CONSTRAINTS FACED BY COTTON GROWERS IN ADOPTION OF INTEGRATED PEST MANAGEMENT STRATEGY

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ABSTRACT

The present study was conducted in Sriganganagar district of Rajasthan with a sample of 120 cotton growers as respondents drawn by using proportionate random sampling technique to identify the constraints faced in adoption of integrated pest management strategy. The findings of the study identified non-availability of qualitative trainings on IPM strategy/technologies, lack of credibility of IPM measures, lack of quality IPM inputs, scarcity of labour, lack of precision (time) of IPM techniques applications and high cost of IPM inputs as major constraints faced by the cotton growers in adoption of IPM techniques. The reason for poor adoption of IPM technologies lies with extension agency of State government which is not conducting the trainings as per need and time of the cotton growers. Further, the faith in the effectiveness/performance of IPM techniques is low among the farmers as they did not consider these credible in effective controlling the insects that attacked the cotton crop.

Key words: Constraints, Cotton, IPM.

Cotton is one of the most important fiber crops and extensively cultivated commercial crop of the world. India ranks first in acreage under cotton crop in the world and stands fourth in terms of production. Among cotton growing states of India, Rajasthan is one of the major cotton producing states. In Rajasthan, Sriganganagar district has the major area under cotton crop. Commercial crop cotton suffers from insect pests to a greater extent at all stages of crop growth. Hence, farmers mostly depend upon chemical pesticides for control of these noxious pests. Sole reliance and indiscriminate use of broad spectrum insecticides lead to the development of resistance in many of the cotton pests and control failures of these pests was noticed due to loss of their control efficacy. Several attempts were made by many researchers to develop IPM modules in cotton by integrating various components that are suitable for specific location. Due to some constraints cotton growers do not adopt integrated pest management strategy at desired level. Constraints refer to the items of difficulties faced by the cotton growers in adoption of integrated pest management strategy. Therefore the present study has been conducted on the constraints faced by cotton growers in adoption of integrated pest management strategy.

IPM interventions

Clean up campaign: A clean up campaign was organized in the project village to enlighten the farmers on the need to dispose off the crop stubble after picking of kapas and the advantage of deep ploughing to kill hibernating insect stages by exposing to sun and birds.

Selection of variety/hybrid: Select variety or hybrid which was slightly tolerant to jassids and thus facilitated in reducing early sprayings in the season. 
Seed treatment: Through the seed treatment with thiomethoxam (cruiser) @ 5 g/kg seed was implemented to prevent other early sucking pests, particularly aphids.

Growing of trap crops: Marigold and castor were planted in IPM fields after every 8 rows as trap crops against *Helicoverpa armigera* and *Spodoptera litura*, respectively.

Stem application of insecticides: Stem application with monocrotophos at 1:4 ratio or imidacloprid 200 SL at 1:20 ratio with water was adopted at 40 and 60 days after sowing against early season sucking pests.

Erecting of bird perches: Birds perches @ 20 /ha. were erected in the fields for facilitating bird predation on *Helicoverpa* larvae.

Erecting of pheromone traps: Ten pheromone traps were installed for each of the three bollworms and were monitored daily for need based application insecticides.

Neem seed kernel extract: The neem seed kernel extract (NSKE) at 5% was applied directly or mixed with the insecticide mainly for managing both *Helicoverpa* and White fly on need basis.

Topping: Topping of cotton plants at 100 days after sowing coinciding with *Helicoverpa* egg laying was done to reduce the egg population and it also facilitated more growth of lateral branches thereby resulting in higher yields.

Hand picking: Hand collection of growth up *Helicoverpa* larvae was done when required, which greatly helped in keeping the pest population under check with less investment on plant protection.

Need based chemical application: Finally, application of insecticides was recommended only on need basis as a last resort, particularly against bollworms.

MATERIAL AND METHODS

The present study was conducted in Sriganganagar district of Rajasthan. Out of 7 blocks of this district, 3 blocks viz. Padampur, Sardulshahar and Anupgarh were selected randomly. From the 3 selected blocks, 4 villages in each block were selected and a sample of 120 cotton growers as respondents drawn by using proportionate random sampling technique to identify the constraints faced in adoption of integrated pest management strategy. A well structured and pre-tested personal interview schedule was used to collect the data. Data were collected by the investigator through personal interview technique. Thereafter, the collected data were analyzed by using appropriate statistical tools.

RESULTS AND DISCUSSION

The respondents were asked to express their responses on constraints faced by them in adoption of integrated pest management strategy in cotton crop. During the investigation the respondents expressed their constraints which are presented in Table-1.

The major constraints faced by cotton growers in adoption of integrated pest management strategy/technologies of cotton have been ranked as per the perceptions of the respondents. Based on the ranking of the constraints it is clear from the Table-1 that timely un-availability of qualitative trainings on IPM strategy/technologies to the farmers has been ranked first followed by lack of credibility of IPM measures and lack of quality IPM inputs. The remaining constraints lack of finance, scarcity of labour during work season, lack of precision (time) of IPM techniques applications and high cost of IPM inputs were also perceived as constraints in adoption of IPM techniques by the cotton growers. The intensity of these constraints did not affect farmers’ decision in adopting IPM techniques in cotton. These findings are in conformity with the results reported by Katole et. al. (1998) and Ramarethianam (1998).

From the study it was found that trainings on cotton technologies especially on IPM techniques become most important constraint as extension agency of state government is not organizing the trainings as per need of the cotton growers. The other reason might be lack of man power with the agency.
This led to the poor transfer of cotton technologies among the farmers. Further, the faith in the effectiveness/performance of IPM techniques is low among the farmers as they did not consider these credible in effective controlling the insects that attacked the cotton crop. Those respondents willing to adopt IPM measures did not get quality inputs so they could not able to use them in their cotton crop.

**CONCLUSION**

The present study was conducted in Sriganganagar district of Rajasthan which includes in cotton belt of Northern India. Findings of the study were that majority of cotton growers faced the constraint of timely un-availability of trainings on IPM technologies, Lack of credibility of IPM measures and lack of quality IPM inputs. To increase the adoption of integrated pest management technologies, the study suggested that trainings programme should be organized as per need of the cotton growers and on large scale. In addition to this extension agency should conduct field demonstrations at farmer’s fields to develop faith of farmers in performance of the IPM methods. Further, State government should extend subsidy facility directly to the cotton growers for higher adoption of the IPM technologies by the farmers.

**REFERENCES**


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**Table No. 1**: Constraints responsible for non-adoption of IPM strategy.

<table>
<thead>
<tr>
<th>Constraints</th>
<th>Respondents</th>
</tr>
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<tbody>
<tr>
<td>Timely un-availability of qualitative trainings on IPM strategy/technologies</td>
<td>66</td>
</tr>
<tr>
<td>Lack of credibility of IPM measures</td>
<td>61</td>
</tr>
<tr>
<td>Lack of quality IPM inputs</td>
<td>52</td>
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<tr>
<td>Lack of finance</td>
<td>42</td>
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<tr>
<td>Scarcity of labour during work season</td>
<td>41</td>
</tr>
<tr>
<td>Lack of precision (time) of IPM techniques applications</td>
<td>18</td>
</tr>
<tr>
<td>High cost of IPM inputs</td>
<td>14</td>
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</tbody>
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N=120