



Full Length Article

Use of Reflector Ribbon as a Pest Birds Repellant in Wheat and Maize Crop

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ABSTRACT

Pesticide application on edible plants is disastrous when the user is illiterate and the consumer is ignorant. This situation prevails where mono cropping is practiced. If informed human being can tackle such problem to some extent but it is beyond the tolerance of wildlife. The purpose of present study was to curtail the use of chemical pesticides in the agro-wildlife ecosystem by evolving and introduce estimating the effectiveness of reflector ribbon in repelling the pest birds was made during the two months (November-December). The mechanical device was tested against house crow and parakeet, which damages wheat and maize crops heavily in their early stages of growth in the area of Faisalabad. The results showed that reflector ribbon was the best bird pest repellent device. There was a decrease of 98% in the population of crow attending the wheat crop and a decrease of 88% in the parakeet population attending the maize crop.

Key Words: Reflector ribbon; Maize; Wheat; Effectiveness

INTRODUCTION

From the very beginning, bird pests are considered as a potential threat to crop production due to their habit of damaging various agricultural crops. They cause economic losses in a variety of crops like wheat, maize, sun flower, groundnut and citrus etc as reported by many farmers (Brooks & Ahmed, 1990a; Khan & Ahmad, 1990).

Estimation of crop losses due to vertebrate pests was reported by Shafi (1990) in 1984-85. He revealed an annual loss of PKRs.1893 from different agricultural crops, which was only due to damage caused by vertebrate pests in Pakistan. He further added that the annual losses caused by birds damaging the wheat, maize, sunflower and citrus crops are PKRs. 472, 147, 2 and 30 million, respectively. Only parakeet caused a loss of Rs.2 and 30 million to sunflower and citrus crops respectively. Birds are difficult to control because of their behavior and feeding habits (Hussain, 1990). Brook *et al.* (1990) stated that crows invaded fresh sown maize, barley and wheat fields and dig out the emerging seedlings. The late sown fields were usually the worst hit. Damage was more severe to cropping fields nearest to the crows roosting sites. They also damaged ripened crops, especially maize and groundnut. Maize kernels were attacked worst in milking stage. The authors reported that parakeet was very destructive to maize, wheat, sunflower,

sorghum and other grain crops. The Parakeet also damaged the soft fruits such as guava, mango, orange and loquat wearily.

Brooks and Hussain (1990b) stated that poison bait like starlicide (3- chloro-p-toluidine hydrochloride), contact poison like endrin and fenthion used in perches, avitrol and methiocarb (3, 5-Dimethyl-4 (Methyl thio) phenyl methyl carbamate) are the chemicals, which were used for the control of pest birds. Keeping the casualties of toxic pesticide use in view, non-chemical measures were tested to control pest birds.

Hussain (1990) reported that trapping; netting and scaring techniques for pest bird control were found safe in pilot control trials. He stated that a decoy trap based on the Modified Australian Crow Trap (MACT) was effective in capturing parakeets and sparrows in the field. Mist and clap net were also found effective against parakeet, along with explosives, shell crackers, rockets, scare crows, reflecting tape and electronic devices, which were also found efficient and effective mechanical methods to control pest birds.

Hussain (1990) also tested parotrap, mist trap and clip net in the field for controlling pest birds. He obtained very encouraging results. Khan *et al.* (2002) reported the use of House Loop Traps for capturing the francolins and got satisfactory results. Stevens *et al.* (1998) reported that use of non-chemical methods (mechanical devices) was far better

for controlling pest birds. But no noble attempt was made by any worker to test reflector ribbon. In fact it was inexpensive cheap mechanical device against bird pests and was first time tested in Faisalabad.

MATERIALS AND METHODS

The research was carried out in the cultivated area of Chak No. 33/JB (Viroana) that occur in the West of Faisalabad City. Along the eastern side of this village was Maduana water tributary. The land of this village was intensively cultivated. Soil was mostly clay-loam and rich in nutrients. Ground water was fit for irrigation. Small land holding were generally cultivated as mixed crops. Cotton, sugarcane, wheat and fodder were the major crops grown seasonally. The cropland of this village represented the best picture of agro-forestry producing shesham, (*Dalbergia sisso*), kikar (*Acacia nilotica*), seris (*Albizia lebbek*), poplar (*Populus deltoids*), simal (*Bombix ceiba*), beri (*Zizyphus jujoba*) and mulberry (*Morus alba*) trees species along with the crops. Wild lands were only in the form of graveyards or occasional saline and water logged patches with scanty vegetative covers. However, dense cover in the form of seasonal crops, gardens and wild thick lets along water channels was available throughout the year. For studying the effect of reflector ribbon, a small area of one hectare of wheat and maize field was selected to install the reflector ribbons as pest birds repellent. Second site for carrying out research studies were selected in thenear University of Agriculture, Faisalabad.

Reflector ribbons were tide up over the crops longitudinally and were supported by trees, electric poles and bamboo sticks used to fence around the field at both ends at both sites. Height of the reflector ribbons was given special consideration because too high and too low reflectors had significant effect on visiting bird pests. The reflectors ribbon erected two to three feet above the crop was found to give better results for guava.

Number of pest birds (crows, parakeets & mynahs) visiting the research fields of wheat and maize at both sites Chak No. 33/JB and University of Agriculture, Faisalabad) before and during the use of mechanical repellents (Reflector ribbon) was counted. Data was computerized for average values and analyzed following methods as described by Steel and Torrie (1982).

RESULTS AND DISCUSSION

Reflectors ribbons were used as mechanical repellent in the city and 10 km away from the city of Faisalabad (University of Agriculture, Faisalabad) against bird pests. Results obtained on average bases of both sites are given as under. Mirror reflections disturbed the birds and forced them to leave the place. This behavior was exploited to repel them from the crop fields and fruit gardens. Based on this fact, reflector ribbon was used and its efficacy was studied.

Fig. 1. No of pest birds counted in wheat field (Seedling stage) before and during the us of reflector ribbon

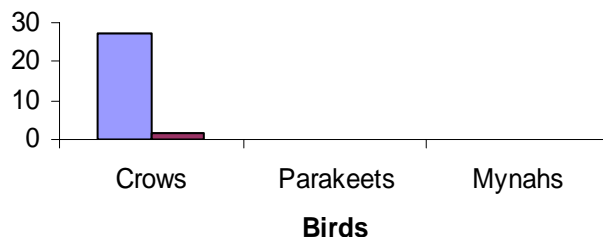
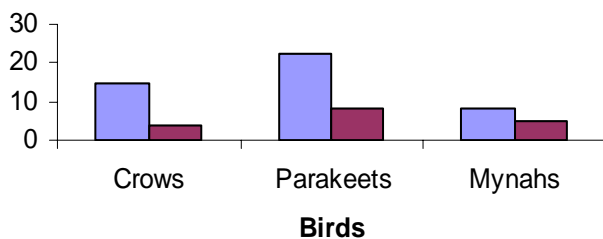


Fig. 2. No of pest birds counted in maiz field (pre mature stage) before and during the use of reflector ribbon



The results showed that the maximum number (35) and (18) have crows attacked wheat (seedling stage) and maize (milky stage), respectively (Fig. 1). It was very encouraging to note that this number decreased to “zero” with the continuous use of reflector ribbon. Maximum number (26) of parakeets attacked maize crop but during the use of reflector ribbon, this number also decreased drastically to 5 only, where as the number of mynah attacking maize crop also decreased from 9 to “zero” during the use this device (Fig. 2). This Justified the method to be an effective and a strong bird repellent to save wheat and a strong bird repellent to save wheat and maize crops from very dangerous pest birds like house crows, parakeets and mynahs. This mechanical device is very economical because only fifty rupees was the cost of erecting reflector ribbon in one hectare, which was most economically feasible and for the majority of farmers.

Use of reflector ribbon was a quite new mechanical pest bird’s repellent device used first time in wheat and maize fields in Faisalabad due to which a number of pest birds damaging crops fell to zero. It was expected and recommended for use against other pest birds to save a variety of agricultural crops. Hussain (1990) also found reflecting tape effective and use full pest birds repellent because he obtained the results of same nature at National Agriculture Research Center, Islamabad, Pakistan by using the device against parrots and Jungle crows damaging sunflower and groundnuts crops.

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(Received 23 October 2007; Accepted 26 February 2008)