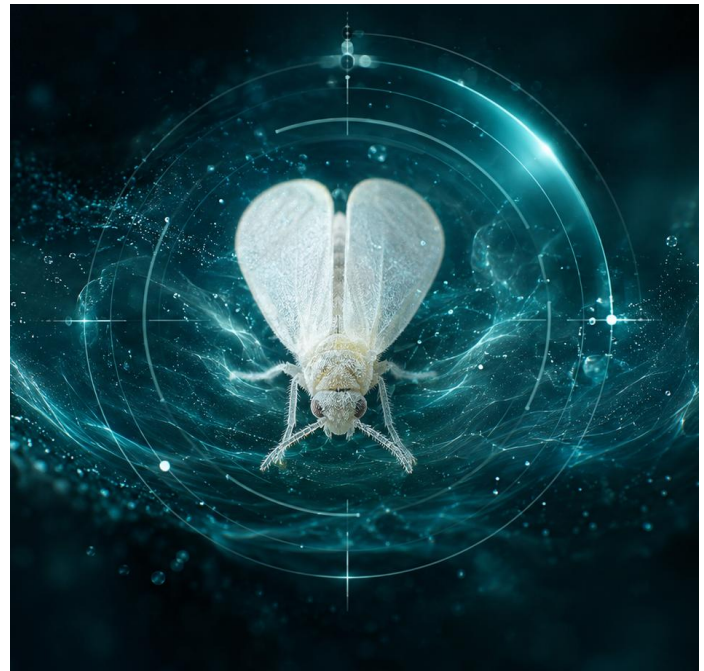


PRECISION *is* PROTECTION

Insect pressure doesn't wait for the perfect moment — and neither should your protection. BioExos Plus is a natural biological insecticide/miticide based on *Azadirachtin* that interrupts pest development at the source, defending your yield potential without harming the beneficial insects your field depends on.



PRODUCT BENEFITS:

BioExos Plus is an insecticide composed of *Azadirachtin*, a natural insecticide/miticide recommended for use on agricultural crops.



Prevents insects from maturing and reproducing



Reduces insect resistance by affecting metabolism



Safe for beneficial insects



Compatible for tank mixing with other inputs

TECHNICAL INFORMATION:

PRODUCT NAME:

BioExos Plus

CONCENTRATION/GUARANTEES:

Azadirachtin 1.2%

AVAILABLE PACKAGING:

1-gallon jugs (treats from 32 to 64 acres)

PRODUCT AND FORMULATION TYPE:

Insecticide

CROPS:

Priority: Soybeans, Corn, Sorghum, Wheat, Cotton, Rice, Peanut.

SHELF LIFE:

2 years at room temperature (recommended between 59°F and 77°F)

APPLICATION METHODS & DOSE RATES:

Broadcast/Foliar application: 2 to 4 fl oz/ac

Others: Sugarcane, Alfalfa, Beans, Barley, Oats, Canola, Rice.

RESEARCH & EFFICACY DATA:

Table 1. Mortality of fall armyworm at different concentrations of neem leaf extracts and in the control treatments¹

Treatment	Concentration (mg mL ⁻¹)	Mean mortality (no.)	Mortality efficiency ² (%)
Chlorpyrifos	2.000	18.00a	100.00
Neem	10.000	18.00a	100.00
Neem	3.600	14.75a	79.37
Neem	1.756	7.25b	31.74
Neem	0.500	4.00c	11.11
Acetone	—	3.25c	6.35
Water	—	2.25c	—

¹ Means followed by the same letter do not differ according to Duncan's test at the 5% probability level. ² Mortality percentage corrected using Abbott's formula (1925).

Source: PRATES et al. (2003).

Table 2. Control efficacy against newly hatched *Spodoptera frugiperda* larvae using different rates of neem extract

Treatment	Aug 12, 2024 — Dead larvae at 3 DAA ¹ (%)	Aug 14, 2024 — Dead larvae at 5 DAA (%)	Aug 16, 2024 — Dead larvae at 7 DAA (%)
Neem, 50 g L ⁻¹	0 Bb	55 Aa	100 Aa
Neem, 100 g L ⁻¹	25 Ab	75 Aa	100 Aa
Neem, 150 g L ⁻¹	30 Ab	80 Aa	100 Aa
Untreated control	0 Bb	5 Ba	10 Ba

CV: 16.95%. Means followed by the same uppercase letter within a column and lowercase letter within a row do not differ according to Tukey's test at the 5% probability level. ¹ DAA = days after application. Data transformed using $\sqrt{(x + 1)}$. Table prepared by the authors.

Source: EVANGELISTA & ANGELINI (2025).

Table 3. Control efficacy against third-instar *Spodoptera frugiperda* larvae using different rates of neem extract

Treatment	Apr 10 — 3 DAA ¹ (%)	Apr 12 — 5 DAA (%)	Apr 15 — 8 DAA (%)	Apr 17 — 10 DAA (%)
Neem, 50 g L ⁻¹	0 Ac	30 Ab	90 Aa	100 Aa
Neem, 100 g L ⁻¹	0 Ac	45 Ab	95 Aa	100 Aa
Neem, 150 g L ⁻¹	5 Ac	35 Ab	95 Aa	100 Aa
Untreated control	0 Ab	0 Bb	40 Ba	40 Ba

CV: 4.02%. Means followed by the same uppercase letter within a column and lowercase letter within a row do not differ according to Tukey's test at the 5% probability level. ¹ DAA = days after application. Data transformed using $\sqrt{(x + 1)}$. Table prepared by the authors.

Source: EVANGELISTA & ANGELINI (2025).

RESEARCH & EFFICACY DATA:

Table 4. Mean number of *Bemisia tabaci* insects by treatment and days after application — Ribeirão Preto, São Paulo, Brazil, 2008

Treatment	0 DAA	1 DAA	3 DAA	5 DAA	7 DAA
Untreated control	4.2 ± 0.6a	5.0 ± 0.7b	5.8 ± 0.6c	7.4 ± 0.5c	8.0 ± 0.4c
Neem 50	4.0 ± 0.4a	1.0 ± 0.3a	1.8 ± 0.4b	3.8 ± 0.8b	4.2 ± 0.7b
Neem 70	3.0 ± 0.7a	0.6 ± 0.2a	1.4 ± 0.2ab	2.8 ± 0.4b	3.2 ± 0.4b
Neem 80	3.2 ± 0.6a	0.4 ± 0.2a	1.2 ± 0.3ab	2.2 ± 0.2ab	3.0 ± 0.3b
Neem 90	3.6 ± 0.4a	0.4 ± 0.0a	1.0 ± 0.2ab	1.8 ± 0.4ab	2.6 ± 0.2ab
Actara	3.4 ± 0.5a	0.0 ± 0.0a	0.2 ± 0.2a	0.4 ± 0.2a	1.2 ± 0.2a

Means followed by the same letter within a column do not differ according to Tukey's test at the 5% significance level.

Source: FARAH et al. (2009).

Summary

Across independent trials against fall armyworm (*Spodoptera frugiperda*) and whitefly (*Bemisia tabaci*), neem-based (Azadirachtin) treatments consistently reduced pest populations and increased larval mortality over time compared to untreated controls, reaching mortality/control levels comparable to reference standards (Chlorpyrifos, Actara) within 5–10 days after application — supporting BioExos Plus as an effective, naturally derived option for integrated pest management programs.