

Field Evaluation Report

Effectiveness of Glyphosate with and without Saver⁺ Under Tropical Field Conditions for Weed Control

Prepared by:

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Location of test:

Jalan Serom 4, Kampung Serom 4, Bukit Gambir, 84410 Sungai Mati, Johor Darul Ta'zim, Malaysia.

Date of Test:

27th July 2025 – 11th August 2025

1. Introduction

This field trial aimed to evaluate the effectiveness of **NASA Glyphosate**, a herbicide based on **glyphosate isopropylammonium (41%)**, in controlling several species of weeds under tropical field conditions. The trial also compared the performance of glyphosate at different concentrations, including the use of Saver⁺, a spray adjuvant product designed to enhance herbicide performance.

This study further explored the potential to maintain herbicidal effectiveness while reducing the glyphosate dosage and incorporating Saver⁺ to improve penetration and weed mortality.

2. Materials and Methods

2.1 Test Substance

- **Name:** NASA Glyphosate
- **Active Ingredient:** Glyphosate (Isopropyl Ammonium Salt)
- **Concentration:** 41%

2.2 Saver⁺

- **Type:** Spray adjuvant
- **Purpose:** Enhances the herbicide's performance by improving spread, adhesion, and absorption into plant tissues

2.3 Location

- **Site:** Jalan Serom 4, Kampung Serom 4, Bukit Gambir, Johor, Malaysia.
- **Geographical Zone:** Tropical climate with year-round sun and rain

2.4 Environmental Conditions

- **Climate:** High humidity and alternating rain and heat throughout the year, which supports dense weed growth
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3. Test Plot Design

3.1 Plot Configuration

- **Plot Size:** 300 square feet per plot
- **Number of Plots:** 3
- **Total Test Area:** 900 square feet

3.2 Treatment Overview

Plot	Treatment Composition	Glyphosate Volume	Saver+ Volume	Water Volume
1	100% glyphosate solution	300 ml	0 ml	15 L
3	50% glyphosate (without Saver+)	150 ml	0 ml	15 L
4	50% glyphosate solution + Saver+	150 ml	25 ml	15 L

Application was performed manually using calibrated knapsack sprayers to ensure consistent delivery across all plots.

4. Weed Species Profile

The field was infested with various common tropical weed species. Most of the weeds were mature, at approximately **6 months or older** in growth stage.

Dominant Weed Types Identified

Common Name	Scientific Name
Goosegrass	<i>Eleusine indica</i>
Siam Weed	<i>Chromolaena odorata</i>
Sensitive Plant (Mimosa)	<i>Mimosa pudica</i>
Morning Glory / Bindweed	<i>Ipomoea</i> spp.
Broadleaf grasses	Possibly <i>Paspalum</i> or <i>Panicum</i> spp.
Goosegrass	<i>Eleusine indica</i>

5. Observations and Data Collection

5.1 Initial Effects

- **Time until first visible effect:** 8 days post-application
- **Visual indicators:** Chlorosis (yellowing), leaf curl, necrosis, and wilting.

5.2 Weed Response per Plot

Plot	Time to Complete Weed Control	Comments
1 <i>(100% glyphosate)</i>	Full control achieved by Day 14	Highest dose, no Saver ⁺ ; weeds eventually died but took longest time among all plots
2 <i>(50% glyphosate)</i>	Full control achieved by Day 18	50% glyphosate without Saver ⁺ ; delayed effect but still led to full weed mortality
3 <i>(50% glyphosate + Saver⁺)</i>	Full control achieved by Day 16	50% glyphosate with Saver ⁺ ; showed complete kill two days after Plot

5.3 Visual highlight



Plot 1 – 100% glyphosate



Plot 2 – 50% glyphosate



Plot 3 – 50% glyphosate + Saver⁺

6. Analysis and Interpretation

- All plots ultimately achieved **complete weed control** by Day 18, regardless of glyphosate concentration or the use of Saver⁺.
- **Plot 3** (50% glyphosate + Saver⁺) demonstrated **faster and more efficient weed mortality** than Plot 2 (50% glyphosate without Saver⁺), confirming that **Saver⁺ significantly enhances glyphosate performance**, even at reduced dosage.

- **Plot 1**, which used the highest dose (100% glyphosate without Saver+), achieved full weed death **by Day 14**, making it the **fastest** in terms of complete kill. However, the difference in timing compared to Plot 3 (**Day 16**) was only **2 days**, suggesting that **a lower dose with Saver+ is nearly as effective**.
 - **Plot 2**, with 50% glyphosate and no Saver+, showed the **slowest response (full death by Day 18)**, indicating that **reduced glyphosate alone** is less efficient unless paired with a performance booster like Saver+.
 - These results suggest that **glyphosate application rates can be optimized** by pairing lower doses with Saver+, helping to reduce chemical usage without compromising effectiveness.
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7. Conclusion

This field trial successfully demonstrated that:

1. **Saver+** enhances the performance of glyphosate even at reduced dosage.
 2. **Plot 3** (50% glyphosate with Saver+) achieved full weed kill **only two days later** than **Plot 1** (100% glyphosate without Saver+), suggesting that **Saver+ allows for comparable effectiveness at lower herbicide doses**.
 3. **Plot 2** (50% glyphosate without Saver+) was the slowest to achieve full control, highlighting that **Saver+ plays a critical role in compensating for reduced glyphosate levels**.
 4. All treatments were ultimately effective, but the use of **Saver+** enabled **dose optimization**, offering both **cost-saving and environmental benefits** without compromising weed control outcomes.
 5. **Visual performance results** suggest that the glyphosate dosage used in Plot 1 may be **higher than necessary** and can potentially be reduced when combined with **Saver+** for more sustainable agricultural practices.
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8. Recommendations

Based on these results, the following practices are recommended:

- Apply **glyphosate with Saver+** to improve effectiveness, enhance absorption, and achieve faster weed kill.
- Consider **reducing glyphosate dosage by 50%** when using Saver+, as performance remains strong and may reduce chemical input costs and environmental impact.
- **Monitor weed maturity and species profile** to adjust application rate and timing for optimal control.

Photographic Documentation

9. Photographic Documentation of Weed Response

Photos were taken on **four key dates**:

- **17 July** – Baseline (Day 0, before treatment)
- **22 July** – Day 6 (early effects observed)
- **7 August** – Day 22 (final assessment)

Photos are arranged by **plot** and **date** to visually represent the herbicide effectiveness across treatments.

Plot 1 – 100% Glyphosate (No Saver⁺)



17/07/2025 – Baseline
(After Applications)



22/07/2025 – Day 6
(Early effects observed)

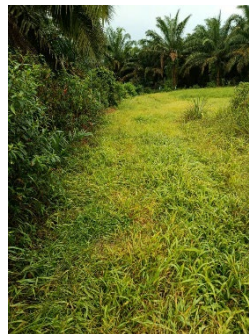


07/08/2025 – Day 22
(Final assessment)

Plot 2 – 50% Glyphosate (No Saver⁺)



17/07/2025 – Baseline
(After Applications)



22/07/2025 – Day 6
(Early effects observed)



07/08/2025 – Day 22
(Final assessment)

 **Plot 3 – 50% Glyphosate + Saver⁺**



17/07/2025 – Baseline
(After Applications)



22/07/2025 – Day 6
(Early effects observed)



07/08/2025 – Day 22
(Final assessment)
