Annals of Arid Zone 56(3&4): 125-128, 2017

Effect of Rodenticides on Seed Yield of Rabi Crops in Arid Zone

Bhagwan Singh* and R.S. Tripathi

ICAR-Central Arid Zone Research Institute, Jodhpur 342 003, India

Received: December 2016

Abstract: The study was conducted in Bheenjwadia village of Osian Panchyat Samiti of Jodhpur district to disseminate the rodent management technology through demonstrations, trainings, group discussions, field day etc. Rodent control success (mean of 4 years) with single treatment of zinc phosphide (2%) was 68.53, 61.01 and 65.80% in mustard, wheat and cumin crops on 4th day after treatment. Rodent control success (mean of 4 years) with zinc phosphide bait (2% in bajra grain + 2% groundnut oil) followed by bromadiolone (0.005%) was the 70.89-72.87% on 4 DAT which increased further to 79.17-80.74% on 15 DAT. The seed yield of mustard, wheat and cumin increased by 4.9, 7.6 and 9.2% by using rodenticides. The net returns due to adoption of rodenticide baiting technology was of Rs. 2416.78, 3125.50 and 3500.00 ha^{-1} in mustard, wheat and cumin, respectively as compared to control. Knowledge about the technology was also increased by 44.3% after conducting training program.

Key words: Rodent management, dissemination, rabi crops.

The arid region of India that is spread over 3,17,090 km^2 accounts for 12% area of the country. Western Rajasthan carries the onus of nearly 62% of arid area. Dryland farming is the main occupation of the people in Indian arid zone. In some areas where irrigation facility is available farmers cultivate irrigated crops also. The main irrigated crops grown in the area are mustard, wheat and cumin in rabi season. The productivity of these crops is low as compared to their potentiality. There is a considerable scope for increasing the production of rabi crops. Among various biotic factors, rodents are one of the main problems affecting their productivity in arid zone.

Rodents cause 5-10% loss of food grains annually during production, processing, storage and transport (Singleton, 2003; Hussain *et al.*, 2006; Fayenuwo *et al.*, 2007; Palis *et al.*, 2007; Meerburg and Kijlstra, 2008). They have been reported to cause a loss of 6-8% in paddy, 10-12% in wheat and 20-25% in sugarcane in India at pre-harvest stage (Chattopadhyay *et al.*, 2010; Singla and Babbar, 2010, 2012; Singla and Parshad, 2010). Loss due to rodents can be saved through adoption of rodent management technologies. However, farmers of arid zone are not much aware about this technology. Keeping this in view, Beenjwadia village of Jodhpur district was selected for dissemination of rodent management technology and its impact on rabi crops following various extension approaches.

*E-mail: singhbhagwan776@gmail.com

Materials and Methods

The study was conducted in Beenjwadia village of Jodhpur district. Farmers of the village grow mustard, wheat and cumin in rabi season. The productivity of these crops is low. Among the biotic factors, rodents are one of the main problems in this village. Farmers are not much aware about rodent control technology. Keeping this in view, the village was selected under the transfer of technology program of CAZRI, Jodhpur for dissemination of the rodent management technology to farmers. Various extension tools like demonstrations, training, group discussion, field days etc. were used for dissemination of the technology. Rodenticidal demonstrations were conducted at 15 farmer's field on mustard, wheat and cumin. In demonstrations four treatments i.e. zinc phosphide (2%), bromadiolone (0.005%), zinc phosphide (2%), + bromadiolone (0.005%), and control were taken.

Rodent surveys and 15 rodenticidal demonstrations on rodent management technologies along with evaluations were conducted at farmer's field on mustard, wheat and cumin during last 4 years. The four treatments i.e. zinc phosphide (2%), bromodiolone (0.005%), zinc phosphide (2%) + bromodiolone (0.005%) and control were taken.