

Effect of newer insecticidal seed treatment on viability of chickpea seed during storage

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SUMMARY

The experiment was conducted at Seed Technology Research Unit, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra during 2009 to 2012 on chickpea with an objective to ascertain new insecticidal chemical against *Callosobruchus chinensis*, a major pests of stored chickpea seed. The observation on germination and insect infestation were recorded at interval of three months of storage period. Among different insecticides, deltamethrin 2.8 EC @ 0.04 ml/kg or lufenuron 5 EC @ 0.1 ml/kg or emamectin benzoate 5SG @ 40 mg/kg of seed were found equally effective for control of stored grain pest of chickpea and maintained the chickpea seed germination above minimum seed certification standard (85%) upto 9 months of storage.

Key Words : Storage, Chickpea, *Callosobruchus chinensis*

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Chickpea (*Cicer arietinum* L.) is a important pulse crop in India and is the main source of protein for vegetarian. India is the largest producer of this pulse contributing to around 63 per cent of the world's total production (Anonymous, 2007). However, nearly 8.5 per cent of total annual production is lost during post harvest handling and storage (Agrawal *et al.*, 1988). The pulse seed suffer a great damage during storage due to insect attack (Sherma, 1989). Among the insect pest attacking stored product the pulse beetle *Callosobruchus chinensis* L (Coleoptera : Bruchidae) is serious one causing weight loss, lower germination potential and quality deterioration (Mukherjee *et al.*, 1970 ; Singal and Singh, 1985). Both qualitative as well as quantitative losses occur due to *C. chinensis* infestation. Singh and Sharma (1982) estimated 47.53-79.60 per cent loss of germination due to damaged grains by the beetle. This insect has been reported

from the Philippines, Japan, Indonesia, Sri Lanka, Burma and India. It is a notorious pest of chickpea, mung, cowpea, lentil and pigeon pea (Aslam *et al.*, 2002).

Its attack is normally noticed when considerable damage is already done. To avoid such losses, periodic surveillance of godowns with monitoring devices is required for taking timely control measures. Under our condition it is not feasible for farmer to provide ideal condition of seed storage, when seed are to be stored under ambient conditions. Some pre storage seed treatment is needed to take care of insect pests during storage with the aim of improving the shelf life of seed. Keeping the above facts in view, investigations were carried out on efficacy of newer insecticides for control of storage insects and viability of chickpea seed during storage under ambient conditions.

MATERIALS AND METHODS

A laboratory experiment conducted at Seed Technology Research Unit, Mahatma Phule Krishi Vidyapeeth, Rahuri for three consecutive years from 2009-2010, 2010-2011 and 2011-2012. The different insecticides *viz.*, flubendiamide 480 SC @ 4.2 mg/kg (2ppm), emamectin benzoate 5 SG @ 40.00 mg/kg (2ppm), spinosad 45 SC @ 4.4 mg/kg(2ppm), thiodicarb 75

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