

Research Article

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Management of birds in Sorghum crop at College farm, Rajendranagar, Hyderabad

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ABSTRACT

Higher number of birds population were observed in the college farm research fields and damage the field crops under unprotected conditions. Moreover, complaints also from surrounding farmers, particularly adjacent to college farm and nearby villages were noted. Field experiments were conducted at college farm, PJTSAU, Hyderabad during Kharif and Rabi 2023-24 to evaluate the eco-friendly bird management methods on sorghum. Five treatments were replicated four times in RBD with PYPS-2 at a spacing of 45x15cm and plot size was 5x5m. Treatments were imposed at the milky grain stage. Salt@25g/l, Egg+Hing@25ml/l, Ginger+garlic@30ml/l and Deepam oil@25ml/l were tested along with one untreated control. Among these, Egg+Hing proved to be the best as per cent bird damage recorded was 15.67 in kharif and 15.0 in rabi followed by Salt spray(24.72 and 18.25%) as against 49.56% and 31.5% respectively in control. The highest yield of 2963 kg/ha in kharif and 1470.89kg/ha in rabi was recorded in the best treatment.

Keywords: Sorghum, Birds, Management, Egg, Asafoetida(Hing), Salt, Deepam oil

INTRODUCTION

Sorghum is one of the most important cereal grain grown worldwide. It ranks fifth after wheat, maize, rice and barley. India ranks fifth in total sorghum production with 4.23 million tonnes grown in an area of 3.90 million hectares in 2021-22. A total of 63 bird species belonging to 19 families have been identified as damaging to several crops but only 2.1 % of total bird species were reported to inflict serious damage to the crops. Damage to the crops of smaller grains such as pearl millet and sorghum is more serious as they are preferred by both smaller and larger birds(2) compared to larger sized grains. Damage to sorghum by bird infestation is a worldwide problem in grain production and productivity. These birds cause damage in sorghum fields more, especially when the sorghum plants are at the soft dough stage crushing the juice out of sorghum grains. The bird species reported to attack sorghum include parrots, sparrows and crows. The birds can cause damage to crops and a loss to the farmers from sowing and planting till harvesting. The yield loss birds cause varies from 10 to 80% as they flock in large numbers. Much many losses were observed during the early flowering and late flowering of the sorghum varieties. The sparrows, baya weaver, and rose-ringed parakeets damaged sorghum plants accounting for 52% of the total damage(4). Rose- ringed parakeet, rosy pastor, ring dove, bank myna, house sparrow, and Baya weaver damaged cereals, which ranged from 0.3 to 60% in pearl millet, 0.4 to 48% in sorghum (6) It is reported that the percentage damage in the yield is higher compared to that caused by the insect pests. Hence, it is vital to implement different strategies to control birds.

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Traditionally, farmers employ many different frightening techniques to chase or scare birds from their crops. A possible solution to the bird problem involves the use of chemical repellents like methiocarb applied directly to the ripening grain(1). The purpose of the trial reported here was to evaluate locally available low cost materials as a bird repellent on ripening sorghum

MATERIAL AND METHODS

Field experiments were conducted at college farm, Prof Jayshankar Telangana State Agricultural University, Hyderabad during Kharif and Rabi for the year 2023-24 to evaluate the eco-friendly bird management methods on sorghum. Five treatments were replicated four times in Randomised Block Design with PYPS-2 at a spacing of 45x15cm and plot size was 5x5m. Treatments were imposed at the milky grain stage. Salt@25g/l, Egg+Hing@25ml/l, Ginger+garlic@30ml/l and Deepam oil@25ml/l were tested along with one untreated control. Data on Yield and Damage percent(angular transformation) was recorded and subjected to statistical analysis.

RESULTS AND DISCUSSION

During kharif 2023, damage per cent was lowest(15.67) in Egg+Hing@25ml/l sprayed plot followed by 24.72% in the salt@25g/l sprayed plot as against 49.56% in control. The highest yield obtained was 2963kg/ha in the best treatment. Yield recorded in control was 1098kg/ha. All the treatments were significantly different from each other.

During Rabi 2023-24, damage per cent was lowest(15.0) in Egg+Hing@25ml/l sprayed plot followed by 18.25% in salt@25g/l sprayed plot as against 31.5% in control. Highest yield obtained was 1470.89kg/ha in the best treatment. 1021.16kg/ha was recorded in control. All the treatments are significantly different from each other both in terms of damage and yield.

Mean data of the two seasons in 2023-24 revealed that damage per cent was lowest(15.3) in Egg+Hing@25ml/l sprayed plot followed by 21.48% in the salt@25g/l sprayed plot as against 40.53% in control. The highest yield obtained was 2216.94kg/ha in the best treatment. 1059.58kg/ha was recorded in control

No reports are available on the effect of salt, egg, hing and oil on bird damage in sorghum. Similar compounds were tested(5) on sunflower and found that the highest yield was recorded (1650.40 Kg/ha) in the castor oil sprayed plot followed by egg solution spray (1419.62Kg/ha), salt solution (1366.25 Kg/ha), ribbon (1345.90 Kg/ha) compared with control (1196.72 Kg/ha). Tobacco leaf decoction (10%) sprayed(3) on milky-stage sorghum to control avian pests had a comparable impact and was also cost-effective. Asafoetida(Hing) is an oleo-gum-resin with a strong, tenacious and sulfurous odor. Crushed garlic yields the sulfur containing compounds allicin, ajoene,diallyl

polysulfides, vinylthiins, and S-allylcysteine.

Birds visiting the crop at the milky stage varied between 6% of spotted munia to 14% of sparrows.(Fig1).Babblers, Baya weavers and crows ranged between 12-13%.Parakeet presence was to the extent of 10%.

Conclusion

More effective chemicals can be tested on sorghum crop to protect the grains from bird damage.

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Table 1: Efficacy of different treatments on bird damage and yield in sorghum

Treatment	Kharif 2023		Rabi 2023-24	
	Damage%	Yield (Kg/ha)	Damage%	Yield (Kg/ha)
Salt @25g/l	24.72	2657	18.25(25.27)	1392.855
Egg+hing@25ml/l	15.67	2963	15.0(22.77)	1470.899
Ginger+garlic@30ml/l	32.45	2098	20.5(26.91)	1343.915
Deepam oil@25ml/l	42.06	1789	25.0(29.99)	1292.328
Control	49.56	1098	31.5(34.13)	1021.164
CD	1.472	187.21	0.904	23.29
CV	2.76	2.949	2.087	1.146

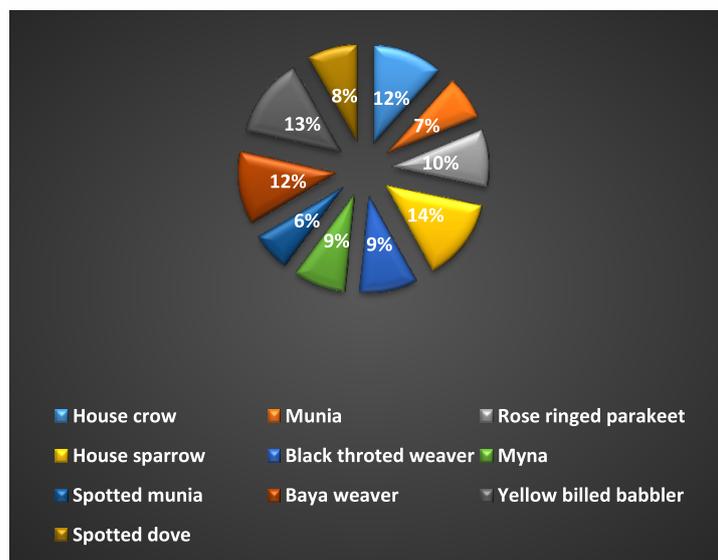


Fig1: Relative abundance of top 10 species of birds during milky stage of sorghum

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