



# SATI – Prescriptive Logistics

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# SOUTH AFRICAN TABLE GRAPE INDUSTRY (SATI)

SATI represents a community of 310 producers and acts on their behalf to engage with key industry stakeholders with the goal of **POSITIONING SA AS A PREFERRED SUPPLIER OF THE WORLD'S BEST GRAPES**



## PROGRESSIVE

- **Innovation:** Investing in R&D
- **Technology:** Optimise / Stakeholder relations
- **Market adaption:** Keep up with market dynamics & demands



## EQUITABLE

- **Fair Labour Practices:** SIZA
- **Community Development:** Industry collaboration / creating opportunities
- **Empowerment:** Empower Women & New generation farmers



## SUSTAINIBIILTY

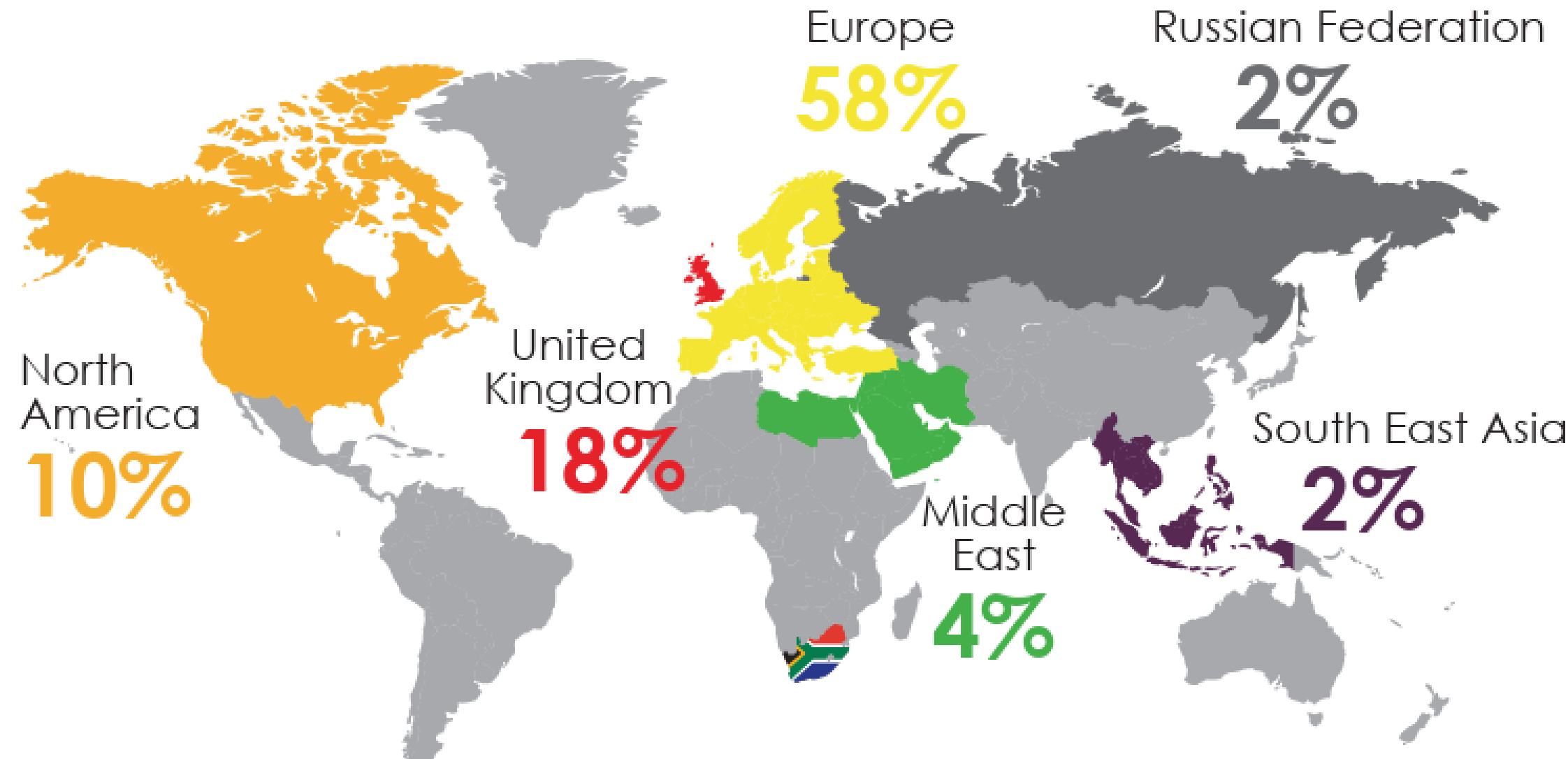
- **Environmental Stewardship:** Confronting Climate Change Initiatives / SIZA
- **Resource Efficiency:** R&D and numerous industry resources



# SATI EXPORTS AT A GLANCE

2024/2025 Season

VS SEASON 2023-2024 (4.5 KG EQUIVALENT CARTONS)



44.9 mil ↑ +5% VS 23-24

14.4 mil ↓ -2% VS 23-24

7.5 mil ↑ +28% VS 23-24

3.3 mil ↑ +25% VS 23-24

1.7 mil ↓ -33% VS 23-24

1.5 mil ↓ -2% VS 23-24



**77 806 946**

Cartons Exported

COMPARED TO  
**74 149 581** LAST SEASON  
(4.5 kg equivalent)



**350 131**

Tons Exported

COMPARED TO  
**333 673** LAST SEASON



**21 613**

Containers Exported

COMPARED TO  
**20 597** LAST SEASON

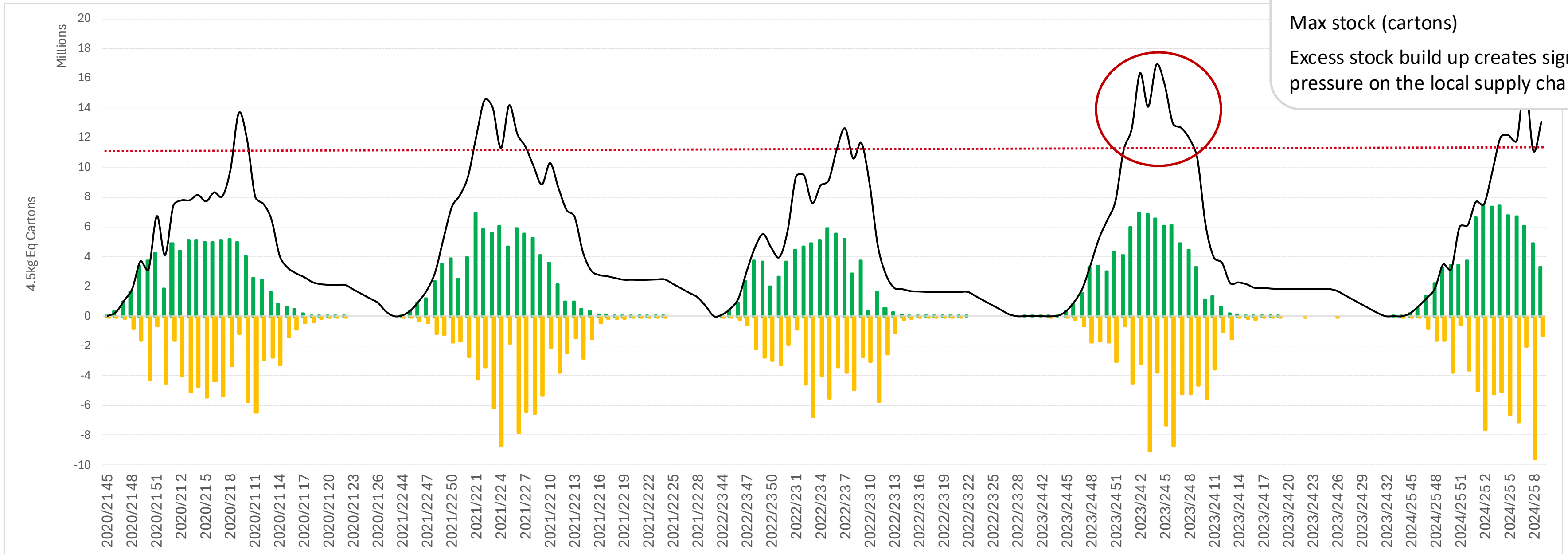
# 23/24 SUPPLY CHAIN DISRUPTIONS

Disruption, largely at Cape Town Container terminal had a significant impact on stock

**17m**

Max stock (cartons)

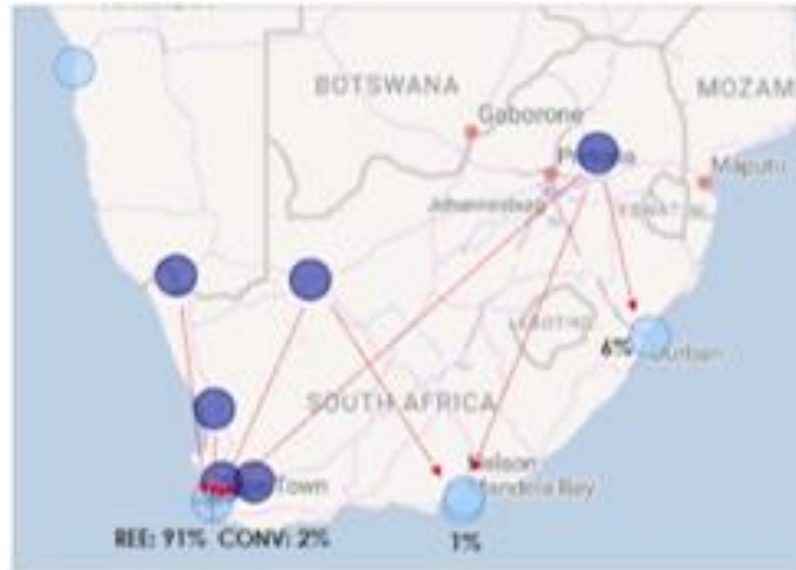
Excess stock build up creates significant pressure on the local supply chain



# 23/24 SUPPLY CHAIN DISRUPTIONS

Disruption, largely at Cape Town Container terminal had a significant impact on the season

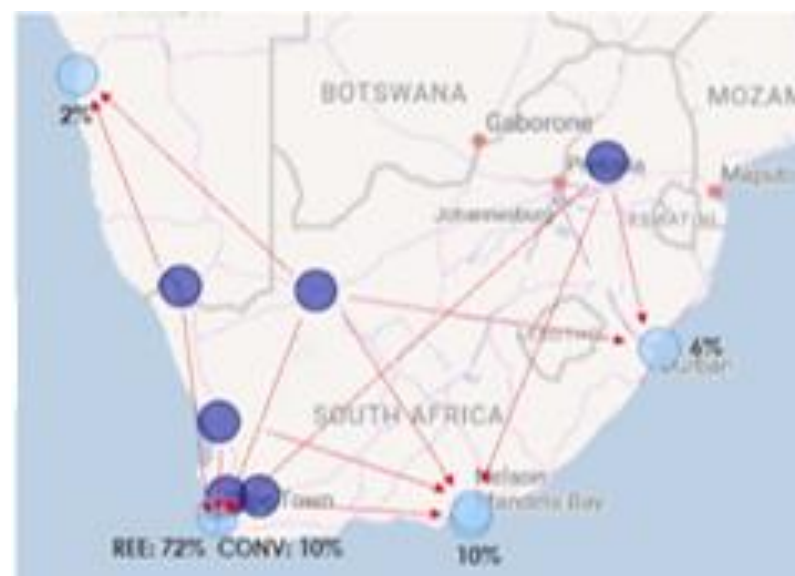
## Historical Port Volumes



**91%**  
Volume through CTCT

**30 days**  
Age of product at market

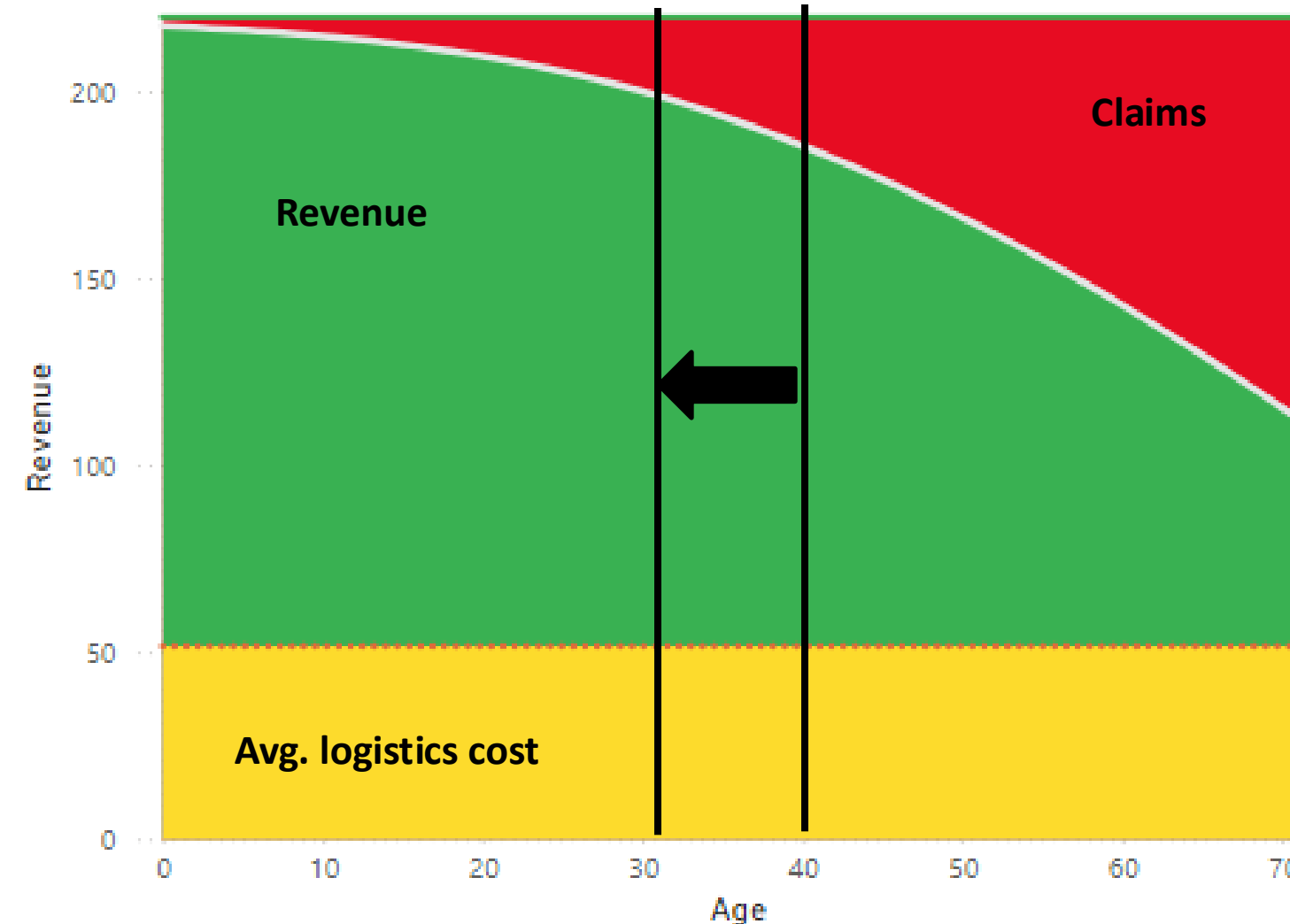
## 2023/24 Season Port Volumes



**72%**  
Volume through CTCT

**37 days**  
Age of product at market

## 2023/24 Claims Impact on Revenue for 1 Carton



**R18bn**

Potential Revenue  
@R220 per Carton

**R1.6bn**

23/24 Season Claims

**9%**

Loss

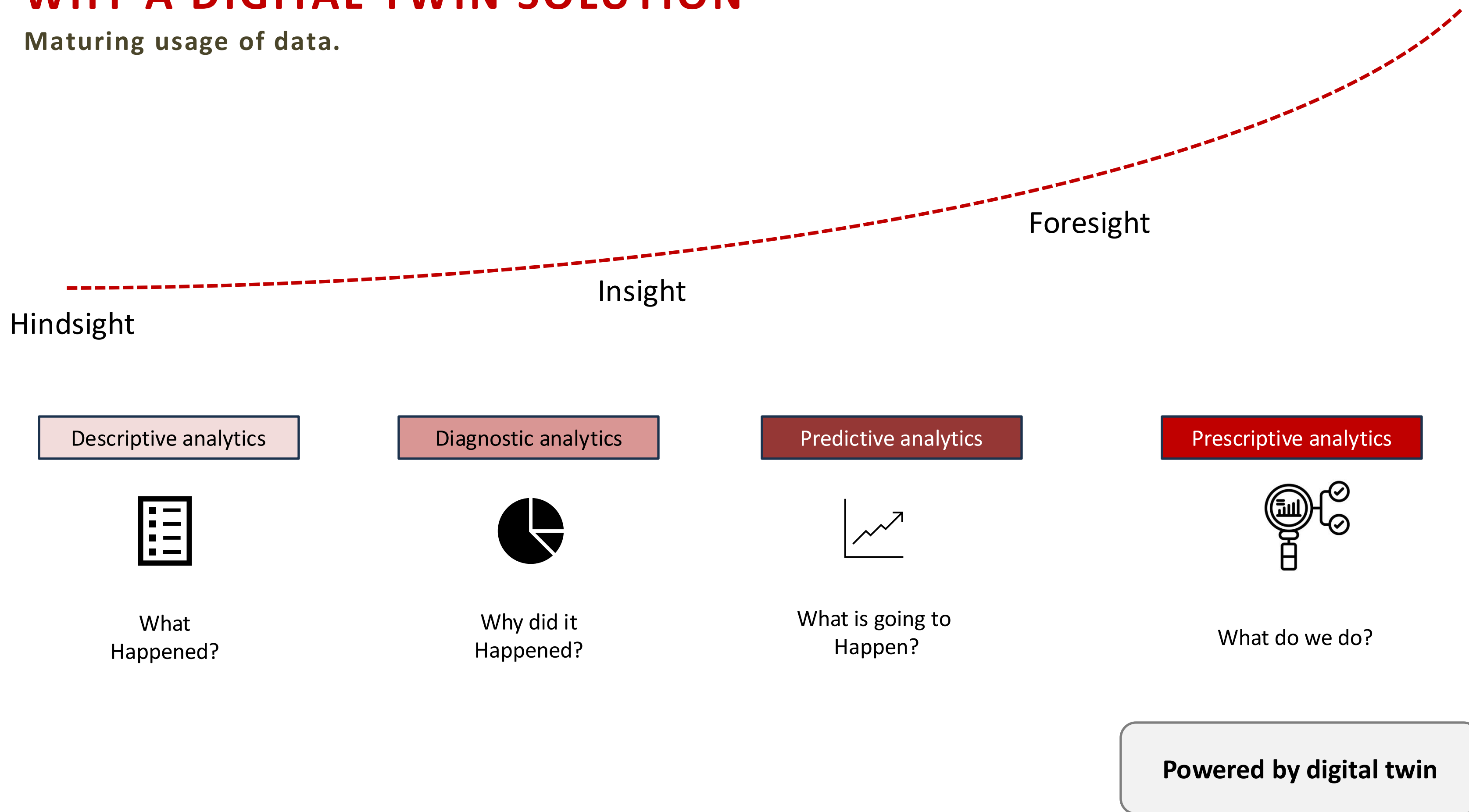
Fresher for longer

# WHY HAS SATI EMBARKED ON THIS PROJECT?

- **Practical project** aligned with SATI's Vision of Progressive, Equitable & Sustainable
- Recent increase in **Global Logistical Complexities**: Port Congestion / Reactive Planning
- Develop a more agile supply chain – respond quicker to changes in supply and demand
  - Grapes **fresher for longer / trusted supplier** of **fresh quality grapes**
- Power of the **Digital Twin Model**:
  - Provide Insights into:
    - the impact of constraints
    - best alternative plans for future seasons
- Benefits for all stakeholder: Shipping Lines / Producers / Exporters / Buyers
  - Capacity Planning
  - Cost Reduction
  - Facilitate Planning

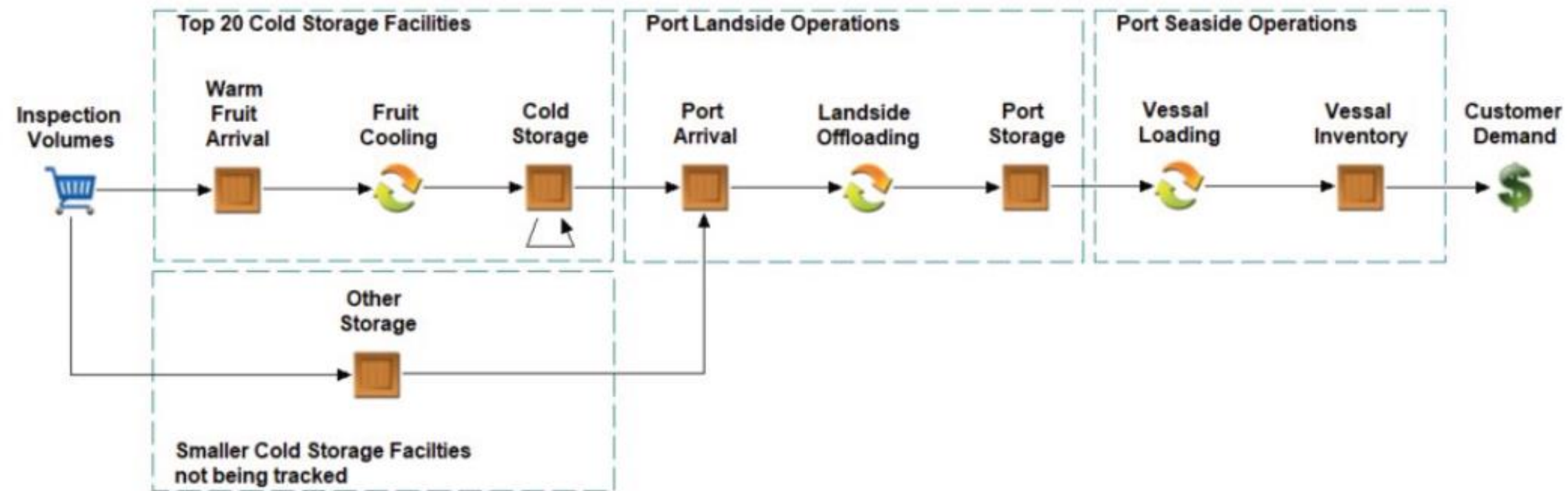
# WHY A DIGITAL TWIN SOLUTION

Maturing usage of data.



# SATI DIGITAL TWIN SOLUTION

Disruption, largely at Cape Town Container terminal had a significant impact on the season



**84m**

Total cartons inspected, including Namibia

**23**

Cold Store throughout SA/Namibia top 20% cold stores handle 80% volume, remainder consolidated into region.

**7**

Outbound Ports

**109**

Inbound Ports

**82m**

Total exported Cartons

**7**

International Markets

**6**

Farming Regions

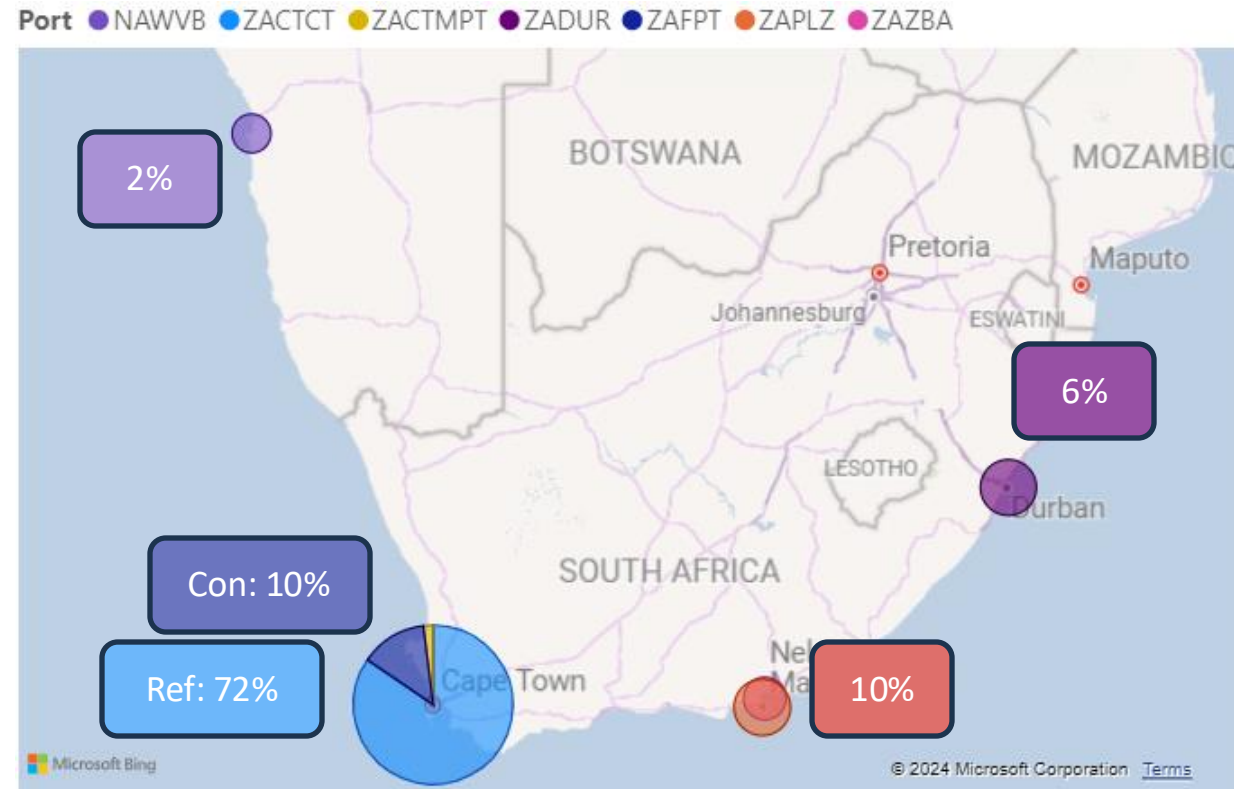
Time periods considered: 250

Decisions made in a season: +- 80m

# PHASE 1 – BUILD AND EVALUATE STRATEGIC BENEFITS AND OPPORTUNITIES.

## Baseline

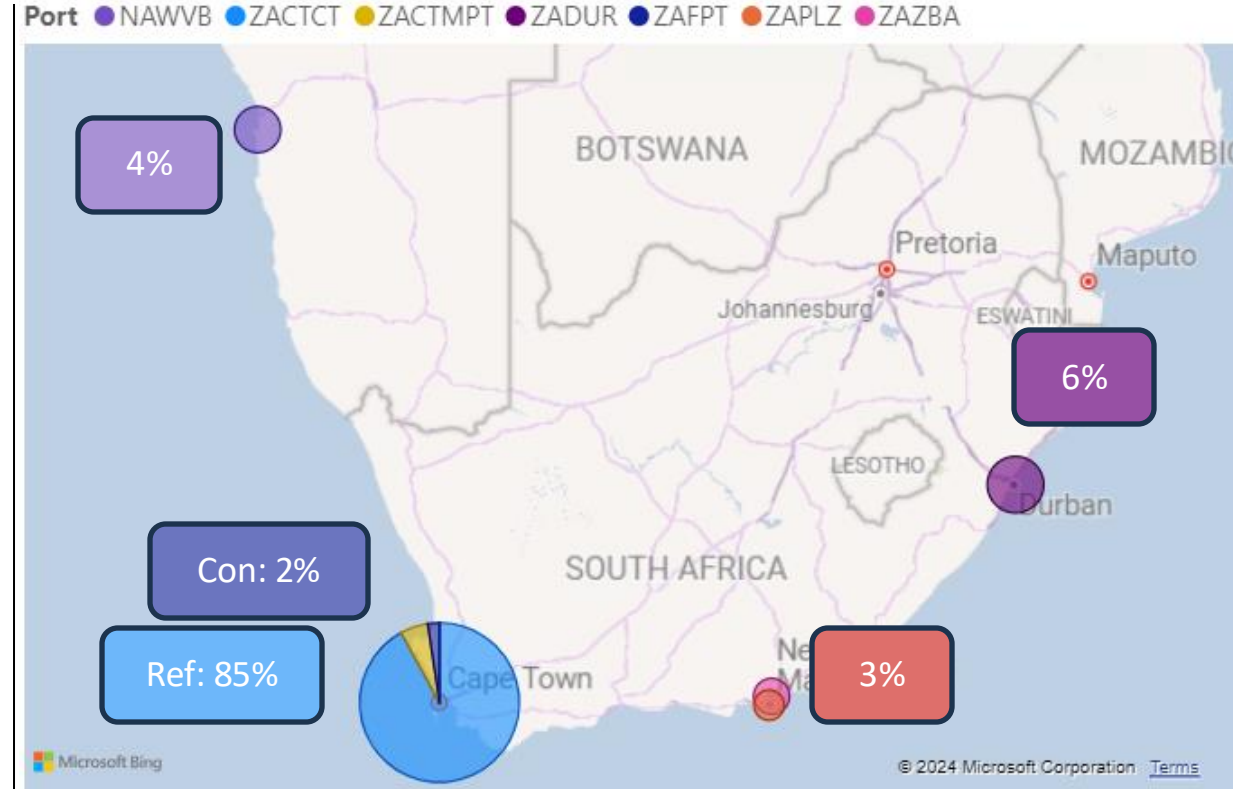
Used to validate model behaviour



**37 days** age at market  
**R1.6bn** claims  
**17m** max inventory

## Optimised Baseline

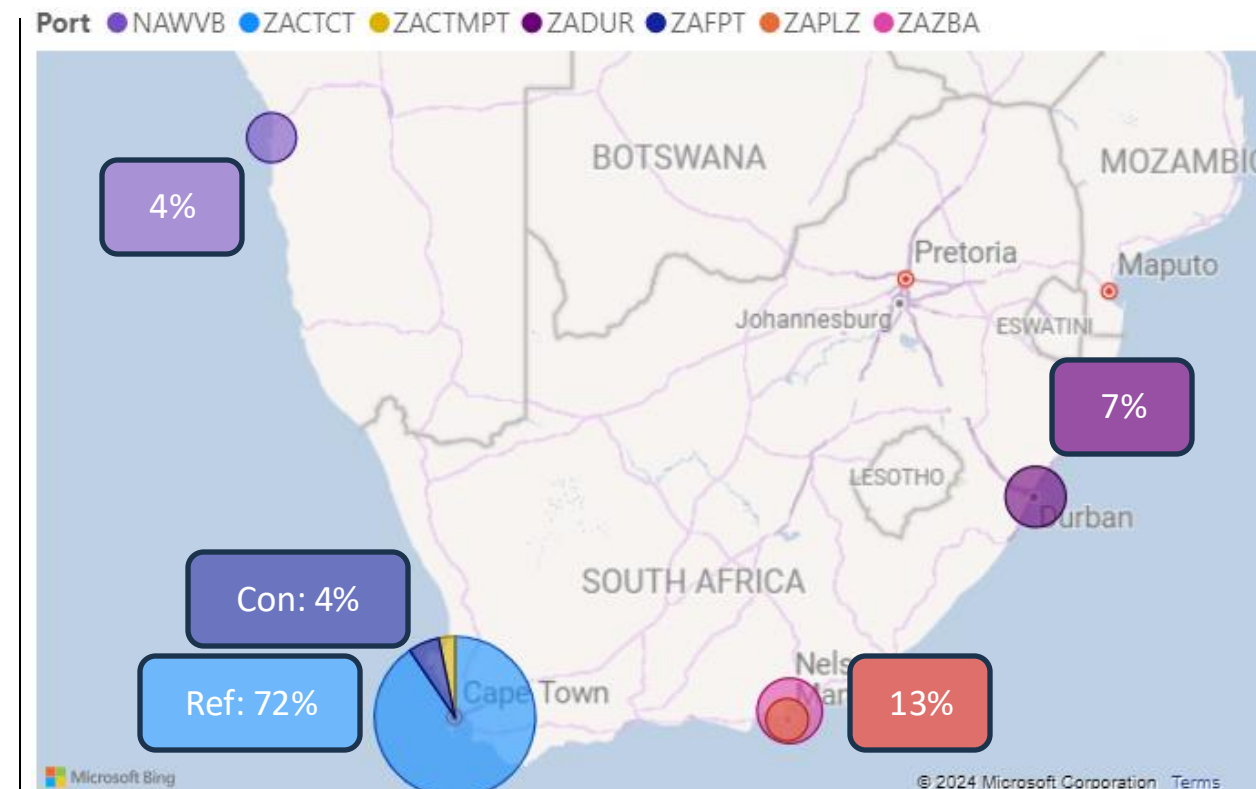
Evaluate opportunities and impact of varying CTCT capacity



**32 days** age at market  
**R1.3bn** claims  
**12m** max inventory

## Optimised Network

Evaluate best options given 23/24 CTCT capacity



**32 days** age at market  
**R1.3bn** claims  
**13m** max inventory

## Key Objectives Achieved

- Build a prescriptive logistics model.
- Baseline the model using 2023/4 season.
- Identify the optimal plan given the constraints.
- Identify the impact of the constraints.

## Outcomes and learnings

- Phase 1 provided critical insight and **created visibility** on the impact of the constraint, most notably an estimated **R300m** additional claim and an estimated additional **R150m** cost incurred in logistics and storage costs.
- Phase 1 provided the ability for **enhanced engagements** between stakeholders with the port authorities and shipping operators.

HOW DO WE BENEFIT FROM THE MODEL AND UNLOCK THE OPERTUNITIES?

# STAKEHOLDER ENGAGEMENT

Multi-tiered stakeholder environment required a unique engagement model.

- Producers.
- Exporters.
- Freight Forwarders.
- Shipping Lines.
- Port authorities.

## Key objectives

- Create collaborative platform for **DATA SHARING**
- Create **CONFIDENCE** in the model.
- Create **BUY IN** from all parties



# BLACK SWAN SIMULATION

Prepare for the unexpected



# BLACK SWAN SIMULATION

## Disruptions at CTCT and COEGA

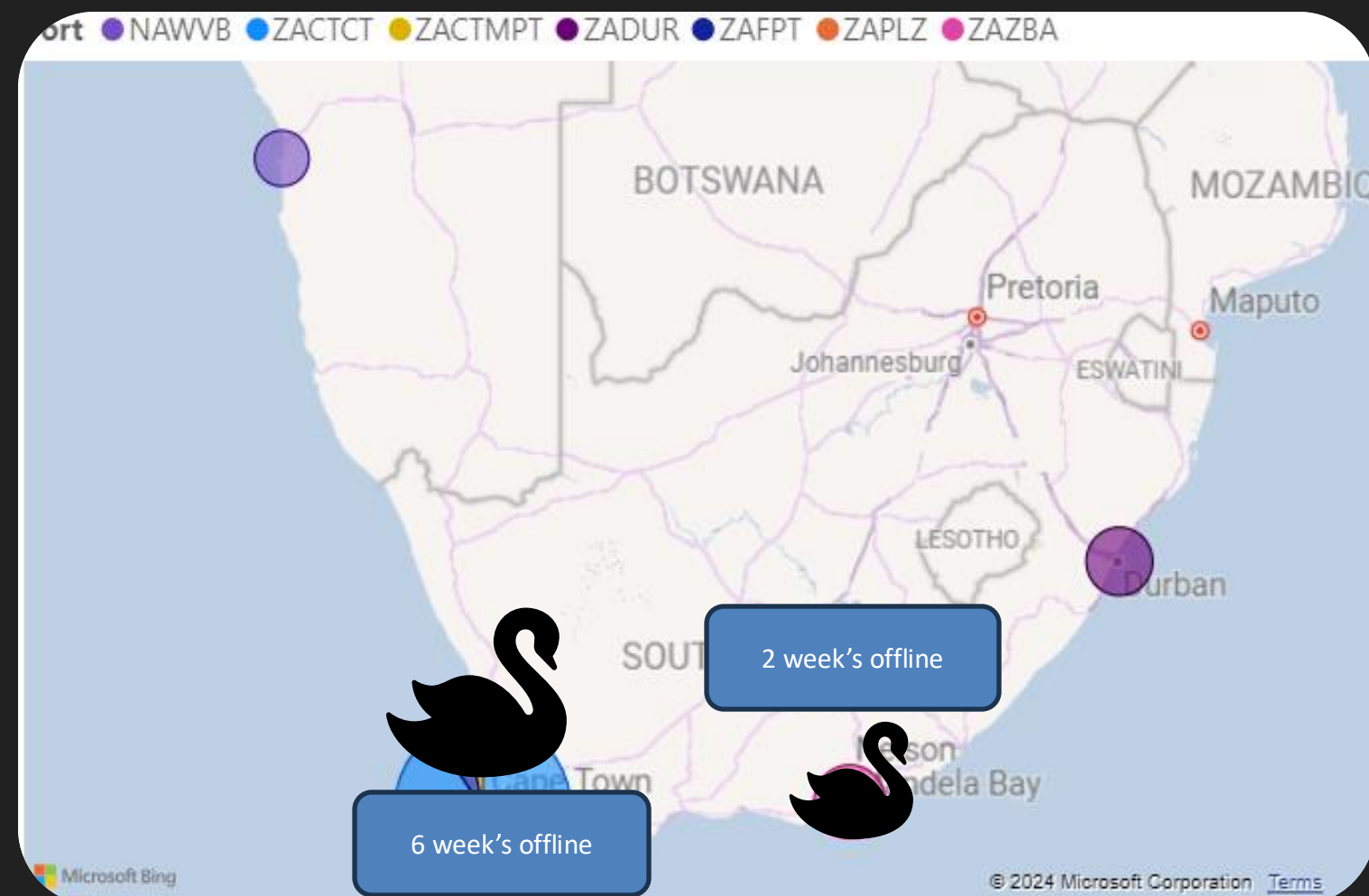
### Black swan

#### Scenario details

- CTCT non operational for 6 weeks
- PE/Coega non operational for 2 weeks, overlapping the CTCT none operational period

#### Objective

- Create initial, collaborative, stakeholder engaged plan B.
- Valuate estimated cost and quality impact.



# BLACK SWAN SIMULATION

## Impact analysis

### Black swan

**R1.4bn**

Est. Total Claims for Season

**R3.8bn**

Est. Cost for Season

**11 days**

Avg. Age of Grape at Sail

### Optimised Network

**R1.3bn**

Est. Total Claims for Season

**R3.55bn**

Est. Cost for Season

**10 days**

Avg. Age of Grape at Sail

### Impact

**R100m**

Est. Additional Claims

**R250m**

Est. Additional Cost

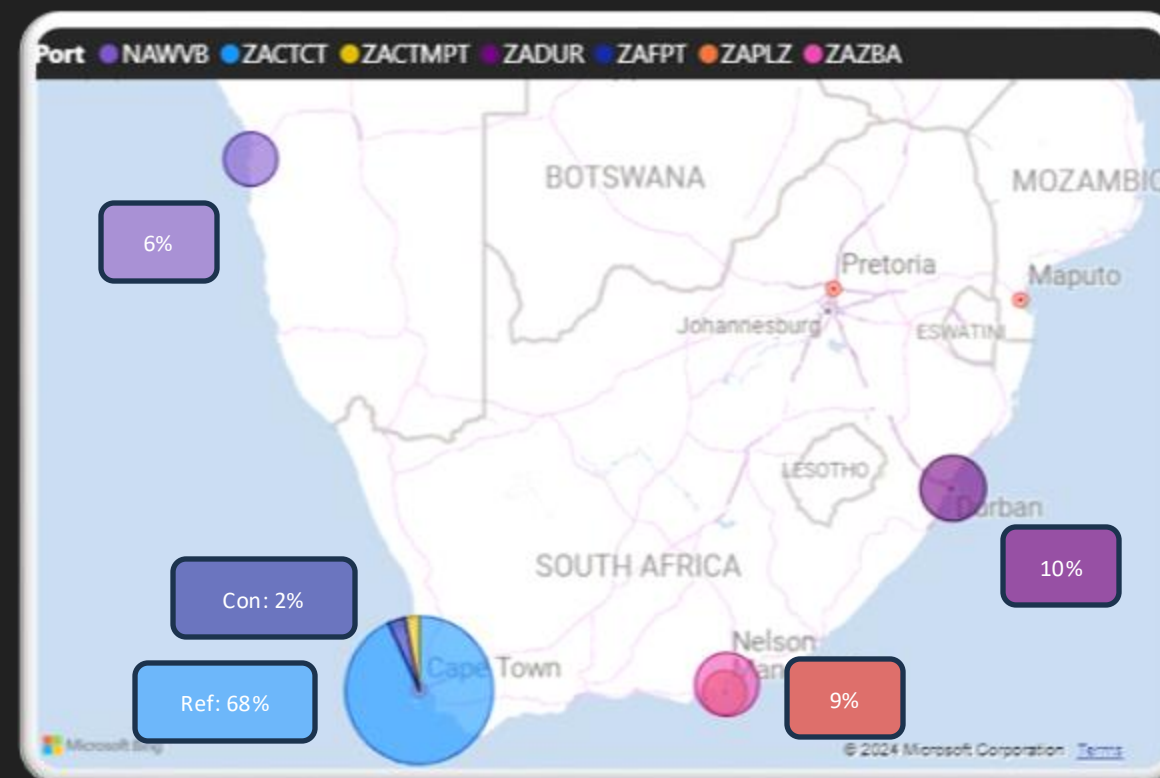
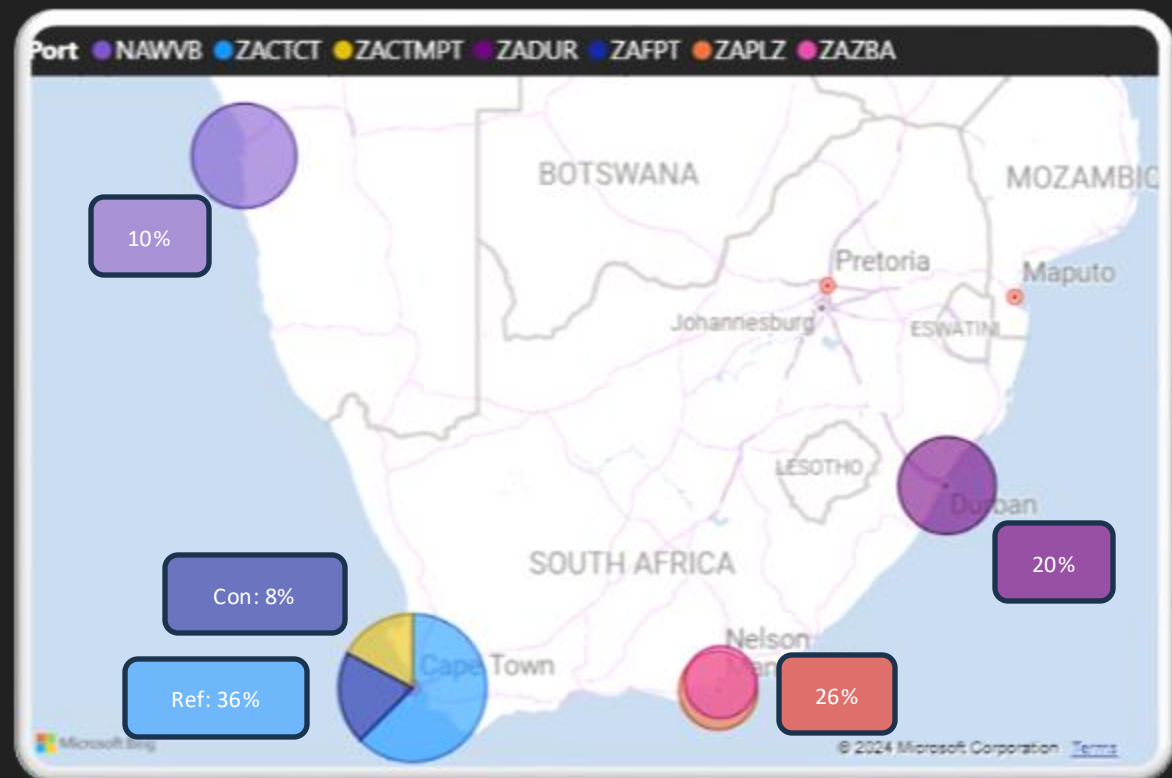
**1 day**

Additional Avg. Age

Port	Swan	Optimised
ZACTCT	28,13%	66,22%
ZADUR	20,42%	10,28%
ZAZBA	17,24%	9,46%
NAWVB	10,13%	6,06%
ZAPLZ	8,26%	3,40%
ZAFPT	8,08%	2,38%
ZACTMPT	7,74%	2,20%

Usage from start of season till end Jan

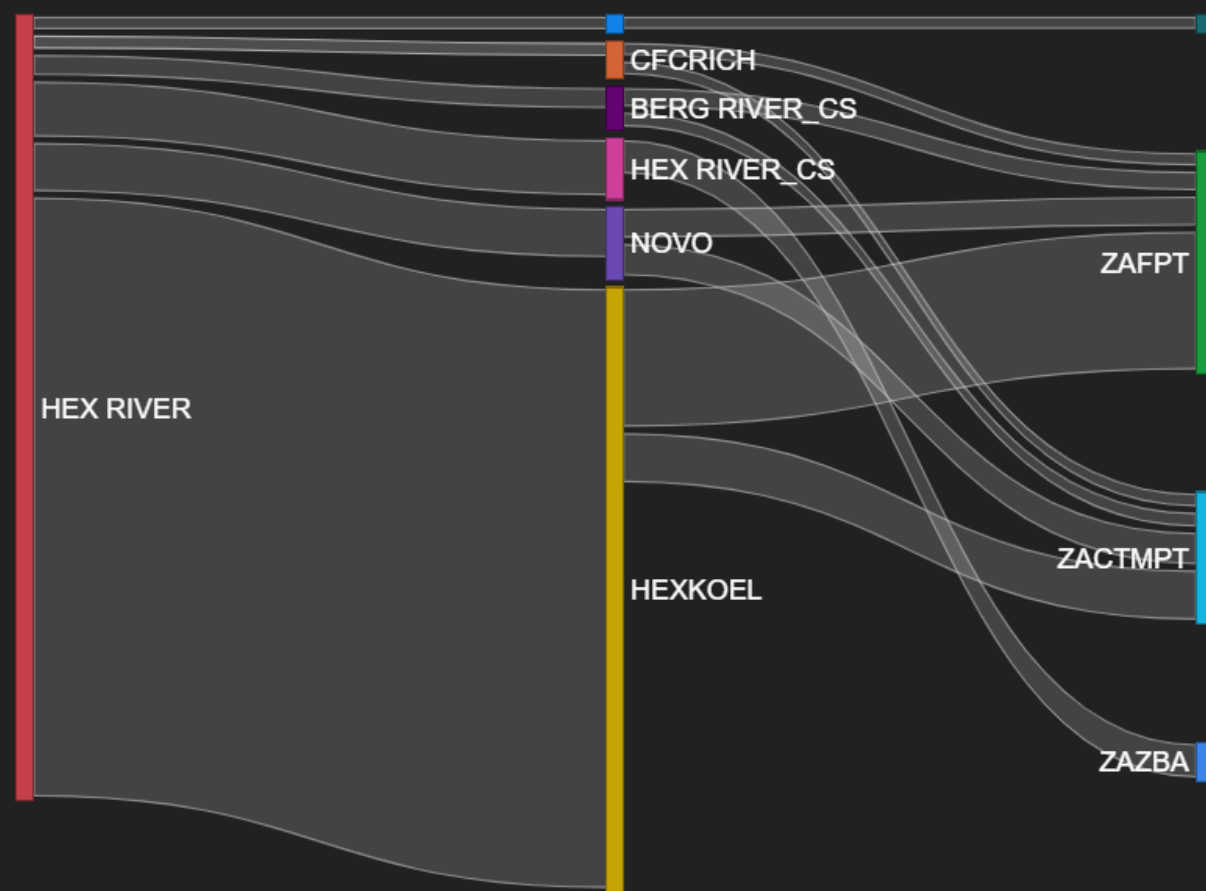
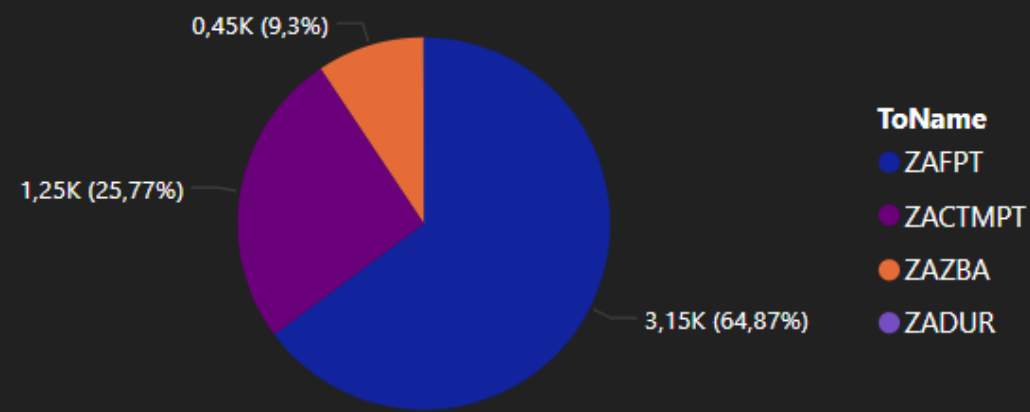
Assumes ability to adjust shipping schedules.



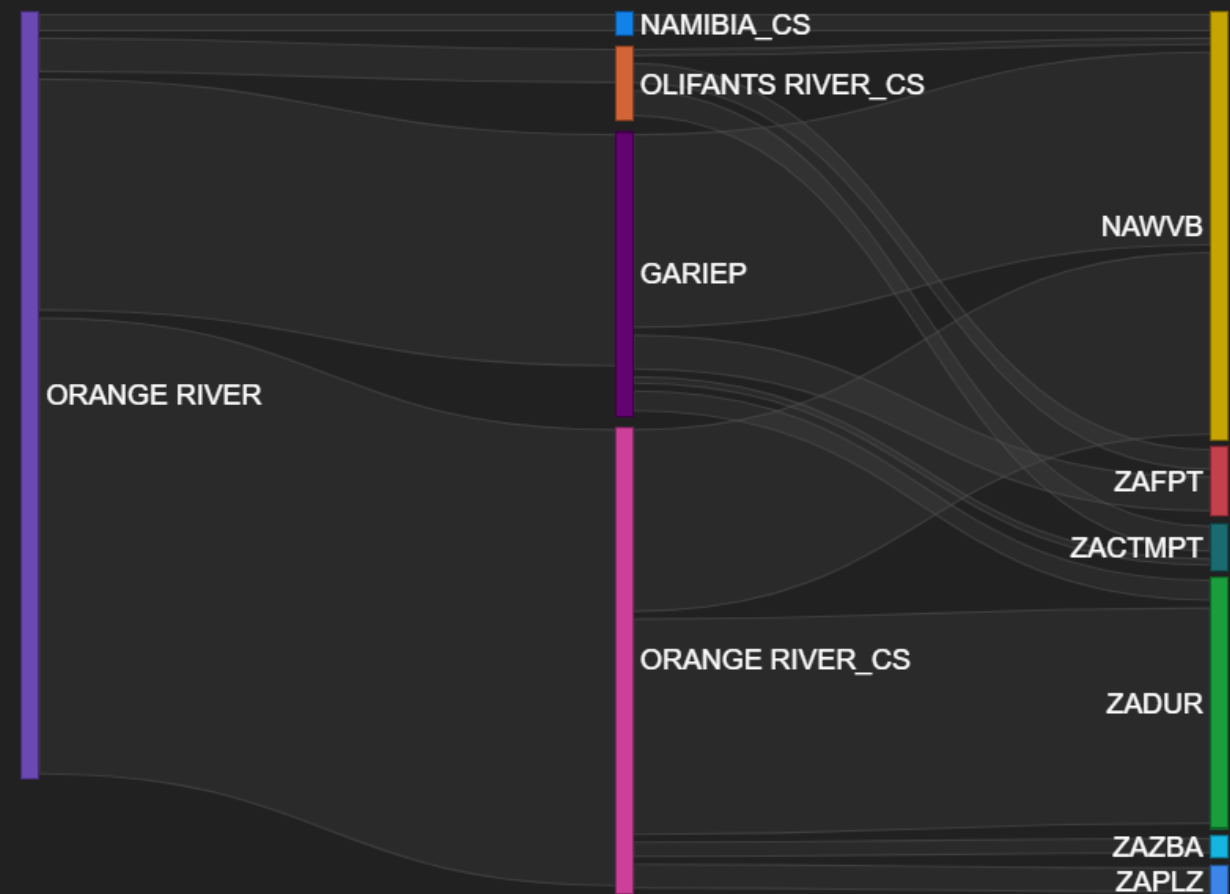
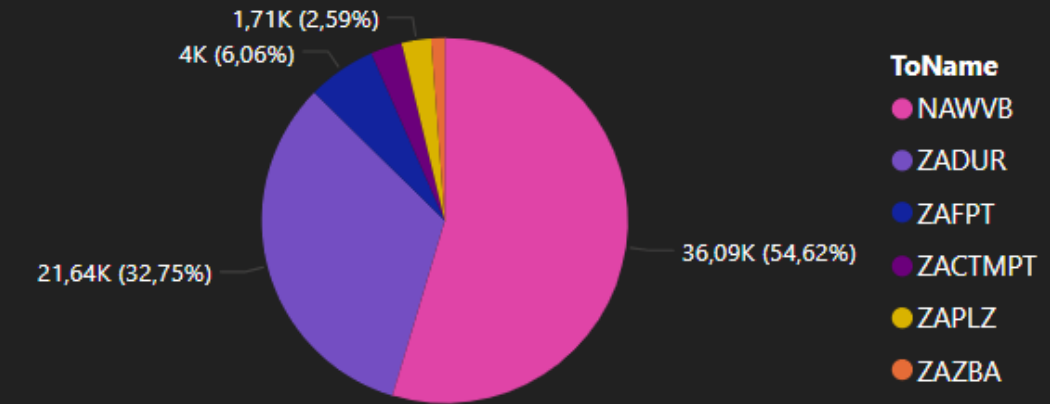
# BLACK SWAN SIMULATION

Port Distribution During Black Swan Event 18<sup>th</sup> Dec – 15<sup>th</sup> Jan

Hex River Farming Region



Orange River Farming Region

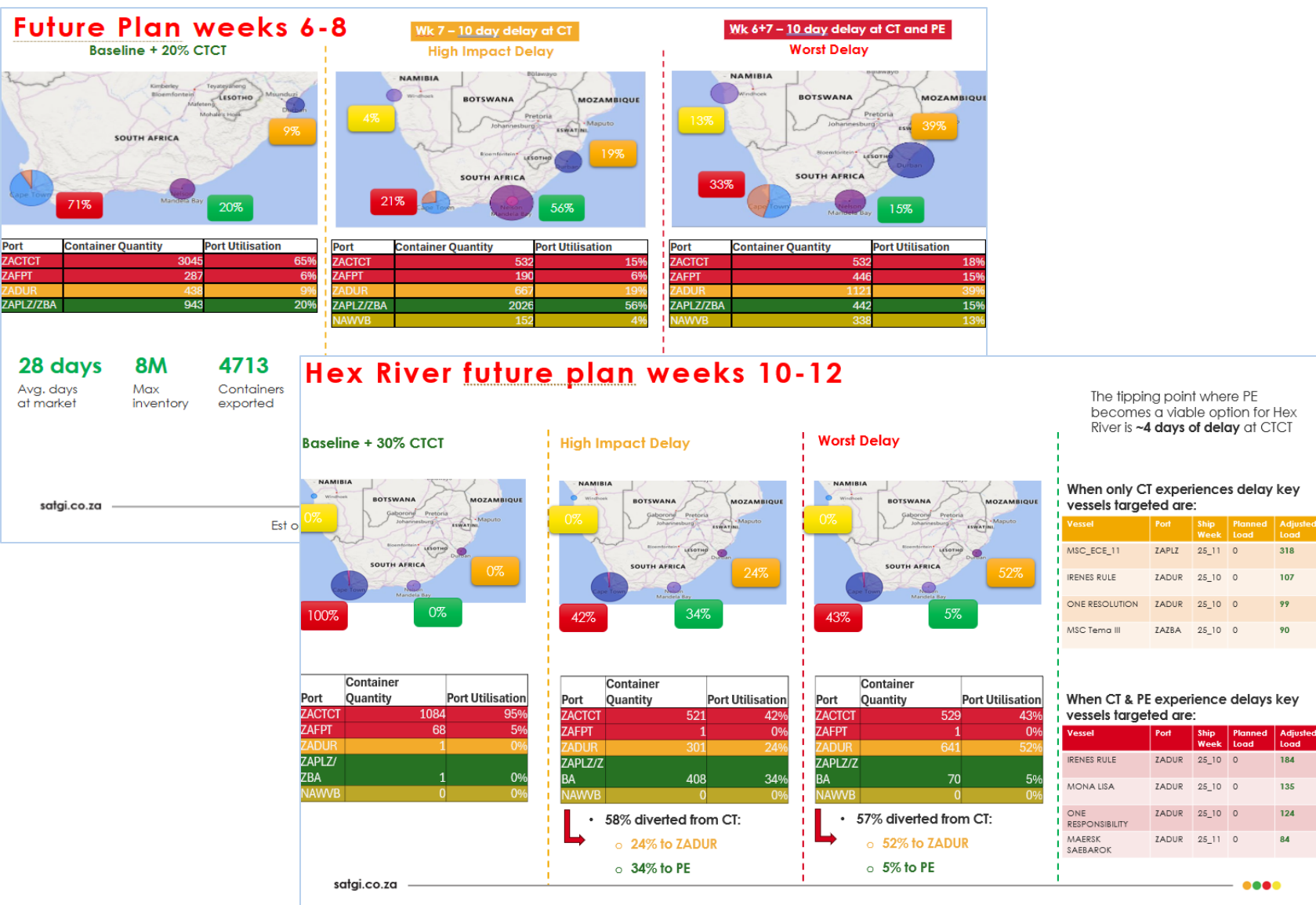


# PHASE 2 – TACTICAL MODEL

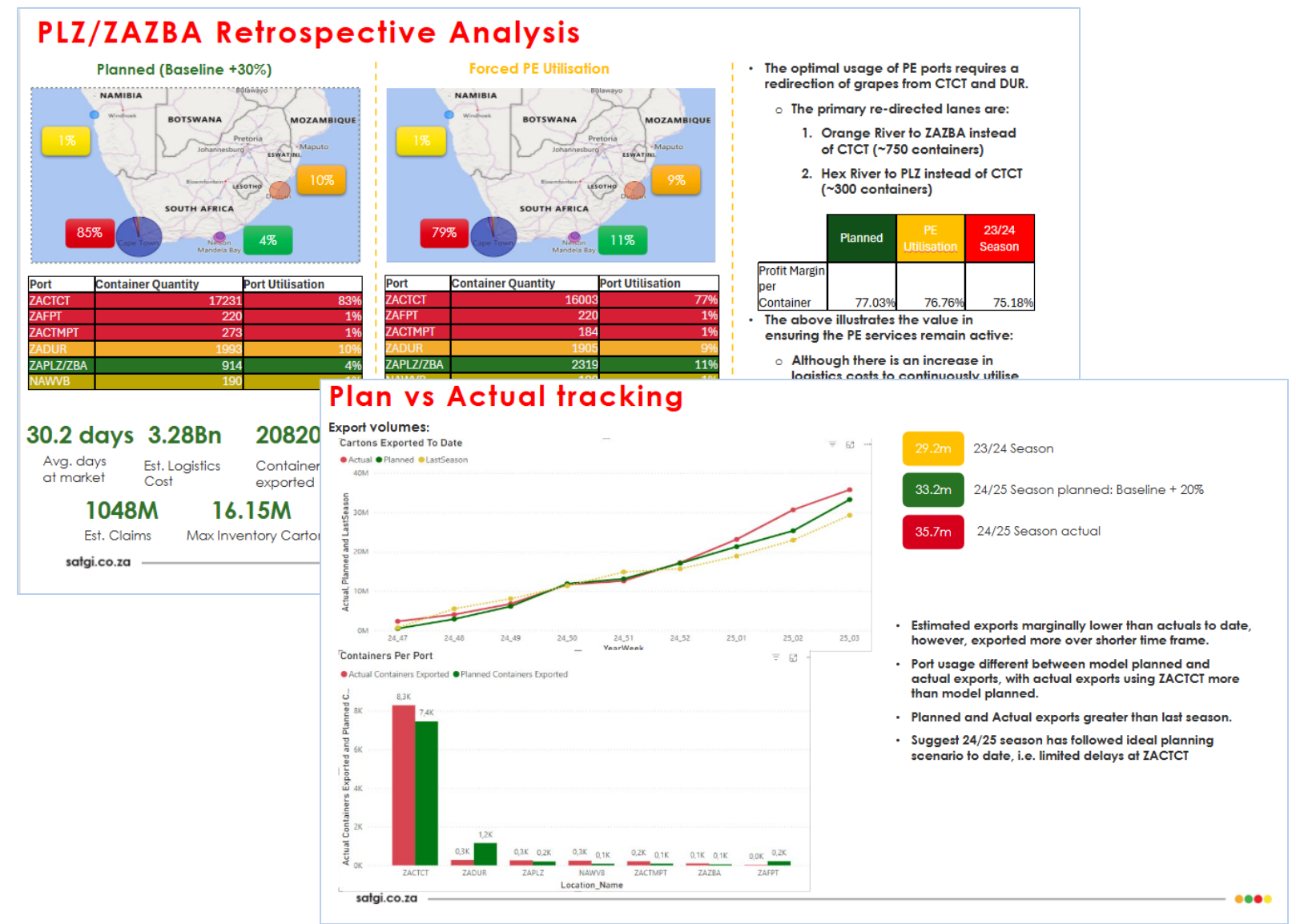
The phase 2 model represented a fundamental shift from phase 1 into a proactive, tactical planning over smaller horizons. The primary goals of phase 2 included:

- Provide **clarity** to grape carriers through future-facing 2-3 week plans, outlining optimal grape network movements given a variety of constraints across SA ports.
- **Quantify** the effect of **failing** to react to delays at SA ports.
- Provide a retrospective view of the season-to-date **performance compared to an optimal performance** as well as last season's performance.
- Provide a retrospective view of "what-if" scenarios against the actual season-to-date performance and **quantify** the **effect** of the scenarios should they have occurred.

Example of National and Regional plans presented at Bi-Weekly JMF sessions:



Example of season-to-date performance:



# Plan vs Actual tracking estimated financials (Season 24/25)

	Containers Exported	Est. Transport & Shipping Costs	Est. Revenue Realised	Est. Claims	Est. Gross Profit margin/Container Exported (only considering transport and shipping costs)
23/24 Actual	23 181	R3 287 585 110	R15 246 281 375	R1 648 018 123	78.44%
24/25 Baseline +30%	23 870	R2 625 703 864	R16 270 892 847	R1 306 859 115	83.86%
24/25 Actual	23 927	R2 740 693 415	R15 928 550 426	R1 270 721 921	82.80%

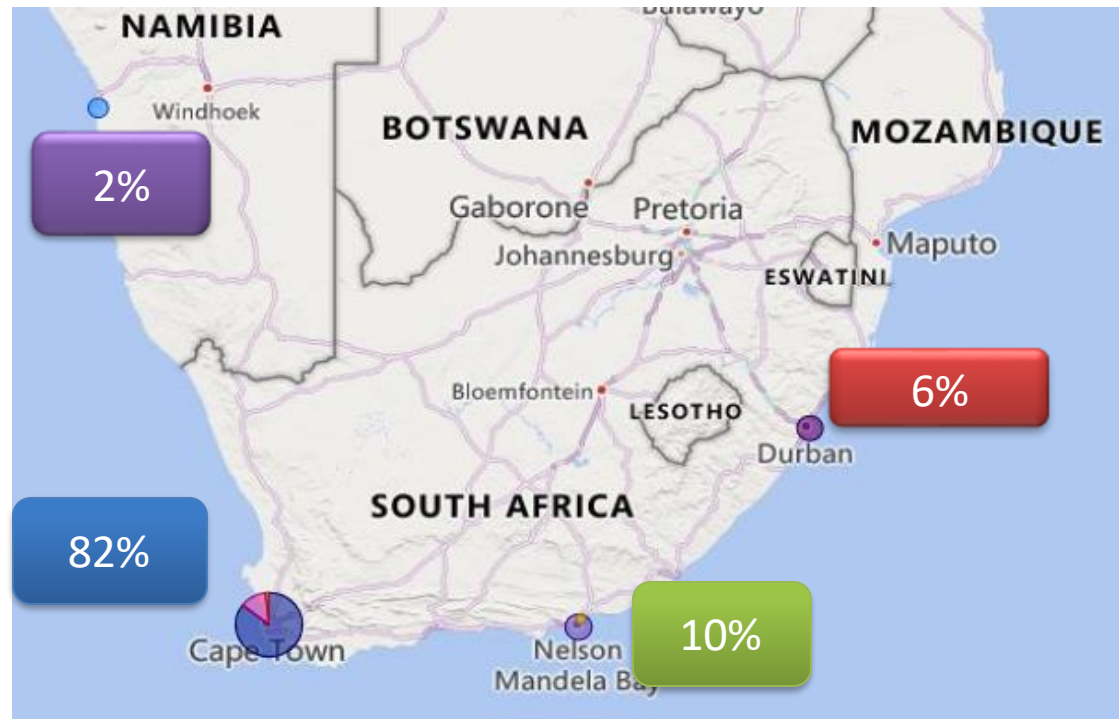
-4% vs 24/25

+1% vs 24/25

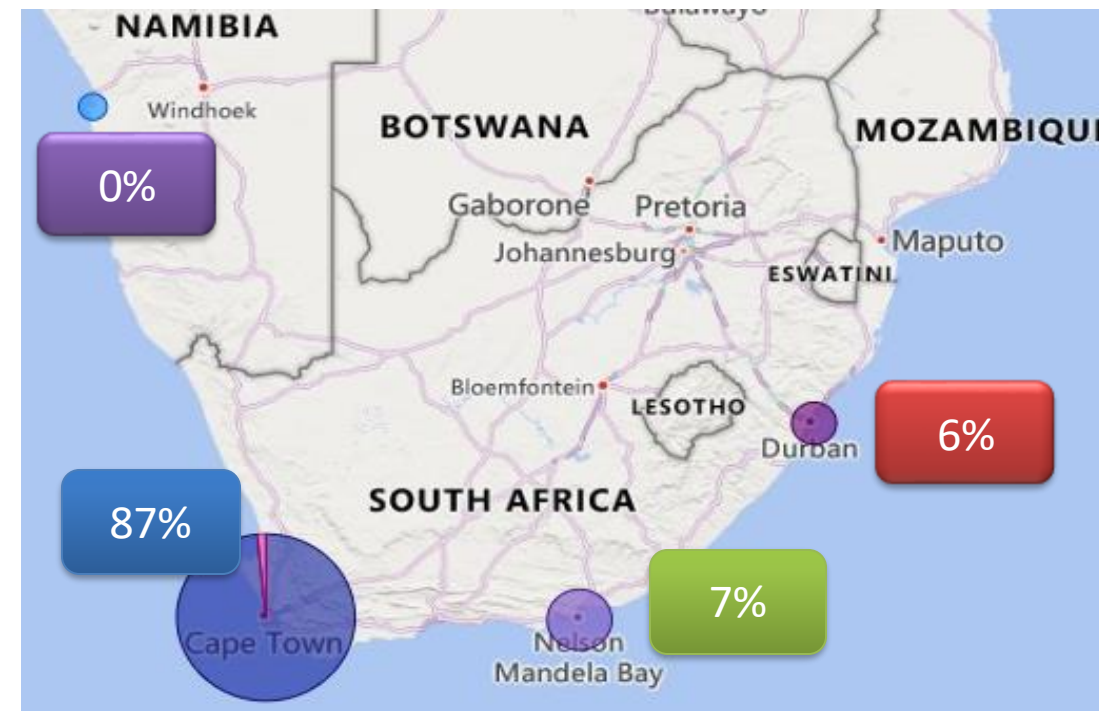
## Estimated season financial performance:

- ~4% improvement in profitability/container vs last season
- ~16% improvement in total costs, driven by transport reductions

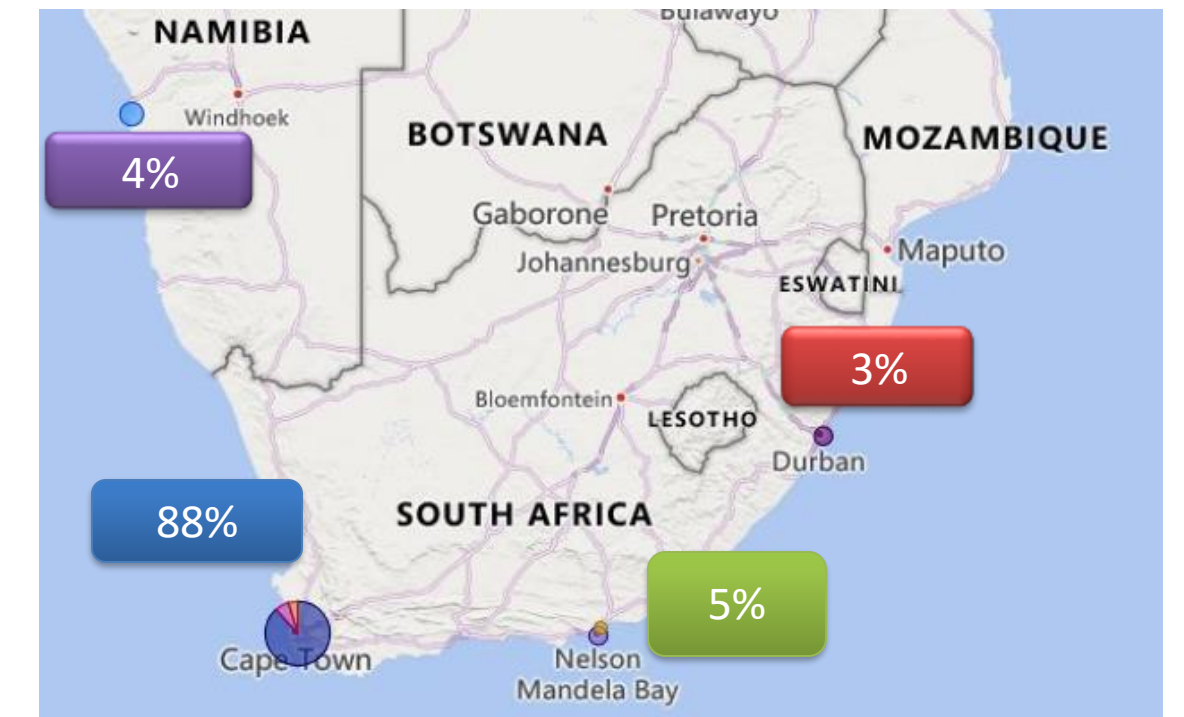
23/24 Season



Baseline + 30% CTCT



Actual



# Key Learning and next steps?

## Enhanced offering for 25/26 season

- **Work with key stakeholders to improve offering**
- **Planning on a Phase 2 Season 2**
- **Model can be further leveraged to incorporate additional fruit types, which could provide more holistic supply chain insights**
- **Continue efforts to manage risks & to get our grapes to market faster so that they can be fresher for longer.**

## Industry collaborative data solution.

- **Work with key stakeholders to improve offering**
- **Active engagement with Key stakeholders including Transnet & WCG on Data Collaboration efforts & workshops**