



Isoclast™ active

Jemvelva™ active

The use of Closer™ 240 SC (Isoclast™) and Delegate™ 250 WG (Jemvelva™) for the late season management of thrips in table grapes.

J. Y. DE WAAL ,Y. STAMATAS & I. MEZEI

SOUTH AFRICA

2023

Introduction

- ❑ Thrips (Thysanoptera) are tiny, slender insects with fringed wings
- ❑ They feed by puncturing the outer layer of host tissue using their piercing-sucking mouthparts
- ❑ They suck out the cell contents, which results in crop damage
- ❑ Present in all table grape production areas throughout the country
- ❑ Economic pest causing significant damage to grapevines if left uncontrolled



Thrips species composition – South Africa

	Onion Thrips	<i>Thrips tabaci</i>
	Western Flower Thrips	<i>Frankliniella occidentalis</i> ←
	Citrus Thrips	<i>Scirtothrips aurantii</i> ←
	Common Blossom Thrips	<i>Frankliniella schultzei</i>
	Guava Thrips	<i>Neoheliothrips sylvanus</i> (previously <i>Heliothrips sylvanus</i>)
	Haplothrips	<i>Haplothrips</i> spp.
	Black Vine Thrips	<i>Retithrips syriacus</i>

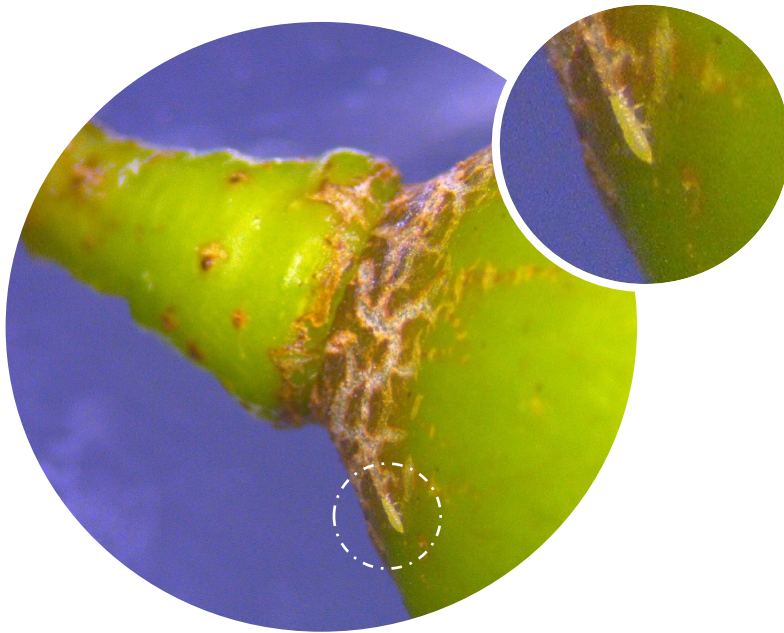
Western Flower Thrips, *Frankliniella occidentalis*

- ❑ Normally occur during flowering
- ❑ 'Halo spotting' on grape berries - general cosmetic damage



Citrus thrips, *Scirtothrips aurantii*

- ❑ Endemic to South Africa
- ❑ Well adapted to local climate and vegetation
- ❑ Normally occur late season
- ❑ Scarring on berries + flush



Control



Biological Control

Orius sp.
Predatory mites



Cultural Control

Alternative hosts
External sources of
infestation



Chemical Control

Limited products registered

Integrated Pest Management

Control

Thrips

Delegate™ 250 WG

INSECTICIDE

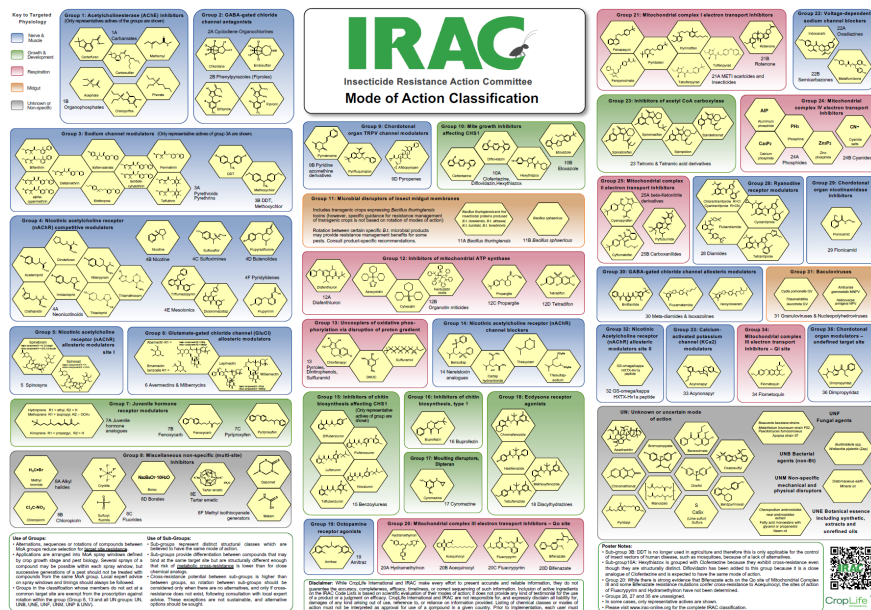
- ☐ spinetoram – **JEMVELVA™ (Group 5)**
- ☐ Contact, translaminar
- ☐ Grapes : **Thrips, False Codling Moth, Bollworm, Banded Weevil**
- ☐ Thrips: 10 g/100L water
- ☐ PHI: 3 days

Tracer™ 480 SC

INSECTICIDE

- ☐ spinosad– **QALCOVA™ (Group 5)**
- ☐ Contact, translaminar
- ☐ Grapes: **Thrips, Bollworm**
- ☐ Thrips: 15 ml/100L water
- ☐ PHI: 3 days

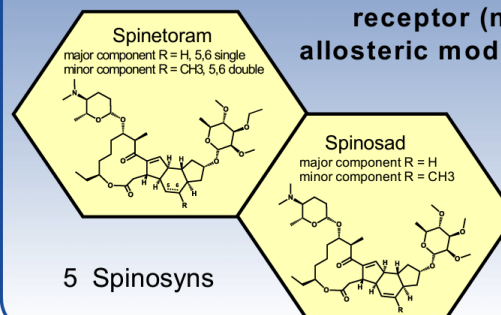
Resistance Management



Group 5: Nicotinic acetylcholine receptor (nAChR) allosteric modulators

site I

vinpocetine
component R = H, 5,6 single
component R = CH₃, 5,6 double



Control

Citrus thrips

Delegate™ 250 WG

INSECTICIDE

- ☐ spinetoram – **JEMVELVA™** (Group 5)
- ☐ Contact, translaminar
- ☐ Grapes : **Thrips, False Codling Moth, Bollworm, Banded Weevil**
- ☐ Thrips: 10 g/100L water
- ☐ PHI: 3 days

Tracer™ 480 SC

INSECTICIDE

- ☐ spinosad– **QALCOVA™** (Group 5)
- ☐ Contact, translaminar
- ☐ Grapes: **Thrips, Bollworm**
- ☐ Thrips: 15 ml/100L water
- ☐ PHI: 3 days



Closer™ 240 SC

Isoclast™ active

INSECTICIDE

- ☐ sulfoxaflor – **ISOCLAST™** (Group 4C)
- ☐ Contact, xylem systemic, translaminar
- ☐ Grapes: **mealybug, thrips**
- ☐ **Thrips: 12 ml/100L**
- ☐ PHI: 28 days

Key Questions

- ☐ How effective is Closer™ 240 SC vs. Delegate™ 250 WG for the late season management of citrus thrips using foliar directed applications?
- ☐ How effective is Closer™ 240 SC vs. Delegate™ 250 WG for the late season management of citrus thrips using aerial applications? **(Not yet registered)**



- ☐ Deposition top shoots
- ☐ Areawide approach

Trial Design

Foliar applications:

- ☐ Randomized complete block
- ☐ Replications: 4
- ☐ Plot size: 3 m wide x 7 m long (10 vines)



Aerial Applications:

- ☐ Single block applications
- ☐ 3 Swath widths of 16 m/swath – 9 rows per treatment
- ☐ 20 data vines/treatment block



Trial sites

- ❑ Different table grape producing areas
 - ❑ Trawal, Vaalwater, Western Cape, South Africa
 - ❑ De Doorns, Mooiuitsig, Western Cape, South Africa
- ❑ High pressure thrips – citrus thrips
- ❑ January- February flush



Foliar Application Treatments



Treat ment	Product Name	Active ingredient	Rate	Active/100 L	Timing of application
1	Delegate™ 250 WG	JEMVELVA™ - spinetoram	10 g/100 L	2.5 g AI/100 L	2 sprays, 7 d interval
2	Delegate™ 250 WG	JEMVELVA™ - spinetoram	20 g/100 L	5 g AI/100 L	2 sprays, 7 d interval
3	Closer™ 240 SC	ISOCLAST™ - sulfoxaflor	12 ml/100 L	2.8 g AI/100 L	2 sprays, 7 d interval
4	Closer™ 240 SC	ISOCLAST™ - sulfoxaflor	20 ml/100 L	5.7 g AI/100 L	2 sprays, 7 d interval
5	Untreated Control	Untreated	Untreated		2 sprays, 7 d interval

- ☐ Water volume = full cover applications (1000-1200 L/Ha)
- ☐ Motorized backpack sprayers



Aerial Application Treatments



Treat ment	Product Name	Active ingredient	Rate	Active/Ha	Timing of application
1	Delegate™ 250 WG	JEMVELVA™ - spinetoram	100 g/Ha	25 g AI/Ha	2 sprays, 7 d interval
2	Delegate™ 250 WG	JEMVELVA™ - spinetoram	200 g/Ha	50 g AI/Ha	2 sprays, 7 d interval
3	Closer™ 240 SC	ISOCLAST™ - sulfoxaflor	120 ml/Ha	28.8 g AI/Ha	2 sprays, 7 d interval
4	Closer™ 240 SC	ISOCLAST™ - sulfoxaflor	240 ml/Ha	57.6 g AI/Ha	2 sprays, 7 d interval
5	Untreated Control	Untreated	Untreated		2 sprays, 7 d interval

- ☐ Water volume = 50 L/Ha
- ☐ Helicopter
- ☐ Air Tractor



Evaluations

❑ Foliar application :

- ❑ Evaluations were performed 0 and 7 DAA for the two application:
 - ❑ **Counts:** number of thrips recorded on 2 shoots per plot
 - ❑ **Shoot damage:** shoot damage (%) recorded on 10 shoots/plot
 - ❑ **Bunch damage:** record % berries damaged/bunch of 10 bunches/plot



❑ Aerial applications:

- ❑ Evaluations were performed 0 and 7 DAA for the two applications:
 - ❑ **Counts:** number of thrips recorded on 20 shoots/treatment block
 - ❑ **Shoot damage:** shoot damage (%) recorded on 20 shoots/treatment block
 - ❑ **Bunch damage:** record % berries damaged/bunch of 20 bunches/treatment block – if present

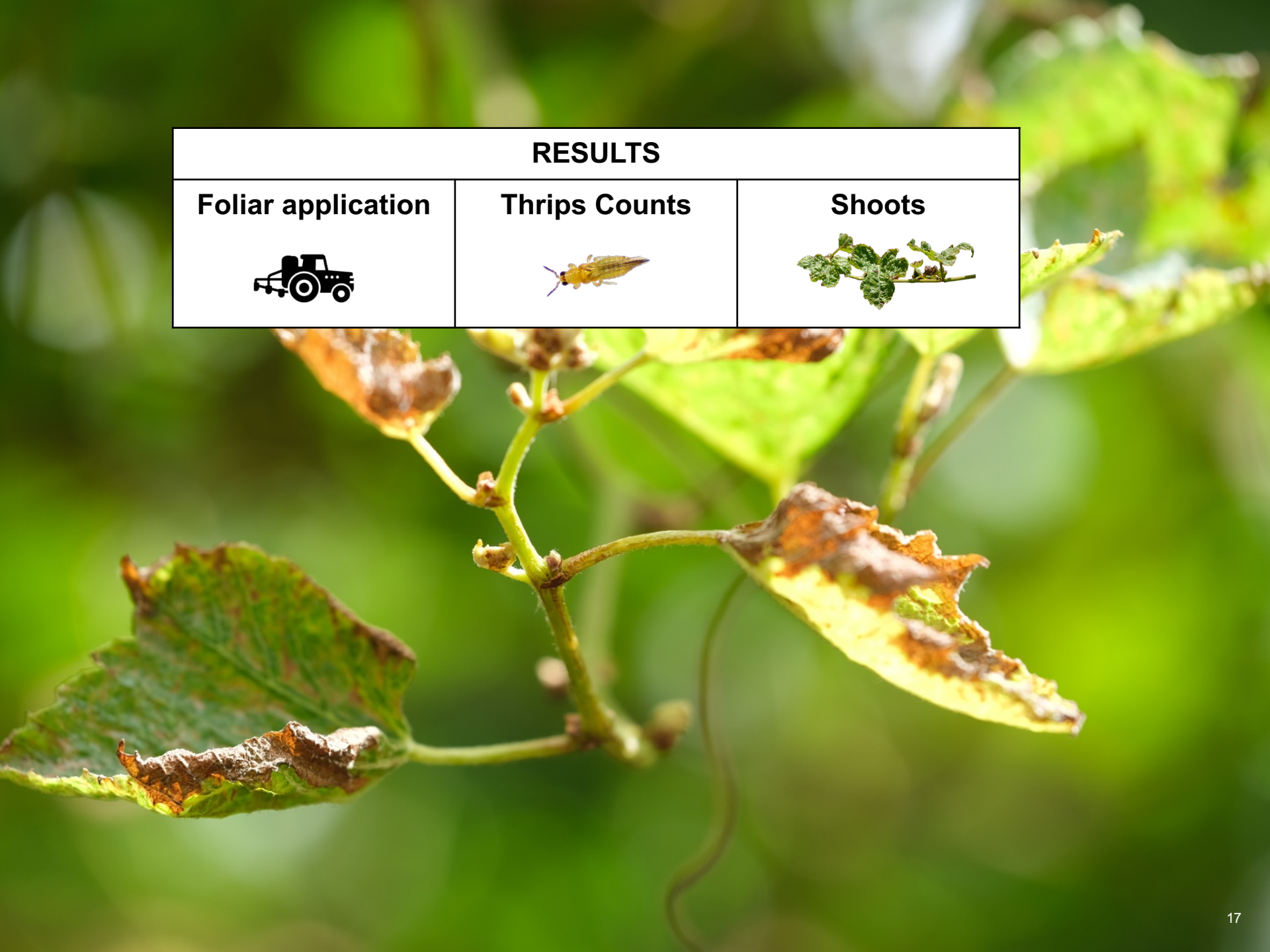


Results – Trawal trial site

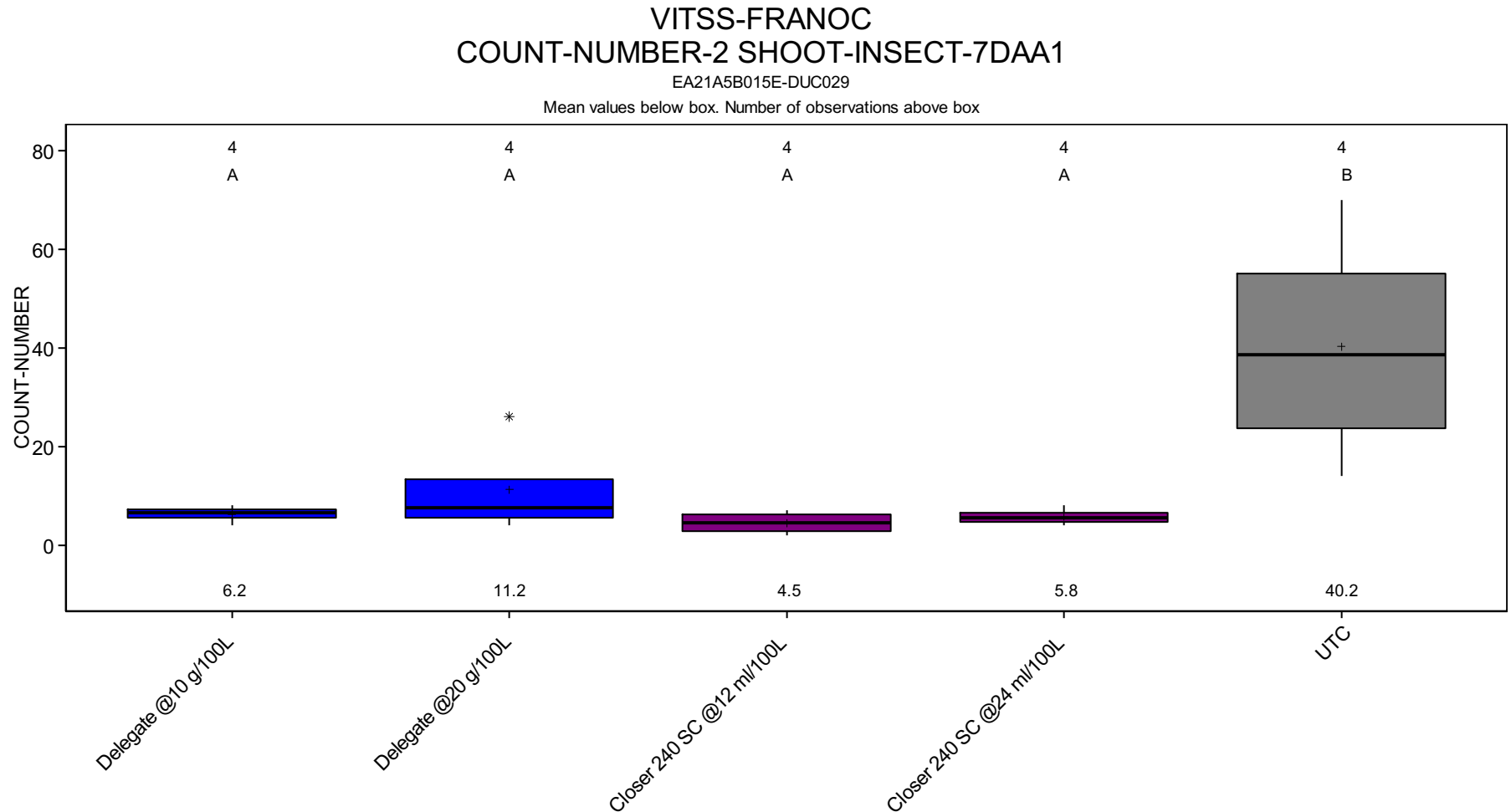
- ☐ Trials commenced late season – severe infestation
- ☐ 0 DAA: Damage recorded on foliage and bunches
- ☐ Limited new flush
 - ☐ Results presented:
 - ✓ ☒ Counts
 - ☐ Shoot damage
 - ✓ ☒ Bunch damage



RESULTS		
Foliar application	Thrips Counts	Shoots
		



Avg number of thrips recorded on 2 shoots/plot – 7 DAA 1



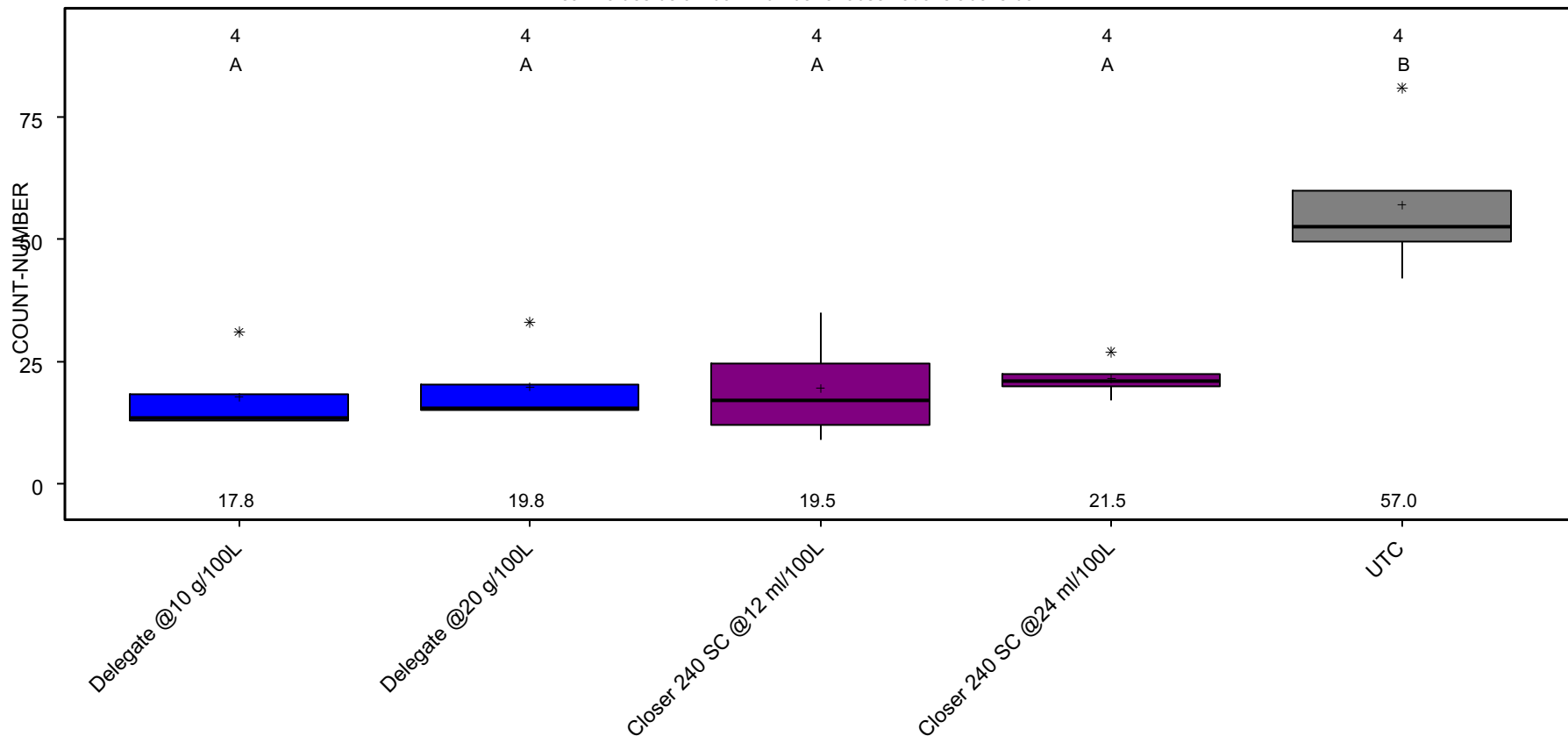
- ❑ 0 DAA 1: average infestation of 21 thrips/shoot – high infestation
- ❑ 7 DAA1 : Significant reduction in number of thrips recorded for all treatments
- ❑ No significant difference between the registered rates of Delegate 250 WG (10g/100L) and Closer 240 SC (12 ml/100L)

Avg number of thrips recorded on 2 shoots/plot – 7 DAA 2

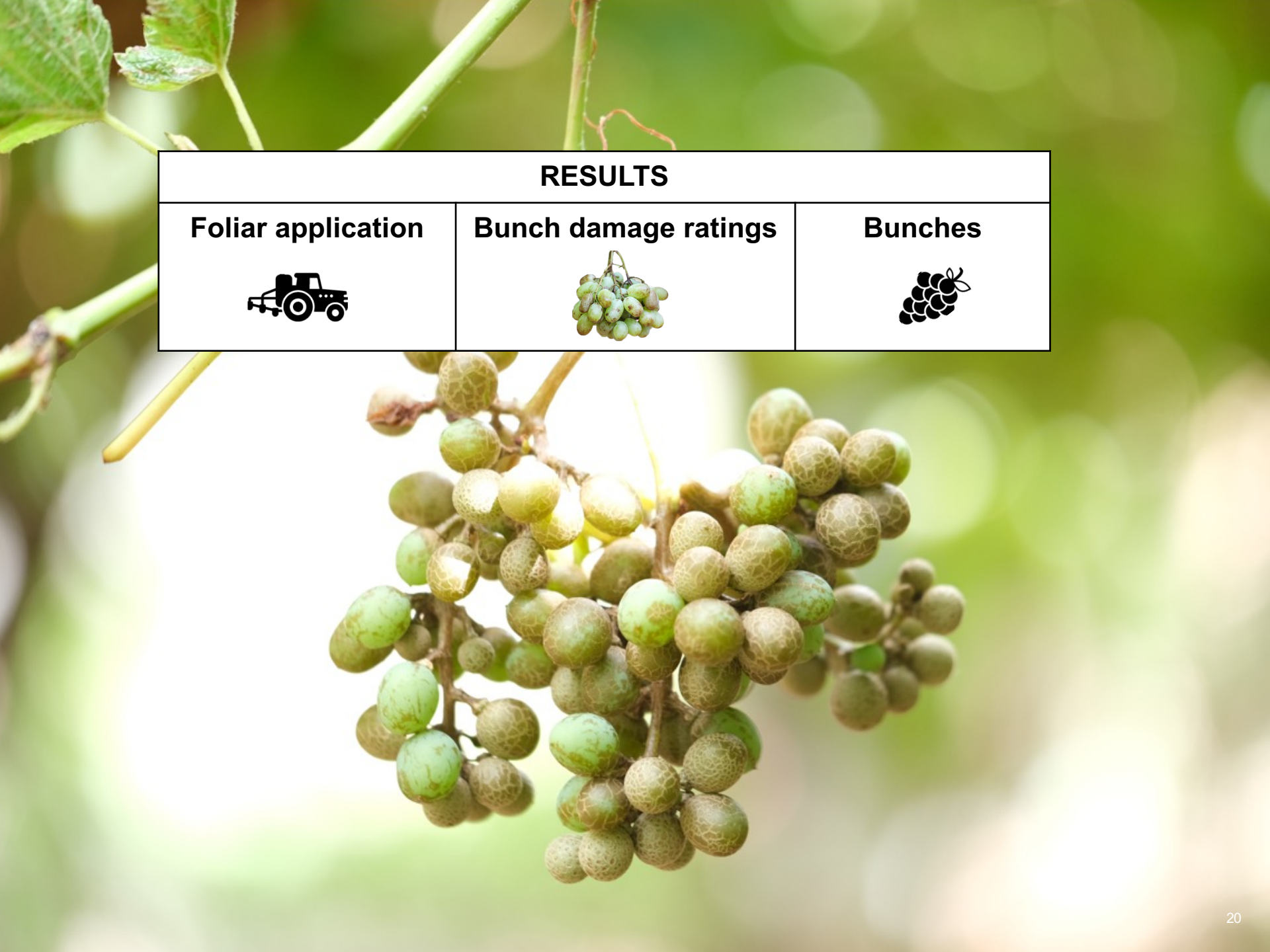


VITSS-FRANOC COUNT-NUMBER-2 SHOOT-INSECT- 7 DAA 2 EA21A5B015E-DUC029

Mean values below box. Number of observations above box

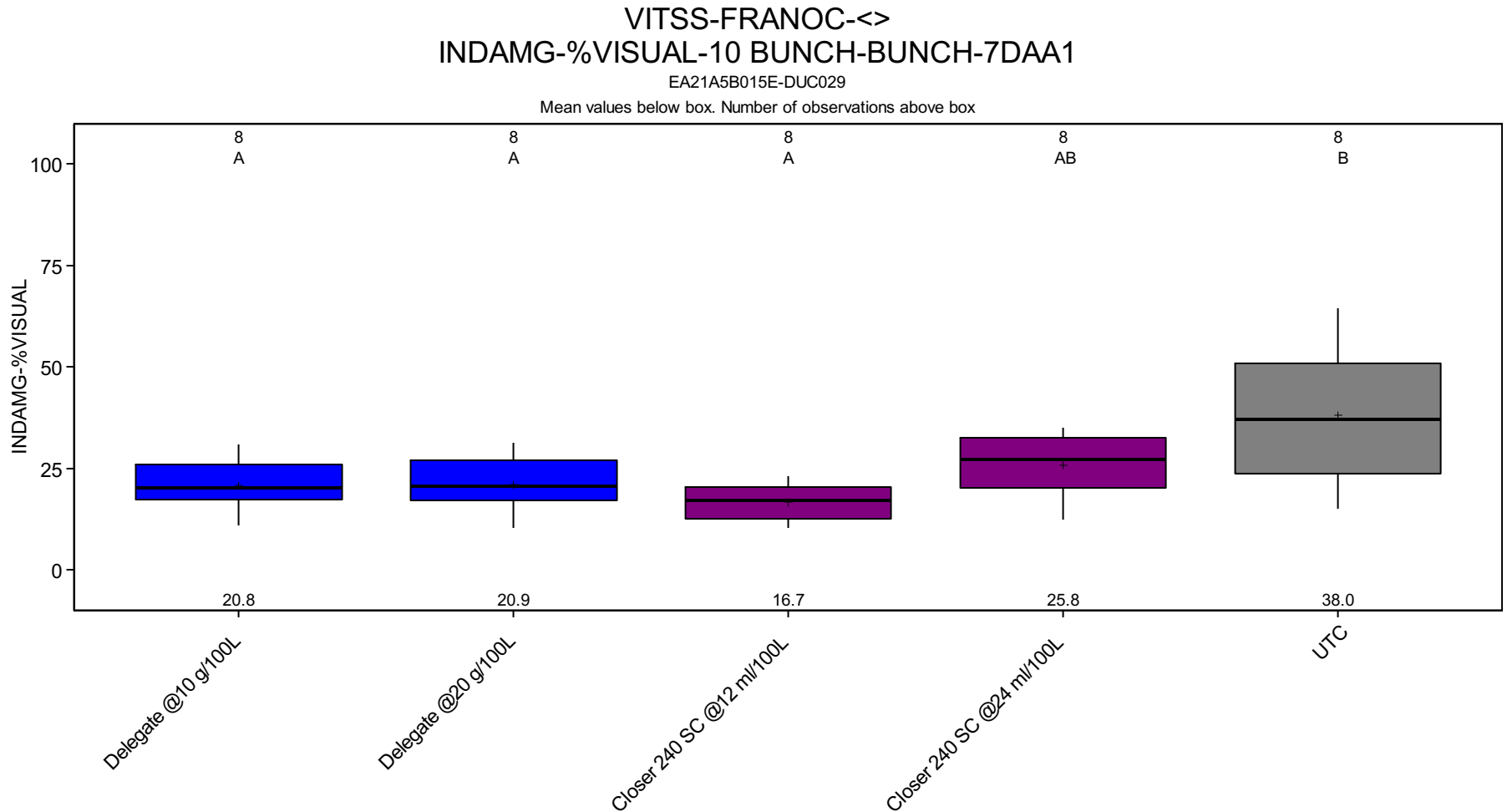


- ❑ First signs of re-infestation with more thrips being recorded for all treated sections, but still significantly less thrips in treated sections vs UTC
- ❑ No significant difference recorded between registered rates of Delegate 250 WG (10 g/100L and Closer 240 SC (12 ml/100L)



RESULTS		
Foliar application	Bunch damage ratings	Bunches
		

Avg % berries per bunch with thrips damage – 7 DAA 1



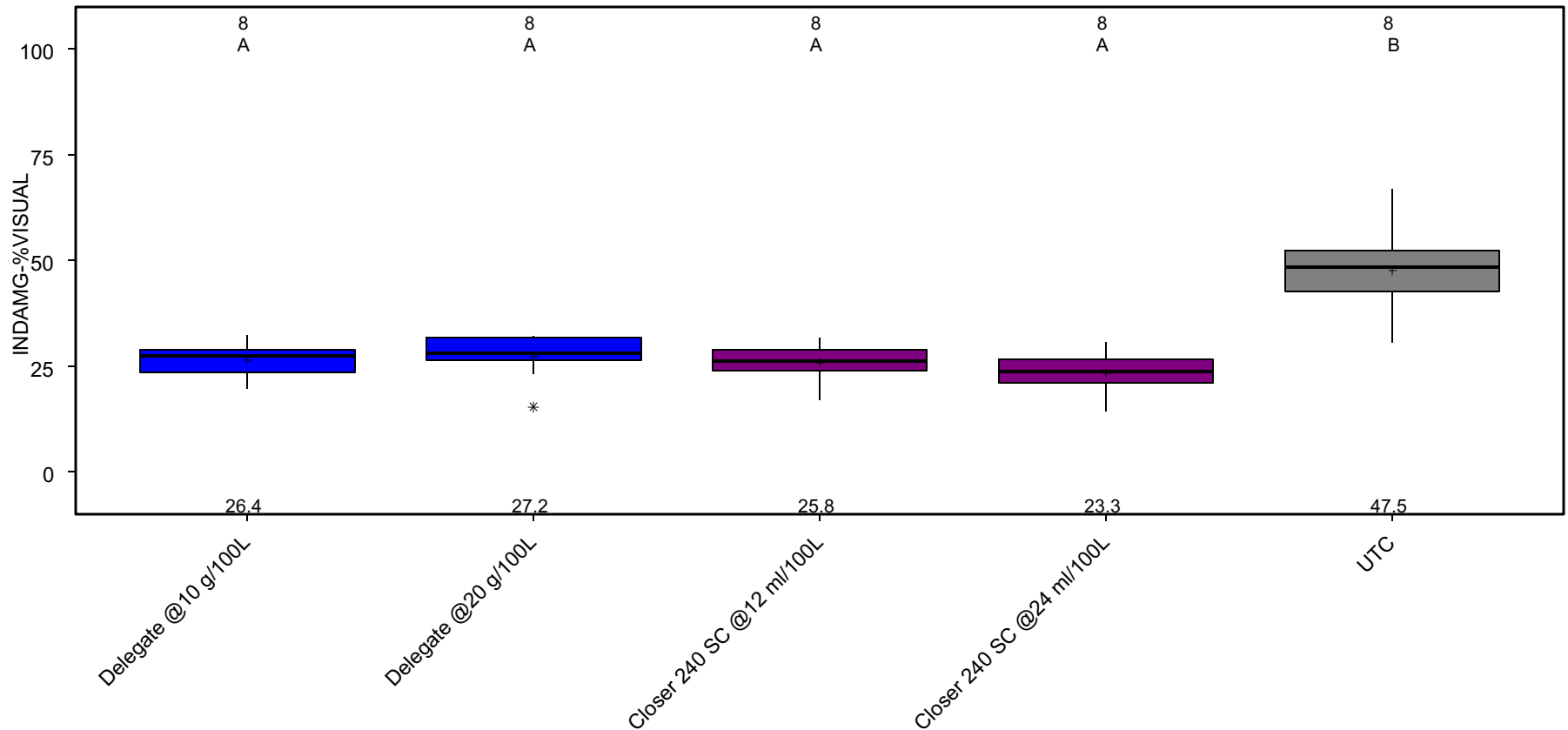
- ❑ 0 DAA 1: an average of 44.38 % berries per bunch showed thrips damage
- ❑ 7 DAA 1: Damage recorded in all treatments was numerically and at times statistically lower than for the UTC
- ❑ No significant difference between registered rates of Delegate 250 WG (10g/100L) and Closer 240 SC (12 ml/100L)

Avg % berries per bunch with thrips damage – 7 DAA 2



VITSS-FRANOC-<>
INDAMG-%VISUAL-10 BUNCH-BUNCH-7 DAA 2
EA21A5B015E-DUC029

Mean values below box. Number of observations above box



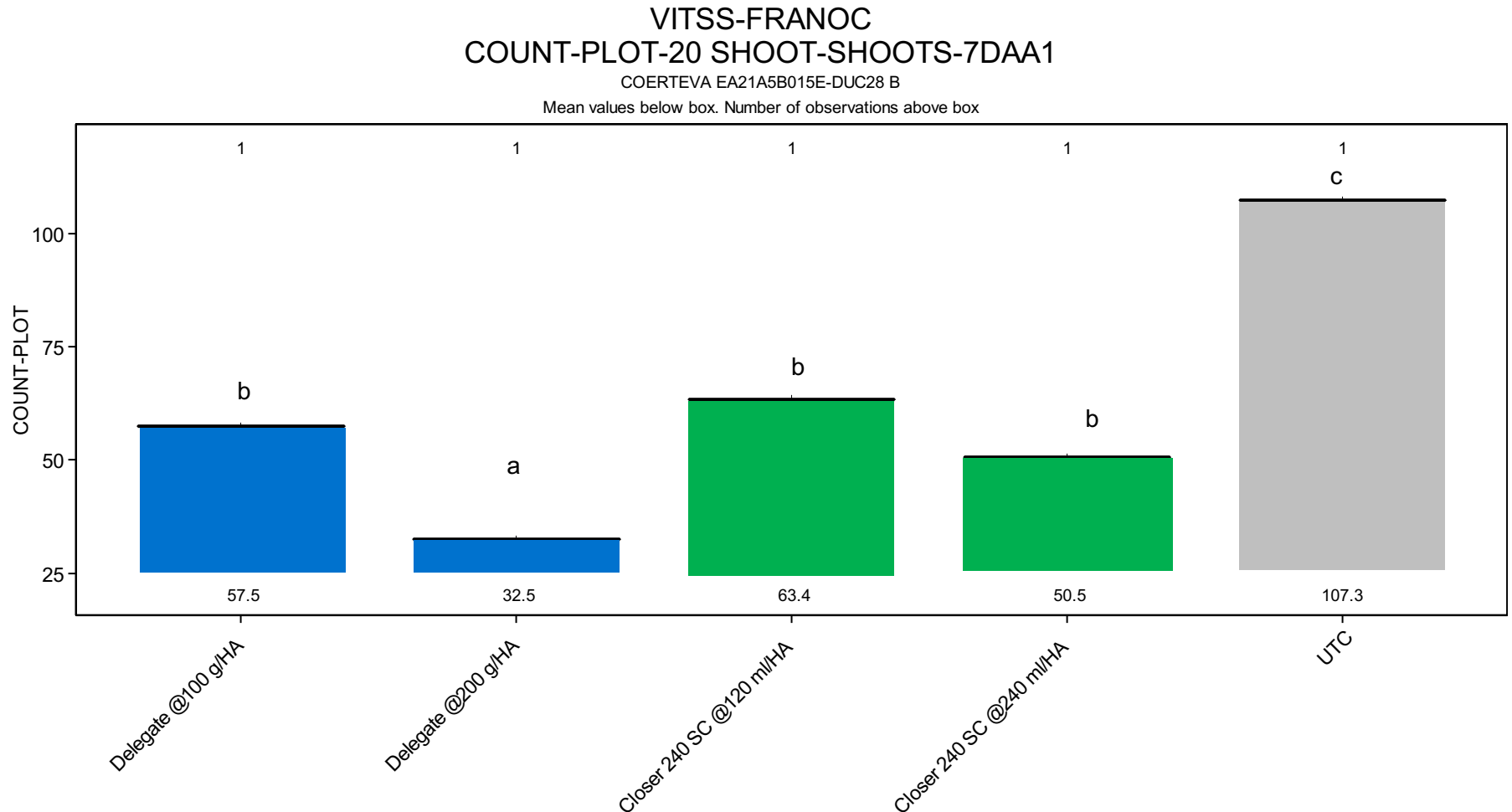
- 7 DAA 2: Damage was significantly less in treated sections vs UTC
- No statistical difference between registered rates of Closer 240 SC and Delegate 250 WG

Aerial Application

- ☐ Young vines – no bunches
- ☐ Damage to shoots at start of trial
- ☐ Focus only on counts



Avg number of thrips recorded per shoot– 7 DAA 1



- 0 DAA 1: Initial average infestation of 140 thrips/shoot - very high infestation distributed relatively even through block
- 7 DAA 1 : Significant reduction in number of thrips recorded for all treatments vs UTC

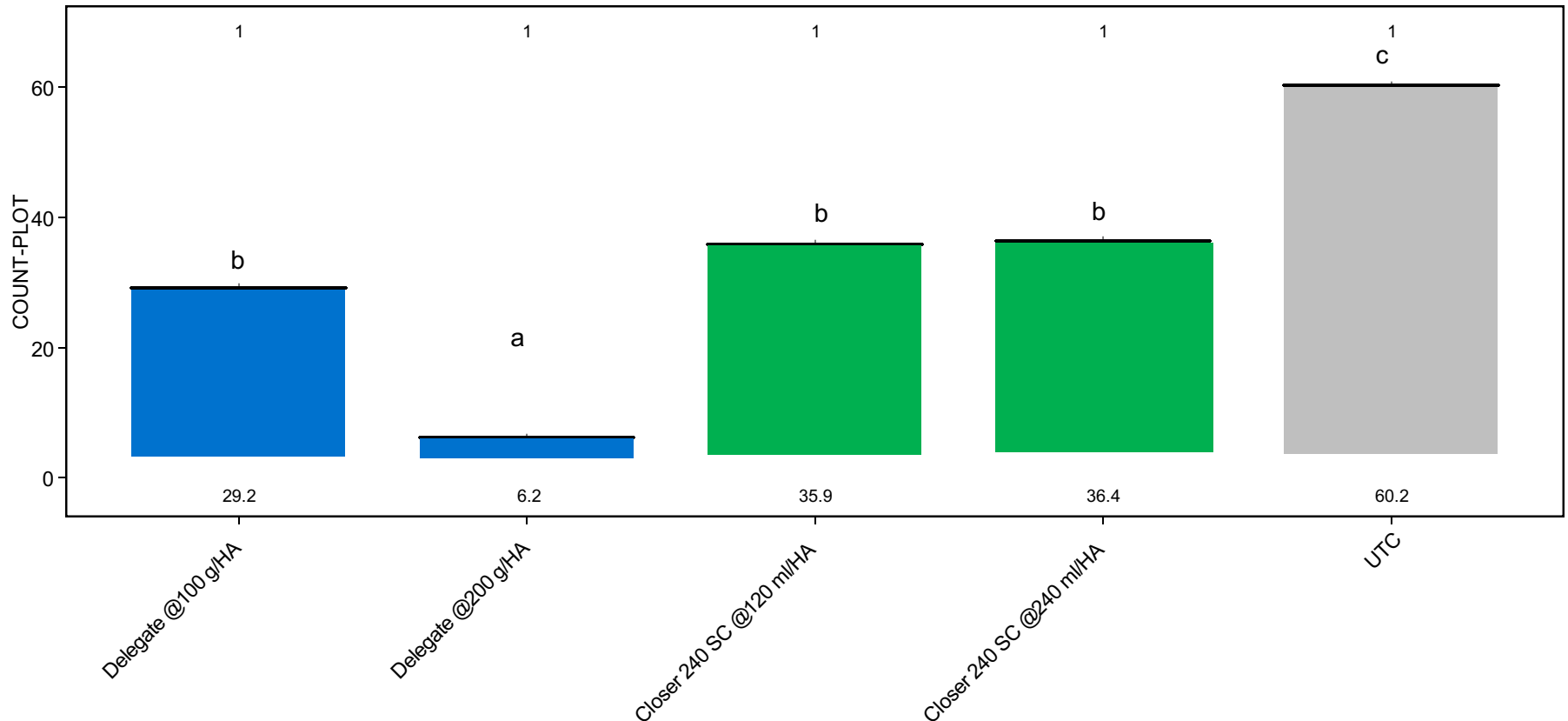
Avg number of thrips recorded per shoot– 7 DAA 2



VITSS-FRANOC COUNT-PLOT-20 SHOOT-SHOOTS-7DAA2

COERTEVA EA21A5B015E-DUC28 B

Mean values below box. Number of observations above box



7 DAA 2 : Further significant reduction in number of thrips recorded for all treatments vs UTC

Key Questions

- ❑ How effective is Closer™ 240 SC vs Delegate™ 250 WG for the late season management of citrus thrips using foliar directed applications?
- ❑ **Closer™ 240 SC (Isoclast™) at the registered rate of 12 ml/100 L water is as effective as the registered rate of Delegate™ 250 WG (Jemvelva™) at 10 g/100 L water for the management of citrus thrips in grapes – foliar application.**
- ❑ How effective is Closer™ 240 SC vs. Delegate™ 250 WG for the late season management of citrus thrips using aerial applications?
- ❑ **Closer™ 240 SC (Isoclast™) at tested rates of 100-as effective as the registered rate of Delegate™ 250 WG (Jemvelva™) at 10 g/100 L water for the management of citrus thrips in grapes – aerial application.**

Industry contribution

- ☐ Both Delegate™ 250 WG (Jemvelva™) Closer™ 240 SC (Isoclast™) can be used for the late season management of thrips in table grape orchards
- ☐ Closer™ 240 SC (Isoclast™) can be used as resistance management tool
- ☐ Aerial applications of both Closer™ 240 SC (Isoclast™) and Delegate™ 250 WG (Jemvelva™) could be a possible future areawide control option for the late season management of thrips feeding on top foliage in vineyards – once registered.

Acknowledgements

