressure on pests.
- IPM programme must strive to maintain environmental quality, and must avoid use of tactics that are unnecessarily disterb or damaging to ecosystems.

IPM Strategies

- Managed ecosystem.
- Ecosystem and environmental constraints.
- Production philosophy of the agroecosystem manager.

- Category of pests.
- Economics of the agroecosystem.

Principles of IPM

- Identification of key pests.
- Pest biology and ecology.
- Characteristics of the regional crop-production.
- Cost-benefit information on control tactics.
- Regional management components.
- Scouting and monitoring system.
- Resistance management.
- Environmental and social constraints.

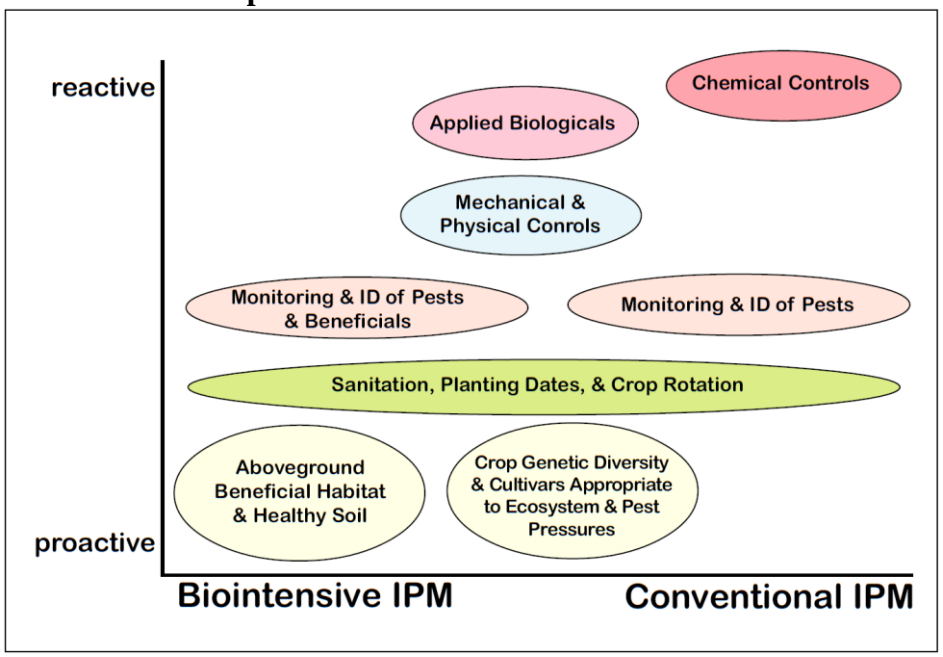
Why Bio-intensive Integrated Pest Management (IPM)?

- Integrated pest management originated as are action to the over use of insecticides and is now the dominant paradigm that guides development of insect pest management technologies all over the world.
- Most IPM programmes still include economic threshold level based application of chemical insecticides as a major input.
- Ample evidence available w.r.t. adverse effects of these synthetic chemicals on the ecosystem, the environment and on human and animal health. Therefore, there is an urgent need to curtail and ultimately eliminate the use of chemical pesticides in IPM programmes.

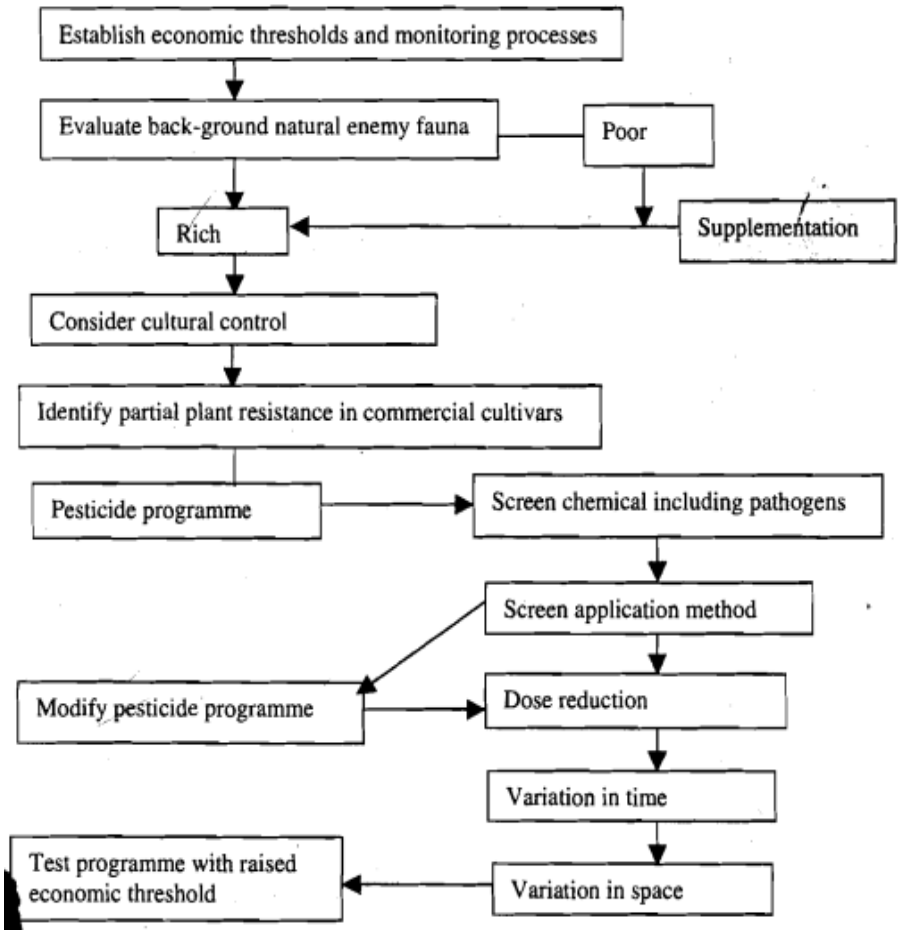
Biointensive IPM

- A systems approach to pest management based on an understanding of pest ecology.
- It begins with steps to accurately diagnose the nature and source of pest problems, and then relies on arrange of preventive tactics and biological controls to keep pest populations within acceptable limits.
- Reduced-risk pesticides are used if other tactics have not been adequately effective, as a last resort, and with care to minimize risks, (Benbrook, 1996).

BIPM options may be considered as proactive or reactive



Framework of IPM



Scope of Biointensive Programmme

- Biointensive IPM is considered the desirable path to sustainability in agriculture.
- There is now wide array of techniques available to replace the use of conventional chemical insecticides in IPM programmes.
- The challenge before applied entomologists is to develop, validate and disseminate the site-specific biointensive IPM technologies to the farmers.
- There is also a need to strengthen research in strategic are as like genetically improved bioagents/ biopesticides and pest-resistant transgenics.
- Utilization of molecular approaches will go along way in overcoming the major limitations of biological pest control.
- With these advancements, biointensive IPM appears poised to play a greater role as an environmentally benign alternative to chemical insecticide based IPM for sustainable insect pest management in future.

Limitation of Biointensive Programme

- Non-availability of certain BIPM components like bio-control agent viz. parasitiods, predators,entomopathogenic fungi, NPV etc.
- Lack of quality pheromone lure.
- Lack of proper storage conditions at farmer level to store microbial pesticides.
- Extension gaps beteen scientist, farmers and extension officiers.
- Technology for mass production and application of bioagent has been developed in few cases but needs refinement.

- Large scale insectaries have not been established either in public or private sectors to enable the supply of bioagent.
- Implementation of Farmer Field School is not so effective.

Sources of IPM Information

Printed sources: Text books, regional publications prepared by government agencies and universities.

Professional organizations

a) Pest discipline professional organizations.

b) Organizations representing integrated pest management.

- Public meetings.
- Field days and demonstrations.

Mass media: Magazines and TV are used to market pesticides.

Electronic. The availability of microcomputers has provided several improvements to the way that pest management information can be stored, retrieved, delivered, and utilized. The internet allows for widespread availability of pest management information via the WWW.

1. Pest identification.
2. Forecasting models.
3. Pest biology and ecology.
4. Phenological models.
5. Field records.
5. Weather data (historic and current).
7. Pesticide label information.
8. Control recommendations.

CONCLUSIONS

The adoption of a more ecological approach in which the actions and interactions of the component technologies are fully understood within the context of the local agroecosystem could lead to the develop ment of more effective and sustainable 'truly integrated' pest management. Developing a truly integrated pest management system that addresses the problems of sustainable agriculture will require that more emphasis is placed on long-term solutions, even if the practical outputs are inherently simple.

REFERENCES

Agranova .2008. Agrochemicals – Executive Review, 19th edn.

Agranova, UK. Altieri, M.A. 1994. Biodiversity and Pest Management in Agroecosystems. Haworth Press, New York.

Altieri, M.A. and Nicholls, C.I. 2003. Ecologically based pest management: a key pathway to achieving agroecosystem health.

Dhaliwal, G.S. and Arora, R. 2001. Integrated Pest Management: Concepts and Approaches. Kalyani Publishers, New Delhi, India.

Dhaliwal, G.S., Koul, O. and Arora, R. 2004. Integrated pest management: retrospect and prospect. In: Koul, O., Dhaliwal, G.S. and Cuperus, G.W. (eds) Integrated Pest Management: Potential, Constraints and Challenges. CAB International, London, UK, pp. 1–20.

Dharam P. Abrol and Uma Shankar. 2015. History, Overview and Principles of Ecologically-based Pest Management. See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/272172197

Dufour R. 2001. BIOINTENSIVE INTEGRATED PEST MANAGEMENT (IPM). ATTRA is the national sustainable agriculture information center funded by the USDA's Rural Business--Cooperative Service.