

Management of trunk borer in Khasi Mandarin

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Abstract

Citrus trunk borer is one of the major pests of khasi amandarin in Dhubri district of Assam. About 15- 60% damage was observed due to the infestation of trunk borer in Khasi Mandarin. Field trials were conducted during 2018-2020 in few declining khasi mandarin orchards on management of citrus trunk borer using improved protection measures developed by Citrus Research Station, AAU. Training and demonstration programme were also carried out in the farmers field of Khasi Mandarin growing area Results of the trial showed that the increases average yield in these rejuvenated orchards were recorded about more than 25% during the period of intervention compared to early years. This has resulted in increase in income of the khasi mandarin growers with a net return of Rs 2,75,000/ ha in the year 2018-20with a B: C ratio of 5.2:1 in different rejuvenated orchards.

Key words: khasi mandarin, trunk borer, rejuvenation, B: C ratio

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Introduction:

Citrus is one of the most important fruits and one of the largest fruit industries in the world, grown in more than 52 countries around the world. Brazil and China are the largest

producers of citrus worldwide producing about 45 million tons of citrus fruit together, followed by USA, India, Mexico and Spain with a production of 10.7, 8.6, 7.2 and 5.5 MT, respectively (Mahmood *et al.*, 2014).

India ranks fourth in the production of citrus fruit in the world.In India, citrus is commercially grown in Maharashtra, Andhra Pradesh, Punjab, Karnataka, Uttaranchal, Bihar, Orissa, Assam and Gujarat. It is of particular interest because of its high content of Vitamin C and refreshing juice. Among the various types of citrus fruits grown in India, mandarin or santra, sweet orange, lime and lemon are of commercial importance.

North Eastern Region is one of the richest reservoirs of genetic diversity of Citrus as the primary as well as the secondary centre of origin of numerous citrus species and has been described as one of the major centre of diversity for citrus in both wild and cultivated forms (Singh *et al.*, 2006).

Bongaigaon is one of the traditional Khasi Mandarin growing district of Assam with an area of 329 ha producing 3248 t of fruits annually (Annon, 2013).

However, it has become a major concern due to sharp progressive decline in production and area under Khasi Mandarin during the last few years in the district. It has been observed that the Khasi Mandarin growing area of Nigamghola area of the district is declining due to unscientific management practices, heavy infestation of pest and diseases mainly citrus trunk borer, poor nutrition etc. The trunk borer Grub bores into the pith generally at the base of the trunk and kills the tree within 3 to 6 years of growth. About 15- 60% damage caused in citrus and even as high as 68% damage in Khasi Mandarin.

Intervention:

Training and demonstration programme were carried out in the farmers field of Khasi Mandarin growing area. Few declining orchards in strategic locations were adopted where in improved crop protection measures for the management of citrus trunk borer developed by Citrus Research Station, AAU, Tinsukia were applied. They are

- Collect the adults and kill them during May- June when they emerge in large numbers by shaking trees

- Prophylactic smearing of 50ml Monocrotophos + 2 kg lime in 10 liters water along with gum at the tree trunk up to 1 metre height from the ground level during March April prevents early infestation of trunk borer.
- Cleaning of infected holes and insertion of cotton soaked in Dichlorovos @ 0.05% followed by mud plastering will have to be done where and when the trunk borer attack is noticed.
- Grubs tunnelling inside the stem can be killed by hooking with curved wire.

Impact:

By adopting improved plant protection measures, the problems of citrus trunk borer were being able to manage. The health of the plants improved and also the yield of the orchards gradually improved resulting in increased income of the farmers. The average increases in yield in these rejuvenated orchards were more than 25% during 2018-2020 compared to early years. This has resulted in increase in income of the khasi mandarin growers with a net return of Rs 2,75,000/ ha in the year 2019-20 and B: C ratio of 5.2:1 in different rejuvenated orchards. It was also observed that before intervention the farmer's income was Rs. 90,000/ha with a B: C ratio of 2.43: 1.

These rejuvenated orchards were demonstrated to the farmers and trainings were organized on the spot regarding improved methods of plant protection. By this way the farmers of the area motivated to adopt the scientific methods of Khasi Mandarin cultivation and to take up cultivation of this crop for higher economic return. As a result, both production and area under Khasi Mandarin in Bongaigaon district has started improving.

Conclusion:

From the above study, it can be concluded that by adopting improved methods of plant protection, Citrus trunk borer problems can be managed. Moreover field level workers of the district need to provide proper technical support to the farmers through different educational and extension methods to motivate the farmers for adoption of improved methods of cultivation.

References:

Anonymous (2013). Area, production, price and value of some horticultural crops in Assam. Govt. of Assam, pp. 110.

Riaz Mahmood, Abdul Rehman and Mushtaq Ahmad (2014). Prospects of biological control of citrus insect pests in Pakistan J. Agric. Res., 2014, 52(2).

Singh, S., Shivankar, V.J., Gupta, S.G., Singh, I.P., Srivastava, A.K. and Das, A.K. 2006. Citrus in NEH region. National Research Centre for Citrus Publ., Nagpur, Maharashtra, India, pp. 1-179.

