

EVALUATION OF AN AERIAL SCARING DEVICE FOR BIRDS DAMAGE PREVENTION TO AGRICULTURAL CROPS

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Abstract – Evaluation of an aerial scaring device for birds damage prevention to agricultural crops -Many kinds of visual tools are used for scaring birds from agricultural crops. Most of them are effective only for short periods and in small areas, since habituation generally occurs after a few days, due to the immobility of this kind of systems.

For this reason we tested a combination of a special kite and a disposable helium filled Mylar balloon, “Helikite”², for scaring birds. Two trials were carried out in sprouting corn fields (on crows, *Corvus corone cornix*) and in ripening sunflowers fields (on wood pigeons, *Columba palumbus*, and doves, *Streptopelia turtur* and *decaocto*).

The results showed that Helikite could be an effective tool to reduce wood pigeons and doves damage from ripening sunflowers (1.16% of damaged heads in the transects near the Helikite vs. 13.25% of damaged heads in the transects far from the Helikite; $P < 0.0001$) and to reduce crows damage in sprouting corn fields (19.1% of damaged plants in the control plot vs. 4.2% of damaged plants in the Helikites plot; $P < 0.0001$).

Key words: bird control, Helikite, corn, sunflower, damage.

1. – Introduction

Many kinds of agricultural crops can be damaged by bird species. Visual devices as eye spotted balloons and flashing tapes has became quite popular in the last few years (CONOVER 2002; GORRERI & MOSCARDINI 1997).

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A promising visual tool is Alsopp Helikite². It is a 0,9-m diameter helium-filled balloon with a kite and stabilizer attached that allows flights in high winds. (SANTILLI et al., 2004; SEAMAN et al. 2002)

For these reason our purpose was to conduct field evaluations of the Helikite efficacy in areas with sprouting corn and ripening sunflowers. Our null hypothesis was that damages would not decrease in response to the device.

2. – Materials and methods

Sprouting corn: We virtually divided the experimental field in 2 plots of 13-ha each, with a transition strip of 3.5-ha between the two plots (~80-m large). 4

Helikites were installed in one plot 3 days after seeding. The other plot was used as control. After 2 weeks from seeding, the damages by birds were evaluated in the two fields. We casually selected transects of 10-m along the rows (67 in the control plot and 57 in the Helikite plot). The seeds damaged or disappeared because eaten by the birds, and the undamaged seeds and plants were counted. Great attention was paid to select transects in all parts of the plots (center and edges). *Ripening sunflower*: One Helikite was installed in a field on a bean-pole (2-m high) with a maximum height above the ground of 30-m and the adjacent field (bordering along the short side) was used as control. Four crossing transects were selected for each field. Every week the damage by birds along each transect was evaluated. The observer casually selected about 40 plants closest to the transects to sample damage by visually estimating the percentage of seed missing from the head. The observations were carried out for four weeks and ended two days before harvesting

3. – Results

Sprouting corn: The average of plants damaged was 5.13 (s.d. 0.55) vs. 1.2 (s.d. 0.29) in the control plot vs. the Helikite plot ($P < 0.0001$). The percentage of plants damaged in the control plot was 19.1 % vs. 4.2 % in Helikites plot ($P < 0.0001$). *Ripening sunflower*: At the beginning of the test, the mean percentage of seed missing from sunflower heads was 0.84 in the Helikite plot and 0.76 in the control plot ($P=0.914$). At the end of the last week (two days before harvesting) damage level was 1.16 vs. 13.25 ($P<0.0001$). The damage levels in relation to the distance from the Helikite were 1.05 - 1.63, 0.81, 2.56, 1.40, 11.05, 15.70 10.58 for ± 30 m, 60m, 120m, 180m, 240m, 300m, and 360m, respectively.

We conclude that Helikites can have a deterrent effect on birds and can protect crops on short time. Further experiments are however necessary to better define the species-specific responses and the efficacy of the Helikites on long term, since habituation usually reduces the efficacy of every scaring device. The incidence of maintenance, in relationship to different weather conditions, and the number of replacing needed in relationship to the different abrasive crops should be evaluated before the use of this scaring device.

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