

A Review :

## Pest management strategies in precision farming

MANJUNATH CHOURADDI, R.A. BALIKAI, C.P. MALLAPUR AND PRABHU NAYAKA



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See end of the article for authors' affiliations

Correspondence to :

**R.A. BALIKAI**

Department of  
Agricultural  
Entomology, College of  
Agriculture, College of  
Agricultural Sciences,  
DHARWAD  
(KARNATAKA)  
INDIA  
Email : rabalikai@  
gmail.com

### SUMMARY

Knowledge of within field variability allows producers to identify and characterize the site-specific management needs for an individual field or management zones within a field. Precision agricultural technologies and site-specific management strategies allow producers to differentially target crop production inputs to those fields or management zones that are likely to provide the greatest benefits. Insect pest management still represents one of the greatest variable expenses incurred by a cotton producer in Louisiana (USA). Cotton integrated pest management (IPM) utilizes chemical control strategies for insects by targeting only those populations that exceed an economic action level to initiate treatment. In Tamil Nadu precision farming project (TNPF), study has revealed that adoption of precision farming has led to 80 % increase in yield in tomato and 34% in brinjal. Increase in gross margin has been found as 165 and 67%, respectively in tomato and brinjal farming. Lack of finance and credit facilities have been identified as the major constraints in non-adoption of precision farming.

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### Key words :

Precision pest  
management,  
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GIS, RS

Insects, diseases and weeds are the major pests that the farmer encounters during crop cultivation. Although, there are various means of pest management viz., cultural, mechanical, biological control etc., farmers continue to rely upon chemical control for its greater efficacy, easy handling and quick results. But the over-application of pesticides leads to the problem of chemical residues in soil as well as in the produce. Hence, it is essential to apply appropriate amount of pesticides. Considerable variability exists in the population dynamics of pests over every piece of land. However, in conventional agriculture, without considering this variability pesticides are being applied at a uniform rate throughout the field. Precision pest management (PPM) emphasizes on this aspect and deals with judicious pest management at micro-level wherein only required quantities of pesticides are applied giving due consideration to the existing variability of pests.

### Precision farming:

Precision farming is the application of technologies and principles to manage spatial

and temporal variability associated with all aspects of agricultural production for the purpose of improving crop performance and environmental quality (Biswas *et al.*, 2008).

### Precision pest management (PPM):

PPM deals with judicious pest management at micro-level wherein only required quantities of pesticides are applied giving due consideration to the existing variability of pests. It is also defined as the art and science of utilizing advanced technologies for enhancing crop yield while minimizing potential environmental threat to the planet (Khosla, 2001).

### Components of precision pest management:

Geographical information system (GIS), Global positioning system (GPS), Remote sensing (RS) and Farmer are the major components of precision farming (Sharma *et al.*, 2005).

### Geographical information system (GIS):

As the precision pest management is information based and concerned with spatial

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