

## Bio-efficacy of different insecticides against sorghum aphid (*Melanaphis sacchari* Zehntner)

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### SUMMARY

An field experiment was conducted for evaluating various insecticides against sorghum aphid *Melanaphis sacchari* Zehntner during post rainy season of 2003-2004 at Sorghum Research Station, MAU., Parbhani. All the insecticidal treatments were found significantly superior in reducing aphid population and increasing grain and fodder yield. Amongst various insecticides, dimethoate 30 EC @ 0.03% and imidacloprid 17.8 SC @ 0.009% were recorded highly effective in reducing aphid population to 1.17 and 1.84 aphid/leaf/cm<sup>2</sup>, respectively. The dimethoate treated plots recorded highest grain yield (2205.75 kg/ha) and fodder yield (56.79 q/ha).

Key words : *Melanaphis sacchari* Zehntner, sorghum, aphid, chemical control..

Sorghum (*Sorghum bicolor* (L.) Moench) is an important cereal crop of the world. It is not only meant for human consumption but also gained importance in beverage industry. In the world, sorghum is grown over 43.75 million hectares accounts for production of 54.15 million tonnes of grains with an average yield of 1238 kg/ha. Nearly 80 per cent of the cultivated area lies in Asia and Africa. In India, sorghum ranks third in area (10.18 million hectare) and a production (8.26 million tonnes) after rice and wheat with the productivity of 733 kg/ha. However, National Research Center for sorghum, Hyderabad projected a target of 21.07 million tonnes by 2020 A.D., which calls for raising the productivity (1200 kg/ha) close to global average. In India, Maharashtra stands first with an annual production of 3.09 million tonnes from 5.09 million hectare.

Grain yield in sorghum has substantially increased with the use of high yielding and management responsive F<sub>1</sub> hybrids and varieties. But these high yielding varieties with higher requirement of fertilizers and differences in maturity have become more susceptible and provided continuous breeding ground for insect pests. In sorghum, nearly 150 insect pests have been reported. Amongst these aphid (*Melanaphis sacchari* Zehntner) is becoming economically important in recent years. The aphid damage the sorghum by sucking cell sap, injecting the chemical causing enzymatic destruction of cell leading to chlorosis, transmitting devastating viruses Berger *et al.*, (1983) and also predisposes the plant to diseases such as charcoal rot (Teetes *et al.*, 1973). In addition, aphids secrete honeydew on which black sooty mold develops which hinders the photosynthetic activity of plants and thereby spoils the fodder quality. Negligence in proper management of this pest reported 77 per cent reduction in sorghum grain yield Rensburg and Hamberg, (1976).

For the control of aphids the main reliance is on the

judicious use of insecticides. Many insecticides are recommended for their control from time to time Chaudhari *et al.*, (1994); Balikai and Lingappa, (2003). So that present investigation was undertaken to study bio-efficacy of newer insecticides in comparison with conventional insecticides against aphids and their effect on grain and fodder yield of sorghum.

### MATERIALS AND METHODS

An experiment was conducted with variety M-35-1 during post rainy season of 2003-2004 at Sorghum Research Station, M.A.U., Parbhani (M.S.). The trial was laid out in randomized block design with nine treatments replicated thrice. The plot size was 3.00 x 2.25 m with 45.00 x 15.00 cm plant spacing. All the package of practices recommended for raising the crop were followed. Application of insecticide was done when 90-100 per cent of the total plant population was infested with aphid.

Aphid population was counted from 1 cm<sup>2</sup> area of top, middle and bottom leaf of five tagged plants selected at random. The observations on grain and fodder yield were also recorded. The data was subjected to statistical analysis.

### RESULTS AND DISCUSSION

From the data presented in Table 1, it is evident that all insecticides were significantly superior to untreated control in reducing aphid population ten days after spraying.

Plot treated with dimethoate 30 EC @ 0.03 per cent recorded 1.17 aphids/leaf/cm<sup>2</sup> followed by treatment with imidacloprid 17.8 SC @ 0.009 per cent which recorded 1.84 aphids/leaf/cm<sup>2</sup>. These both treatments were found not only significant but also statistically at par with each other. Next effective treatments were thiomethoxam 25 WG @ 0.005

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