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Management of sweet potato weevil (*Cylas formicarius*) through barrier crops of yam beans and marigold

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Abstract : A field experiment was conducted during 2010-11 at Regional Horticulture Research and Extension Center (RHREC), Dharwad (Karnataka) to control the sweet potato weevil (*Cylas formicarius*) through barrier crops of yam beans and marigold. Data revealed that, among various treatments, the treatment containing boarder row of marigold at all sides had shown significantly lower weevil infestation (17.31 per cent). While significantly higher infestation were noticed in the treatment having sole crop of sweet potato (37.50 per cent). Where as the treatments includes boarder row of yam bean at all side and paired row of sweet potato and one row marigold were an par with each other with respect to per cent weevil infestation. In case of weevil population per kg of infected tuber, the treatment with chemical control (Dimethoate 0.05 per cent) had shown significantly less number of weevils emerged from infected tuber 21.67. This was at par with boarder row of marigold on all side (25.33)

Key words : Sweet potato, Sweet Potato weevil, *Cylas formicarius*

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Sweet potato is one of the important crops of tropical and subtropical countries and temperate climatic zones that are frost free in the world. It is the seventh most important food crop in developing countries and produces more calories than rice, wheat and maize per hectare per day. This is a crop bestowed with photosynthetic efficiency and ability to accumulate calories and nutrients in tubers. Among the Asian countries, china rank first in area and production, and account 80 per cent of the worlds production, the rest of contribution being from Japan, Vietnam, Uganda, India, Indonesia and Korea. India is the largest sweet potato producer in south Asia and occupies sixth position in the world in an area of 0.14 million hectare with an annual production of 1.7 million tonnes and the productivity of 8.3t/ha (Edison, 2001), which is more than half of the world average. In India the districts of Orissa, Bihar and Uttar Pradesh account for 89 per cent area and 88 per cent production. (Edison, 2002). This crop is the principal source of starch and contains 15-28 per cent starch and 3-6 per cent sugar (Harvat *et al.*, 1991). The red skinned sweet potato contains anthocyanin pigment, which are dicaffeoyl

derivatives of cyaniding and peonodin-3-glycosylglucoside. The major amino acids available in total protein are valine, leucine, isolucene, arginine and lysine (Purcell and Walter, 1982), the peel contains more protein than the flesh. The digestive energy value of sweet potato has been reported to be 3490kcal/kg, which is almost comparable with maize which is 3837kcal/kg (Kay, 1973).

Cylas formicarius F. (Curculionidae= Coleoptera), the so called sweet potato weevil, which was first time described in 1798 from a specimen collected at Tranquebar near Madras, India and is found throughout tropics and subtropics wherever crop is cultivated. Though the pest damages the tubers both in field and in storage, the major damage occurs in the field. Even the slight infested tubers are unfit for human consumption. The adults feed only on the surface of exposed roots and on foliage and damage is insignificant. Weevil grubs feed inside the root and vines causing significant damage (Palaniswami and Mohandas, 1991). To manage this destructive pest with cheaper economically viable strategy on scientific footing has to be found out. Hence, the present investigation was under taken to manage of sweet