

Field Evaluation Report

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

Prepared by:

Solvemen Asia Sdn. Bhd.

Location of test:

Batu 8, Jalan Gombak Lama, Gombak, Selangor Darul Ehsan, Malaysia.

Date of Test:

27th July 2025 – 11th August 2025

1. Introduction

The purpose of this field trial was to assess the effectiveness of **NASA GLYPHOSATE**, an herbicide based on **glyphosate isopropyl ammonium** (41% concentration), on a mixed weed population under natural field conditions. The trial also evaluated the impact of **Saver⁺**, an adjuvant, on the performance of glyphosate at full and reduced concentrations.

The study was conducted to determine whether glyphosate's weed-killing performance could be maintained or enhanced with the use of adjuvants while reducing the amount of herbicide applied. This has implications for cost savings, environmental safety, and improved agricultural practices.

2. Materials and Methods

2.1 Test Substance

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

2.2 Adjuvant

- **Name:** Saver⁺
- **Purpose:** Enhancer of herbicide effectiveness through improved adhesion and penetration

2.3 Location

- **Site:** Batu 8, Jalan Gombak Lama
- **Region:** Gombak, Selangor, Malaysia
- **Geographical Zone:** Tropical equatorial zone

2.4 Environmental Conditions

- **Climate:** Characterized by consistent rainfall and sunshine throughout the year, contributing to favourable conditions for weed growth.
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3. Test Plot Design

3.1 Plot Configuration

- **Plot Size:** 10 feet × 25 feet per plot
- **Number of Plots:** 4
- **Total Test Area:** 1,000 square feet (4 plots x 250 ft²)

3.2 Treatment Overview

Plot	Treatment Composition	Glyphosate Volume	Saver ⁺ Volume	Water Volume
1	100% glyphosate solution	150 ml	0 ml	4 L
2	100% glyphosate + Saver ⁺	150 ml	15 ml	4 L
3	50% glyphosate + Saver ⁺	75 ml	15 ml	4 L
4	50% glyphosate solution (without Saver ⁺)	75 ml	0 ml	4 L

Application was carried out using handheld sprayers calibrated for uniform distribution.

4. Weed Species Profile

The test area was infested with a diverse set of weed species, representing common problematic plants in tropical agriculture. Weeds ranged in maturity from **3 to 6 months old**, making them moderately to fully established.

Dominant Weed Types Identified

Common Name	Scientific Name	Family
Buffalo Grass	<i>Paspalum conjugatum</i>	Poaceae
Sedge	Family: Cyperaceae	Cyperaceae
Cogon Grass	<i>Imperata cylindrica</i>	Poaceae
Sensitive Plant	<i>Mimosa pudica</i>	Fabaceae
Creeping Foxglove	<i>Asystasia intrusa</i>	Acanthaceae
Tropical Kudzu	<i>Calopogonium caeruleum</i>	Fabaceae

5. Observations and Data Collection

5.1 Initial Observation Period

- **Time until first visible effect:** ~10 days post-application
- Visual indicators included chlorosis (yellowing), necrosis, leaf curl, and desiccation.

5.2 Weed Response per Plot

Plot	Visible Effectiveness (Day 10)	Full Weed Control (Day 14–21)	Comments
1 <i>(100% glyphosate)</i>	Moderate browning, slower kill rate	Yes (within 2–3 weeks)	No Saver ⁺ used
2 <i>(100% glyphosate + Saver⁺)</i>	Rapid desiccation and leaf death observed early	Yes (faster: ~14 days)	Most effective overall
3 <i>(50% glyphosate + Saver⁺)</i>	Similar speed and completeness to Plot 1	Yes (~2–3 weeks)	Shows efficiency of lower dose + Saver ⁺
4 <i>(50% glyphosate)</i>	Weak results, partial yellowing	No or delayed effectiveness	Least effective

5.3 Visual highlight



Plot 1 – 100% glyphosate (without Saver⁺)



Plot 2 – 100% glyphosate + Saver⁺



Plot 3 – 50% glyphosate + Saver⁺



Plot 4 – 50% glyphosate (without Saver⁺)

6. Analysis and Interpretation

- The addition of **Saver⁺** to **100% glyphosate** (Plot 2) **enhanced the herbicide's performance**, resulting in faster and more thorough weed kill compared to glyphosate alone.
 - **Plot 3**, which used only **50% glyphosate** but combined with Saver⁺, demonstrated **comparable effectiveness** to Plot 1, which had full-dose glyphosate without Saver⁺. This suggests **the potential to halve glyphosate usage** without loss of efficacy, provided that Saver⁺ is included.
 - **Plot 4** (50% glyphosate without Saver⁺) was **least effective**, indicating that glyphosate alone at reduced concentration is insufficient for acceptable weed control.
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7. Conclusion

This field trial successfully demonstrated that:

1. **Saver⁺ significantly enhances glyphosate performance**, especially in terms of speed and visual impact on weeds.
 2. **Glyphosate efficiency can be maintained at 50% dosage** if combined with Saver⁺, resulting in cost and environmental benefits.
 3. Among the treatment combinations, **Plot 2 (100% glyphosate + Saver⁺)** provided the fastest and most complete weed control.
 4. The combination in **Plot 3 (50% glyphosate + Saver⁺)** is **recommended** for practical agricultural use as it achieves effective control while reducing chemical input.
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8. Recommendations

Based on the findings, the following practices are advised for agricultural weed management in similar climates and weed profiles:

- Utilize **glyphosate with Saver⁺** to improve its effectiveness, enhance weed control efficiency, and potentially reduce the required herbicide dosage.
- Consider **reducing glyphosate dosage** by 50% when using adjuvants, thereby lowering environmental impact and input cost.
- Maintain consistent monitoring of weed species and growth stages to time applications at their most effective window (3–6 months growth proved responsive).

Photographic Documentation

9. Photographic Documentation of Weed Response

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

- **27 July** – Baseline (Day 0, before treatment)
- **5 August** – Day 9 (early effects observed)
- **8 August** – Day 12 (progressing effects)
- **11 August** – Day 15 (final assessment)

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

Plot 1 – 100% Glyphosate (No Saver⁺)



27/07/2025 – Baseline
(After Applications)



05/08/2025 – Day 9
(Early effects observed)



08/08/2025 – Day 12
Progressing effects

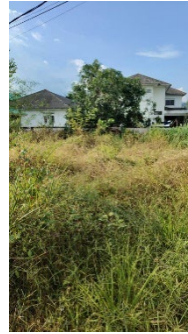


11/08/2025 – Day 15
(Final Assessment)

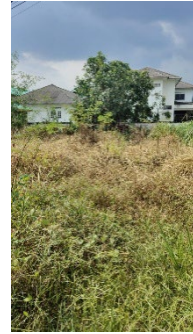
 **Plot 2 – 100% Glyphosate + Saver⁺**



27/07/2025 – Baseline
(After Applications)



05/08/2025 – Day 9
(Early effects observed)



08/08/2025 – Day 12
Progressing effects



11/08/2025 – Day 15
(Final Assessment)



 **Plot 3 – 50% Glyphosate + Saver⁺**



27/07/2025 – Baseline
(After Applications)



05/08/2025 – Day 9
(Early effects observed)



08/08/2025 – Day 12
Progressing effects



11/08/2025 – Day 15
(Final Assessment)

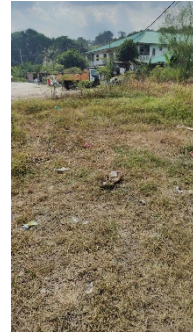
 **Plot 4 – 50% Glyphosate (No Saver⁺)**



27/07/2025 – Baseline
(After Applications)



05/08/2025 – Day 9
(Early effects observed)



08/08/2025 – Day 12
Progressing effects



11/08/2025 – Day 15
(Final Assessment)
