



d₂p™ Anti-insect Masterbatch for Agricultural Films

Advanced, Long-Lasting Protection for Banana Bags & Mulch Films

d₂p Anti-insect is an innovative, cost effective insecticidal masterbatch designed specifically for polyethylene (PE) banana bags, mulch films, and other agricultural applications.

Its active ingredient is human-friendly, has low-toxicity, and is exceptionally stable, offering growers a reliable alternative to conventional spraying while ensuring food safety and environmental responsibility.

Engineered for Polymer Performance

The active ingredient in d₂p Anti-insect has a unique physicochemical profile that makes it exceptionally well suited for incorporation into PE films:

- **Extremely low vapour pressure** prevents evaporation during blown-film extrusion and outdoor use.
- **High thermal stability** ensures the active remains intact at typical PE processing temperatures (160–200°C).
- **Melting point near 70°C** allows uniform dispersion in the polymer melt.
- **Strong hydrophobic affinity for PE** ensures excellent retention, slow migration, and long-lasting activity.

These characteristics ensure the active ingredient stays within the film matrix, delivering controlled release and sustained insecticidal performance throughout the crop cycle.



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Banana Bags: Proven Field Performance

Extensive technical studies confirm the effectiveness of d₂p Anti-insect in protecting banana bunches from common pests such as thrips, caterpillars, scarring beetles, and soldier flies.

Key Performance Highlights

- **High pest control efficiency** Bags treated with the active ingredient performed as well as or better than chlorpyrifos treated bags in controlling Colaspis, scale insects, and soldier flies.
- **Protection against caterpillar damage** throughout the growth cycle.
- **Residue behaviour**
 - Peel residues at harvest averaged **0.34 mg/kg**, decreasing to **0.10 mg/kg** by full ripeness.
 - **No residues detected in the fruit pulp** at any stage, confirming consumer safety.
- **A safe alternative to spraying:** Insect-resistant bags reduce or eliminate the need for direct insecticide applications.

Additional Agronomic Benefits

- **Improved microclimate:** Bagging increases bunch temperature by an average of **7°C** during warm hours, accelerating growth and shortening the flowering-to-harvest period.
- **Reduced environmental damage:** Treated PE bags provide a barrier against wind scarring, and sunburn, as well as pest attack.

Processing & Use

- **Designed for PE blown film extrusion**
- **Addition rate of masterbatch: 2–3%**
- **Minimal loss during manufacturing** due to low vapour pressure
- **Uniform dispersion** for consistent insecticidal activity

Mulch Films: Durable, Long-Lasting Protection

Agricultural mulch films face intense outdoor conditions, including:

- Sunlight
- Heat (surface temperatures 40–70°C)
- Wind and abrasion

Because the active ingredient in d₂p Anti-insect has **extremely low volatility**, it remains within the film even under these conditions. This ensures:

- **Sustained pest control over the film's lifetime**
- **Minimal loss during processing or field exposure**
- **Consistent, reliable performance**

Smart Protection Built Into the Film

By integrating the insecticide directly into the polymer, d₂p Anti-insect delivers:

- Long-lasting, controlled release
- Reduced reliance on chemical sprays
- Enhanced crop quality and yield
- Proven safety for workers and consumers
- Cost-effective, easy-to-use technology for growers



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