HALOGEN GREENS



RESEARCH REPORT 2026

Magtasium™ Preliminary Trial Results: Strawberries

Reviewed by

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REPORT 09 | REVISION 08

Magtasium™ strawberry pot trial

Magtasium™ is a liquid, Group-3, Bio-Stimulant. The strawberry trials show that application method and calcium level matter when using Magtasium™. The results help growers choose which programme to test.

1. What was tested

The aim was to test Magtasium™ as a Bio-Stimulant through leaf readings, plant growth and fruit development in greenhouse pots. The research included 2025 screening and three 2026 comparisons. Feeding water for fertilised treatments had a reported **EC of 0.87**. Trial 3 compared standard Magtasium™ with an elevated-calcium version, called Product B or Product Y, without added NPK plus trace fertiliser.

2. What the trials showed

Comparison	Leading programme	Recorded fruit mass	% increase / decrease
Trial 1	Combined leaf spray and drench	190.0 g versus 125.0 g under leaf spray only	+52.0%
Trial 2	Combined leaf spray and drench	138.3 g versus 110.0 g under leaf spray only	+25.7%
Trial 3	Standard Magtasium™ leaf spray	111.7 g versus 47.5 g for elevated-calcium Magtasium™ leaf spray	+135.2%

The figures are sums of the recorded fruit-mass measurements. They compare tested product programmes, not treated plants with untreated plants. The best combined-application interval differed between Trials 1 and 2.

3. What this means for your farm

For growers, the useful lesson is to choose the right programme rather than simply add more product. Combined application led fruit mass in two trials, and extra calcium did not automatically improve the result.

Use the combined approach as a starting point, with standard Magtasium™ as the starting formulation. Compare it with untreated plants receiving the same fertiliser. Record every harvest from every plant, and confirm timing from the trial records before adopting a schedule.

Trial context and 2025 treatments

The pre-feasibility programme began in 2025, with some measurements and harvests continuing into early 2026. The experimental layout was a randomised block design with five replicates. The wider screening used Soil 1 (sandy loam) and Soil 2 (clay); the strawberry results presented here are for Soil 2. Moisture was maintained as non-limiting. Strawberry cultivar: not recorded.

Code	Nutrition and product programme
T1	Negative control: no product treatment; no designated fertilisation
T2	Positive control: non-nutrient-limiting fertilisation; no product treatment
T3	Positive control plus Magtasium™ dose A
T4	Negative control plus Magtasium™ dose A
T5	Positive control plus Magtasium™ dose B
T6	Negative control plus Magtasium™ dose B
Dose A	20 mL/L water foliar application weekly plus 5 mL/L drench weekly
Dose B	40 mL/L water foliar application weekly plus 10 mL/L drench weekly

The most informative product contrasts are T3 versus T2 and T5 versus T2 within the fertilised setting, and T4 versus T1 and T6 versus T1 within the unfertilised setting.

2026 Strawberry Trials 1 and 2 treatment programme

Code	Interval	Foliar mL/L	Drench mL/L	NPK plus trace
T1	Weekly	20	-	Yes
T2	Weekly	20	2.5	Yes
T3	Every 2 weeks	20	2.5	Yes
T4	Every 4 weeks	20	2.5	Yes
T5	Daily	-	7	No

Treatment codes are used consistently within each phase; they are not interchangeable between the 2025 screening and 2026 application trial.

Source schedule discrepancy

The methodology table lists T5 as a daily 7 mL/L drench without NPK plus trace. The graph legends list 2.5 mL/L, and some Trial 1 legends also label T5 as receiving NPK plus trace. The methodology and graph legends are retained as recorded.

Measurements and interpretation

SPAD (Soil Plant Analysis Development) is a non-destructive meter-based index of relative leaf greenness. It supports comparisons of chlorophyll-related physiological status within a crop and programme; it is not a direct measurement of leaf nitrogen or photosynthetic rate.

Application rates above are formulation volumes per litre of application water. They cannot be converted to hectare rates without spray or drench volume, plant density and application-frequency records. Only treatments explicitly designated NPK plus trace received the complete nutrient programme.

The source report presents descriptive comparisons. Where numerical means are stated, percentages are calculated from the recorded values. Graphs and photographs are reproduced as complete images. The source states that statistical significance could not be independently assessed from the available report material. Pot-scale harvest masses must not be read as estimates of commercial field yield.

Reading the results

The following pages retain the source figure numbers and scientific findings. The 2025 and 2026 programmes are presented separately, followed by the strawberry conclusion and visual observations.

2026 Strawberry Trial 3 product comparison

Trial 3 compared standard Magtasium™ (Product A) with Magtasium™ containing a higher level of calcium (Product B, also called Product-Y), using two application routes without NPK plus trace fertigation. The A and B labels in this trial identify the two products. In the 2025 screening, A and B instead identify dose levels.

Code	Product	Interval	Foliar mL/L	Drench mL/L
T1	Standard Magtasium™ (A)	Weekly	20	-
T2	Higher-calcium Magtasium™ (B / Product-Y)	Weekly	20	-
T3	Standard Magtasium™ (A)	Weekly	-	7
T4	Higher-calcium Magtasium™ (B / Product-Y)	Weekly	-	7

The Trial 3 graph legends show a different application schedule from the formulation comparison table. The results narrative identifies Trial 3 as the formulation comparison described above. Original figure legends and treatment identities are retained.

2025 pre feasibility results

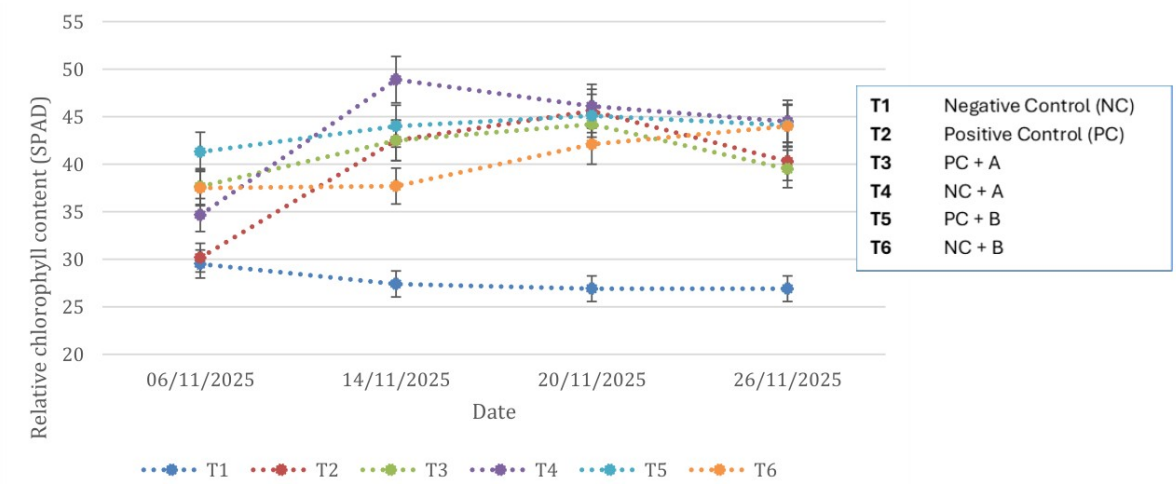

Figure 3.4.1: Relative chlorophyll content (SPAD) for Strawberries in soil 2 in a pre-feasibility trial

Final SPAD was 26.9 in T1 and 40.3 in T2, compared with 39.5-44.5 in product treatments. T4, T5 and T6 finished at 44.5, 44.1 and 44.0. The unfertilised product treatments maintained much greater final greenness than T1 in Soil 2. This supports physiological activity under the restricted-nutrition conditions of this screening trial.

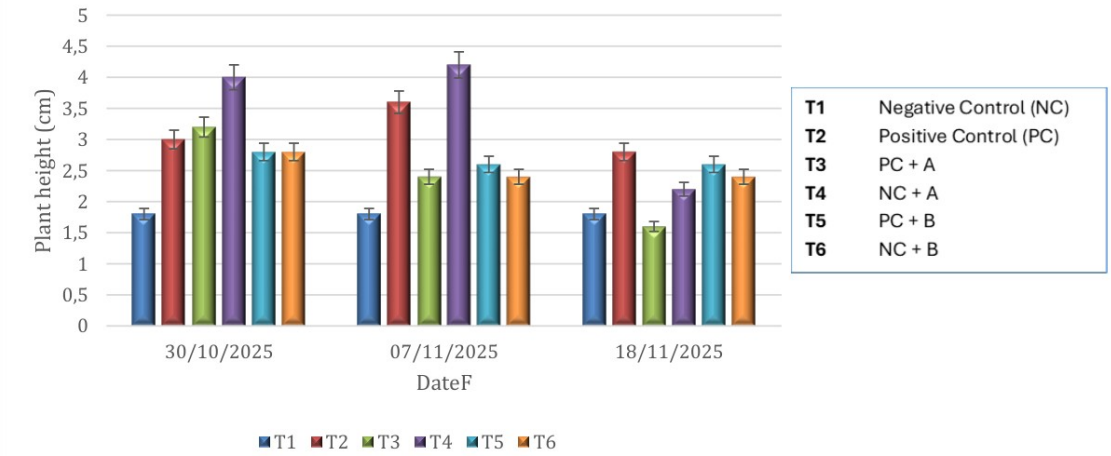

Figure 3.4.2: Plant height (cm) of Strawberries in soil 2 in a pre-feasibility trial

Final heights were 1.8, 2.8, 1.6, 2.2, 2.6 and 2.4 cm for T1-T6. Values were small and several series declined during the short observation period. The height panel provides evidence of a consistent product response. Rosette architecture makes plant height a less complete description of strawberry vigour than canopy development or fruit production.

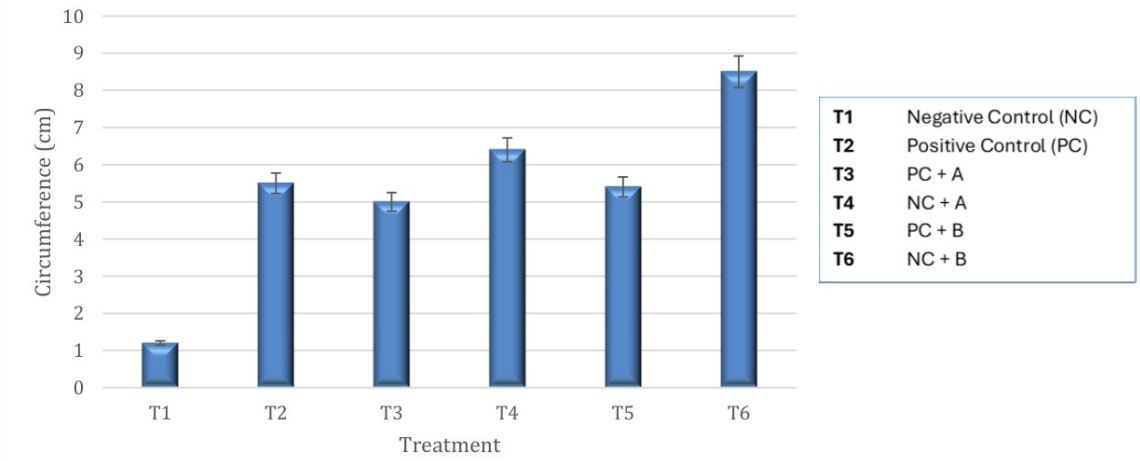

Figure 3.4.3: Circumference (cm) of Strawberries in soil 2 in a pre-feasibility trial

The circumference-labelled metric was 6.4 cm in T4 and 8.5 in T6, compared with 1.2 in T1. T3 and T5 were 5.0 and 5.4 cm, compared with 5.5 in T2. The favourable unfertilised comparisons indicate increased size for the recorded metric. The anatomical object measured is not specified, so this result is retained as a circumference response without assigning it to fruit or canopy.

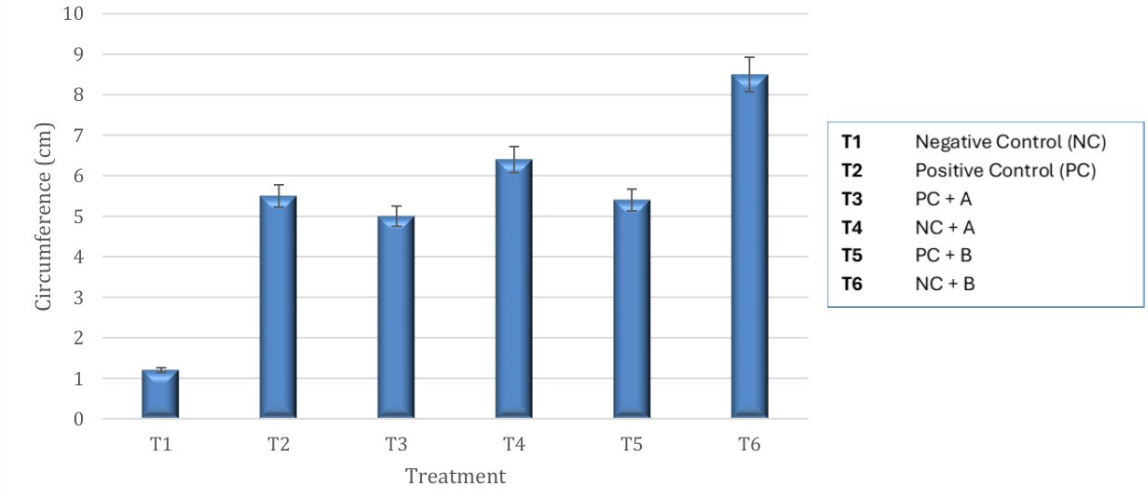

Figure 3.4.4: Width (cm) of Strawberry leaves in soil 2 at harvest in a pre-feasibility trial

The plotted values are identical to the preceding circumference panel: 1.2, 5.5, 5.0, 6.4, 5.4 and 8.5 cm for T1-T6. The chart axis also reads Circumference, despite the leaf-width caption. This caption is retained for figure completeness. The panel is treated as a duplicated or mislabelled metric and is not counted as independent evidence of greater leaf width.

2026 trial results

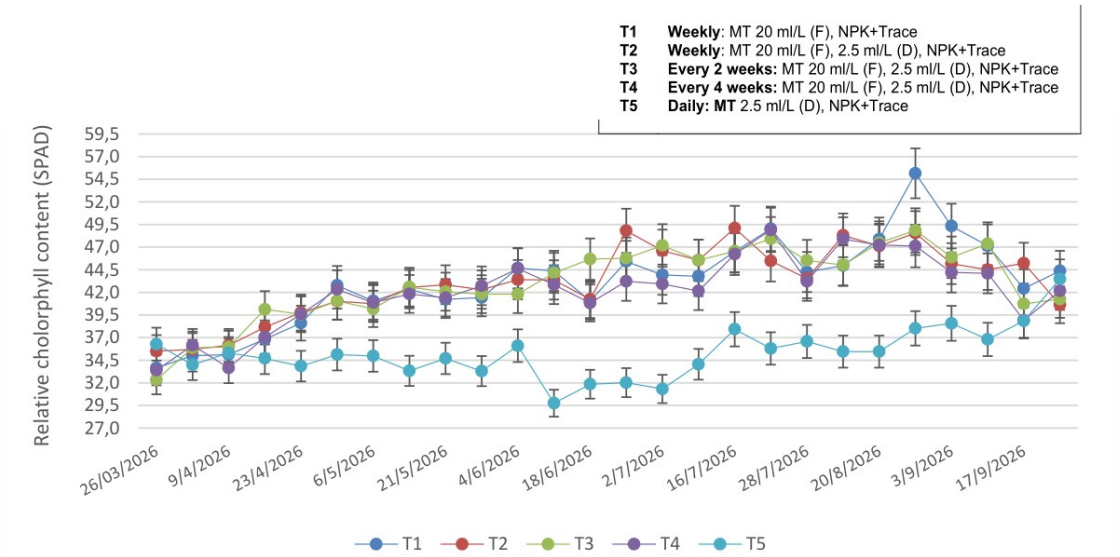

Figure 3.4.5: Relative chlorophyll content (SPAD) of Strawberries 1 (Trial 1)

Trial 1 T1-T4 had descriptive mean SPAD values of 42.14-43.16, compared with 35.29 in T5. Final readings converged to 40.62-44.38. The fertilised programmes sustained greater greenness over much of the cycle. End-point convergence illustrates the value of repeated measurements for detecting physiological differences.

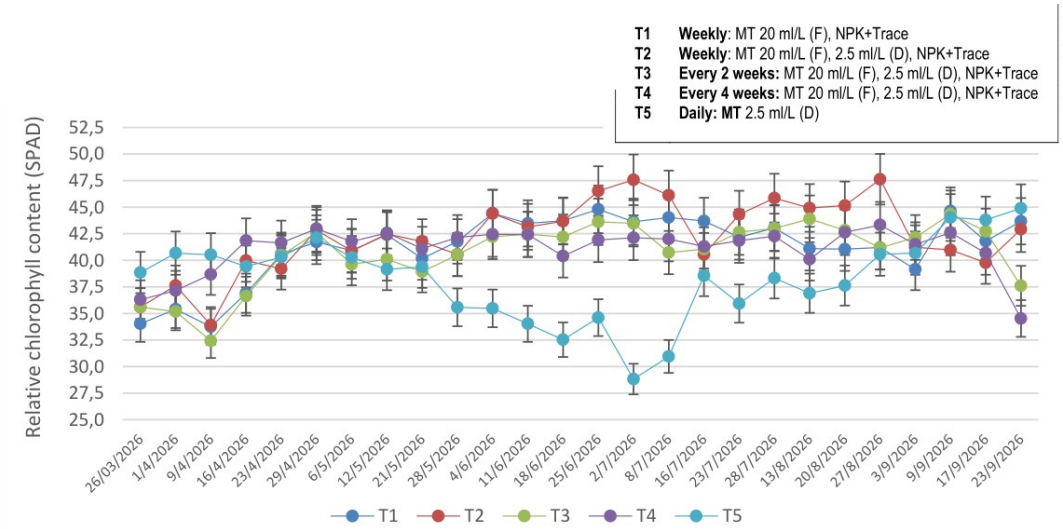

Figure 3.4.6: Relative chlorophyll content (SPAD) of Strawberries (Trial 2)

Trial 2 T2 had the highest descriptive mean SPAD at 42.29; T1, T3 and T4 were 40.70-41.28. T5 averaged 38.23 but finished highest at 44.90. The fortnightly combined programme supported a favourable growth-cycle greenness profile. A single late reading would give a different ranking and should not replace the full seasonal record.

2026 trial results

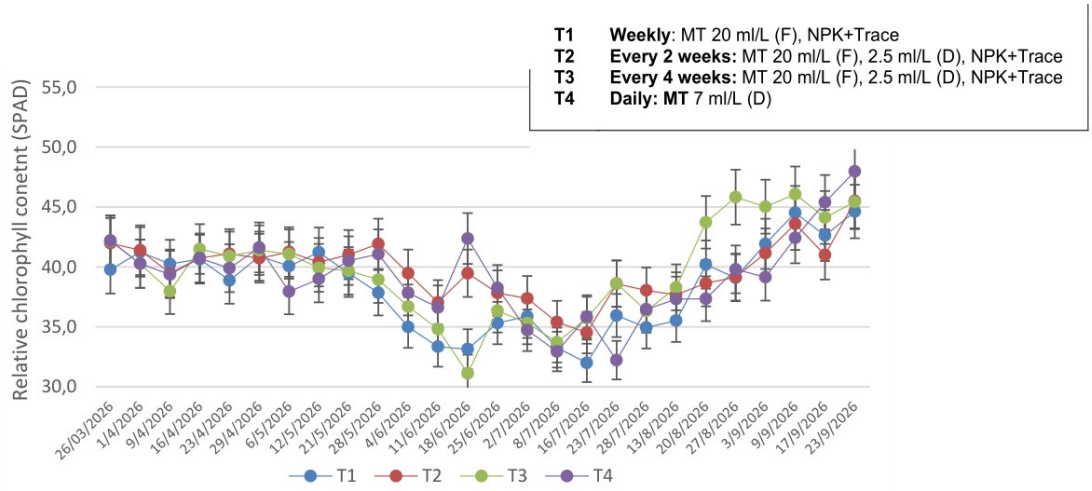

Figure 3.4.7: Relative chlorophyll content (SPAD) of Strawberries (Trial 3)

Trial 3 final SPAD was 44.62, 45.50, 45.42 and 47.98 for T1-T4. The descriptive means were similar, at 38.37-39.79. Both products and both application routes maintained leaf greenness without NPK plus trace fertigation. These comparisons support formulation and route assessment within the unfertilised setting.

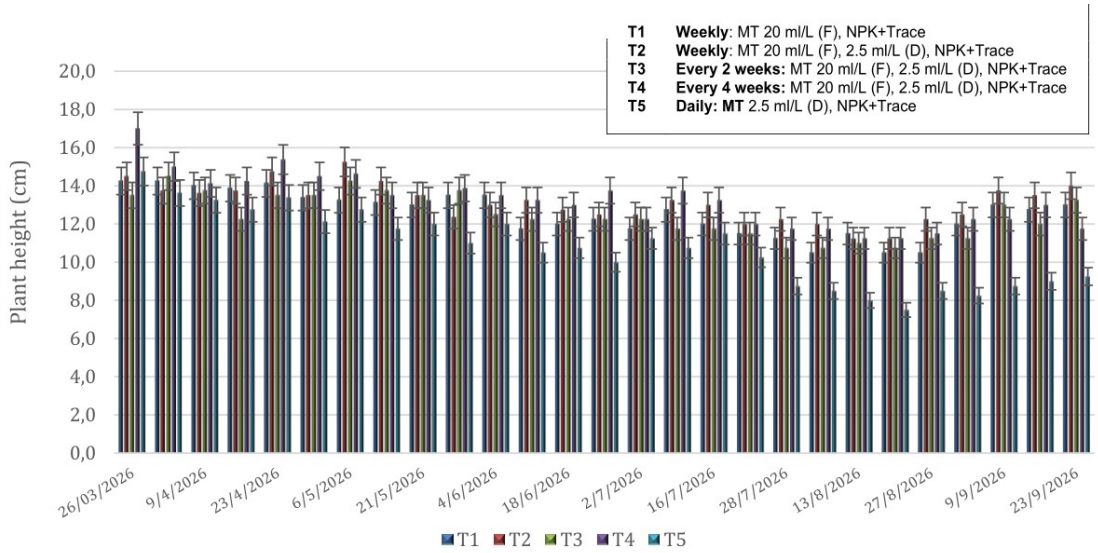

Figure 3.4.8: Plant height (cm) of Strawberries (Trial 1)

Trial 1 final heights were 13.00, 14.00, 13.25, 11.75 and 9.25 cm for T1-T5. T5 also had the lowest descriptive mean height. The fertilised programmes maintained stronger stature than the unfertilised drench programme. Among fertilised programmes, differences were modest and did not mirror the seasonal fruit-yield ranking.

2026 trial results

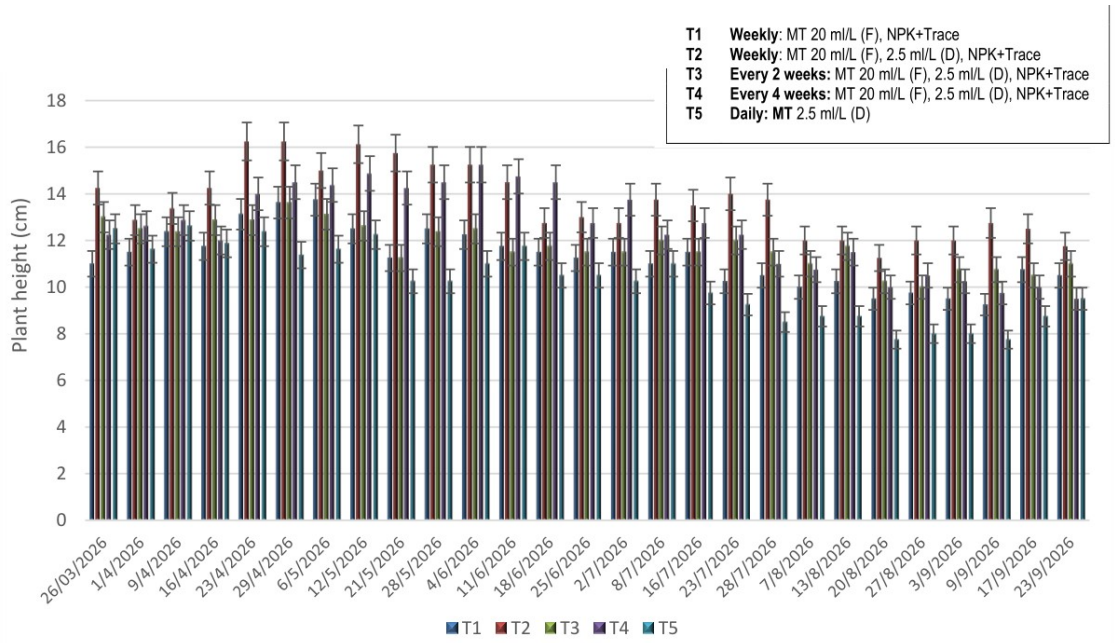

Figure 3.4.9: Plant height (cm) of Strawberries (Trial 2)

Trial 2 T2 had the highest descriptive mean height at 13.66 cm and finished at 11.75 cm. T5 averaged 10.24 cm and finished at 9.50 cm. The weekly combined programme supported vegetative stature in this trial. The differing best programme for fruit output indicates that height and reproductive performance are distinct endpoints.

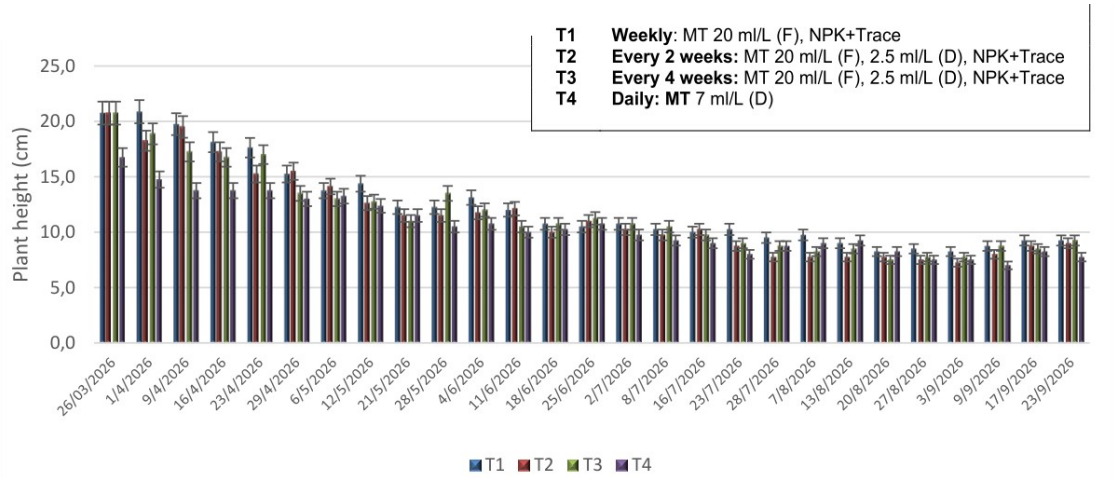

Figure 3.4.10: Plant height (cm) of Strawberries (Trial 3)

Trial 3 final heights were 9.25, 9.00, 9.25 and 7.75 cm for T1-T4. All declined from their initial readings; T4 also started shorter at 16.75 cm. Height alone offers little separation of the unfertilised formulation programmes. The decline cannot be assigned to a particular stress mechanism without the associated crop-management record.

2026 trial results

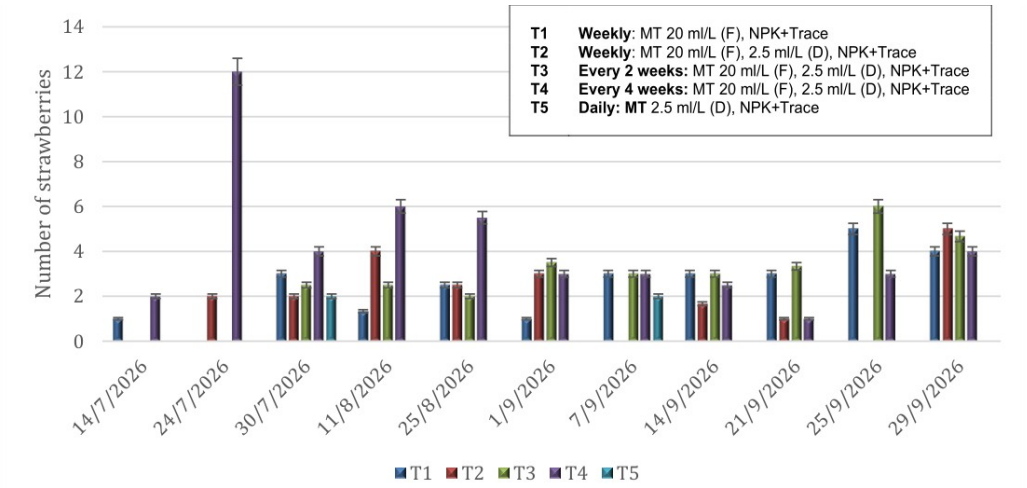

Figure 3.4.11: Number of Strawberries (Trial 1) at harvest

Trial 1 T4 had a peak mean count of 12 fruits at one harvest, and the largest sum of recorded harvest means at 46.0. T5 had only two entries, each with a mean count of 2. The four-weekly combined programme supported prolonged fruit production in this trial. The sum describes recorded harvest means, rather than an independently verified whole-plant fruit count.

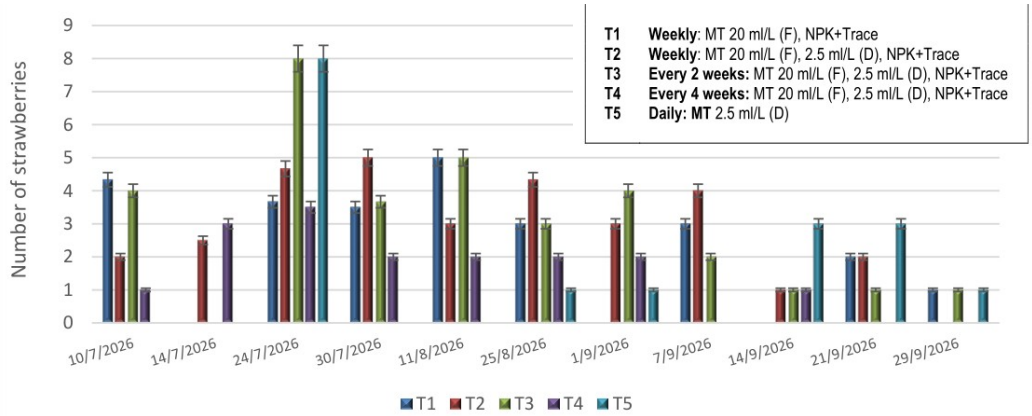

Figure 3.4.12: Number of Strawberries (Trial 2) at harvest

Trial 2 T3 and T2 had the largest sums of recorded count means at 32.67 and 31.50. T5 included a count of 8 at one harvest but had fewer recorded harvest events. A strong individual harvest does not guarantee greater seasonal production. Repeated fruiting under T2 and T3 provides the more useful indication of sustained reproductive performance.

2026 trial results

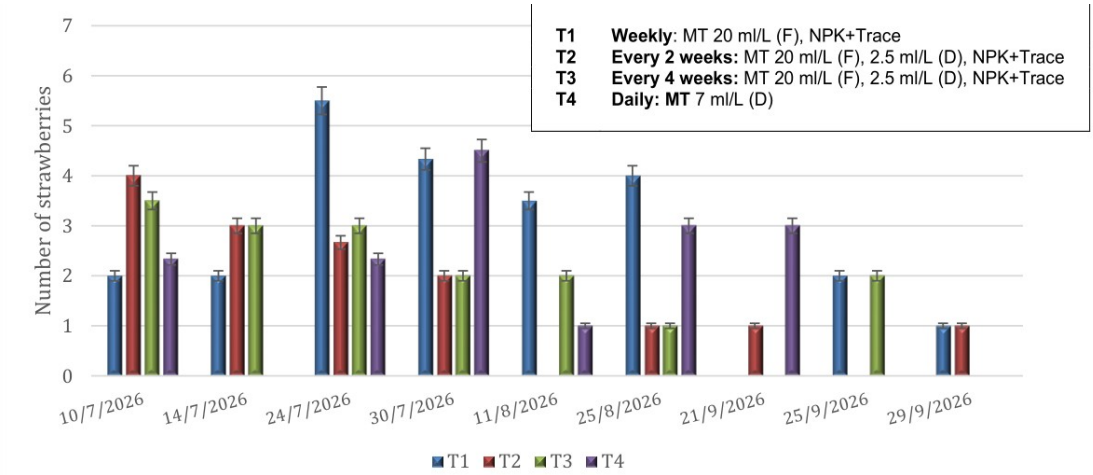

Figure 3.4.12 Number of Strawberries (Trial 3) at harvest

Trial 3 T1 had the largest sum of recorded count means at 24.33, compared with 14.67, 16.50 and 16.17 for T2-T4. The standard Magtasium™ foliar programme supported the most favourable recorded fruit-number response within the unfertilised formulation trial. This response is compared with other product programmes, not an untreated control.

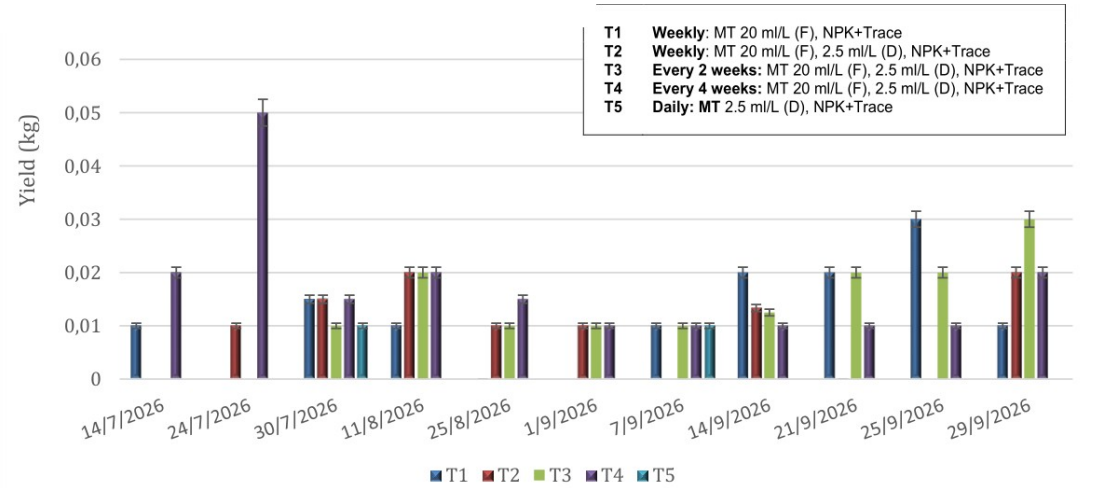

Figure 3.4.13: Yield (kg) of Strawberries (Trial 1) at harvest

Trial 1 T4 reached 0.050 kg at an individual harvest and had the largest sum of recorded masses at 0.190 kg. T3 totalled 0.1425 kg and T5 0.0200 kg. The four-weekly combined programme supported the strongest recorded fruit-mass response in this trial. Product applications with fertilisation were more productive than the unfertilised drench programme.

2026 trial results

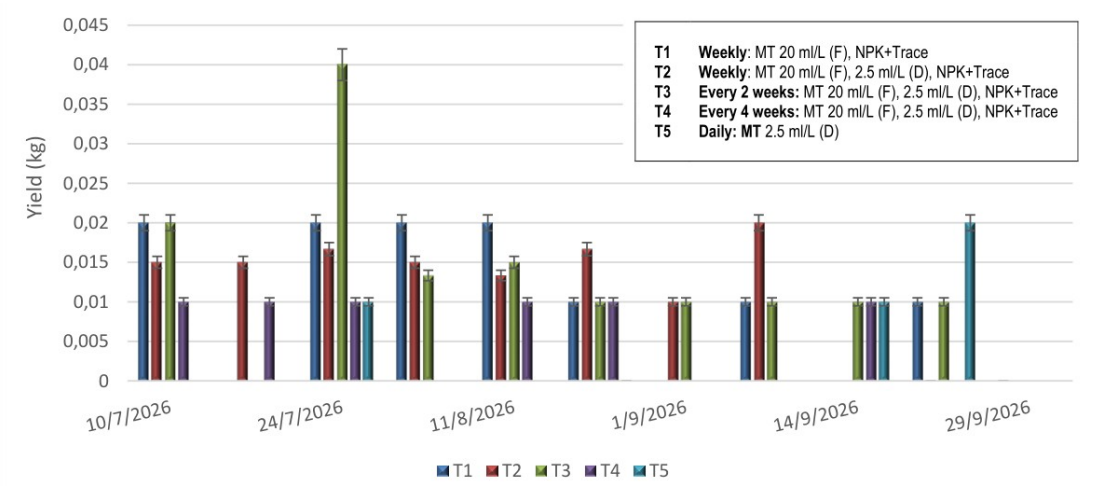

Figure 3.4.14: Yield (kg) of Strawberries (Trial 2) at harvest

Trial 2 T3 reached 0.040 kg at one harvest and had a recorded mass sum of 0.1383 kg, compared with 0.1217 in T2, 0.1100 in T1, 0.0600 in T4 and 0.0400 in T5. The fortnightly combined programme gave the strongest recorded harvest-mass performance in Trial 2. The best interval therefore differed from Trial 1.

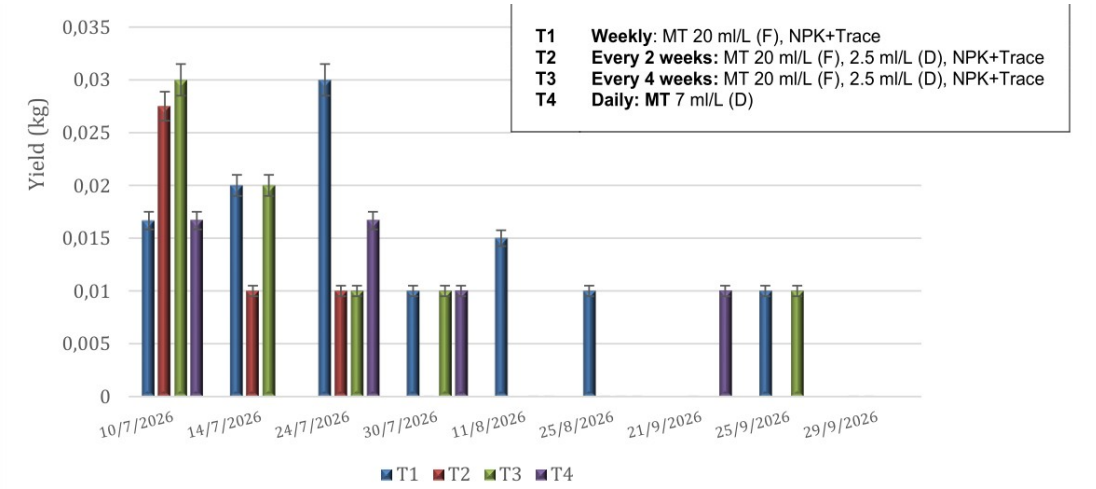

Figure 3.4.15: Yield (kg) of Strawberries (Trial 3) at harvest

Trial 3 recorded mass sums were 0.1117, 0.0475, 0.0800 and 0.0533 kg for T1-T4. T1 also maintained more recorded harvest events than T4. Standard Magtasium™ applied to leaves gave the most favourable fruit-mass response in this unfertilised comparison. The response indicates a formulation and route effect within the product programmes.

2026 trial results

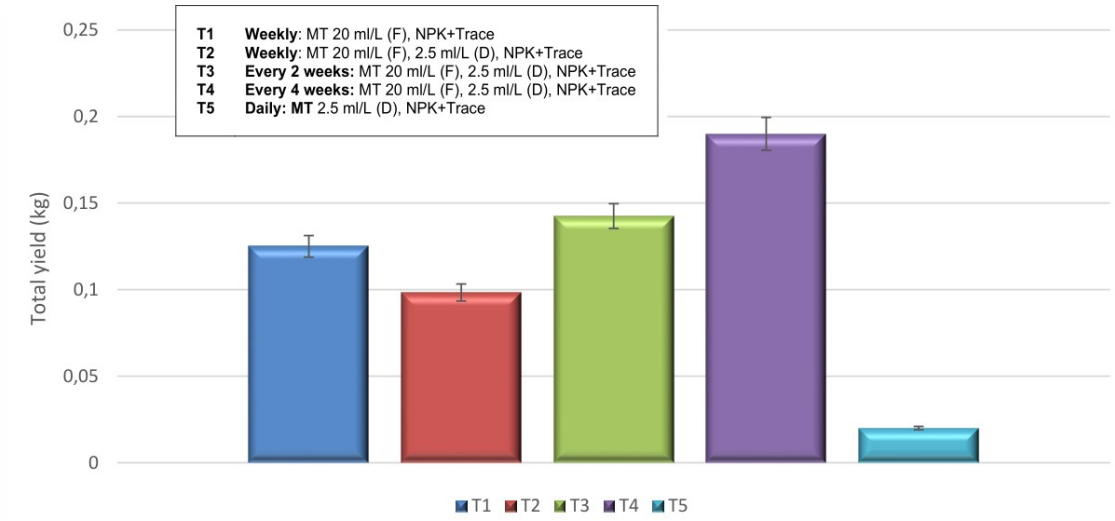

Figure 3.4.16: Total yield (kg) of Strawberries (Trial 1) at harvest

Total recorded yield was 0.1250, 0.0983, 0.1425, 0.1900 and 0.0200 kg for T1-T5. T4 exceeded the fertilised foliar-only programme T1 by 52.0%. This seasonal summary supports the four-weekly combined programme for Trial 1. Its agreement with the preceding harvest panel strengthens the internal consistency of the recorded yield response.

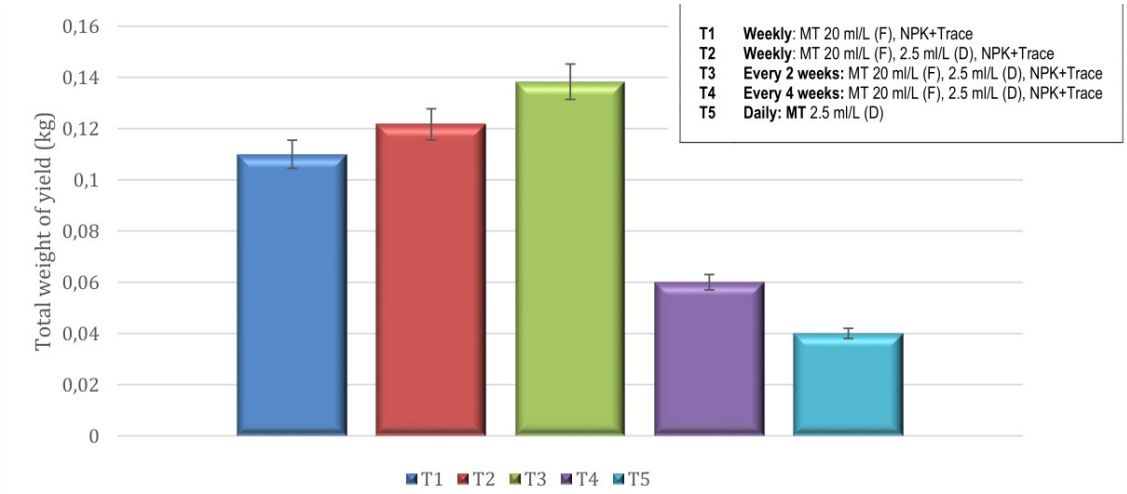

Figure 3.4.17: Total Yield (kg) of Strawberries (Trial 2) at harvest

Total recorded yield was 0.1100, 0.1217, 0.1383, 0.0600 and 0.0400 kg for T1-T5. T3 exceeded T1 by 25.7%. The fortnightly combined programme supported the strongest seasonal output in Trial 2. The poorer T4 response shows that reducing application frequency was not favourable in every crop cycle.

2026 trial results

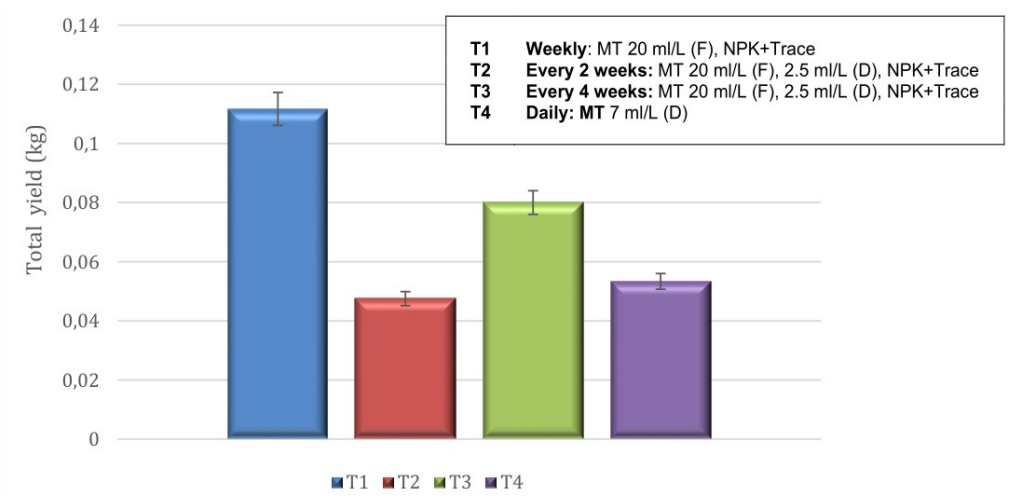

Figure 3.4.18: Total yield (kg) of Strawberries (Trial 3) at harvest

Total recorded yield was 0.1117 kg in T1, 0.0475 in T2, 0.0800 in T3 and 0.0533 in T4. Under foliar application, standard Magtasium™ (Product A) produced 135.2% more recorded mass than higher-calcium Magtasium™ (Product B). The response supports standard Magtasium™ (Product A) and foliar delivery within this unfertilised comparison. It also indicates that product formulation is relevant to the reproductive response.

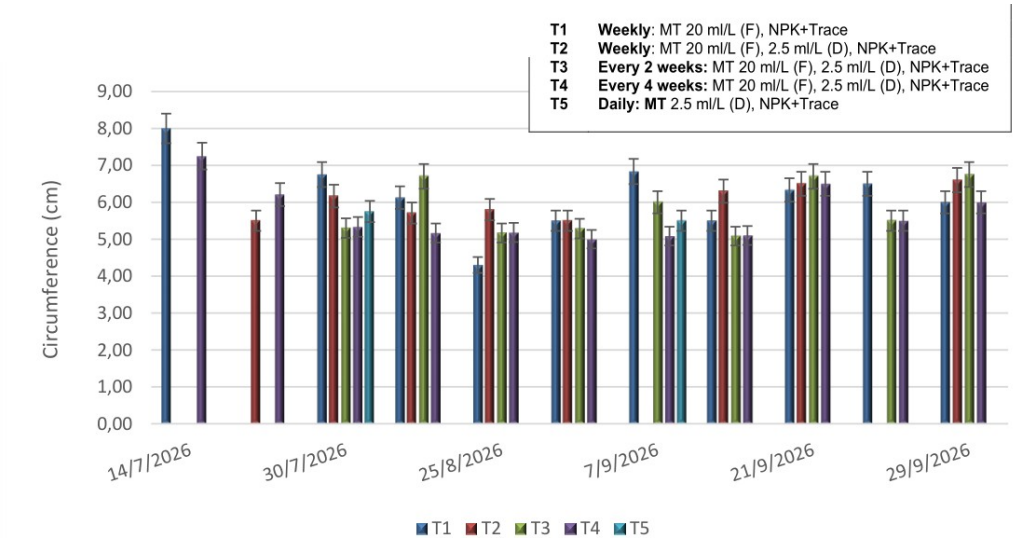

Figure 3.4.19: Circumference (cm) of Strawberries (Trial 1) at harvest

Trial 1 T1 had the largest unweighted mean of recorded circumference values at 6.18 cm; T4 averaged 5.67 cm despite its highest seasonal yield. T5 averaged 5.63 cm across two entries. Higher seasonal mass in T4 was associated more with sustained fruit production than with a clear increase in circumference. Harvest averages are not weighted by the number of fruit measured.

2026 trial results

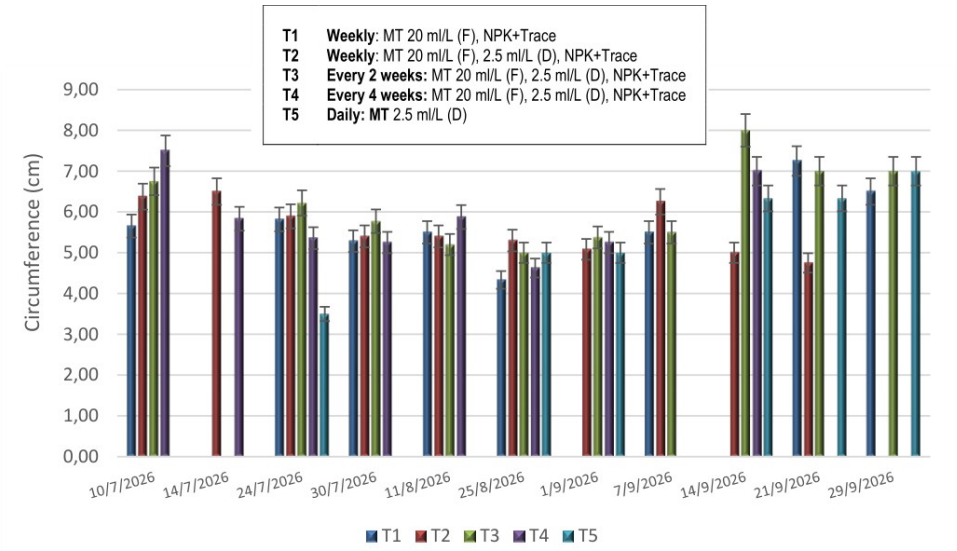

Figure 3.4.20: Circumference (cm) of Strawberries (Trial 2) at harvest

Trial 2 T3 had the highest descriptive circumference mean at 6.18 cm and reached 8.0 cm at one harvest. T1 averaged 5.73 cm and T5 5.53 cm. The fortnightly programme combined favourable fruit size with the highest recorded total yield in Trial 2. This provides complementary support across fruit-yield components.

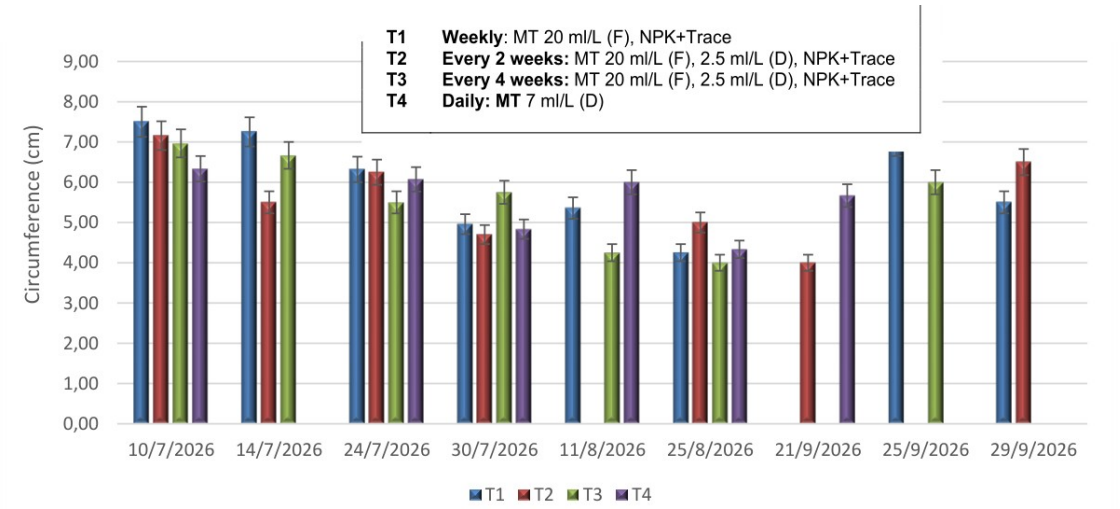

Figure 3.4.21: Circumference (cm) of Strawberries (Trial 3) at harvest

Trial 3 T1 averaged 6.02 cm circumference, compared with 5.59, 5.59 and 5.54 cm in T2-T4. The largest T1 observation was 7.5 cm. Standard Magtasium™ applied to leaves combined the largest descriptive circumference average with the strongest recorded total fruit mass in the unfertilised comparison.

Strawberry growth performance conclusion

Strawberry results support a programme-specific effect on physiological status and recorded fruit production. The strongest seasonal yield occurred with the four-weekly combined programme in Trial 1 and the fortnightly combined programme in Trial 2. In the unfertilised formulation comparison, standard Magtasium™ applied to leaves had the strongest recorded total fruit mass and the largest descriptive circumference average. The results support both application scheduling and formulation as relevant determinants of performance. The duplicated pre- feasibility circumference and leaf-width-labelled panels are treated as one unresolved metric rather than two independent responses.

Visual observations



Figure A: Randomised block design of strawberry trial

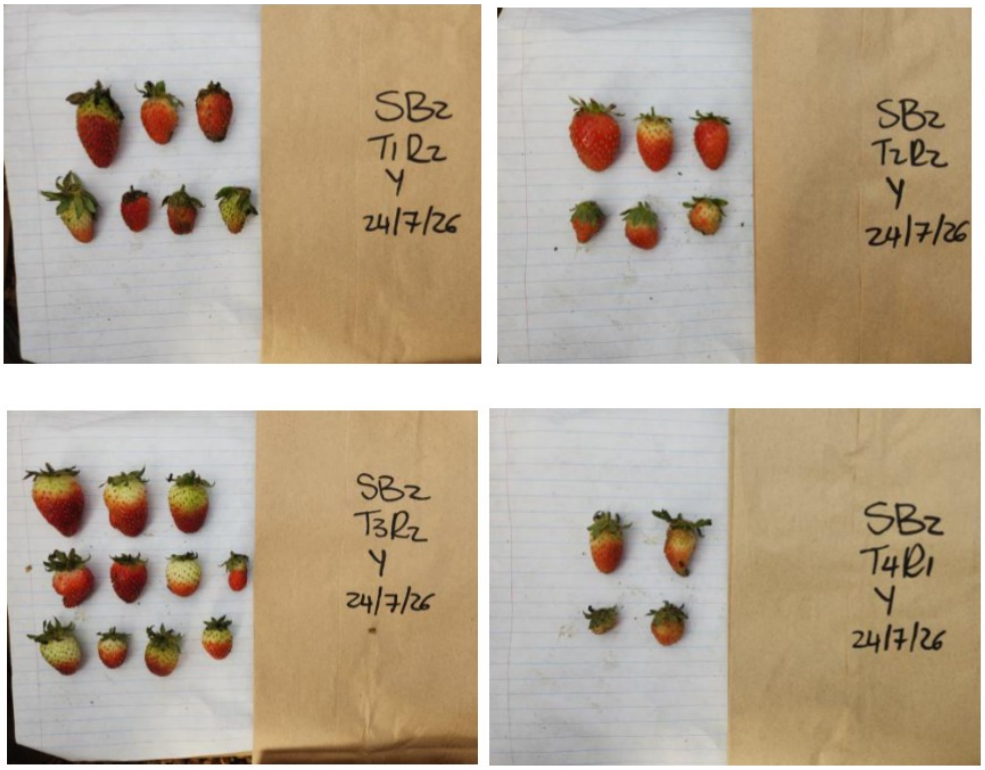

Figure B: Common visual effects of different treatments

CORPORATE IDENTITY

HALOGEN GREENS
ELEVATING CROP PROTECTION, NATURALLY

SPECIALIZATION

Group 3 Bio Stimulant
(Trials Underway for Registration)

STATUS

- Pending Worldwide Patent
- Conducting Trials

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