Indigenous Technological Knowledge (ITK) | RASHTRIYA KRISHI | Volume 12 | Issue 1 | June, 2017 | 1-3
e ISSN–2321–7987 | ●●● Article ●●● |Visit us : *www.researchjournal.co.in*|

# Indigenous Technological Knowledge (ITK) for pest management in Tinsukia district of Assam

**R.K. Nath,** P. Ahmed **and** A.C. Sarmah
Krishi Vigyan Kendra (A.A.U.), TINSUKIA (ASSAM) INDIA
(Email : rupaknath09@gmail.com)

**ABSTRACT**

The present study describes the ITK of pest management practiced by the farmers of Tinsukia districts of Assam. The information was collected on the basis of personal interview to each of the farmer through a questionnaire. A total sample of 200 farmers of twenty different villages was selected randomly from three rural developmental blocks of the district. All in about 30 ITKs were collected and documented. The percentage of farmers practicing different ITKs ranged from 11 to 78.65 per cent. Identification of scientifically sound indigenous practices may serve as the input for valid scientific management for large scale use of insect pest management and in generation of low cost, location specific and appropriate technology.

Farmers are using biorationals like ITKs for insect pest management since time immemorial. This knowledge is based on many generations of insight gained through close interaction within the natural and physical micro-environments (Rajasekaran *et al.*, 1991 and Kolawole, 2001). ITKs are passed verbally from one generation to the next without having authenticated written documents except a few. Many definitions have been proposed for ITK systems, but all of them are incomplete, because the concept is relatively new and still evolving. The ITKs are eco friendly and compatible to pest management practices (Deka *et al*., 2006). Mainly ITKs are based on cultural values of the community. Thus it consists of technologies developed by farmers over decades of adjusting farming systems to local agro climatic and social conditions (Venkata Ramaiah and Rama Raju, 2004). The methods of controlling pests were indigenous in nature since farming did not include the use of chemical pesticides or fertilizers. In this context, collection, compilation and scientific evaluation of ITKs are very important.

The present study aims at insect pest management in rice-rice cropping sequence and collection, compilation and scientific evaluation of commonly practiced ITKs by the farmers in connection to rice and other crops pest management in Tinsukia, district of Assam in Northeast India.

The study was conducted with a sample of 200 farmers of twenty different villages of Tinsukia, district of Assam. A purposive cum random sampling technique was followed to draw the sample for the study. Three Rural Development Blocks *viz*., Hapjan, Margherita and Kakopothar were purposively selected for the study.

The investigation was carried out with various problems faced by the farmers during pest management in various crops (rice, citrus and vegetables, stored grain).

A semi structured interview schedule was administered to individual respondents which were followed by group discussion to collect the relevant data/ information from the respondents.

The data were collected by personal interview method using both structural schedule and semi-structured interview during 2014-16.

After completion of survey, a total of 200 filled in questionnaire were analyzed to find out the ITK related to pest management practices.

After going through the questionnaire filled up by the famers it was revealed that about 80 per cent were aware about the ITKs and these are known to them from the seniors. The farmers reported that use of ITKs has great role in management of pests of crops. The identified ITKs along with rationale drawn from their experiences are presented in Table 1.

From the investigation it was observed that, a total of

**Table 1 : Indigenous technological knowledge (ITK) for pest management in Tinsukia district**

| Sr. No | ITKs | Purpose | Remarks |
|---|---|---|---|
| 1. | Application of bamboo perches in rice field | To control rice pests | Bird perch on the branches and act as predators of insects |
| 2. | Application of Germany bon(*Eupatorium audoratum*) in rice field | To control rice pests | It acts as a repellent |
| 3. | Application of wood ash in vegetables | To control major pests of vegetables | It acts as a repellent |
| 4. | Hanging dead frog/ crabs in rice field | To control rice Gandhi bug | It acts as a an attractant |
| 5. | Night firing in rice field | To control rice pests | The fire acts as an attractant for Gandhi bugs |
| 6. | Application of pumelo peel in rice field during vegetative stage | To control rice pests | Pumelo acts as a repellent for stem borer |
| 7. | Application of goat excreta in rice field | To control rice pests | The goat excreta act as a repellent for insect pests |
| 8. | Use of mustard oil cake in potato field | To control red ant and mole cricket | It acts as a repellent for red ant and mole cricket |
| 9. | Application of salt in coconut | To control trunk borer | Salt acts as a repellent |
| 10. | Application of neem leaf extract in rice field | To control rice field | Neem act as antifeedant |
| 11. | Use of fish water in citrus | To control trunk borer | The fish water attracts predatory red tree ants |
| 12. | Application of row cow dung in rice field | To control rice pests | Cow dung contents nitrogen which helps to revive insect pests damage |
| 13. | Smoking in cucurbits | To control fruit fly | It acts as a repellent for fruit flies |
| 14. | Application of milk in coconut | To control trunk borer | Milk attracts predatory red tree ants |
| 15. | Application of cow urine in citrus | To control citrus pests | It acts as repellent |
| 16. | Application of cut pieces of black colocasia in rice field | To control rice pests | It acts as repellent |
| 17. | Use of dry neem leaves in godown | To control stored grain pests | It acts as an antifeedant |
| 18. | Biting empty drum in field | To control bird pests | Due to sound produced, birds are frightened and driven away from the field |
| 19. | Kerosene oil dipped rope running over standing crop in rice field | To control rice case worm | Kerosene acts as toxicant |
| 20. | Injection of kerosene/ diesel in citrus stem | To control trunk borer | It acts as toxicant |
| 21. | Application of tobacco leaf extract | To control rice pests | Alkaline nature of tobacco acts as antifeedant/repellent to pests |
| 22. | Mixing detergent solution with tobacco powder and spraying the mixture in vegetables | To control vegetables pests | It acts as antifeedant/repellent to pests |
| 23. | Straw is wrapped around the tree trunks | To prevent insects from crawling upwards | The straw acts as a barrier for crawling up the insects upwards |
| 24. | Keeping rotten lemon in rice field | To control rice pests | Act as attractant for pests |
| 25. | Wrapping gourd with a polythene | To control fruit flies | Polythene act as a barrier of fruit flies for laying egg |

*Table 1 contd….*

*Contd….. Table 1*

| | | | |
|---|---|---|---|
| 26. | Apply layer of cow dung in storage bin | To control rice moths | The cow dung layer covers the crack and crevices of storage bin which prevents egg laying of rice moths |
| 27. | Using thorny branches of ber (*Ziziphus* spp) | To control of rice hispa | Hispa get injury and face disturbances in movement. |
| 28. | Cutting the edges of border of the rice field | To control of rice pests | It reduces pest population by killing the pest hibernating in the border edges and also reduces the alternate hosts. |
| 29. | Mixing pulse seeds with black pepper powder and kerosene in godown | To control stored grain pests | It acts as toxicant |
| 30. | Apply cut pieces of papaya stem and tender fruits in rodent hole | To control rodent pest | Latex of papaya irritates rodent pest |

30 numbers of ITKs were identified in pest management of crops. The study reveals that many of the indigenous practices, which are still in vogue, meet the farmers needs in minimizing risks in field conditions. Small holding farmers have regularly been using ITKs. However, medium and large farm holding farmers often rely on chemicals for pest management. It was also observed that most of the ITKs were related to rice pest management followed by citrus crops as Tinsukia district is one of the leading citrus growing area after rice. The percentage of farmers practicing different ITKs ranged from 11 to 78.65 per cent.

**Conclusion :** The documented ITKs serve as a ready reference for the agricultural scientists for further study to determine their scientific rationality and effectiveness. Since ITKs are organic in nature, the documented ITKs may be useful for extension personnel in planning and executing various IPM module. Hence, it can be concluded that the ITKs, which are prevalent among the farmers from the time immemorial, if organized and used scientifically may help in pest management.

## References

**Deka, M.K., Bhuyan, M. and Hazarika, L.K. (2006).** Traditional pest management practices of Assam. *Indian J. Traditional Knowledge*, **5** (1): 75-78.

**Kolawole, O.D. (2001).** Local knowledge utilization and sustainable rural development in the 21st century. *Indigenous Knowledge Develop. Monitor.*, **9** (3): 13-15.

**Rajasekaran, B.D., Warren, D.M. and Babu, S.C. (1991).** Indigenous natural resource management systems for sustainable agriculture development - A global perspective. *J. Internat. Develop.*, **3** (4): 387-401.

**Venkata Ramaiah, P. and Rama Raju, K.V. (2004).** Blending of Indigenous Technologies with judicious use of external inputs for sustainable agriculture paper Peoples Wisdom. Gosh, S.N (ed.). National Council of Development Communication, Sundarpur, Varanasi, pp. 249-253

***Received :*** *08.12.2016* ***Revised :*** *01.04.2017* ***Accepted :*** *15.04.2017*