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Any product referred to in this document must be used strictly as directed, and in accordance with all label or permit instructions. Always consult the label prior to use.

Aphid Management in Winter Cereals

Trial ID: CFT1007

Location:

Bellata

Trial Year:

2010

Investigator:

Clare Felton-Taylor

Objective:	To evaluate the impact and control of aphids in winter cereals
Planting Date:	12/05/2010
Fungicide Seed Treatment:	Equivalent fungicide treatment on all seed: Barley: triadimenol 22.5 g ai/100 kg seed, Bread and durum: tebuconazole 2.5 g ai/ 100 kg seed
Insecticide Seed Treatment:	Imidacloprid at 72 or 144 g ai/100 kg seed
Foliar Insecticide:	Pirimor 150 g/ha (pirimicarb 75 g ai/ha) (not applied due to low aphid pressure in Trts 5,10 and 15)
Foliar Application Date:	14/09/2010
Application Timing:	Aphid Threshold ~5/Tiller

Table 1: Crop Measurements

Trt No.	Variety/ Crop	Seed Treatment Insecticide/ 100 kg Seed	Foliar Insecticide	Emergence	Head Count	Yield
				11/06/2010 30 DAP Plants/m ²	7/10/2010 148 DAP 23 DAA Heads/m ²	10/11/2010 182 DAP 57 DAA t/ha
1	Fitzroy Barley	-	-	59abcd	613a	3.56f
2	Fitzroy Barley	Imidacloprid 72 g ai	-	58abcd	664a	3.70ef
3	Fitzroy Barley	Imidacloprid 144 g ai	-	72a	637a	3.69ef
4	Fitzroy Barley	-	Pirimor	69ab	703a	3.70ef
5	Fitzroy Barley	Imidacloprid 72 g ai	-	60abcd		3.85e
6	Livingston Wheat	-	-	52cd	303b	5.12d
7	Livingston Wheat	Imidacloprid 72 g ai	-	53bcd	271b	5.07d
8	Livingston Wheat	Imidacloprid 144 g ai	-	50cd	317b	5.31cd
9	Livingston Wheat	-	Pirimor	48d	287b	5.15d
10	Livingston Wheat	Imidacloprid 72 g ai	-	59abcd		5.35bcd
11	Bellaroi Durum	-	-	70a	273b	5.35bcd
12	Bellaroi Durum	Imidacloprid 72 g ai	-	66abc	288b	5.53abc
13	Bellaroi Durum	Imidacloprid 144 g ai	-	63abc	298b	5.68a
14	Bellaroi Durum	-	Pirimor	70a	292b	5.64a
15	Bellaroi Durum	Imidacloprid 72 g ai	-	72a		5.61ab
			P =	0.04	0.00	0.00
			LSD =	log transf	log transf	0.28

Treatment means followed by the same letter are not significantly different at P = 0.05

Yield cv 4.1%, DAP = Days after Planting, DAA = Days after Application (Foliar Insecticide)

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Table 2: Grain Quality

Trt No.	Variety/ Crop	Seed Treatment Insecticide/ 100 kg Seed	Foliar Insecticide	Grain Quality			
				Protein %	Test Weight kg/hL	1000 Grain Weight g	Screenings %
1	Fitzroy Barley	-	-	11.9	55f	39g	7.8 a
2	Fitzroy Barley	Imidacloprid 72 g ai	-	12.1	57ef	41defg	4.8 b
3	Fitzroy Barley	Imidacloprid 144 g ai	-	13.0	56ef	39g	6.3 ab
4	Fitzroy Barley	-	Pirimor	11.8	57ef	40fg	5.8 b
5	Fitzroy Barley	Imidacloprid 72 g ai	-	12.7	57e	41efg	4.9 b
6	Livingston Wheat	-	-	12.5	74ab	45c	1.3 c
7	Livingston Wheat	Imidacloprid 72 g ai	-	11.9	73abcd	43cdef	1.3 c
8	Livingston Wheat	Imidacloprid 144 g ai	-	13.0	74abc	46bc	1.2 c
9	Livingston Wheat	-	Pirimor	12.7	75a	44cde	1.3 c
10	Livingston Wheat	Imidacloprid 72 g ai	-	12.6	74abc	45cd	1.3 c
11	Bellaroi Durum	-	-	12.7	72d	49ab	1.5 c
12	Bellaroi Durum	Imidacloprid 72 g ai	-	12.3	73abcd	51a	1.4 c
13	Bellaroi Durum	Imidacloprid 144 g ai	-	12.7	73cd	51a	1.4 c
14	Bellaroi Durum	-	Pirimor	13.0	73bcd	49ab	1.5 c
15	Bellaroi Durum	Imidacloprid 72 g ai	-	12.9	73bcd	50a	1.5 c
P =				0.17	0.00	0.00	0.00
LSD =				nsd	Arcsin transf	3.62	log transf

Treatment means followed by the same letter are not significantly different at P = 0.05

nsd = No significant difference

Aphid Management in Winter Cereals

Trial ID: CFT1007

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Table 3: Oat Aphid Management

Trt No.	Variety/ Crop	Seed Treatment Insecticide/ 100 kg Seed	Foliar Insecticide	Oat Aphid <i>Rhopalosiphum padi</i>					
				30/08/2010 110 DAP		13/09/2010 124 DAP 1 DAA (Pre Count)		22/09/2010 133 DAP 8 DAA	
				% Tillers Infested	Aphids/Tiller	% Tillers Infested	Aphids/Tiller	% Tillers Infested	Aphids/Tiller
1	Fitzroy Barley	-	-	30a	1.2	12.5	2.5	3	0.2
2	Fitzroy Barley	Imidacloprid 72 g ai	-	4b	0.1			10	0.7
3	Fitzroy Barley	Imidacloprid 144 g ai	-	4b	0.2			7	0.3
4	Fitzroy Barley	-	Pirimor					0	0.0
5	Fitzroy Barley	Imidacloprid 72 g ai	-						
6	Livingston Wheat	-	-	10b	0.2	12.5	0.4	0	0.0
7	Livingston Wheat	Imidacloprid 72 g ai	-	3b	0.0			0	0.0
8	Livingston Wheat	Imidacloprid 144 g ai	-	0b	0.0			0	0.0
9	Livingston Wheat	-	Pirimor					0	0.0
10	Livingston Wheat	Imidacloprid 72 g ai	-						
11	Bellaroi Durum	-	-	17ab	1.1	12.5	1.1	0	0.0
12	Bellaroi Durum	Imidacloprid 72 g ai	-	13ab	0.3			3	0.1
13	Bellaroi Durum	Imidacloprid 144 g ai	-	3b	0.0			0	0.0
14	Bellaroi Durum	-	Pirimor					0	0.0
15	Bellaroi Durum	Imidacloprid 72 g ai	-						
			P =	0.05	0.49	Not analysed		0.33	0.16
			LSD =	16.95	nsd			nsd	nsd

Treatment means followed by the same letter are not significantly different at P = 0.05

nsd = No significant difference DAP = Days after Planting, DAA = Days after Application (Foliar Insecticide)

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Table 4: Corn Aphid Management

Trt No.	Variety/ Crop	Seed Treatment Insecticide/ 100 kg Seed	Foliar Insecticide	Corn Aphid <i>Rhopalosiphum maidis</i> 30/08/2010 110 DAP	
				% Tillers Infested	Aphids/Tiller
1	Fitzroy Barley	-	-	7a	0.1a
2	Fitzroy Barley	Imidacloprid 72 g ai	-	0b	0.0b
3	Fitzroy Barley	Imidacloprid 144 g ai	-	0b	0.0b
4	Fitzroy Barley	-	Pirimor		
5	Fitzroy Barley	Imidacloprid 72 g ai	-		
6	Livingston Wheat	-	-	0b	0.0b
7	Livingston Wheat	Imidacloprid 72 g ai	-	0b	0.0b
8	Livingston Wheat	Imidacloprid 144 g ai	-	0b	0.0b
9	Livingston Wheat	-	Pirimor		
10	Livingston Wheat	Imidacloprid 72 g ai	-		
11	Bellaroi Durum	-	-	0b	0.0b
12	Bellaroi Durum	Imidacloprid 72 g ai	-	0b	0.0b
13	Bellaroi Durum	Imidacloprid 144 g ai	-	0b	0.0b
14	Bellaroi Durum	-	Pirimor		
15	Bellaroi Durum	Imidacloprid 72 g ai	-		
			P =	0.01	0.03
			LSD =	3.33	0.06

Treatment means followed by the same letter are not significantly different at P = 0.05

nsd = No significant difference DAP = Days after Planting

Aphid Management in Winter Cereals

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Table 5: Rose-grain Aphid Management

Trt No.	Variety/ Crop	Seed Treatment Insecticide/ 100 kg Seed	Foliar Insecticide	Rose-grain Aphid <i>Metopolophium dirhodum</i>			
				30/08/2010 110 DAP		13/09/2010 124 DAP (Pre T1 Spray)	
				% Infested Tillers	Aphids/Tiller	% Infested Tillers	Aphids/Tiller
1	Fitzroy Barley	-	-	3	0.5	15	1.6
2	Fitzroy Barley	Imidacloprid 72 g ai	-	7	0.1		
3	Fitzroy Barley	Imidacloprid 144 g ai	-	7	0.6		
4	Fitzroy Barley	-	Pirimor				
5	Fitzroy Barley	Imidacloprid 72 g ai	-				
6	Livingston Wheat	-	-	3	0.1	40	14.0
7	Livingston Wheat	Imidacloprid 72 g ai	-	13	2.3		
8	Livingston Wheat	Imidacloprid 144 g ai	-	0	0.0		
9	Livingston Wheat	-	Pirimor				
10	Livingston Wheat	Imidacloprid 72 g ai	-				
11	Bellaroi Durum	-	-	13	1.1	20	3.5
12	Bellaroi Durum	Imidacloprid 72 g ai	-	10	0.3		
13	Bellaroi Durum	Imidacloprid 144 g ai	-	3	0.0		
14	Bellaroi Durum	-	Pirimor				
15	Bellaroi Durum	Imidacloprid 72 g ai	-				
			P = LSD =	0.57 nsd	0.65 nsd	Not Analysed	

nsd = No significant difference DAP = Days after Planting

Aphid Management in Winter Cereals

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Table 6: Rose-grain Aphid Management continued

Trt No.	Variety/ Crop	Seed Treatment Insecticide/ 100 kg Seed	Foliar Insecticide	Rose-grain Aphid <i>Metopolophium dirhodum</i>			
				22/09/2010 133 DAP 8 DAA		28/09/2010 139 DAP 14 DAA	
				% Infested Tillers	Aphids/Tiller	% Infested Tillers	Aphids/Tiller
1	Fitzroy Barley	-	-	37bc	0.9de	47cde	1.5cde
2	Fitzroy Barley	Imidacloprid 72 g ai	-	90a	12.3ab	93a	6.4ab
3	Fitzroy Barley	Imidacloprid 144 g ai	-	50bc	2.9bcd	83ab	11.7a
4	Fitzroy Barley	-	Pirimor	30bcd	1.2de	20ef	0.3de
5	Fitzroy Barley	Imidacloprid 72 g ai	-				
6	Livingston Wheat	-	-	57b	5.6ab	57bcd	3.6bc
7	Livingston Wheat	Imidacloprid 72 g ai	-	27cd	1.0de	37cdef	1.7cde
8	Livingston Wheat	Imidacloprid 144 g ai	-	7d	0.2e	20ef	0.4de
9	Livingston Wheat	-	Pirimor	30bcd	1.3de	23ef	0.7de
10	Livingston Wheat	Imidacloprid 72 g ai	-				
11	Bellaroi Durum	-	-	37bc	2.2bcd	63abc	2.5bcd
12	Bellaroi Durum	Imidacloprid 72 g ai	-	53bc	4.3bc	50cde	3.8bc
13	Bellaroi Durum	Imidacloprid 144 g ai	-	27cd	2.0bcd	27def	1.3cde
14	Bellaroi Durum	-	Pirimor	30bcd	1.4cde	10f	0.1e
15	Bellaroi Durum	Imidacloprid 72 g ai	-				
			P =	0.00	0.00	0.00	0.00
			LSD =	28.6	log transf	30.06	arcsin transfn

Treatment means followed by the same letter are not significantly different at P = 0.05

DAP = Days after Planting, DAA = Days after Application (Foliar Insecticide)

Imidacloprid seed treatment provided significant reductions in the % of barley tillers infested with both oat and corn aphid at 110 days after planting. However there was no significant difference in rose-grain aphid numbers at the same assessment. Application of foliar insecticide application significant reduced rose-grain aphid populations in both bread and durum wheat. Interestingly seed treatment use in barley resulted in significantly increased levels of rose-grain aphid compared to untreated seed at 133 and 139 days after planting. Both the high rate of seed treatment and foliar insecticide treatment resulted in a significant yield increase in the durum variety. There was a clear trend to increased yields (~200 kg/ha) across all three varieties but with no apparent impact on grain quality.