SUPPLEMENTARY MATERIAL

Effect of foliar spray with some insecticides and nutrients in controlling the striped mealybug and the yield and quality of produced mangoes

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Table S1. Reduction of nymphs *Ferrisia virgata* of the tested insecticides on 'Zebda' mango leaves in the field circumstances in 2021/2022 season

Treatment	Reduction after first spray in October 2021										Reduction after second spray in May 2022									
	7th DAS		14th DAS		21st DAS		28th DAS		residual effect		7th DAS		14th DAS		21st DAS		28th DAS		residual effect	
	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*
Profenofos	61.48^{i}	±4.32	76.68^{fg}	±2.15	84.87^{cd}	±1.21	91.03^{ab}	±1.24	78.52^{AB}	±1.37	64.54^{g}	±3.41	78.41^{e}	±2.24	86.10^{bcd}	±0.64	91.81^{a}	±0.65	80.21^{AB}	±0.87
Malatox	56.52^{j}	±1.63	75.77^{g}	±1.09	83.61^{de}	±0.92	90.68^{ab}	±0.99	76.64^{B}	±0.12	58.98^{h}	±5.97	77.52^{e}	±1.40	84.67^{bcd}	±1.72	91.47^{a}	±0.14	78.16^{B}	±2.20
Imidacloprid	67.10^{h}	±1.07	83.20^{de}	±1.91	90.33^{ab}	±1.19	92.65^{a}	±1.90	83.32^{A}	±0.70	69.51^{f}	±3.66	84.12^{cd}	±3.56	91.21 a	±0.82	93.35^{a}	±1.45	84.54^{A}	±1.96
Mospilan	66.31^{h}	±2.94	80.40^{ef}	±1.83	88.53^{bc}	±1.97	92.02^{ab}	±1.45	81.82^{AB}	±1.77	68.77^{fg}	±4.13	81.29^{de}	±3.72	88.92^{abc}	±2.81	92.43a	±1.86	82.85^{AB}	±3.08
Actara	64.15^{hi}	±4.95	77.62^{fg}	±0.67	88.64^{bc}	±1.64	91.47^{ab}	±0.29	80.47^{AB}	±0.63	67.25^{fg}	±2.30	79.22^{e}	±2.74	89.14^{ab}	±2.84	92.04^{a}	±1.19	81.91^{AB}	±2.19
Reduction (%) per day	63.11^{C}	±1.25	78.73^{B}	±0.80	87.20^{A}	±0.73	91.57^{A}	±0.44	80.15	±0.64	65.81^{C}	±1.10	80.11^{B}	±0.75	88.01^{A}	±0.59	92.22^{A}	±0.29	81.54	±0.60

Explanations: *SE* = standard error, DAS = day after spraying; values indicated by different letters (capital letters for tested treatments or inspection dates and small letters for the interaction between tested treatments and different inspection dates after spraying) for nymphs individuals are statistically significant differences at $p \leq 0.05$ (Tukey's HSD test).

Source: own study.

Table S2. Reduction of nymphs *Ferrisia virgata* of the tested insecticides on 'Zebda' mango leaves in the field circumstances in 2022/2023 season

Treatment	Reduction after first spray in October 2022										Reduction after second spray in May 2023									
	7th DAS		14th DAS		21st DAS		28th DAS		residual effect		7th DAS		14th DAS		21st DAS		28th DAS		residual effect	
	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*
Profenofos	65.73k	±3.13	78.87^{h}	±3.26	86.45^{cd}	±1.35	91.84^{ab}	±1.63	80.72^{BC}	±1.88	67.38^{i}	±2.48	79.94^{f}	±2.66	87.13^{c}	± 0.95	92.28^{ab}	±1.34	81.68^{BC}	±1.28
Malatox	60.38^{l}	±1.50	77.79^{h}	±2.01	85.09^{def}	±0.55	91.42^{ab}	±1.27	78.67^{C}	±1.04	62.12j	±1.60	78.86^{f}	±1.37	85.76^{cd}	±0.43	91.86^{ab}	±0.99	79.65^{C}	±0.53
Imidacloprid	72.31^{i}	±0.36	85.74^{de}	±1.98	91.80^{ab}	±1.21	93.71^{a}	±1.77	85.89^{A}	±1.05	73.50^{g}	±0.39	86.39^{cd}	±1.73	92.11^{ab}	±1.33	93.92^{a}	±1.83	86.48^{A}	±1.13
Mospilan	69.98^{ij}	±33.02	82.71^{efg}	±0.60	89.98^{b}	±1.14	93.00^{ab}	±0.93	83.92^{AB}	±1.00	71.13^{gh}	±3.27	83.40^{de}	±0.93	90.36^{b}	±1.28	93.25^{ab}	±1.06	84.53^{AB}	±1.31
Actara	67.78^{jk}	±1.96	79.85^{gh}	±0.54	89.76^{bc}	±1.46	92.30^{fg}	±0.44	82.42^{ABC}	±0.37	69.06^{hi}	±2.60	80.71^{ef}	±0.47	90.26^{b}	±1.16	92.64^{ab}	±0.33	83.17^{ABC}	±0.51
Reduction (%) per day	67.24^{C}	±1.17	80.99^{B}	±0.90	88.62^{A}	±0.67	92.45^{A}	±0.45	82.32	±0.68	68.64^{C}	± 0.80	81.86^{B}	±0.57	89.12^{A}	±0.44	92.79^{A}	±0.30	83.10	±0.44

Explanations as in Tab. S1.

Source: own study.

Table S3. Reduction of females *Ferrisia virgata* of the tested insecticides on 'Zebda' mango leaves in the field circumstances in 2021/2022 season

Treatment	Reduction after first spray in October 2021										Reduction after second spray in May 2022									
	7th DAS		14th DAS		21st DAS		28th DAS		residual effect		7th DAS		14th DAS		21st DAS		28th DAS		residual effect	
	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*
Profenofos	49.70^{ij}	±0.88	63.59^{efgh}	±7.26	60.44^{gh}	±6.10	73.13^{bcde}	±3.59	61.72^{B}	±2.93	52.50^{i}	±2.50	65.60^{efg}	±4.10	62.82^{gh}	±5.60	74.86^{bcde}	±2.54	63.94^{B}	±2.75
Malatox	48.37^{j}	±6.81	62.46^{fgh}	±4.80	59.86^{ghi}	±6.48	71.88^{cdef}	±3.20	60.64^{B}	±3.00	51.65^{i}	±5.03	64.61^{fgh}	±4.66	62.57^{gh}	±4.85	73.26^{cdef}	±3.97	63.02^{B}	±2.01
Imidacloprid	63.82^{efgh}	±6.15	67.18^{defg}	±4.68	77.57^{abc}	±4.31	85.59^{a}	±4.17	73.54^{A}	±3.67	65.58^{efgh}	±6.92	68.78^{defg}	±5.50	78.81^{abc}	±4.33	86.64^{a}	±3.30	74.95^{A}	±4.00
Mospilan	63.33^{efgh}	±5.44	66.79^{defg}	±3.47	72.20^{bcdef}	±2.33	82.13^{ab}	±3.31	71.11^{AB}	±2.33	65.29^{efgh}	±5.36	68.82^{cdefg}	±2.19	73.63^{bcdef}	±2.75	83.29^{ab}	±2.82	72.76^{AB}	±2.01
Actara	54.77^{hij}	±6.99	64.48^{efgh}	±3.35	65.54^{efg}	±4.68	76.75^{abcd}	±1.50	65.39^{AB}	±2.55	55.60^{hi}	±6.90	65.04^{efgh}	±3.70	66.10^{efg}	±4.86	77.12^{abcd}	±1.79	65.96^{AB}	±2.80
Reduction (%) per day	56.00^{B}	±2.35	64.90^{AB}	±1.62	67.12^{AB}	±2.22	77.89^{A}	±1.58	66.48	±1.48	58.12^{B}	±1.60	66.57^{AB}	±1.15	68.78^{AB}	±1.46	79.03^{A}	±1.06	68.13	±1.00

Explanations as in Tab. S1.

Source: own study.

Table S4. Reduction of females *Ferrisia virgata* of the tested insecticides on 'Zebda' mango leaves in the field circumstances in 2022/2023 season

Treatment	Reduction after first spray in October 2022										Reduction after second spray in May 2023									
	7th DAS		14th DAS		21st DAS		28th DAS		residual effect		7th DAS		14th DAS		21st DAS		28th DAS		residual effect	
	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*
Profenofos	54.60^{ij}	±1.93	67.70^{efgh}	±4.83	64.55^{gh}	±4.55	75.35^{bcde}	±4.74	65.55^{B}	±2.20	55.85^{ij}	±4.72	69.35^{efgh}	±2.51	66.01^{fgh}	±3.90	75.66^{bcde}	±6.05	66.72^{B}	±3.04
Malatox	52.25^{j}	±8.76	65.42^{fgh}	±5.61	63.00^{ghi}	±7.36	74.53^{cdef}	±2.29	63.80^{B}	±4.60	52.86^{j}	±11.34	65.83^{fgh}	±7.41	63.89^{ghi}	±8.73	75.33^{bcdef}	±2.91	64.48^{B}	±6.61
Imidacloprid	68.69^{efgh}	±5.94	71.44^{defg}	±4.99	81.01^{abc}	±3.22	88.17^{a}	±2.19	77.33^{A}	±3.09	69.71^{efgh}	±6.29	72.51^{cdefg}	±5.04	81.40^{abc}	±3.83	88.34^{a}	±2.81	77.99^{A}	±3.59
Mospilan	68.48^{efgh}	±2.12	70.47^{defg}	±5.17	75.88^{bcde}	±2.44	84.31^{ab}	±3.25	74.78^{AB}	±1.93	69.76^{efgh}	± 1.04	70.94^{defgh}	±6.72	76.67^{bcde}	±1.67	84.72^{ab}	±3.74	75.52^{AB}	±3.01
Actara	60.36^{hij}	±5.70	68.61^{efgh}	±3.61	70.00^{efg}	±2.55	79.63^{abcd}	±2.10	69.65^{AB}	±1.51	62.02^{hij}	±4.96	69.79^{efgh}	±3.64	71.01^{defgh}	±3.19	80.35^{abcd}	±1.00	70.79^{AB}	±1.44
Reduction (%) per day	60.88^{B}	±2.34	68.73^{AB}	±1.63	70.89^{AB}	±2.06	80.39^{A}	±1.51	70.22	± 1.49	62.04^{B}	±1.85	69.68^{AB}	±1.27	71.80^{AB}	±1.52	80.88^{A}	±1.16	71.10	±1.20

Explanations as in Tab. S1.

Source: own study.

Table S5. Effect of spraying some chemical insecticides against the *Ferrisia virgata*, either with or without the addition of foliar nutrients, on the 'Zebda' mango fruit physical characteristics during 2021/2022 and 2022/2023 seasons

Treat-ment	Fruit length				Fruit width (cm)				Fruit shape index				Fruit thickness (cm)				Fruit size (cm^3)				Fruit mass (g)			
	2021/2022		2022/2023		2021/2022		2022/2023		2021/2022		2022/2023		2021/2022		2022/2023		2021/2022		2022/2023		2021/2022		2022/2023	
	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*	cm	*SE*
T_1	11.9^{h}	±0.14	12.27^{h}	±0.14	8.14^{h}	±0.08	8.14^{h}	±0.02	1.47^{de}	±0.01	1.51^{ef}	±0.01	7.70^{h}	±0.09	7.81^{h}	±0.09	304.97^{h}	± 6.66	313.56^{h}	±4.06	234.70^{h}	±1.27	237.98^{h}	±1.29
T_2	12.09^{g}	±0.12	12.43^{g}	±0.12	8.29^{g}	±0.06	8.31^{g}	±0.03	1.46^{de}	±0.01	1.50^{f}	±0.01	7.87^{g}	±0.07	7.98^{g}	±0.07	314.81^{g}	±5.22	324.46^{g}	±2.60	239.11^{g}	±0.73	242.46^{g}	±0.74
T_3	11.31^{j}	±0.10	11.63^{j}	±0.10	7.78^{j}	±0.10	7.78^{j}	±0.05	1.46^{e}	±0.01	1.50^{a}	±0.01	7.31^{j}	±0.11	7.42^{j}	±0.11	276.31^{j}	±6.03	284.09^{j}	±3.72	225.18^{j}	±2.69	228.33^{j}	±2.72
T_4	11.62^{i}	±0.12	11.94^{i}	±0.12	7.96^{i}	±0.08	7.98^{i}	±0.03	1.46^{de}	±0.01	1.50^{ef}	±0.01	7.52i	±0.09	7.62^{i}	±0.09	290.50^{i}	±5.93	299.38^{i}	±3.41	230.72^{i}	±1.92	233.95^{i}	±1.74
T_5	13.84^{b}	±0.13	14.23^{b}	±0.13	9.10^{b}	±0.06	9.12^{b}	±0.06	1.52^{b}	±0.01	1.56^{c}	±0.01	8.75^{b}	±0.07	8.87^{b}	±0.07	395.77^{b}	±6.52	407.47^{b}	±4.81	262.64^{b}	±2.14	266.32^{b}	±2.17
T_6	14.47^{a}	±0.11	14.75^{a}	±0.15	9.33^{a}	±0.05	9.35^{a}	±0.08	1.55^{a}	±0.01	1.58^{b}	±0.01	8.99a	±0.06	9.04^{a}	±0.05	423.82^{a}	±5.78	433.17^{a}	±2.56	268.91^{a}	±1.51	271.00^{a}	±2.43
T_7	13.08^{d}	±0.11	13.44^{d}	±0.12	8.79^{d}	±0.11	8.81^{d}	±0.09	1.49^{c}	±0.01	1.53^{d}	±0.01	8.41d	±0.12	8.53^{d}	±0.12	360.98^{d}	±7.49	372.07^{d}	±6.04	252.41^{d}	±2.89	255.94^{d}	±2.93
T_8	13.39^{c}	±0.12	13.77^{c}	±0.13	8.94c	±0.07	8.96^{c}	±0.06	1.50^{c}	±0.02	1.54^{d}	±0.02	8.57c	±0.08	8.69^{c}	±0.08	375.85^{c}	±6.22	387.42^{c}	±4.68	257.24^{c}	±2.37	260.84^{c}	±2.40
T_9	12.49^{f}	±0.12	12.84^{f}	±0.10	8.54^{f}	±0.09	8.55^{f}	±0.05	1.46^{de}	±0.02	1.50^{ef}	±0.02	8.14^{f}	±0.09	8.25^{f}	±0.09	335.03^{f}	±6.63	344.90^{f}	±4.12	245.15^{f}	±1.50	248.59^{f}	±1.53
T_{10}	12.71^{e}	±0.13	13.07^{e}	±0.14	8.62^{e}	±0.09	8.65^{e}	±0.08	1.47^{d}	±0.01	1.51^{e}	±0.01	8.23^{e}	±0.08	8.34^{e}	±0.09	344.31^{e}	±7.03	354.89^{e}	±5.67	247.98^{e}	± 2.21	251.45^{e}	±2.24
T_{11}	10.39^{k}	±0.07	10.61^{k}	±0.07	7.48^{k}	±0.05	7.54^{k}	±0.04	1.39^{f}	±0.01	1.41^{g}	±0.01	6.99^{k}	±0.07	7.08^{k}	±0.06	244.05^{k}	±3.34	251.02^{k}	±2.59	215.96^{k}	±1.79	219.27^{k}	±2.08

Explanations: T_1 = trees were treated with Profenofos insecticide only, T_2 = trees were treated with Profenofos insecticide in addition to a mixture of boron at 2.5 $cm^3 \cdot dm^{-3}$ + calcium at 2.5 $cm^3 \cdot dm^{-3}$ + magnesium at 2.5 $cm^3 \cdot dm^{-3}$ of water, T_3 = trees were treated with Malathion insecticide only, T_4 = trees were treated with Malathion insecticide in addition to a mixture of boron at 2.5 $cm^3 \cdot dm^{-3}$ + calcium at 2.5 $cm^3 \cdot dm^{-3}$ + magnesium at 2.5 $cm^3 \cdot dm^{-3}$ of water, T_5 = trees were treated with Imidacloprid insecticide only, T_6 = trees were treated with Imidacloprid insecticide in addition to a mixture of boron at 2.5 $cm^3 \cdot dm^{-3}$ + calcium at 2.5 $cm^3 \cdot dm^{-3}$ + magnesium at 2.5 $cm^3 \cdot dm^{-3}$ of water, T_7 = trees were treated with Mospilan insecticide only, T_8 = trees were treated with Mospilan insecticide in addition to a mixture of boron at 2.5 $cm^3 \cdot dm^{-3}$ + calcium at 2.5 $cm^3 \cdot dm^{-3}$ + magnesium at 2.5 $cm^3 \cdot dm^{-3}$ of water, T_9 = trees were treated with Actara insecticide only, T_{10} = trees were treated with Actara insecticide in addition to a mixture of boron at 2.5 $cm^3 \cdot dm^{-3}$ + calcium at 2.5 $cm^3 \cdot dm^{-3}$ + magnesium at 2.5 $cm^3 \cdot dm^{-3}$ of water, T_{11} = untreated trees (spraying water only); *SE* as in Tab. S1.

Source: own study.

Table S6. Effect of spraying some chemical insecticides against the *Ferrisia virgata*, either with or without the addition of foliar nutrients, on the chemical characteristics of fruits and the productivity of 'Zebda' mango trees during 2021/2022 and 2022/2023 seasons

Treat-ment	Yield per tree (kg)				TSS (%)				Acidity (%)				TSS to acidity ratio				Total sugars (%)			
	2021/2022		2022/2023		2021/2022		2022 2023		2021/2022		2022/2023		2021/2022		2022/2023		2021/2022		2022/2023	
	kg	*SE*	kg	*SE*	%	*SE*	%	*SE*	%	*SE*	%	*SE*	–	*SE*	–	*SE*	%	*SE*	%	*SE*
T_1	83.73^{h}	±0.97	86.07^{h}	±1.00	20.25^{h}	±0.28	20.58^{h}	±0.28	0.21^{bcd}	±0.01	0.22^{bcd}	±0.01	94.27^{h}	±2.37	94.87^{h}	±3.82	11.48^{f}	±0.17	11.74^{h}	±0.17
T_2	86.40^{g}	±0.73	88.82^{g}	±0.76	20.89^{g}	±0.24	21.22^{g}	± 0.25	0.21^{bcd}	±0.01	0.21^{bcde}	±0.01	99.42^{g}	±1.47	102.79^{g}	±2.46	11.38^{f}	±0.17	12.21^{g}	± 0.13
T_3	80.30^{j}	±1.21	82.55j	±1.25	18.60^{j}	±0.31	18.89^{j}	± 0.32	0.24^{b}	±0.01	0.24b	±0.01	78.13j	±2.71	78.60^{j}	±1.68	10.74^{h}	±0.19	11.13^{j}	±0.21
T_4	82.53^{i}	± 0.96	84.84^{i}	±0.99	19.46^{i}	±0.29	19.77^{i}	±0.30	0.22^{bc}	±0.01	0.23^{bc}	±0.01	88.22^{i}	±1.28	85.46^{i}	±2.26	10.94^{g}	±0.21	11.52^{i}	±0.17
T_5	96.04^{b}	±0.77	98.72^{b}	±0.79	25.33^{b}	±0.35	25.73^{b}	±0.36	0.15^{ef}	±0.01	0.15^{fg}	±0.01	171.28^{b}	±4.38	172.09^{b}	±7.20	13.33^{b}	±0.15	13.90^{b}	± 0.14
T_6	98.68^{a}	±0.64	101.27	±0.72	27.04^{a}	±0.33	27.31^{a}	±0.21	0.14^{f}	±0.01	0.14^{g}	±0.01	193.49^{a}	±4.58	199.36^{a}	±3.74	13.67^{a}	±0.13	14.37^{a}	±0.11
T_7	92.33^{d}	±1.27	94.92^{a}	±1.30	23.39d	±0.34	23.76^{d}	±0.38	0.17^{def}	±0.01	0.17^{efg}	±0.01	137.51^{d}	±3.81	142.57^{d}	± 3.95	12.68^{d}	±0.18	13.25^{d}	±0.22
T_8	94.08^{c}	±0.85	96.71^{c}	±0.87	24.19^{c}	± 0.35	24.58^{c}	±0.34	0.16^{ef}	± 0.01	0.15^{fg}	±0.01	154.75^{c}	±3.97	160.43^{c}	± 4.11	13.03^{c}	±0.22	13.56^{c}	±0.15
T_9	88.50^{f}	±0.99	90.97 f	±1.01	22.12^{f}	± 0.32	22.48^{f}	±0.36	0.19^{bcde}	±0.01	0.19^{cdef}	±0.01	115.08^{f}	±3.17	119.31^{f}	±3.29	12.15^{e}	±0.13	12.57^{f}	±0.17
T_{10}	90.35^{e}	±1.02	92.88^{e}	±1.05	22.55^{e}	±0.35	22.91^{e}	±0.35	0.19^{cdef}	±0.01	0.18^{defg}	±0.01	121.66^{e}	±3.29	126.12^{e}	±3.41	12.20^{e}	±0.17	12.90^{e}	±0.18
T_{11}	76.79^{k}	±0.64	78.64^{k}	±0.56	16.74^{k}	±0.16	16.96^{k}	±0.24	0.42^{a}	±0.01	0.40^{a}	±0.01	40.07^{k}	±0.83	41.93^{k}	±0.12	10.21^{i}	±0.09	10.51^{k}	±0.11

Explanations as in Tab. S5.

Source: own study.

Table S7. The increase in the 'Zebda' mango fruit physical characteristics over the control treatment as a result of spraying some chemical insecticides against the *Ferrisia virgata*, either with or without the addition of foliar nutrients

Treatment	Fruit length (cm)		Fruit width (cm)		Fruit shape index		Fruit thickness (cm)		Fruit size (cm^3)		Fruit mass (g)	
	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023
T_1	14.85	15.65	8.79	8.01	5.57	7.07	10.27	10.33	24.96	24.92	8.68	8.53
T_2	16.37	17.18	10.85	10.32	4.98	6.23	12.65	12.71	28.99	29.26	10.72	10.58
T_3	8.89	9.65	3.97	3.22	4.74	6.23	4.69	4.76	13.22	13.18	4.27	4.13
T_4	11.78	12.56	6.47	5.96	4.99	6.24	7.59	7.66	19.03	19.27	6.83	6.69
T_5	33.23	34.16	21.71	21.00	9.46	10.89	25.20	25.28	62.17	62.32	21.62	21.46
T_6	39.27	39.06	24.69	24.11	11.69	12.08	28.65	27.65	73.66	72.56	24.52	23.59
T_7	25.83	26.71	17.53	16.97	7.07	8.33	20.37	20.45	47.91	48.22	16.88	16.72
T_8	28.86	29.76	19.51	18.94	7.83	9.11	22.65	22.73	54.01	54.34	19.11	18.96
T_9	20.23	21.07	14.17	13.49	5.31	6.68	16.49	16.56	37.28	37.40	13.52	13.37
T_{10}	22.34	23.19	15.30	14.76	6.10	7.36	17.80	17.87	41.08	41.38	14.83	14.68
Variance	94.27	91.21	45.77	46.08	5.24	4.30	61.12	58.45	377.29	370.26	43.23	41.41
Standard deviation	9.71	9.55	6.77	6.79	2.29	2.07	7.82	7.65	19.42	19.24	6.57	6.44
Standard error	2.59	2.55	1.81	1.81	0.61	0.55	2.09	2.04	5.19	5.14	1.76	1.72

Explanations: TSS = total soluble solids, T_1–T10 as in Tab. S5.

Source: own study.

Table S8. The increase in the resulting yield and quality of 'Zebda' mango trees over the control treatment as a result of spraying some chemical insecticides against the *Ferrisia virgata*, either with or without the addition of foliar nutrients

Treatment	Yield per tree (kg)		TSS (%)		Acidity (%)		TSS to acidity ratio		Total sugars (%)	
	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023
T_1	9.04	20.99	20.99	21.30	–48.56	–46.32	135.25	126.26	12.46	11.61
T_2	12.52	24.78	24.78	25.10	–49.72	–48.98	148.12	145.14	11.45	16.09
T_3	4.58	11.10	11.10	11.38	–42.97	–40.59	94.97	87.44	5.27	5.88
T_4	7.47	16.28	16.28	16.57	–47.17	–42.82	120.16	103.82	7.16	9.60
T_5	25.06	51.31	51.31	51.69	–64.60	–62.97	327.43	310.41	30.58	32.22
T_6	28.50	61.56	61.56	60.98	–66.54	–66.15	382.87	375.43	33.91	36.64
T_7	20.24	39.74	39.74	40.09	–59.27	–58.80	243.18	239.99	24.25	26.02
T_8	22.52	44.53	44.53	44.89	–62.57	–62.14	286.19	282.60	27.61	28.94
T_9	15.25	32.17	32.17	32.51	–53.97	–53.44	187.19	184.52	19.05	19.60
T_{10}	17.67	34.73	34.73	35.07	–55.61	–55.10	203.60	200.78	19.56	22.71
Variance	62.81	62.72	255.37	250.66	64.16	78.60	9086.29	9075.32	98.52	103.77
Standard deviation	7.93	7.92	15.98	15.83	8.01	8.87	95.32	95.26	9.93	10.19
Standard error	2.12	2.12	4.27	4.23	2.14	2.37	25.48	25.46	2.65	2.72

Explanations: TSS = total soluble solids, T_1–T_{10} as in Tab. S5.

Source: own study.

Table S9. The avoidable loss in the 'Zebda' mango fruit physical characteristics in the sprayed treatments compared to the control treatment as a result of spraying some chemical insecticides against the *Ferrisia virgata*, either with or without the addition of foliar nutrients

Treatment	Fruit length (cm)		Fruit width (cm)		Fruit shape index		Fruit thickness (cm)		Fruit size (cm^3)		Fruit weight (g)	
	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023
T_1	17.54	16.83	12.76	12.97	5.48	4.47	14.29	13.57	28.04	27.61	12.72	12.19
T_2	16.45	15.74	11.10	11.12	6.01	5.22	12.44	11.70	25.72	25.10	11.08	10.53
T_3	21.82	21.15	16.62	16.84	6.22	5.22	18.62	17.94	34.81	34.42	16.26	15.75
T_4	19.74	19.06	14.61	14.63	6.00	5.21	16.37	15.66	31.46	30.89	14.20	13.67
T_5	4.34	3.52	2.39	2.51	2.00	1.06	2.68	1.86	6.62	5.93	2.33	1.73
T_6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T_7	9.65	8.88	5.74	5.75	4.14	3.34	6.43	5.65	14.83	14.10	6.14	5.56
T_8	7.47	6.69	4.16	4.17	3.46	2.65	4.66	3.86	11.32	10.56	4.34	3.75
T_9	13.67	12.94	8.44	8.56	5.71	4.81	9.45	8.69	20.95	20.38	8.83	8.27
T_{10}	12.16	11.41	7.53	7.54	5.00	4.21	8.43	7.67	18.76	18.07	7.78	7.22
Variance	48.60	47.16	29.44	29.91	4.20	3.42	36.93	35.87	125.10	124.34	27.88	27.11
Standard deviation	6.97	6.87	5.43	5.47	2.05	1.85	6.08	5.99	11.18	11.15	5.28	5.21
Standard error	1.86	1.84	1.45	1.46	0.55	0.49	1.62	1.60	2.99	2.98	1.41	1.39

Explanations: T_1–T_{10} as in Tab. S5.

Source: own study.

Table S10. The avoidable loss in the resulting yield and quality of 'Zebda' mango trees in the sprayed treatments compared to the control treatment as a result of spraying some chemical insecticides against the *Ferrisia virgata*, either with or without the addition of foliar nutrients

Treatment	Yield per tree (kg)		TSS (%)		Acidity (%)		TSS to acidity ratio		Total sugars (%)	
	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023	2021/2022	2022/2023
T_1	15.15	15.01	25.11	24.65	9.80	9.65	51.28	52.41	16.02	18.31
T_2	12.44	12.29	22.76	22.29	11.84	14.12	48.62	48.44	16.77	15.04
T_3	18.62	18.49	31.23	30.81	0.00	0.00	59.62	60.57	21.39	22.51
T_4	16.37	16.23	28.03	27.59	7.35	3.76	54.41	57.13	19.98	19.78
T_5	2.68	2.52	6.34	5.77	37.92	37.67	11.48	13.68	2.49	3.24
T_6	0.00	0.00	0.00	0.00	41.32	43.03	0.00	0.00	0.00	0.00
T_7	6.43	6.28	13.50	12.97	28.58	30.66	28.93	28.49	7.21	7.77
T_8	4.66	4.50	10.54	10.00	34.37	36.28	20.02	19.52	4.70	5.63
T_9	10.32	10.17	18.19	17.69	19.28	21.63	40.52	40.15	11.09	12.47
T_{10}	8.43	8.28	16.60	16.09	22.17	24.43	37.13	36.73	10.71	10.19
Variance	38.04	37.82	97.84	96.73	197.29	222.68	389.70	401.51	54.94	55.58
Standard deviation	6.17	6.15	9.89	9.83	14.05	14.92	19.74	20.04	7.41	7.46
Standard error	1.65	1.64	2.64	2.63	3.75	3.99	5.28	5.36	1.98	1.99

Explanations: TSS = total soluble solids, T_1–T_{10} as in Tab. S5.

Source: own study.