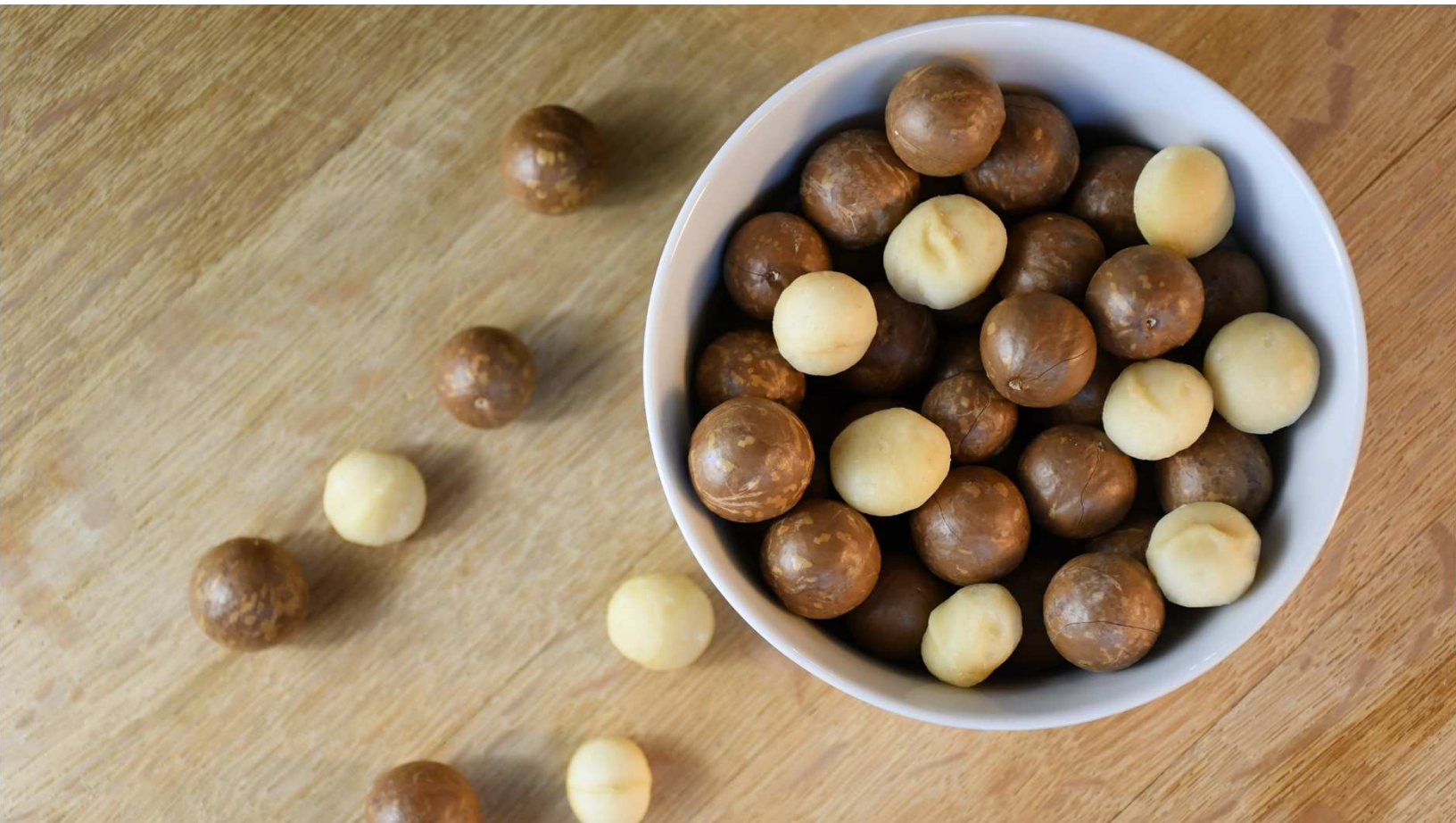


# **MANAGING ATTITUDES AND PESTS**

## **LESSONS FROM THE MACADAMIA INDUSTRY**

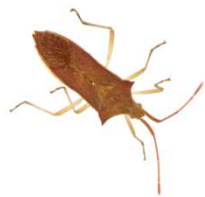
Barry Christie  
October 2026













|                    |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| EARLY<br>STINKBUG  |  |  |  |   |  |  |                                                                                     |
| LATE<br>STINKBUG   |  |  |  |   |  |                                                                                     |                                                                                     |
| IMMATURE<br>KERNEL |  |  |  |   |  |  |  |
| SHELL<br>MARKS     |  |  |  |  |  |  |  |
| ADHERED<br>SKINS   |  |  |  |  |  |  |  |
| PINK<br>STAINING   |  |  |  |  |  |  |  |

# White River



# Ramsgate



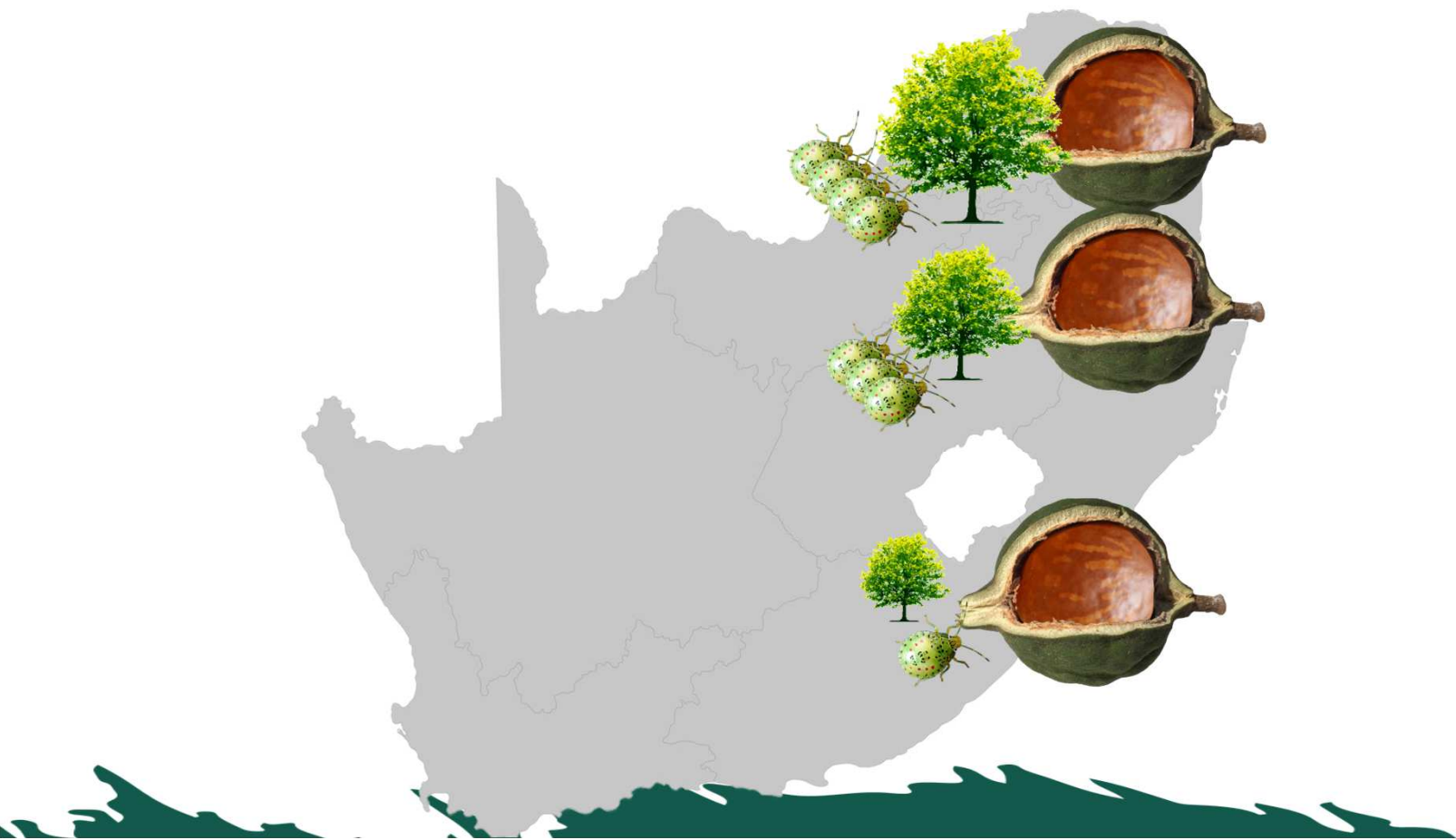
# Levubu





Kernel  
33%

Shell  
67%





# USK = 10%

(as % of total kernel)

Nut in Shell  
10 000g

Sound Kernel  
2 700g

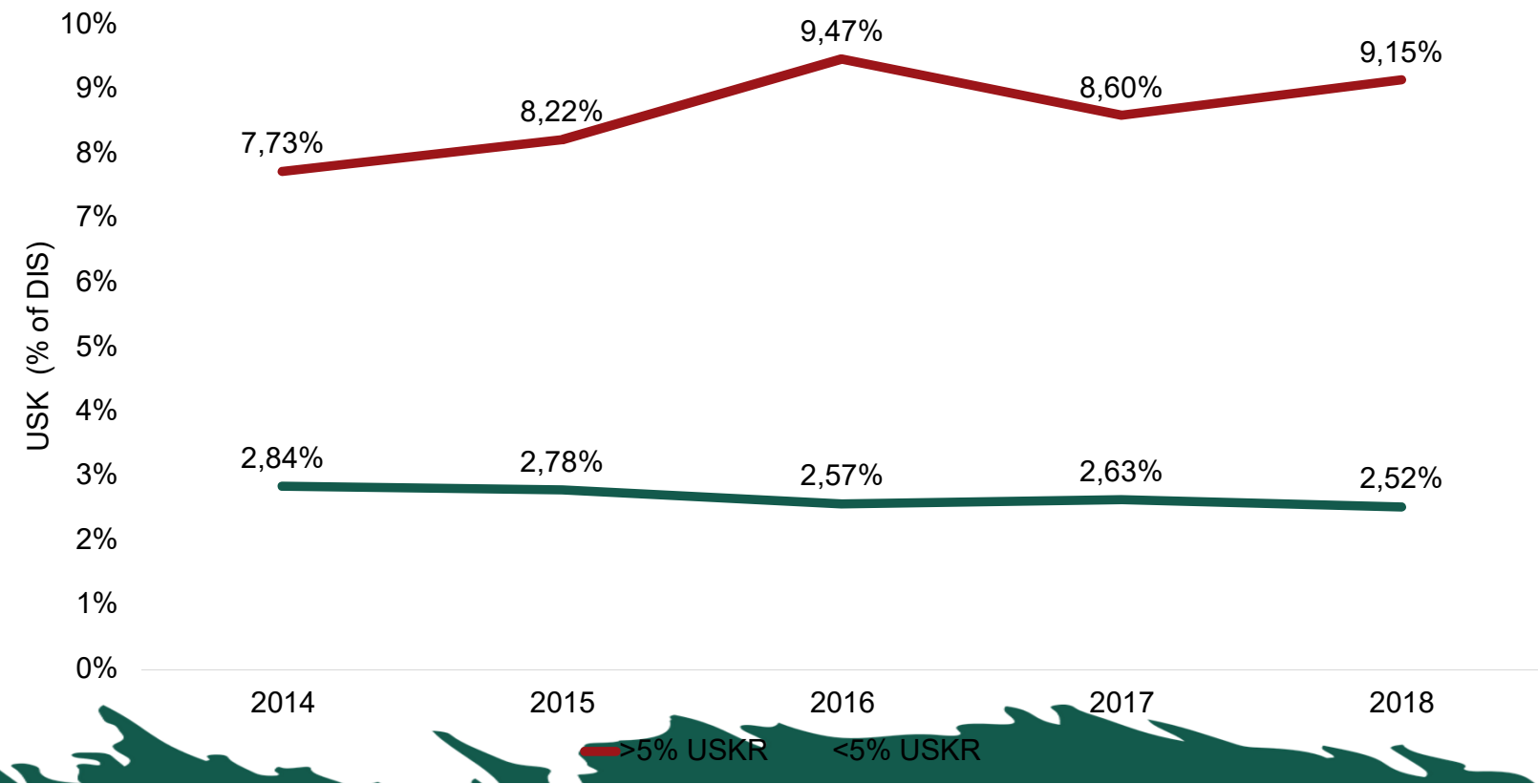
Unsound Kernel  
300g

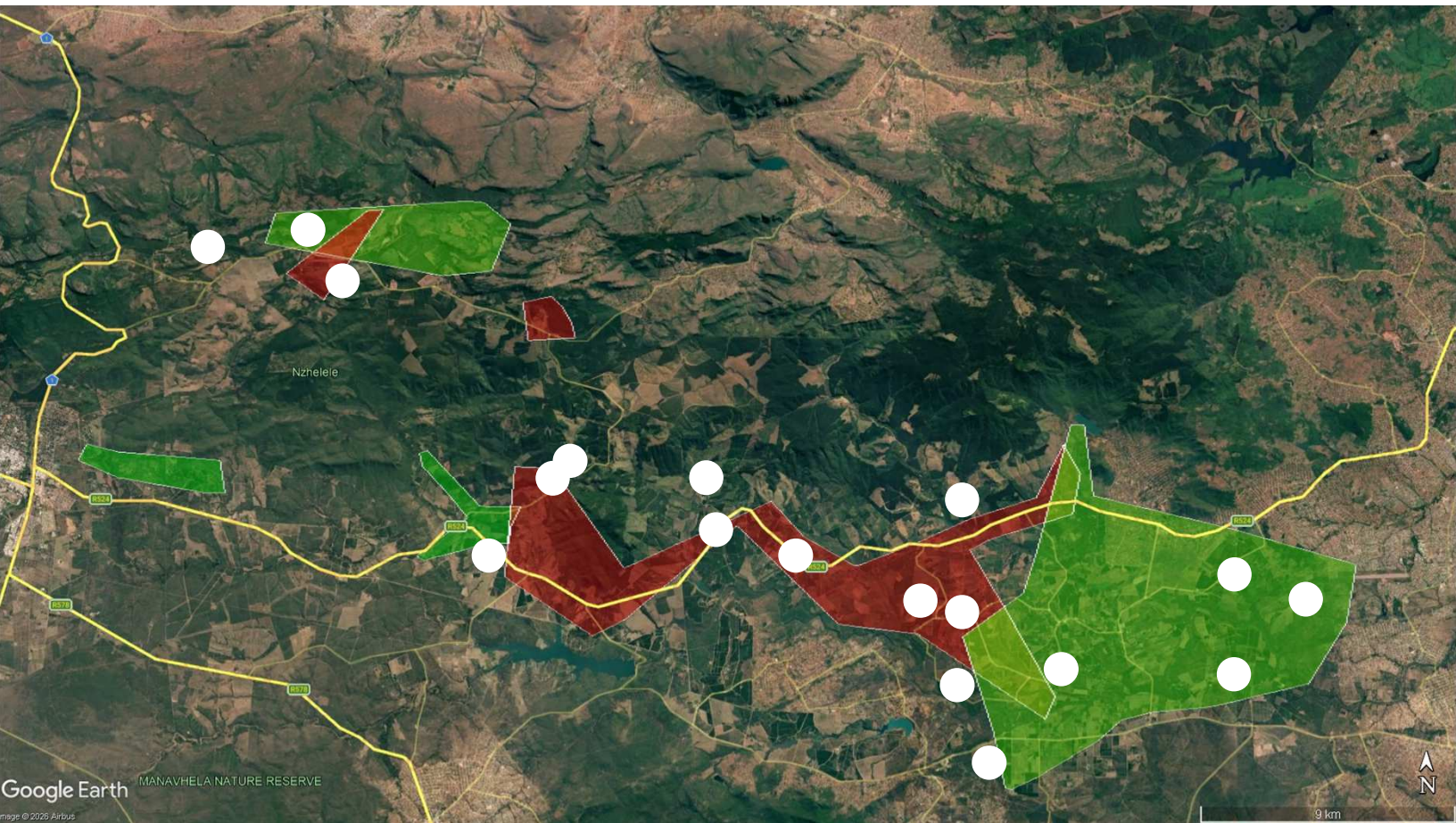
SKR = 27%

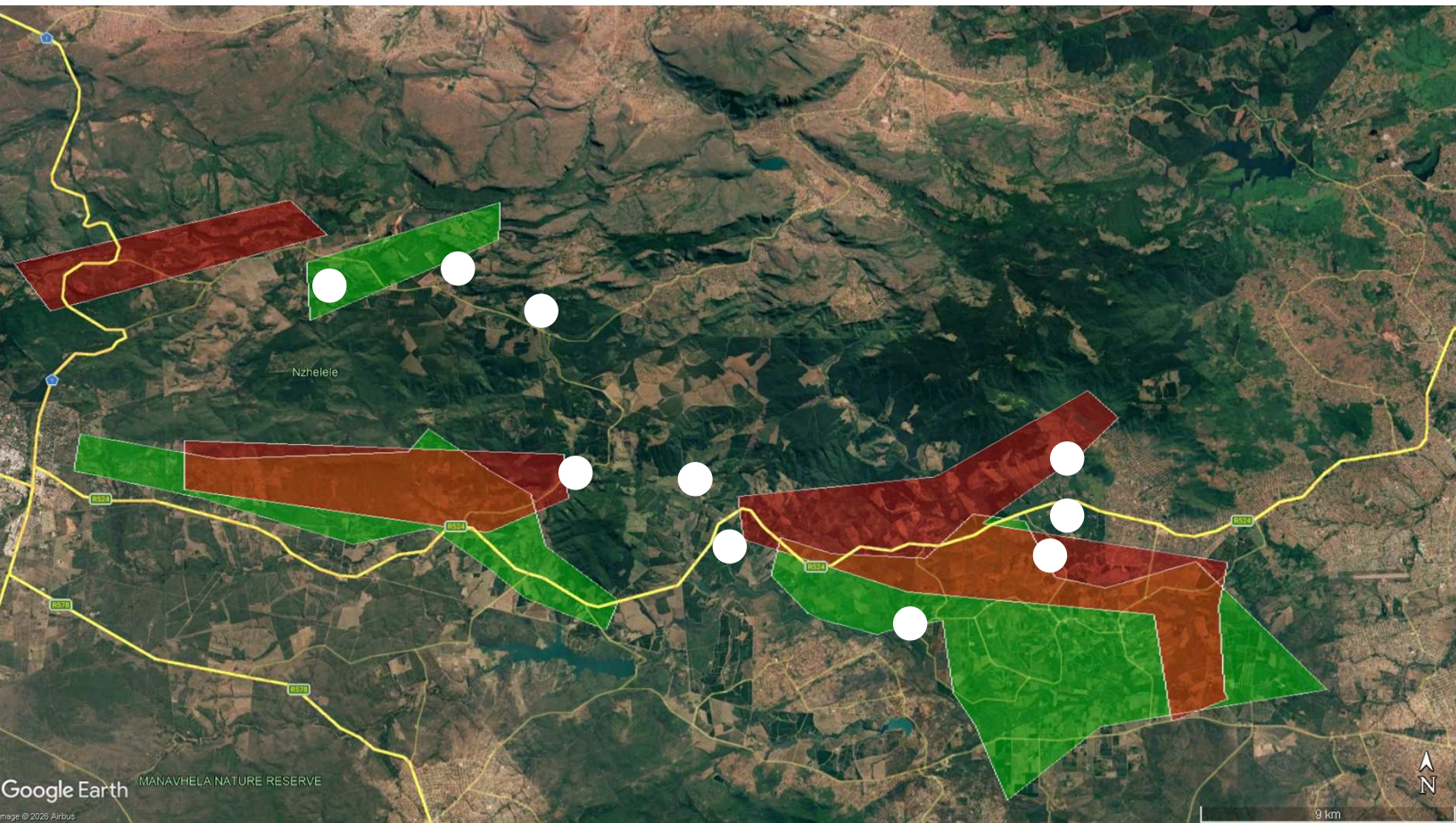
USKR = 3%



## Trends in Unsound Groupings (non-weighted average)





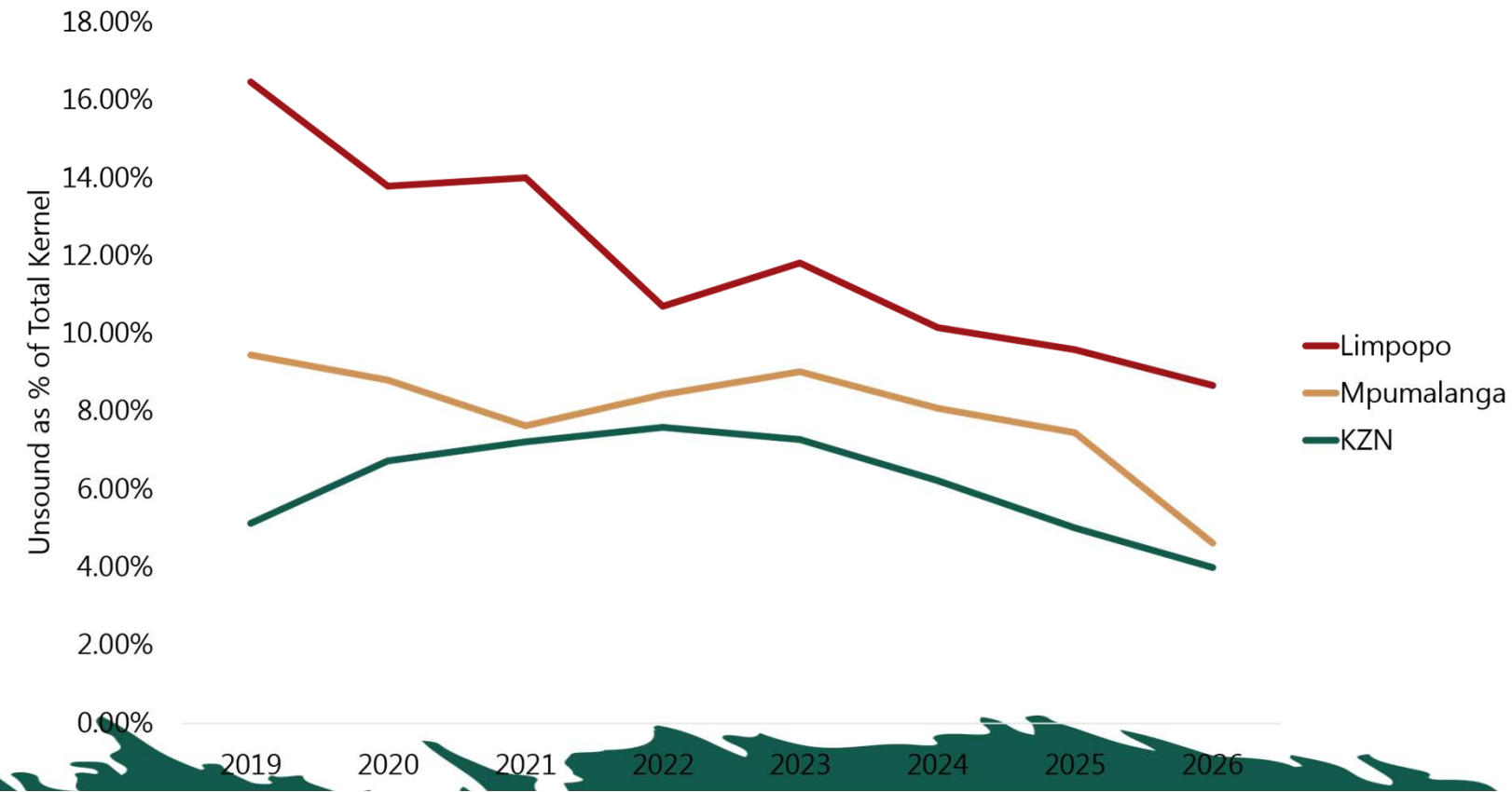


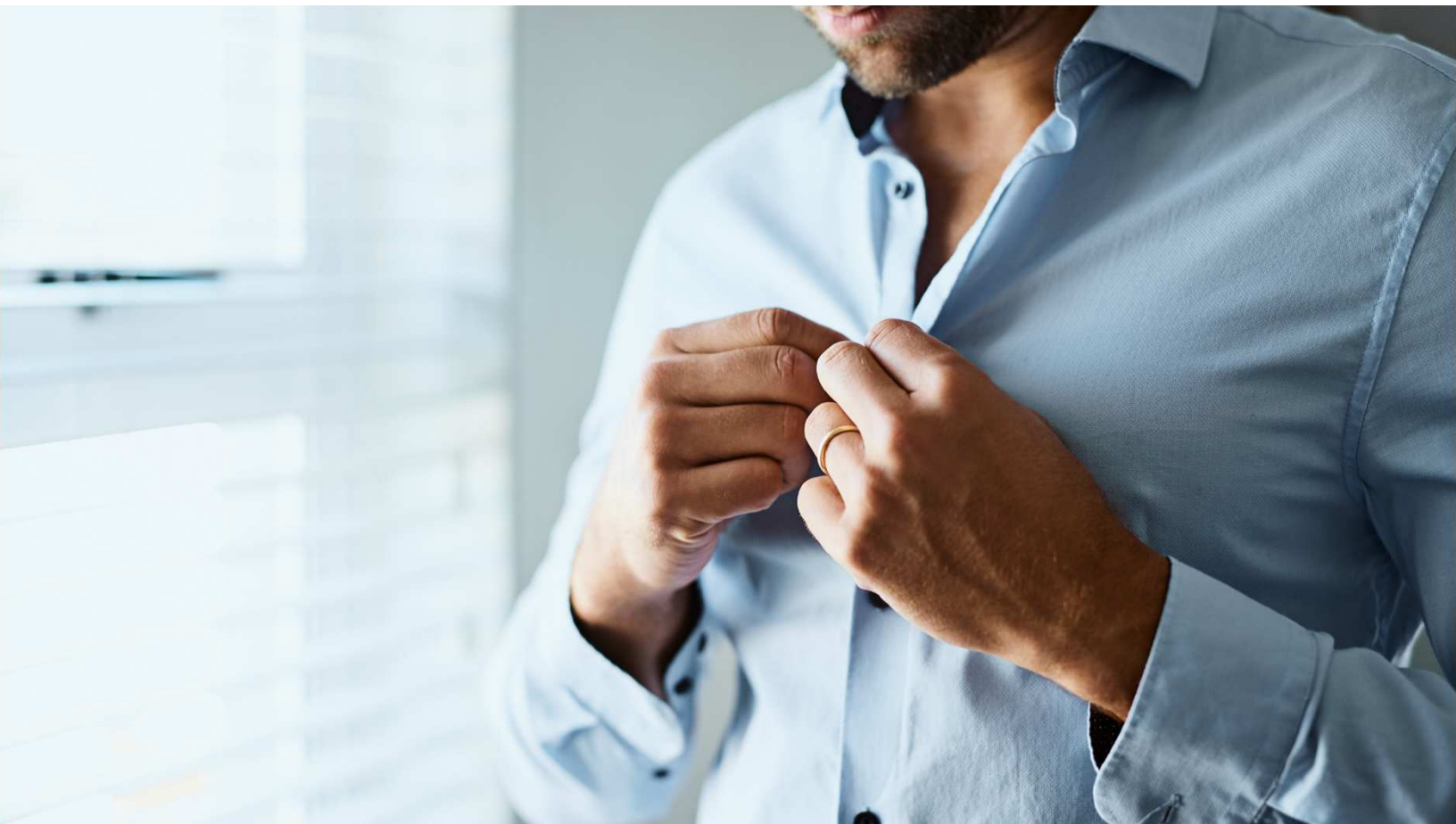
Google Earth MANAVHELA NATURE RESERVE

Imagery © 2020 Airbus

9 km

## Macadamia Unsound Levels





HOW  
TO

# Control Pests Effectively

Pruning improves spray efficacy. Remove limbs by hand. Maintain tree height to 80% of the row width (6m max)

## PRUNING



Calibrate spray equipment regularly. Ensure correct volumes and sufficient coverage

## EQUIPMENT



Base sprays on scouting. Calendar sprays are seldom successful

## SCOUT



Keep trees healthy. Stressed trees can lure certain pests, which can lead to other complications

## TREE HEALTH



## Integrated Pest Management

Doing one thing right will not control pests to the desired extent - only if all the links in the chain are unbroken



## GO GREEN

Protect bees and natural pest enemies such as parasitic wasps, praying mantids and spiders



## EDUCATION

Invest in workers' knowledge and skills through training: Pruning, Scouting and Spraying



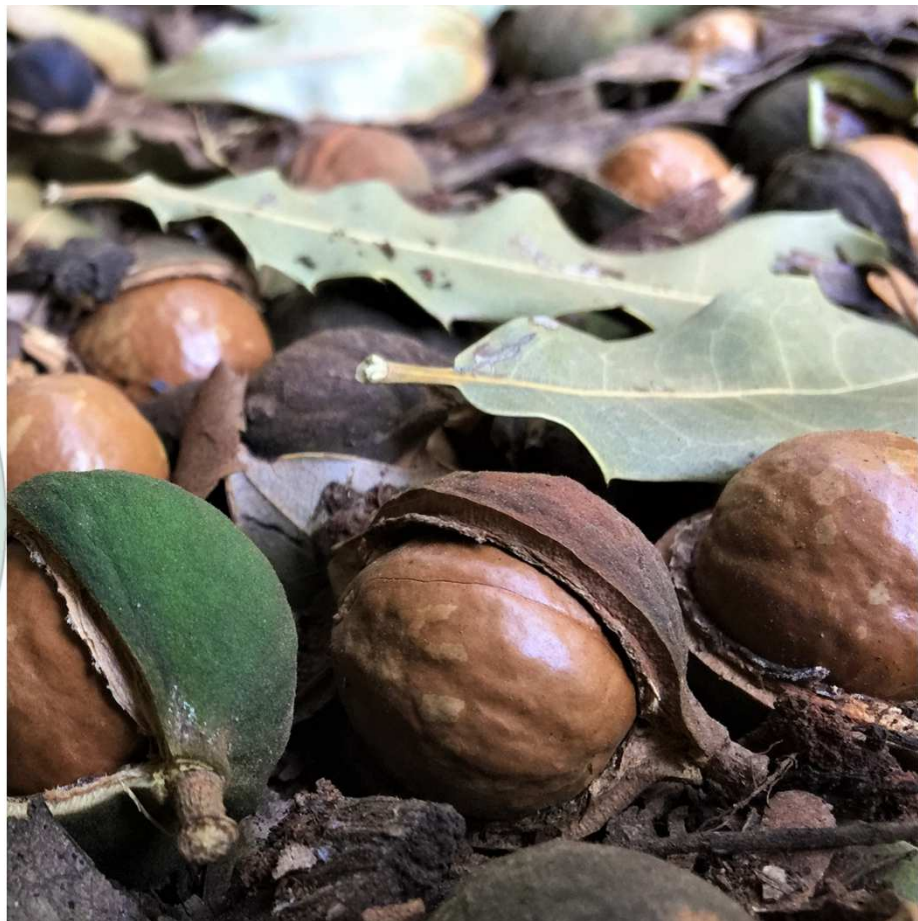
## ALTERNATE

Alternate between different IRAC chemical groups, not between trade names

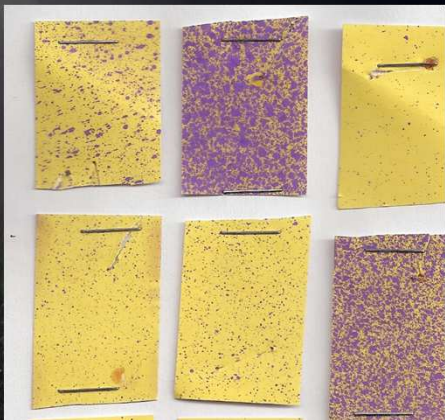


## PRESENCE

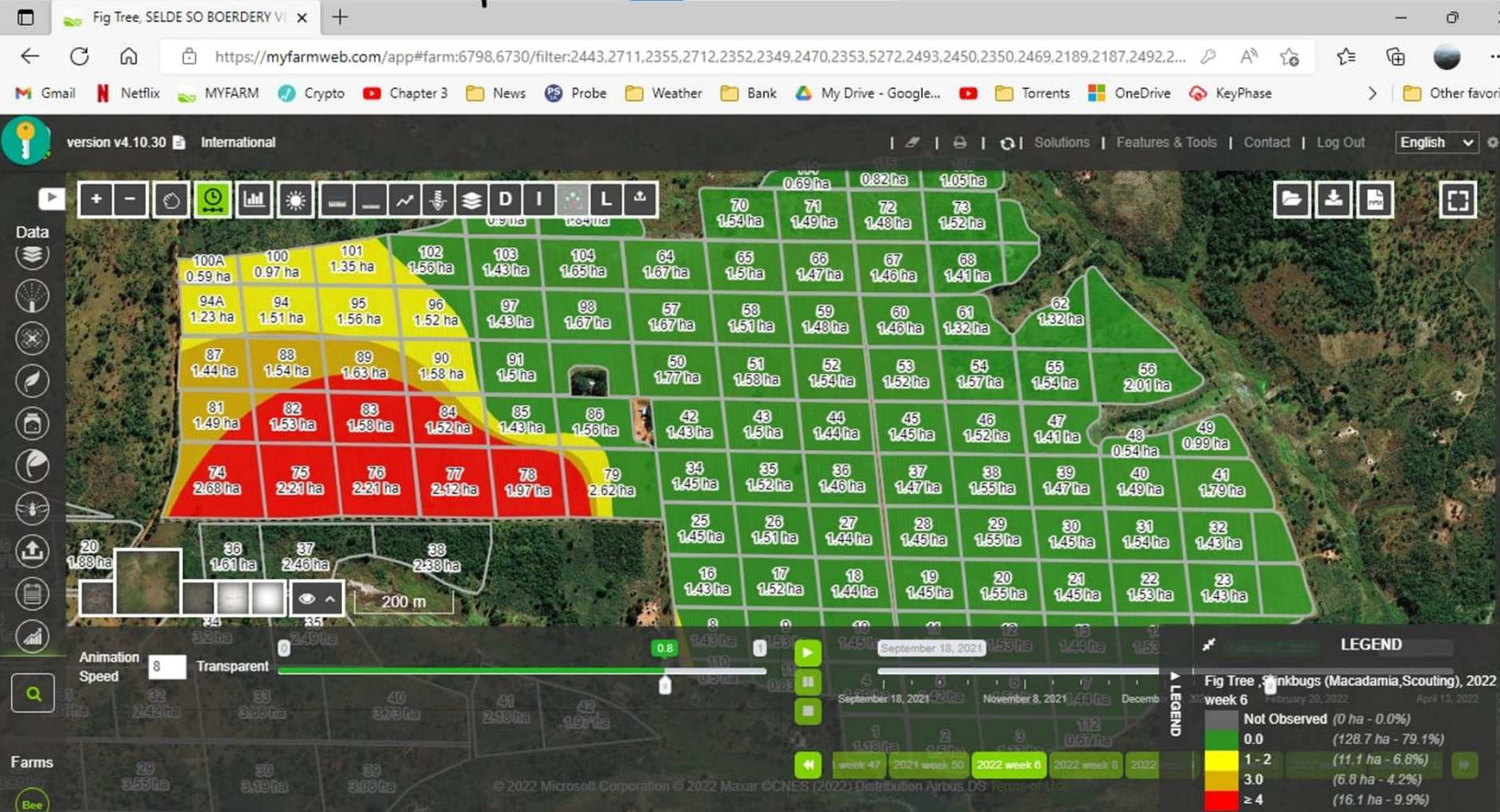
Nothing beats effective farm management than a growers' footprints in an orchard















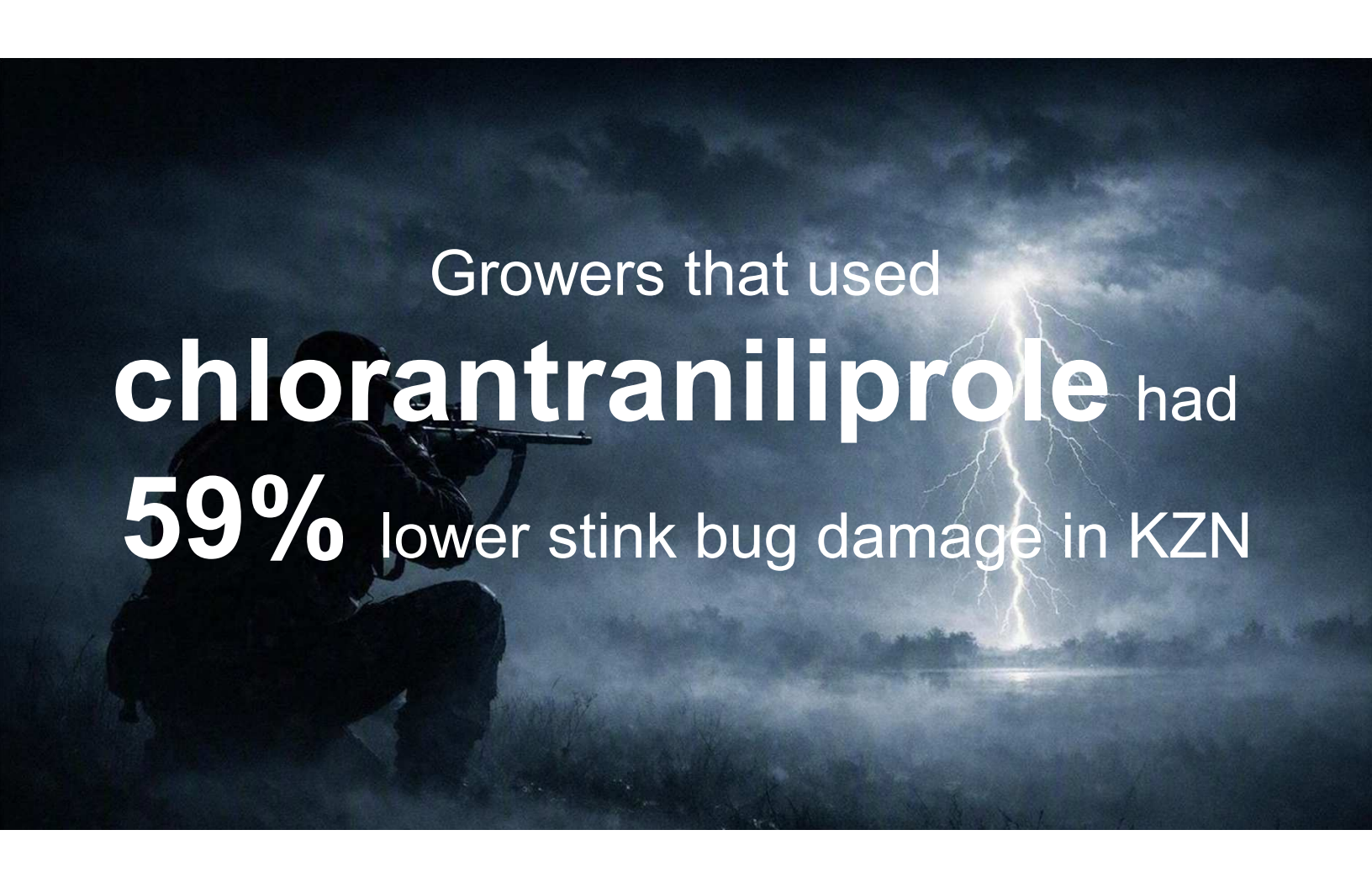




| Abamectin | Acephate | Acetaminophen | Acyclovir | Aspirin | Benztel | Benzocaine | Benzocaine | Benzocaine | Benzocaine | Benzocaine | Benzocaine | Benzocaine | Benzocaine |
|-----------|----------|---------------|-----------|---------|---------|------------|------------|------------|------------|------------|------------|------------|------------|
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 1          | 0          | 0          | 0          |
| 0         | 1        | 1             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 1        | 0             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 0          | 1          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 0             | 0         | 0       | 0       | 0          | 0          | 0          | 1          | 0          | 0          | 0          | 0          |
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 1        | 0             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 1          | 1          |
| 0         | 1        | 0             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 0             | 1         | 0       | 0       | 1          | 1          | 0          | 0          | 1          | 0          | 0          | 1          |
| 0         | 0        | 0             | 1         | 0       | 0       | 1          | 0          | 0          | 0          | 1          | 0          | 0          | 1          |
| 0         | 0        | 0             | 1         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 1          |
| 0         | 1        | 1             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 0             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 0             | 0         | 0       | 0       | 0          | 1          | 1          | 0          | 1          | 0          | 0          | 0          |
| 0         | 0        | 0             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 0             | 0         | 0       | 0       | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 1        | 0             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 1          | 0          |
| 0         | 1        | 1             | 0         | 0       | 0       | 1          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 1        | 1             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 1        | 1             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |
| 0         | 0        | 1             | 0         | 0       | 0       | 0          | 1          | 0          | 0          | 0          | 0          | 0          | 0          |

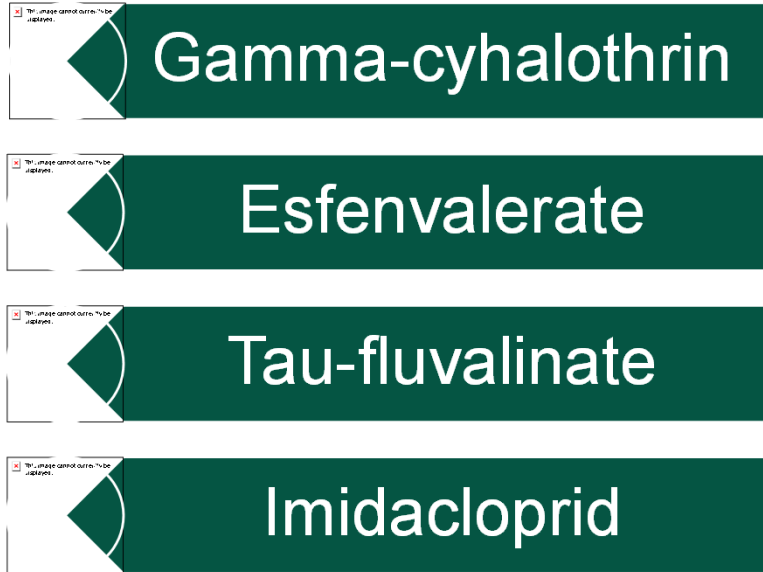


Growers that used  
**methoxyfenozide** had  
**44%** lower stink bug damage in Mpumalanga



Growers that used  
**chlorantraniliprole** had  
**59%** lower stink bug damage in KZN

# Products associated with high stink bug damage in Limpopo



# Number of IRAC Groups Used

2 Groups vs 1

**2%**

Improvement

3 Groups vs 2

**3%**

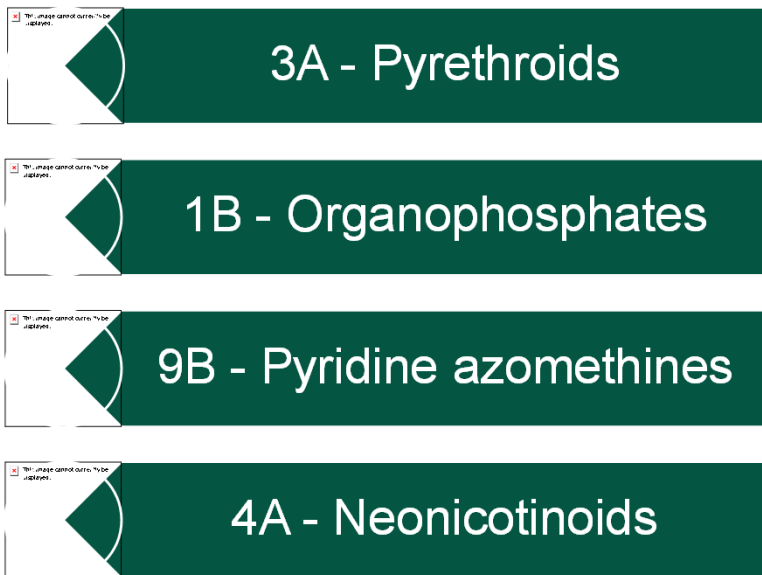
Improvement

4 Groups vs 3

**34%**

Improvement

# Mpumalanga Best Performing IRAC Groups



# Limpopo Best Performing IRAC Groups



# KZN Best IRAC Groups



9B - Pyridine azomethines



4A - Neonicotinoids



3A - Pyrethroids



