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Technical Report

Evaluation of Durivo Seedling Drench for Insect Control in Cabbage within Commercial Plantings at Pukekohe, New Zealand During the 2025–26 Season

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Summary

Insect pressure is a key constraint in brassica production in the Pukekohe growing region, particularly during early crop establishment. Pests such as green peach aphid, thrips, and whitefly can significantly impact plant vigour, development, and marketability. Seed-applied insecticides, such as Durivo, offer the potential to provide early protection against sucking pests, reducing pest pressure during establishment and potentially delaying or reducing the need for foliar applications.

Field trials were conducted during the 2025–26 growing season to evaluate the effectiveness of Durivo (25 ml/1000 seed) compared with an untreated control. The initial trial was conducted within a commercial cabbage crop at Buckland, Pukekohe, while a second replicated trial was established at the Plant & Food Research Farm, Pukekohe as part of the Cropstock Variety and R&D Trial Day.

Across both trials, Durivo consistently reduced populations of green peach aphid and provided suppression of other sucking pests. Results from the Cropstock trial further confirmed significant reductions in green peach aphid and diamondback moth larvae under moderate to high pest pressure.

Materials and Method

Commercial Trial – Buckland, Pukekohe

The trial was conducted within a commercial cabbage planting at Balle Bros, 106 Jamieson Rd, Buckland, Pukekohe, New Zealand. The trial was treated on the 12th of January and transplanted on the 13th of January. The experiment was established as a randomised complete block design with four replicates per treatment.

Cropstock Variety & R&D Trial – Plant & Food Research Farm

A second replicated trial was conducted at the Plant & Food Research Farm, Pukekohe, New Zealand. The trial was treated on the 4th of February 2026 and transplanted on the 5th of February 2026. This trial was established using the same treatments, plot structure, and assessment methodology as the commercial trial.

Treatments

Table 1. Insecticide treatments

Treatment	Rate
Untreated	--
Durivo	25 ml/1000 seeds

Each plot consisted of a single grower bed measuring 1.72 × 7 m. Insect assessments were conducted on five plants per plot.

Commercial Trial Assessment Dates

- 27 January 2026
- 4 February 2026
- 23 February 2026
- 10 March 2026

Cropstock Variety & R&D Trial Assessment Dates

- 10 March 2026
- 19 March 2026

The following pests were assessed:

- Green peach aphid
- Winged aphids
- Onion thrips
- Whitefly – egg and adult
- Spiders
- Diamondback moth
- Cabbage looper

Counts represent the number of live insects per plant.

Statistical analysis

Data was analysed using ANOVA in ARM with treatment as a fixed effect and replicate as a random effect. Mean separation was conducted using Tukey's HSD (P = 0.05). Treatment effects were considered significant at P ≤ 0.05. Coefficient of variation (CV), standard deviation (SD), replicate F and treatment F statistics are reported.

Results and Discussion

1. Green Peach Aphid, Commercial Trial

Table 2. Effect of Durivo on green peach aphid (av. number per plant)

Treatment	Jan-27	Feb-4	Feb-23	Mar-10
Untreated	6.44 a	7.70 a	46.54 a	32.20 a
Durivo	0.25 b	0.38 b	6.94 b	9.74 b
Tukey's HSD (P=0.05)	2.63	4.84	35.78	13.94
SD	1.17	2.15	11.76	6.19
CV	34.92	53.35	43.98	29.54
Treatment F	56.15	23.13	22.68	26.30
Treatment Prob (F)	0.0049	0.0171	0.0414	0.0144

Discussion

Green peach aphid pressure increased substantially over the assessment period, peaking in late February. Durivo significantly reduced aphid numbers at all assessment timings ($P \leq 0.05$). Early-season control was particularly strong, with reductions greater than 90% in January and early February. Although efficacy declined slightly under higher pressure later in the season, Durivo continued to provide meaningful suppression relative to the untreated control.

For this trial, these results demonstrate that Durivo provides effective early and sustained control of green peach aphid under commercial field conditions.

Cropstock Trial

Table 3. Effect of Durivo on green peach aphid (av. number per plant)

Treatment	Mar-10	Mar-19
Untreated	26.36 a	9.79 a
Durivo	11.03 b	5.17 b
Tukey's HSD (P=0.05)	6.22	3.81
SD	2.76	1.69
CV	14.78	22.64
Treatment Prob (F)	0.0043	0.0308

Discussion

Results from the Plant & Food Research Farm trial supported findings from the commercial trial, with Durivo significantly reducing green peach aphid populations at both assessment timings. On 10 March, Durivo reduced aphid populations by approximately 58% relative to the untreated control, while significant suppression was also maintained at the 19 March assessment.

Variability within this trial was relatively low, particularly at the first assessment timing, resulting in strong statistical confidence in treatment effects. These findings further reinforce the consistency of Durivo for managing green peach aphid populations during crop establishment and early crop development.

2. Thrips (Onion Thrips), Commercial Trial

Table 4. Effect of Durivo on onion thrips (av. number per plant)

Treatment	Jan-27	Feb-4	Feb-23	Mar-10
Untreated	29.25 a	10.11 a	3.50 a	0.00 -
Durivo	2.69 b	3.38 b	1.08 b	0.80 -
Tukey's HSD (P=0.05)	4.95	4.70	2.24	1.52
SD	2.20	2.09	1.00	0.68
CV	13.77	30.94	43.6	180.53
Treatment F	291.89	20.86	11.83	2.46
Treatment Prob (F)	0.0004	0.0197	0.0413	0.2152

Discussion

Thrips pressure was highest at the first assessment and declined over time. Durivo significantly reduced thrips numbers during early and mid-season assessments. Control was strongest at the initial assessment, where thrips numbers were reduced by approximately 90%.

As overall thrips pressure declined later in the season, treatment differences became less distinct. These results indicate that Durivo provides strong early suppression of thrips, which is important for protecting young plants during establishment.

3. Aphids (Winged), Commercial Trial

Table 5. Effect of Durivo on winged aphids (av. number per plant)

Treatment	Jan-27	Feb-4	Feb-23	Mar-10
Untreated	1.64	2.77 a	3.19	2.30
Durivo	0.88	0.88 b	0.74	1.30
Tukey's HSD (P=0.05)	0.86	1.32	2.45	3.18
SD	0.38	0.59	1.09	1.41
CV	30.3	32.19	55.45	80.81
Treatment F	8.10	20.89	10.07	1.00
Treatment Prob (F)	0.065	0.0197	0.0504	0.3910

Discussion

Durivo reduced winged aphid populations relative to the untreated control across all assessment timings. A statistically significant reduction was observed on 4 February (P = 0.0197), with similar trends observed at other timings.

4. Whitefly (Eggs and Adults)

Whitefly pressure was generally low throughout both trials. Egg and adult populations were low and variable, with no consistent treatment effect.

Discussion

Durivo provided some suppression of early whitefly development; however, control was inconsistent due to low pest pressure. For these trials, whitefly is not considered a primary target pest for this treatment based on these results.

5. Caterpillars (Diamondback Moth Larvae), Cropstock Trial

Table 6. Effect of Durivo on diamondback moth larvae (av. number per plant)

Treatment	Mar-10	Mar-19
Untreated	6.27	37.83 a
Durivo	2.08	28.50 b
Tukey's HSD (P=0.05)	4.24	5.05
SD	1.88	2.24
CV	45.11	6.76
Treatment Prob (F)	0.0515	0.0098

Discussion

Diamondback larvae pressure increased substantially between the two assessment timings within the Cropstock trial. On 19 March, Durivo significantly reduced larval populations compared with the untreated control (P = 0.0098), demonstrating moderate suppression under high pest pressure.

At the earlier 10 March assessment, numerical reductions were also observed; however, treatment differences were not statistically significant due to higher variability within plots. While Durivo is not considered a primary caterpillar control product, these results suggest some secondary activity against diamondback moth larvae may occur under field conditions.

6. Beneficial Insects (Spiders), Commercial Trial

Spider counts were low and variable, with no clear differences between treatments.

Discussion

There was no evidence from these trials to suggest that Durivo negatively impacted beneficial insect populations; however, conclusions are limited due to low counts.

Overall Discussion

Across both trials, Durivo consistently demonstrated strong activity against sucking pests, particularly green peach aphid. Significant reductions in aphid populations were observed across multiple assessment timings and under varying levels of pest pressure, confirming the reliability of the treatment across both commercial and replicated research environments.

The strongest treatment responses were generally observed during early crop establishment, where Durivo substantially reduced pest pressure and protected young plants during critical growth stages. As expected, the relative level of control declined slightly later in the season as residual activity diminished; however, suppression remained commercially meaningful.

Results from the Cropstock trial also indicated moderate suppression of diamondback moth larvae under increasing caterpillar pressure. While Durivo is not considered a primary caterpillar management tool, these findings suggest some additional activity may occur under field conditions.
Variability between assessments was generally acceptable for field insect trials, with relatively low CV values observed for most significant responses. Overall, treatment effects remained statistically robust across both trial sites.

Conclusion

Under the growing conditions experienced at Buckland and the Plant & Food Research Farm, Pukekohe during the 2025–26 season, Durivo seed treatment:

- Provided strong and statistically significant control of green peach aphid across multiple assessment timings and trial sites
- Delivered excellent early-season suppression of sucking pests during crop establishment
- Demonstrated moderate suppression of diamondback moth larvae under increasing pest pressure
- Showed consistent performance under both commercial and replicated research trial conditions

The results indicate that Durivo is a highly effective tool for early-season insect management in cabbage, particularly for green peach aphid control. Its use can reduce early pest pressure and support crop establishment; however, it should be integrated with foliar insecticide programmes to ensure full-season pest management.

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Appendix

Appendix i – Weather Data

Date	January			February			March		
	Max (°C)	Min (°C)	Rainfall (mm)	Max (°C)	Min (°C)	Rainfall (mm)	Max (°C)	Min (°C)	Rainfall (mm)
1	-	-	-	26.6	16.7	0.3	26.8	12.1	2.9
2	-	-	-	28.2	20	8	21.7	6	0
3	-	-	-	23.8	15.9	3.4	19.9	8.1	0
4	-	-	-	24.9	15.7	0.1	21.9	8.2	0
5	-	-	-	26	14.9	0	24.6	9.1	0
6	-	-	-	24.1	15.8	0	24.2	9.4	0
7	-	-	-	25.9	18.8	0	24.8	11.3	0
8	-	-	-	25.9	11.7	0.6	25.2	12.5	0
9	-	-	-	26.3	15.2	0	26.8	11.7	0
10	-	-	-	28.4	16.5	0	24.6	14.3	0
11	-	-	-	29.2	16.2	0	18.9	13.9	0
12	24.6	11.5	0	27	19.2	1.3	24.2	16.2	0.6
13	27.6	17.4	0	25	19.8	23.2	28	17.4	8.3
14	28	19.6	3.7	21.1	16.1	0	22.6	12.3	0
15	26.3	18	28.6	22.1	14.6	0.4	23.1	10.7	0
16	25.4	13.4	0	24.3	12.2	1.3	23.9	10.2	0.1
17	26.3	13.6	3	25.1	14.1	0	24.9	11	0
18	22	13.8	0.3	25.1	14.2	1.4	26.2	12.7	0
19	24.4	16.8	6.6	24.1	14.6	0.4	27	10.3	0
20	19.7	17.7	16.8	24.4	13.9	0	-	-	-
21	20.2	18.6	55.9	24.2	10.1	0	-	-	-
22	21.9	16.7	0.7	24.2	12.2	0	-	-	-
23	24.2	12.6	6.4	26	11.3	0	-	-	-
24	19.9	13	18.1	26	14.9	0	-	-	-
25	21.3	12.9	6.5	27.5	14.1	0	-	-	-
26	21.8	14.1	3.1	27	14	0	-	-	-
27	24.1	13.1	0	26.9	15.1	0	-	-	-
28	25.4	13.7	0	24.8	15.5	0.3	-	-	-
29	27.1	13	0	-	-	-	-	-	-
30	27.3	14.6	0	-	-	-	-	-	-
31	28.6	15.4	0	-	-	-	-	-	-