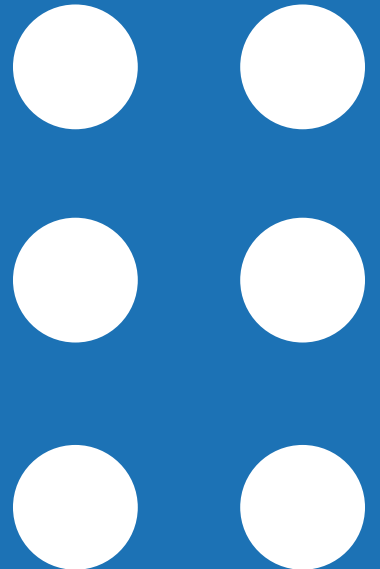


Multi-Sensory Bird Control Disk Technology

WHITE PAPER

PREPARED BY BIRD BARRIER AMERICA





Report on Effect of Bird Barrier Optical Gel on a Night Roost of Feral Pigeons

Four-year test conducted by The Department of Biology, University of Pisa, Italy, on the multi-sensory technology disk known as Optical Gel

Introduction

In order to assess the efficacy of the product Optical Gel in repelling feral pigeons we performed a test on a night roost site at the Veterinary Clinic of the University of Pisa in San Piero a Grado (Pisa). The night roost subject of the study was located on the north and south roofs of a building which houses heating equipment. Hot air from the equipment is expelled through vents on either side of the building. The warm air from the vents creates an ideal night roost for pigeons.



Figure 1. South roof prior to cleaning and treatment.



Materials & Methods

In order to document the presence of the birds before and after treatment video-cameras were installed on each roof. The south roof was treated with Optical Gel; the north roof was treated with empty PET dishes. The cameras recorded a picture every minute. The south roof is 9.09 m wide x 4.15 m deep. The area where pigeons roosted was approximately 80 cm deep towards the centre of the roof, tapering to approximately 50 cm at the sides.

On 29th March 2017, more than 100 kg of pigeon faeces were manually removed from the south roof, which was then washed and disinfected.

On 30th March 2017, more than 100kg of pigeon faeces were removed from the north roof, which was then cleaned and disinfected.



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Figure 2. South roof before sunset (6:33) on 26th of March 2017, three days before the installation of Optical Gel.

Figure 3. South roof after cleaning.

Figure 4. South roof treated with Optical Gel.

Figure 5. The area of the south roof treated with Optical Gel was approximately 9m x 1.8m.



Figure 6. North roof prior to cleaning and treatment.

Figure 7. North roof before sunset (7:45) on the 27th of March 2017, three days before the installation of the empty PET dishes.

Figure 8. North roof after cleaning.

Figure 9. North roof treated with empty PET dishes as a "control".

Figure 10. The area of the north roof treated with empty dishes was approximately 9m x 1.8m.





Data Analysis

We considered Day 0 the day of the installation (either with the Optical Gel or empty dishes). We counted the number of pigeons visible in the photograms recorded by the video-cameras at sunrise, 12.00, 14.30 and sunset for each experimental Days (Day -3, Day -2, Day -1, Day 1, Day 2, Day 3, Day 7, Day 14, Day 30, Day 60, Day 90 and 1 year). For each experimental day we considered the highest number of birds observed. The median number of birds counted before the treatment was considered as baseline to compute the difference in the highest number of birds present in the experimental days after the treatment.

Results & Conclusions

After the installation of Optical Gel not one single bird was observed roosting at night on the south roof, while many birds regularly continued to roost on the north roof of the building where empty dishes had been installed. The number of pigeons observed on the north and south roofs on the experimental days at the established times are shown in Table 1 on the next page. On the basis of the reported results, we confirm that Optical Gel has been 100% effective in dissuading feral pigeons from roosting at night for at least one year after installation.



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Test Conducted By:

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Ms. Gagliardo has been studying bird behavior for over 40+ years, having published over 100 papers on the subject.

This multi-sensory bird control disk technology white paper was prepared by Bird Barrier America, Inc.



		South Roof, Optical Gel		North Roof, Empty Dishes	
Day	Time	Day	# of Birds	Date	# of Birds
-3	Sunrise	3/26/2017	29	3/27/2017	50
	12:00 PM		44		0
	2:30 PM		0		0
	Sunset		48		52
-2	Sunrise	3/27/2017	30	3/28/2017	34
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		39		51
-1	Sunrise	3/28/2017	22	3/29/2017	27
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		37		29
1	Sunrise	3/30/2017	0	3/31/2017	29
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		0		35
2	Sunrise	3/31/2017	0	4/1/2017	32
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		0		25
3	Sunrise	4/1/2017	0	4/2/2017	30
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		0		36



		South Roof, Optical Gel		North Roof, Empty Dishes	
Day	Time	Day	# of Birds	Date	# of Birds
7	Sunrise	4/05/2017	0	4/06/2017	13
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		0		41
14	Sunrise	4/12/2017	0	4/13/2017	21
	12:00 PM		0		0
	2:30 PM		0		1
	Sunset		0		48
30	Sunrise	4/28/2017	0	4/29/2017	24
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		0		35
60	Sunrise	5/28/2017	0	5/29/2017	19
	12:00 PM		0		1
	2:30 PM		0		0
	Sunset		0		41
90	Sunrise	6/27/2017	0	6/28/2017	47
	12:00 PM		0		2
	2:30 PM		0		0
	Sunset		0		37
1 Year	Sunrise	4/7/2018	0	4/7/2018	18
	12:00 PM		0		0
	2:30 PM		0		0
	Sunset		0		29