Key Industries
Protecting people, crops and native species

HiCane vs Syncron vs Untreated Control (2024 Data)

Comparison Data: Key Metrics

Metric	[1]HiCane®	[2]Syncron®	Untreated Control
Budbreak %	66.9%	62–65%	48.3%
Budbreak Duration	28.5 days	27–36 days	40+ days
Flowers/Winter Bud	2.11	1.84	1.24
Fruit Size (110–160g)	~90% uniform fruits	~80% uniform fruits	Lowest uniformity
Worker Safety	High Risk	Low Risk	Safe
Environmental Impact	High Risk	Eco-friendly	Neutral
Phytotoxicity	Low in optimal conditions	None observed	None observed

Critical Observations

1. **Budbreak Performance**:
    - Syncron approaches HiCane's efficacy and surpasses untreated controls significantly, offering a viable alternative under optimized protocols.
2. **Yield and Quality**:
    - Syncron's enhancements in queen flowers and fruit size uniformity are key selling points for growers focused on profitability and marketable quality.
3. **Safety and Sustainability**:
    - Syncron leads in safety, sustainability, and regulatory compliance, addressing increasing demands for environmentally responsible solutions.

This detailed analysis positions Syncron as a high-performing, sustainable alternative to HiCane, with potential for optimization in yield metrics while maintaining its lead in safety and eco-friendliness.

1. Budbreak Percentage

- **HiCane**:
    - **66.9%** average budbreak across all trials.
    - Performance consistency noted when applied **28–42 days before natural budbreak**. Deviations outside this window reduce efficacy significantly.
    - Peak performance observed with specific cultivars (e.g., Hayward and SunGold), dependent on weather and precise application timing.
- **Syncron**:
    - **65% (Hayward)** and **62% (SunGold)** budbreak when applied at **31–36 days before budbreak**.
    - Enhanced budbreak by **6–10%** compared to untreated controls when evaluated weekly.
    - Synergistic effects noted when combined with [3]**Calcinit® (15%)**, boosting efficacy in colder seasons or suboptimal chilling years.
    - Outperformed other reference treatments (non-HiCane) by **5–7%**, particularly in SunGold trials.
- **Untreated Control**:
    - Averaged **48.3%**, showing natural budbreak progression under untreated conditions.
    - Significant variability due to environmental factors like temperature and chilling accumulation.
- **Detailed Implications**:
    - HiCane remains the benchmark in absolute budbreak percentage but depends heavily on strict timing and conditions.
    - Syncron narrows the gap, offering greater flexibility and better performance in years with insufficient chill accumulation.

---

2. Budbreak Duration

- **HiCane**:
    - Budbreak duration condensed to **28.5 days**, delivering uniform and synchronized results.
    - This synchronization allows for efficient downstream orchard management, such as pruning and pest control.
- **Syncron**:
    - **27–31 days (SunGold)** and **31–36 days (Hayward)**, slightly longer but close to HiCane.
    - Demonstrated **faster cumulative sprouting dynamics**, with a notable **advance of flowering onset** by 3–5 days in Hayward.
- **Untreated Control**:
    - Budbreak duration extended to **40+ days**, leading to staggered growth phases and reduced management efficiency.
- **Detailed Implications**:
    - Syncron's condensed budbreak window is competitive with HiCane, particularly for cultivars like SunGold.
    - This shorter duration reduces labour-intensive variability while maintaining high flexibility for weather-related adjustments.

Key Industries
Protecting people, crops and native species

3. Yield Metrics

Fertile Buds and Flowers

- **HiCane**:
  - Produced **2.11 fertile buds/winter bud** (highest recorded in trials).
  - King flowers constituted the majority, enhancing fruit uniformity and profitability.
- **Syncron**:
  - Achieved **1.84 fertile buds/winter bud (Hayward)**, a significant improvement over untreated controls (**1.24 buds/winter bud**).
  - **+15% increase in fertile buds and flowers** compared to untreated, with notable dominance of **queen flowers**, which are commercially preferred.
- **Untreated Control**:
  - Produced the lowest fertile buds, with variability in flower types and fewer commercially viable buds.

Fruit Size and Quality

- **HiCane**:
  - **90% of fruits** fell within the premium size range of **110–160g**, offering high market value.
  - High consistency and minimal size variation observed across treated orchards.
- **Syncron**:
  - **80% of fruits** were in the same size range, with significant improvements in the **135–160g category**, critical for premium pricing.
  - Fruits showed uniformity and comparable quality to HiCane-treated orchards.
- **Untreated Control**:
  - Produced fewer marketable fruits, with size distribution skewed towards smaller, less profitable ranges.
- **Detailed Implications**:
  - Syncron delivers substantial yield and fruit quality enhancements, narrowing the gap with HiCane.
  - Its dominance in queen flowers supports its economic appeal for growers targeting premium fruit markets.

4. Safety Metrics

Worker Safety

- **HiCane**:
    - Requires full PPE and strict adherence to safety protocols due to hydrogen cyanamide toxicity.
    - Risks include skin irritation, respiratory complications, and chronic exposure concerns.
- **Syncron**:
    - No safety risks reported during trials; handling requires only standard PPE.
    - Recognized as a safer alternative, especially in labour-intensive orchards.

Environmental Impact

- **HiCane**:
    - High leaching potential, posing risks to soil and water systems.
    - Requires mitigation strategies to comply with regulatory standards for non-target contamination.
- **Syncron**:
    - Fully biodegradable and residue-free, certified for organic farming.
    - Meets stringent environmental compliance for domestic and export markets.

Residue on Fruit

- **HiCane**:
    - Withholding periods required to ensure residue-free harvest.
- **Syncron**:
    - No residues detected, enabling faster market access and increased flexibility in harvest scheduling.

Crop Phytotoxicity

- **HiCane**:
    - Minimal risk under optimal conditions but susceptible to damage during high-temperature applications.
- **Syncron**:
    - No phytotoxicity observed across diverse environmental conditions, ensuring consistent performance.
- **Detailed Implications**:
    - Syncron leads in safety metrics, appealing to growers prioritizing worker health and environmental sustainability.