Electronic Supplementary Material

Electronic supplementary material accompanying: Early-invasion efficacy of commercial *Bacillus thuringiensis*, *Beauveria bassiana* and azadirachtin biopesticides against fall armyworm (*Spodoptera frugiperda*) on maize in Zimbabwe. *International Journal of Tropical Insect Science*.

Table S1. Field efficacy (%) against *S. frugiperda* at Muzarabani by assessment date, relative to the untreated control (Dunnett-adjusted *P* in parentheses). Separate negative binomial models for each date: live count ~ treatment + block + (1 | plot).

Treatment	7 DAT	10 DAT	14 DAT
Super Dash	93 (<0.001)	97 (0.003)	76 (0.445)
Delfin +10%	98 (0.001)	97 (0.003)	94 (0.013)
Delfin label	93 (<0.001)	97 (0.003)	86 (0.081)
Delfin −10%	93 (<0.001)	95 (<0.001)	94 (0.011)
Dynamo +10%	94 (<0.001)	90 (<0.001)	73 (0.452)
Dynamo label	94 (<0.001)	97 (0.003)	93 (0.019)
Dynamo −10%	87 (<0.001)	97 (0.003)	98 (0.008)
ACHTA +10%	39 (0.724)	55 (0.049)	56 (0.888)
ACHTA label	51 (0.333)	35 (0.591)	34 (0.999)
ACHTA −10%	42 (0.634)	65 (0.007)	71 (0.505)

Table S2. Experiment 2 (second run of the laboratory bioassay): 14-DAT mortality (%) as originally reported. Descriptive only. The per-vial records are lost, the number of vials is not documented, and no inferential statistics are given.

Untreated control	Super Dash	Delfin	Dynamo	ACHTA
6.3	100.0	87.5	92.2	85.9

Table S3. Bioassay vials with inconsistent counts (cumulative deaths + live larvae ≠ 4 larvae started). Original records are lost; counts are analysed as entered.

Treatment	Vial	Inconsistency in the supplied counts
ACHTA	3	10 DAT: 2 cumulative deaths + 0 live = 2; two more deaths recorded at 14 DAT
ACHTA	6	10 DAT: 2 cumulative deaths + 4 live = 6
ACHTA	15	10 and 14 DAT: 2 cumulative deaths + 1 live = 3 (one larva unaccounted for)
Delfin	44	14 DAT: 3 cumulative deaths + 0 live = 3 (one larva unaccounted for)
Super Dash	49	10 and 14 DAT: 3 cumulative deaths + 0 live = 3 (one larva unaccounted for)

Table S4. Direct comparison of biopesticides with Super Dash at Muzarabani: rate ratio of live larvae (biopesticide / Super Dash) with 95% CI; *P* values are unadjusted for multiple comparisons.

Treatment	Rate ratio (95% CI)	*P*
Delfin (3 rates)	0.37 (0.14–1.00)	0.049
Dynamo (3 rates)	0.54 (0.20–1.43)	0.213
ACHTA (3 rates)	3.50 (1.39–8.80)	0.008
Delfin +10%	0.26 (0.07–1.00)	0.050
Delfin label	0.51 (0.15–1.73)	0.281
Delfin −10%	0.38 (0.11–1.34)	0.131
Dynamo +10%	0.96 (0.30–3.00)	0.939
Dynamo label	0.41 (0.12–1.42)	0.159
Dynamo −10%	0.40 (0.12–1.42)	0.158
ACHTA +10%	3.71 (1.25–10.95)	0.018
ACHTA label	4.06 (1.38–11.96)	0.011
ACHTA −10%	2.85 (0.96–8.47)	0.059

Supplementary files: FAW_field_counts_tidy.csv (Muzarabani rows used); FAW_bioassay_exp1_per_vial.csv; FAW_reanalysis.py (reproduces all tables and figures); results/ folder with output tables and the analysis log.