GRAZERS

Cost Benefit Analysis

(using J. Nix Handbook 2017)

RABBITS (using Milling Wheat as the example)

- **Apply Grazers only to the headland areas affected by rabbits**

See overleaf for application data sheet for 10 different crop types

Calculations provided for different spray widths

Cost of Grazers provided as % area sprayed

• Cost of an application of Grazers (0.25 L/ha)	= £12.50 / ha (£5.00/acre) + VAT
• Total Variable Costs for Milling Wheat (J. Nix 2017)	= £479 / ha (£194 / acre)
The cost of an application of Grazers	= only 2.6% of Variable Costs
• Gross Margins 10 ha field Milling Wheat (J. Nix 2017)	= 'Low' level: £5,070 to 'High' level: £8,350 /10 ha field
The cost of an application of Grazers	= 1.0% (Low), 0.8% (Average), 0.6% (High) Margin level

Therefore if crop losses are expected to be greater than 1.0% it is cost effective to apply Grazers to Milling Wheat

PIGEONS (using Field Peas as the example)

- **Apply to all areas of the crop liable to attack by pigeons**

• Cost of an application of Grazers (0.25 L/ha)	= £12.50 / ha (£5.00/acre) + VAT
• Total Variable Costs for Field Peas (J. Nix 2017)	= £254 / ha (£103 / acre)
The cost of an application of Grazers	= only 4.9% of Variable Costs
• Gross Margin for Field Peas (J. Nix 2017)	= £466 / ha (£189/acre)
The cost of an application of Grazers	= only 2.7% of Gross Margin
• 'Average' output for Field Peas (J. Nix 2017)	= £720 / ha (4t x £180/t)
The cost of an application of Grazers	= only 1.7% of 'Average' output level

Therefore if crop losses are expected to be greater than 1.7% it is cost effective to apply Grazers to Field Peas

NB Multiple applications may be required for Field Peas as the crop grows quickly and is prone to pigeon damage

Enterprise data (J. Nix) with Grazers application cost

Example field size used: 10 ha (25 acres)

Crop	Output level	Grain: Yield t/ha (t/ac)	Grain: Price (£/t)	Grain: Output £/ha (£/ac)	Variable Costs: Seed £/ha (£/ac)	Variable Costs: Fert. £/ha (£/ac)	Variable Costs: Sprays £/ha (£/ac)	Variable Costs: Total £/ha (£/ac)	Gross Margins £/ha (£/ac)	Grazers Cost: % total variable costs £/ha (£/ac)	Grazers Cost: % total variable costs %	Headland Application: Headland spray width 24 m 2.8 ha % Grazers cost	Headland Application: Headland spray width 36 m 4.0 ha % Grazers cost	Eg. All Field Gross Margin For 36 m headland 36 m 4.0 ha % Grazers cost
Feed W. wheat	Low	7.25 (2.94)		943 (382)					501 (203)			35 2.5	50 3.6	£5,010 1.0
	Average	8.50 (3.44)	**130**	1105 (447)	54 (22)	149 (60)	239 (97)	**442** (**179**)	663 (268)	**12.50** (**5.00**)	2.8	35 1.9	50 2.7	£6,630 0.8
	High	9.75 (3.95)		1268 (513)					826 (334)			35 1.5	50 2.2	£8,260 0.6
Milling W. wheat	Low	6.75 (2.73)		986 (399)					507 (205)			35 2.5	50 3.5	£5,070 1.0
	Average	7.80 (3.16)	**146**	1139 (461)	58 (23)	174 (70)	247 (100)	**479** (**194**)	660 (267)	**12.50** (**5.00**)	2.6	35 1.9	50 2.7	£6,600 0.8
	High	9.00 (3.64)		1314 (532)					835 (338)			35 1.5	50 2.2	£8,350 0.6
Spring wheat	Low	4.75 (1.90)		689 (279)					367 (149)			35 3.4	50 4.9	£3,670 1.4
	Average	5.75 (2.33)	**145**	834 (338)	69 (28)	111 (45)	142 (57)	**322** (**130**)	512 (207)	**12.50** (**5.00**)	3.9	35 2.4	50 3.5	£5,120 1.0
	High	4.75 (1.92)		689 (279)					367 (149)			35 3.4	50 4.9	£3,670 1.4
Feed W. barley	Low	5.50 (2.23)		660 (267)					309 (125)			35 4	50 5.8	£3,090 1.6
	Average	6.90 (2.79)	**120**	828 (335)	54 (22)	114 (46)	183 (74)	**351** (**142**)	477 (193)	**12.50** (**5.00**)	3.6	35 2.6	50 3.8	£4,770 1.1
	High	7.90 (3.20)		948 (384)					597 (242)			35 2.1	50 3.0	£5,970 0.8
Malting W. barley	Low	5.00 (2.02)		680 (275)					352 (143)			35 3.6	50 5.1	£3,520 1.4
	Average	6.00 (2.43)	**136**	816 (330)	57 (23)	88 (36)	183 (74)	**328** (**133**)	488 (198)	**12.50** (**5.00**)	3.8	35 2.6	50 3.7	£4,880 1.0
	High	7.00 (2.83)		952 (385)					624 (253)			35 2.0	50 2.9	£6,240 0.8
Malting S. barley	Low	4.60 (1.86)		672 (272)					399 (162)			35 3.1	50 4.5	£3,990 1.3
	Average	5.45 (2.2)	**146**	796 (322)	56 (23)	75 (30)	142 (57)	**273** (**111**)	523 (212)	**12.50** (**5.00**)	4.6	35 2.4	50 3.4	£5,230 1.0
	High	6.30 (2.55)		920 (372)					647 (262)			35 1.9	50 2.8	£6,470 0.8
Winter oats	Low	5.25 (2.13)		630 (255)					363 (147)			35 3.4	50 5	£3,630 1.4
	Average	6.30 (2.55)	**120**	756 (306)	54 (22)	85 (34)	128 (52)	**267** (**108**)	489 (198)	**12.50** (**5.00**)	4.7	35 2.0	50 3.7	£4,890 1.0
	High	7.65 (3.1)		918 (372)					651 (264)			35 1.9	50 2.8	£6,510 0.8
Winter OSR	Low	2.40 (0.97)		720 (291)					312 (126)			35 4.0	50 5.8	£3,120 1.6
	Average	3.40 (1.38)	**300**	1020 (413)	54 (22)	135 (55)	219 (89)	**408** (**165**)	612 (248)	**12.50** (**5.00**)	3.1	35 2.0	50 2.9	£6,120 0.8
	High	4.40 (1.78)		1320 (534)					912 (369)			35 1.4	50 2	£9,120 0.6
Spring OSR	Low	1.50 (0.61)		450 (182)					193 (78)			35 6.5	50 9.3	£1,930 2.6
	Average	2.00 (0.81)	**300**	600 (243)	52 (21)	63 (26)	142 (57)	**257** (**104**)	343 (139)	**12.50** (**5.00**)	4.9	35 3.6	50 5.2	£3,430 1.5
	High	2.75 (1.11)		825 (334)					568 (230)			35 2.2	50 3.2	£5,680 0.9
Spring Linseed	Low	1.25 (0.51)		406 (164)					204 (83)			35 6.1	50 8.8	£2,040 2.5
	Average	1.75 (0.71)	**325**	569 (230)	90 (36)	48 (19)	64 (26)	**202** (**82**)	367 (149)	**12.50** (**5.00**)	6.2	35 3.4	50 4.9	£3,670 1.4
	High	2.75 (1.11)		894 (362)					692 (280)			35 1.8	50 2.6	£6,920 0.7