



SOUTH AFRICAN TABLE GRAPE Prescriptive Logistics Model Intro & Update

PREPARED FOR: **Table Talk Grape Conversations**

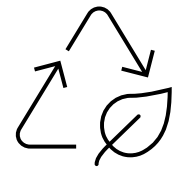
PRESENTED BY: Jacques Ferreria | July 2024
Carsten Schubert
Pieter de Wet



SUSTAINABILITY IS AT THE HEART OF WHAT WE DO



Reduce food waste



Reduce carbon footprint



Industry sustainability



CREATING A **PROGRESSIVE, EQUITABLE AND SUSTAINABLE** TABLE GRAPE INDUSTRY



AGENDA

A PREDICTIVE MODEL TO OPTIMISE LOGISTICS OPERATIONS FOR THE SA TABLE GRAPE INDUSTRY

1 2023/2024 Season Highlights & Challenges

2 Context, Motivation & Objectives

3 Process & Port Visits

4 Transnova

5 Digital Twin

6 Next Steps

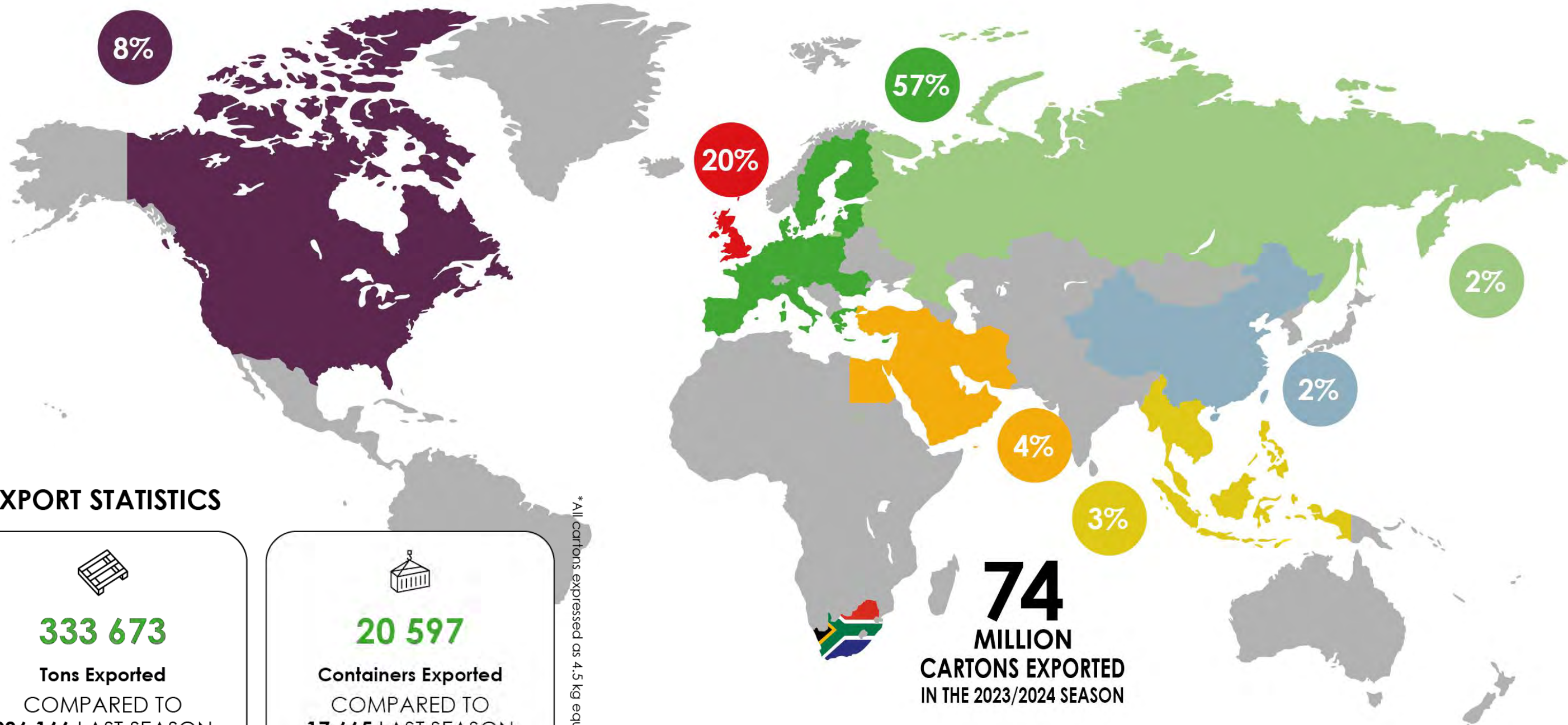


EXPORTS AT A GLANCE

2023/2024 Season



- Europe
- United Kingdom
- Canada & USA
- Middle East
- South East Asia
- Russian Federation
- China & Hong Kong



EXPORT STATISTICS


74 149 581
 Cartons Exported
 COMPARED TO
63 592 393 LAST SEASON


333 673
 Tons Exported
 COMPARED TO
286 166 LAST SEASON


20 597
 Containers Exported
 COMPARED TO
17 665 LAST SEASON

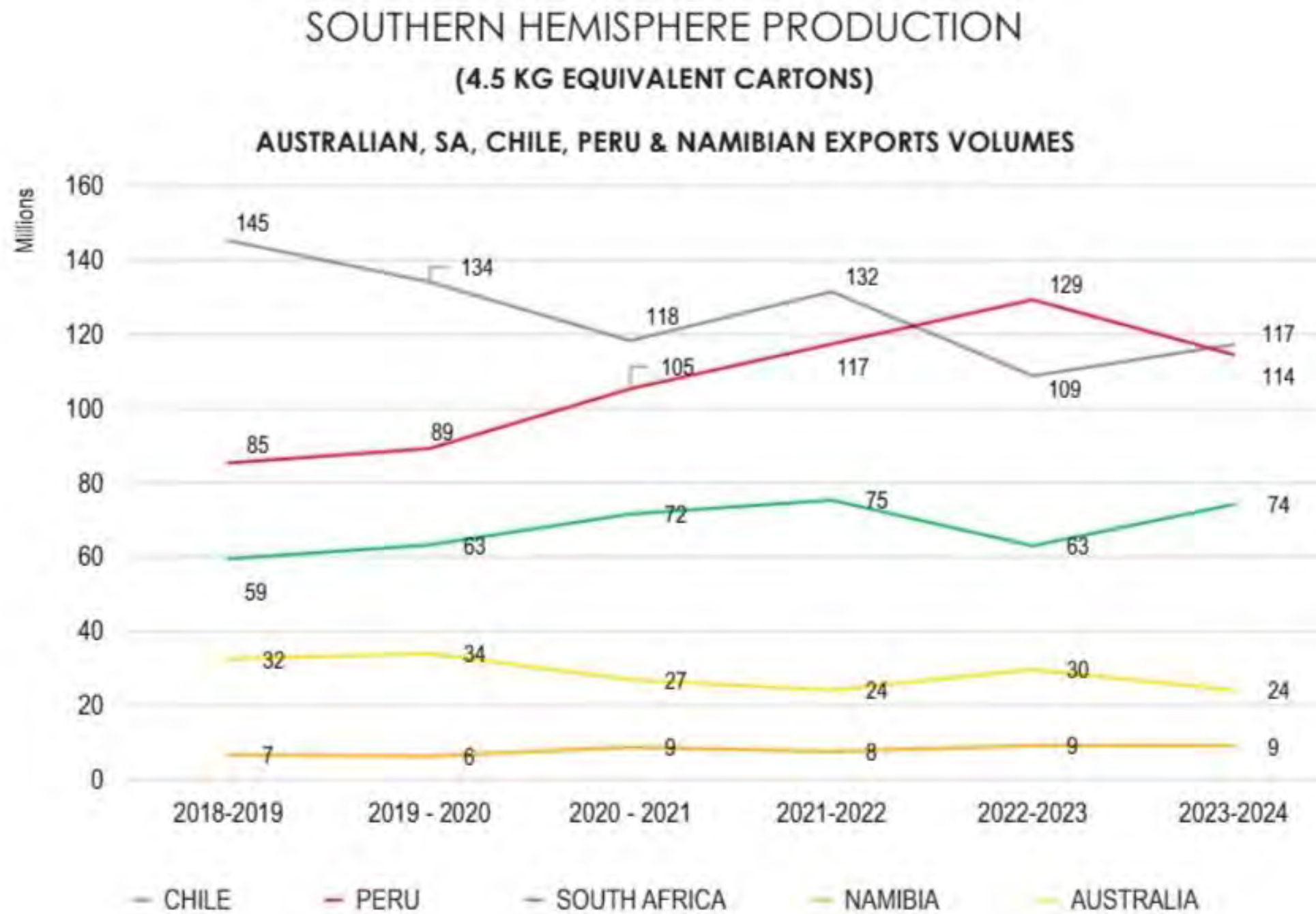
*All cartons expressed as 4.5 kg equivalent.

74
 MILLION
CARTONS EXPORTED
 IN THE 2023/2024 SEASON



EXPORTS AT A GLANCE

2023/2024 Season



Global competitiveness requires:

- Relevant cultivars
- Quality grapes
 - Time to market
- Cost competitive pricing
- Supply chain that is:
 - Agile
 - Reliable
 - Cost effective
 - Efficient



2023/24 THE SEASON THAT WAS

Highlights

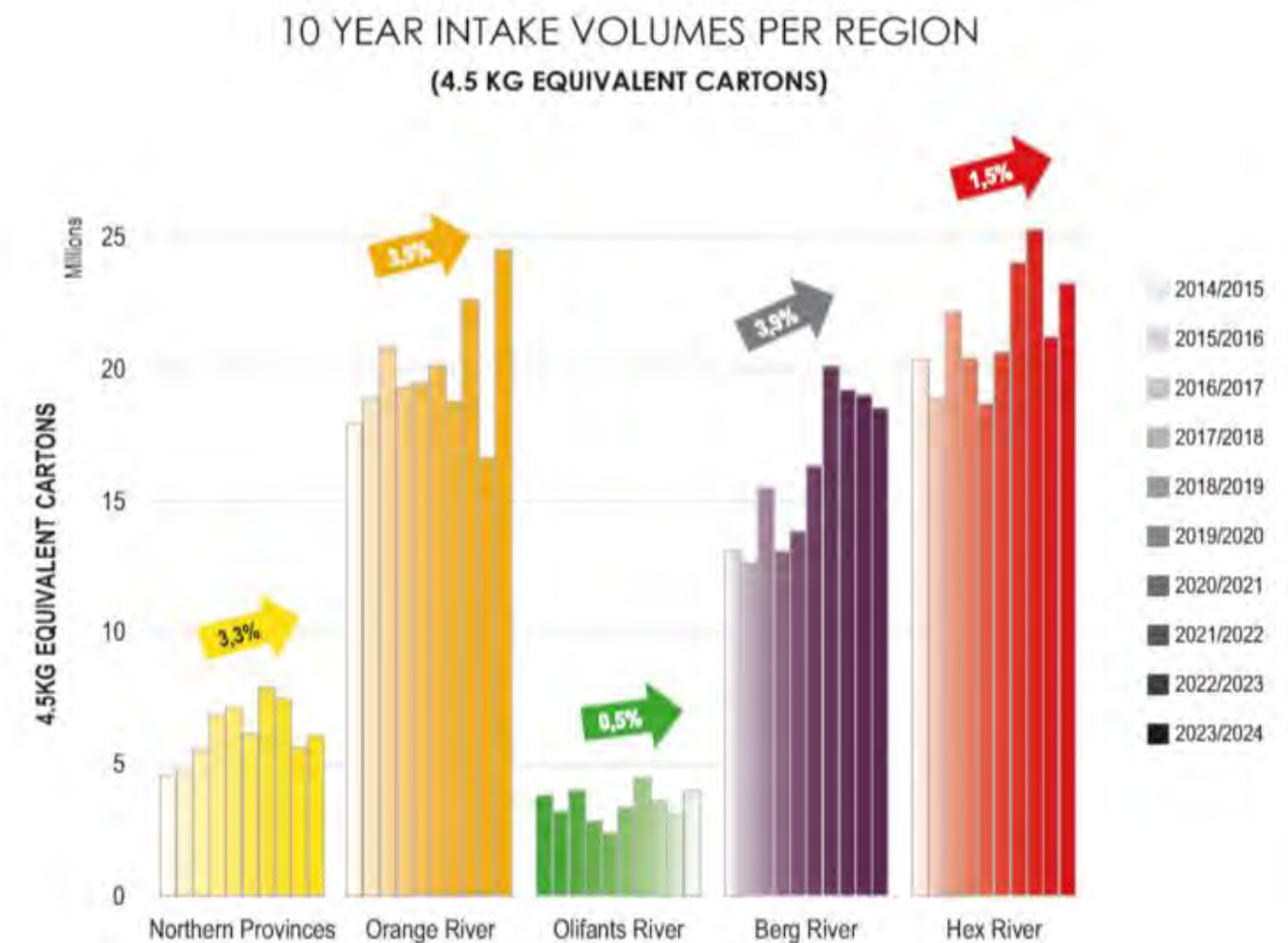
- Volumes increase YoY with 10.6 m cartons (4.5kg eq.)
- Established war room to coordinate logistics & improve communication
- 10.6 % of exports diverted to Gqeberha
- 9.7 % diverted to conventional vessels
- 105 Hours weather delays vs 254 hours in Feb'23

Challenges

- Logistics challenges
 - Port of Cape Town capacity constraints
 - Wind delays add to challenges
 - High Stock Levels / limited cold storage
 - Unsound fruit &
- R1.6 bn – R2.0 bn product degradation penalties

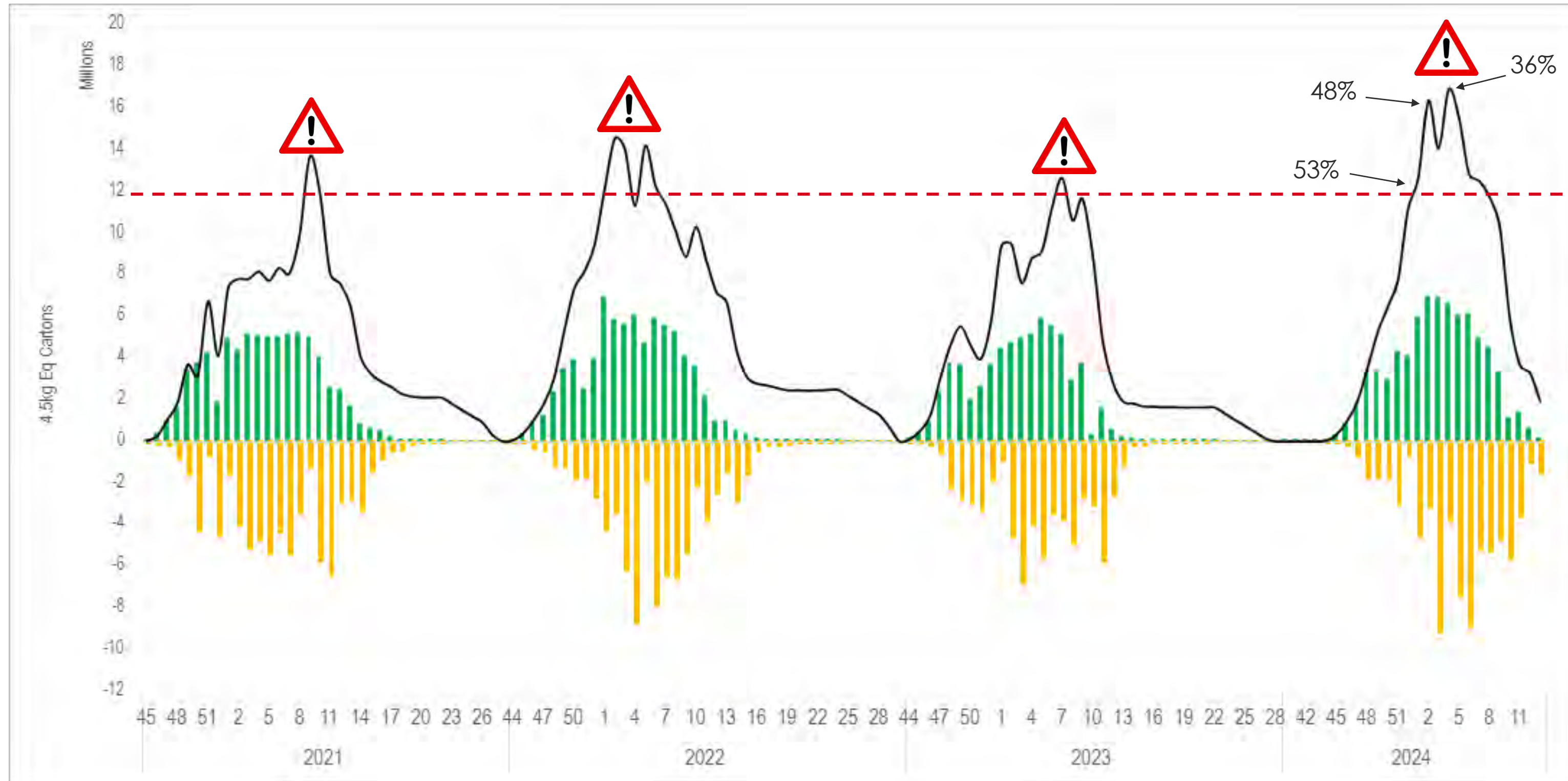
Resilience

- Positioning South Africa as a preferred supplier for the world's best tastings table grapes



STOCK BUILD-UP PER WEEK PER SEASON

(Difference between Inspected and Exported 2021-2024)

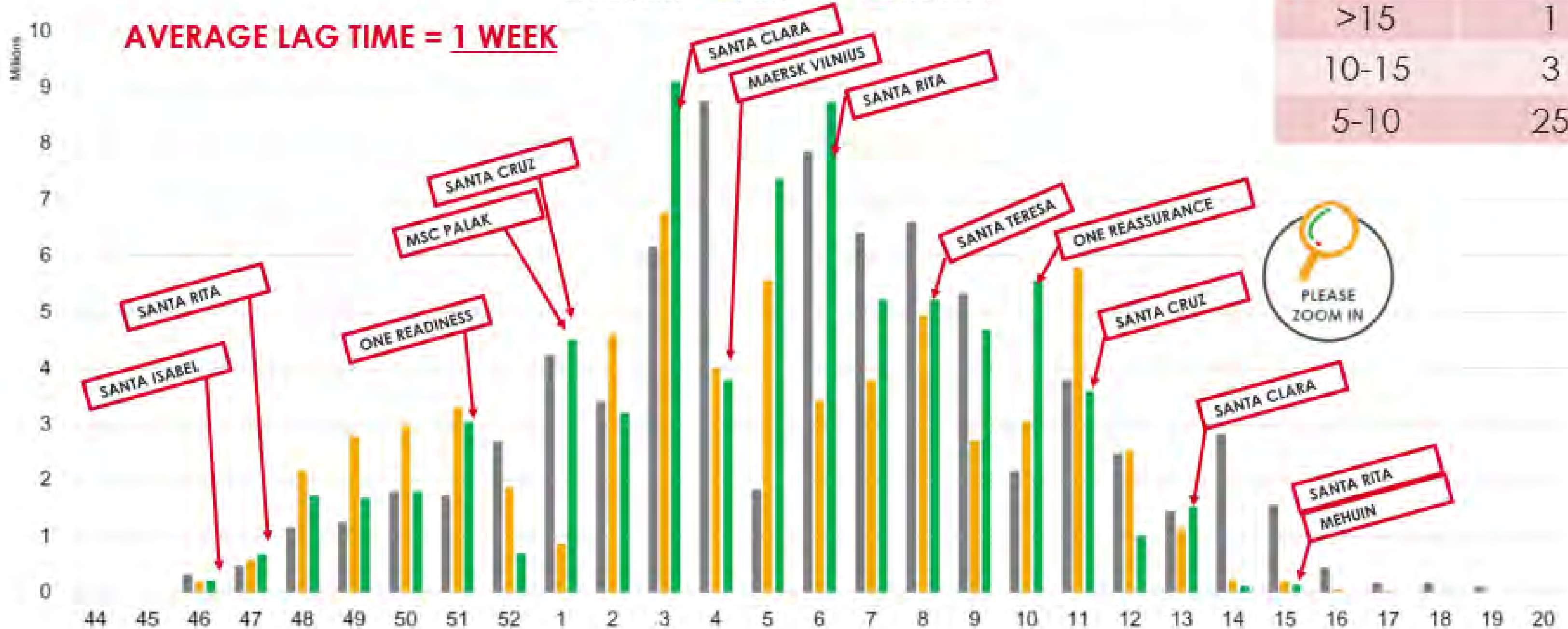


VESSEL DELAY'S 2023/24

CARTONS EXPORTED PER WEEK (4.5KG)

■ 2021/2022 ■ 2022/2023 ■ 2023/2024

AVERAGE LAG TIME = 1 WEEK



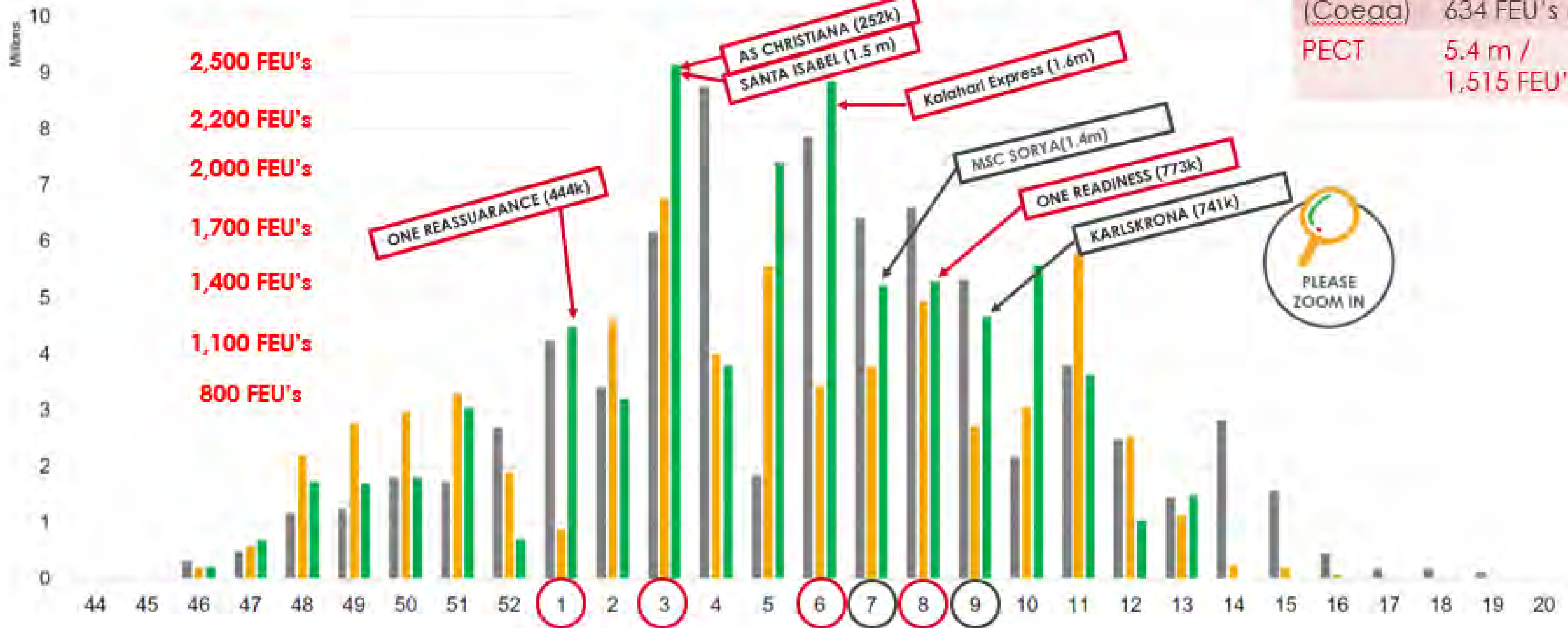
LAG TIME (days)	VESSELS
>15	1
10-15	3
5-10	25



EXPORTS- GQEBERHA/PE DIVERSIONS 23/24

CARTONS EXPORTED PER WEEK (4.5KG)

■ 2021/2022 ■ 2022/2023 ■ 2023/2024



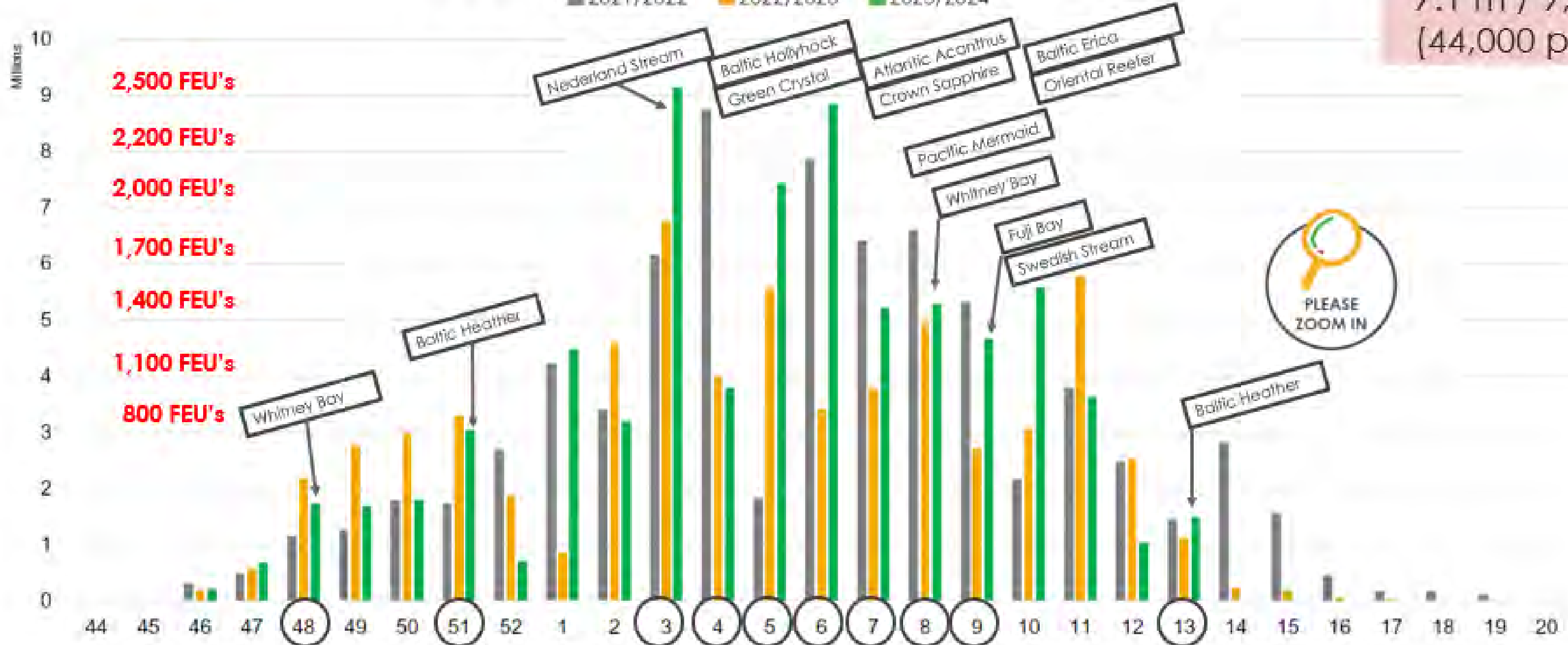
PE	7.8 m cartons / 2,150 FEU's (10.5%)
NCT (Coead)	2.8 m / 634 FEU's (3.1%)
PECT	5.4 m / 1,515 FEU's (7.4%)



EXPORTS- CONVENTIONAL DIVERSIONS 23/24

CARTONS EXPORTED PER WEEK (4.5KG)

■ 2021/2022 ■ 2022/2023 ■ 2023/2024



Conventional

7.1 m / 9,6%
(44,000 pallets)



INTRODUCTION & BACKGROUND

CONTEXT & MOTIVATION

- Our industry faces logistical challenges (port capacity constraints, delays and limited cold storage)
- Port inefficiencies in Cape Town have significantly impacted fruit exports (R1.6 to R2.0 billion annual loss)
- Ad-hoc re-routing via **PE** & the utilisation of **conventional vessels** offered a temporary solution, comes at HIGH COST – NOT SUSTAINABLE.
- Taking a long-term industry view, we have engaged a service provider to develop a **table grape export logistics optimisation model (Digital Twin)**
- Change from a **reactive mindset** to a **proactive mindset**

INTRODUCTION & BACKGROUND

Objectives:

1. Develop a prescriptive logistics model (digital twin) that can **influence commercial decisions by considering all trade-off options**
2. Predict the most **optimal product split per port, per week** to facilitate table grapes being exported within 7 days after harvest
3. Focus specifically on **alleviating the pressure between weeks 46 & 12**

This will assist/enable:

1. Optimised export planning
2. Logistics Visibility & recommendations
3. Improved Supply Chain Efficiency
4. Preserved grape quality and extended shelf life

PORT VISITS: CAPE TOWN

CTCT / CTMPT / FPT / Belcon

Objectives:

- Introduce project & team to various port authorities
- Site visits to align model with each port's capacities & constraints

Highlights:

- New equipment for CTCT ordered
 - Not yet sustainable
- Importance of Belcon as a back-of port facility
 - Handled > 2,100 reefers 23/24 season



PORT VISITS: WALVIS BAY

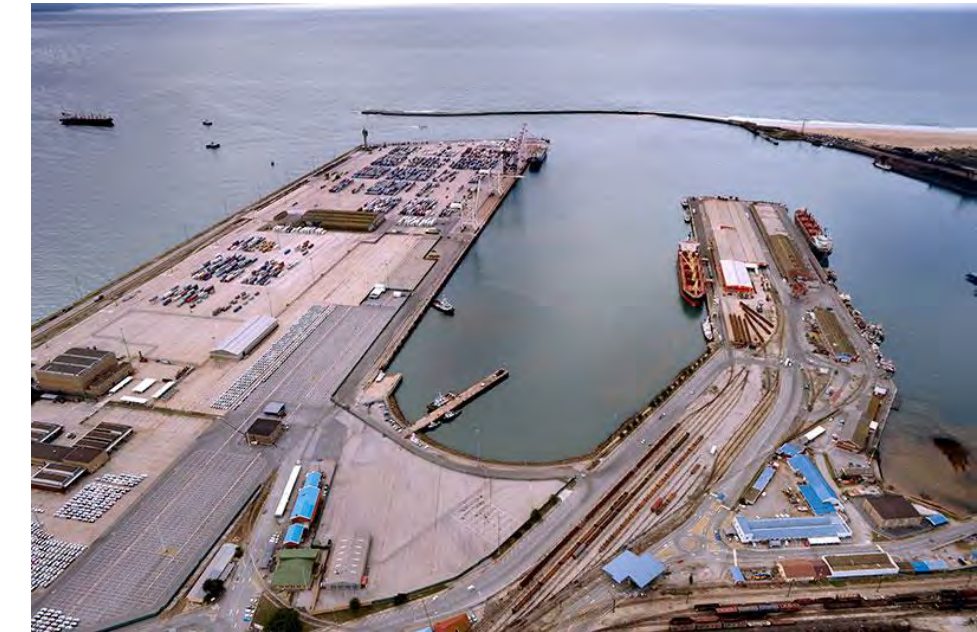
MSC NAM Branch & Namport Business Development

- Excess capacity; overall impression that they are willing & capable
- Capacity: 1 mil TEU's per annum; 650 new plug points
 - < 30% of capacity utilised
- Constraints are the number of vessels that berth at Walvis
- New Concession with TIL (Terminal Investment Limited)
- Induced Vessels
- Foresee more services going to Walvis – Not overnight / Work to be done.



PORT VISITS: GQBERHA / PE

- PECT
 - About 1,500 containers grapes exported 2023/24
 - More constraints (weather/wind; old equipment; equipment reach)
 - 11,5m draft / 938 plug points
 - <10% utilised in deciduous season



- NCT (Coega / Ngqura)
 - About 630 containers grapes exported 2023/24
 - 16m draft / 1,652 plug points
 - Future NB – more bigger vessels



DIGITAL TWIN



TRANSNOVA

We jointly create opportunities that unlock value in our customers' supply chains through deep focus on...

Supply Chain Design
and Network
Modelling

Logistics
Strategy and TMS

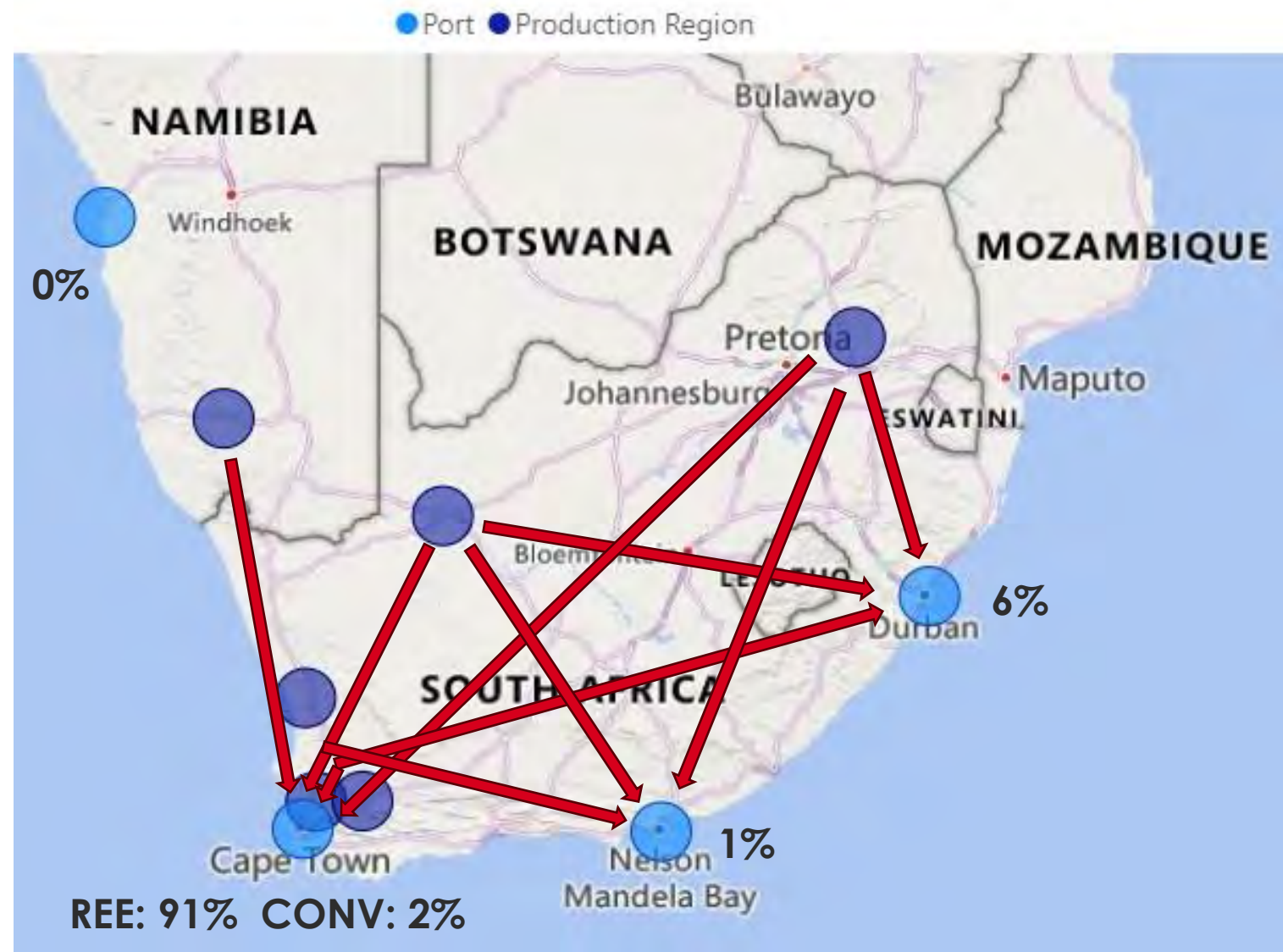
Inventory
Optimisation

...and put in the
platforms, workflow
and technologies to
sustain it.

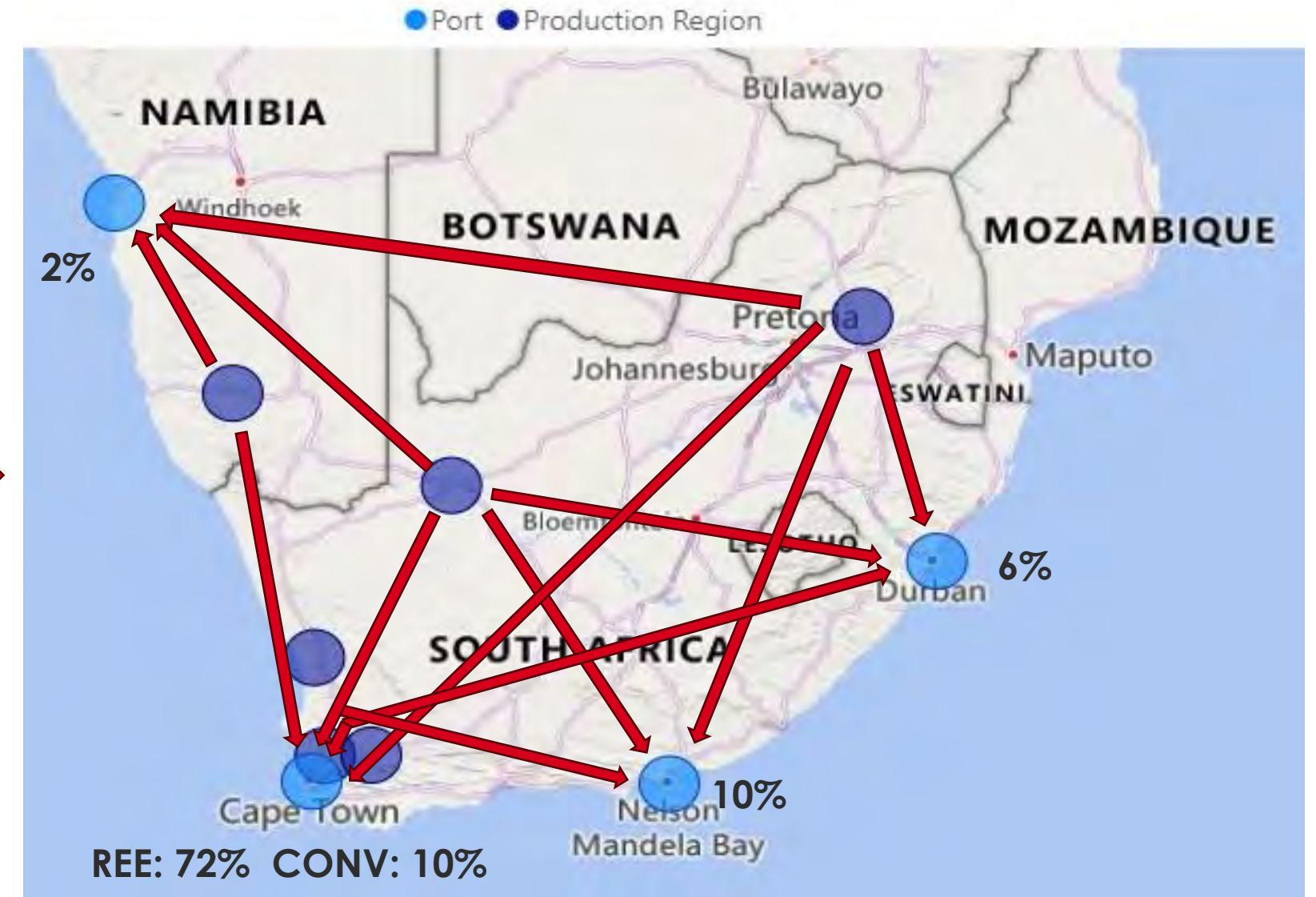


Table Grape Export Network

Production Region to Port



Historically



2023/2024 Season

During the 2023/2024 season, plans were made to make use of PE, Coega & Walvis Bay due to delays at Cape Town.

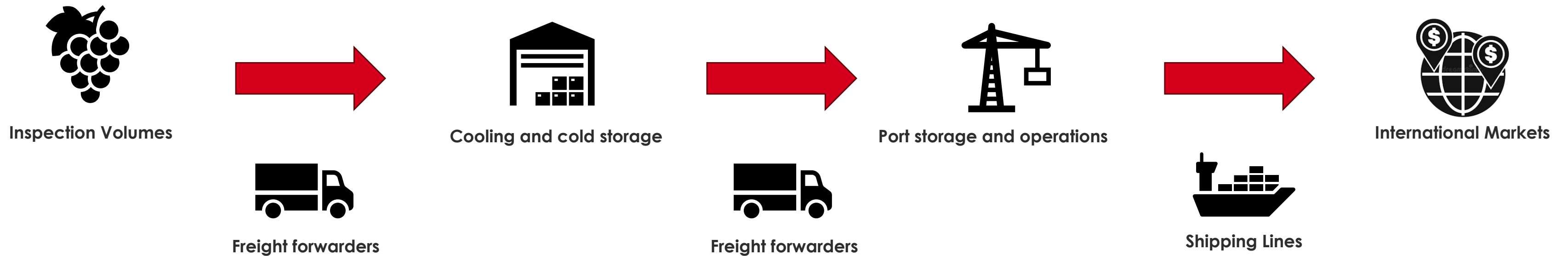
What would the optimal port allocation have been if we planned to use PE, Coega & Walvis Bay from the start?

Modelling Approach

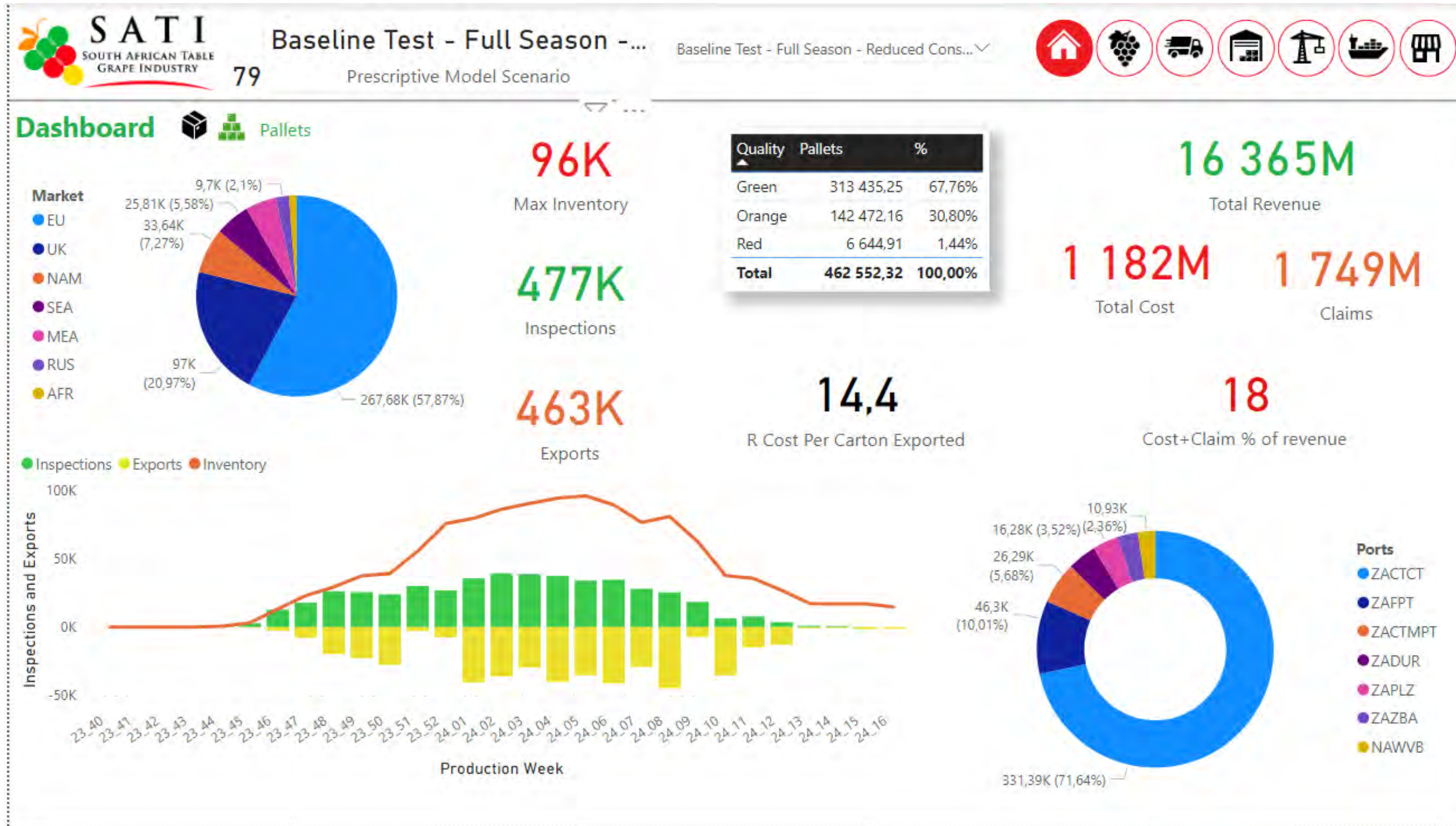
Project Timelines and Approach:



Logistics Network in the Model:



Baseline Model



Baseline Sign Off

- Weekly Inspection Volumes
 - Town level
- Weekly Export Volumes
 - Port, Vessel & Market
- Port Capacities
 - Equipment & Weather
- Stack Utilisation
- Cold Store Capacities
- Stock Build-up
- Belcon usage
- Quality claims
- Transport costs
- Transport Lead times

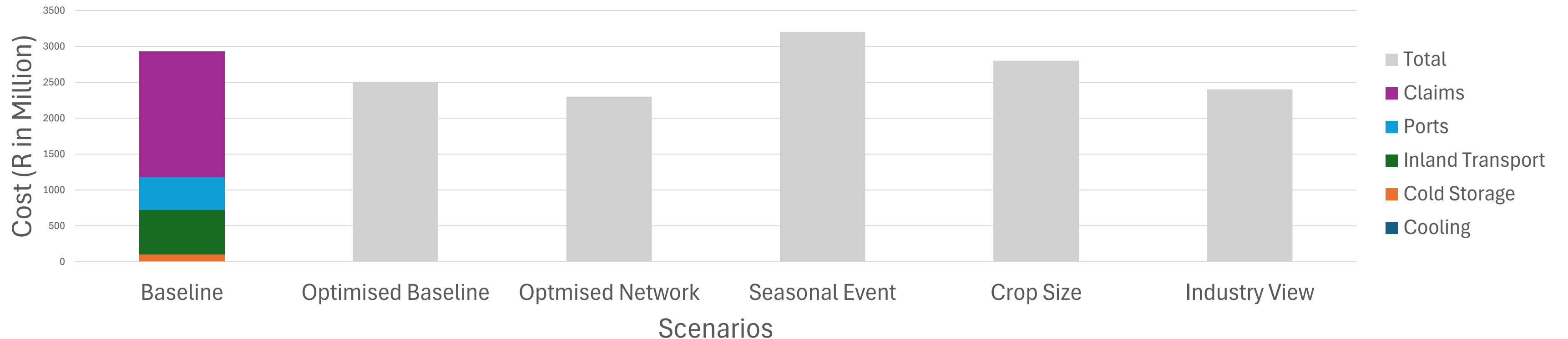


Model Scenarios

Key scenarios identified for the prescriptive model

Baseline	Optimised Baseline	Optimised Network	Seasonal Event	Crop Size	Industry View
Key Functionality: <ul style="list-style-type: none"> Replicate Actuals of 2023/2024 season 	Key Functionality: <ul style="list-style-type: none"> Adjust Cape Town Port Capacity 	Key Functionality: <ul style="list-style-type: none"> Adjust Ports used 	Key Functionality: <ul style="list-style-type: none"> Adjust Key element from season, ex. Removal of key vessel 	Key Functionality: <ul style="list-style-type: none"> Adjust Inspection Volumes 	Key Functionality: <ul style="list-style-type: none"> Apply constraints on percentage of region to port

Potential Scenario Cost Comparison



Model Usage

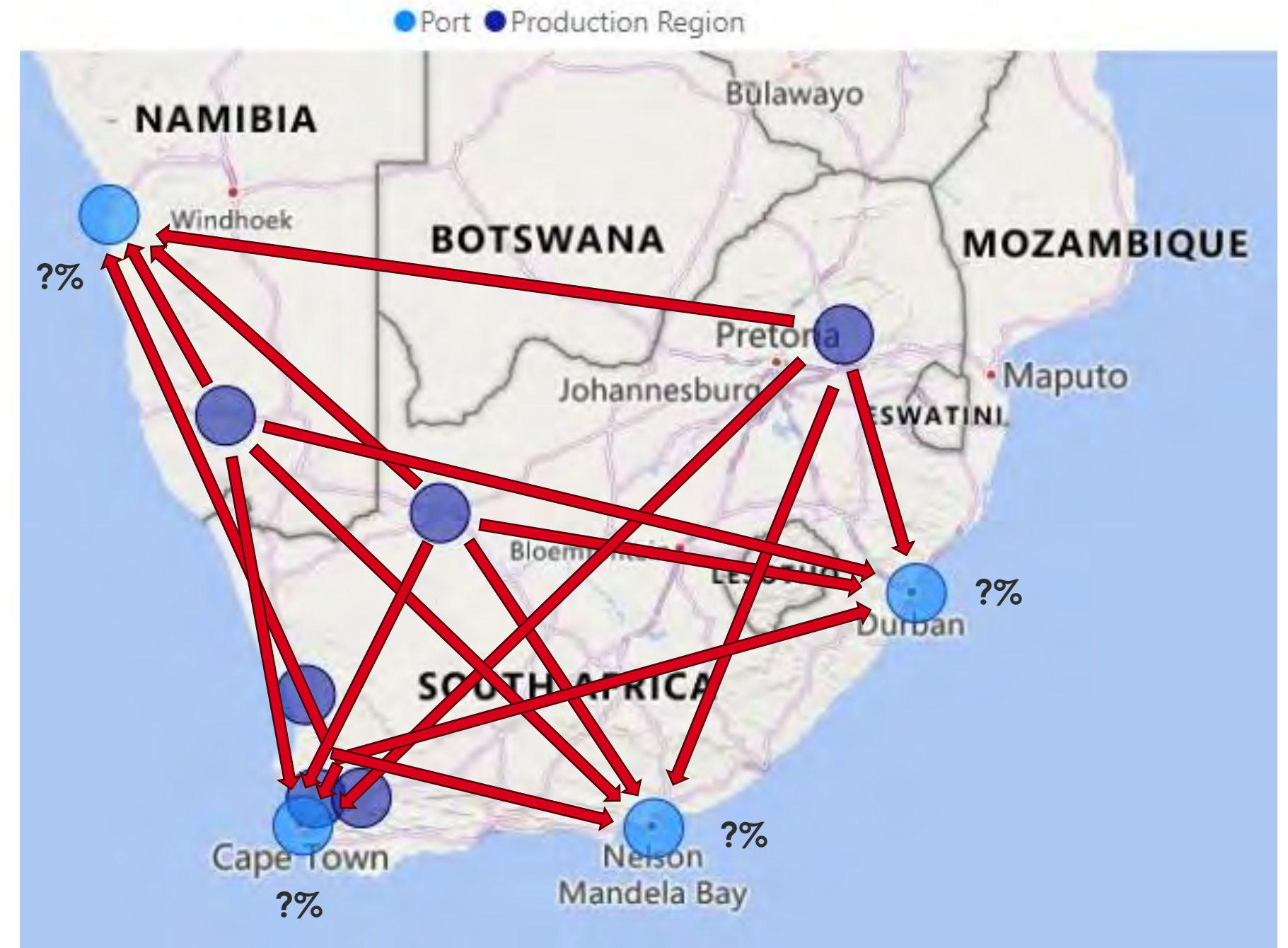
Potential future network suggested by the model

Key Benefits

- Planning for the season compared to making a plan during the season
- Provide insights into optimal ports to use
- Model results used to have discussions with shipping lines around required vessels
- Run scenarios to determine impact of Cape Town inefficiencies and support discussions with Transnet

Model Trade Offs

- Inland Transport Costs
- Inland Travel Time
- Cold Store Capacities
- Cold Store Costs
- Port Capacities
- Available Vessels
- Travel Time to International Markets
- Expected Quality Claims



Future Seasons

Closing out the project

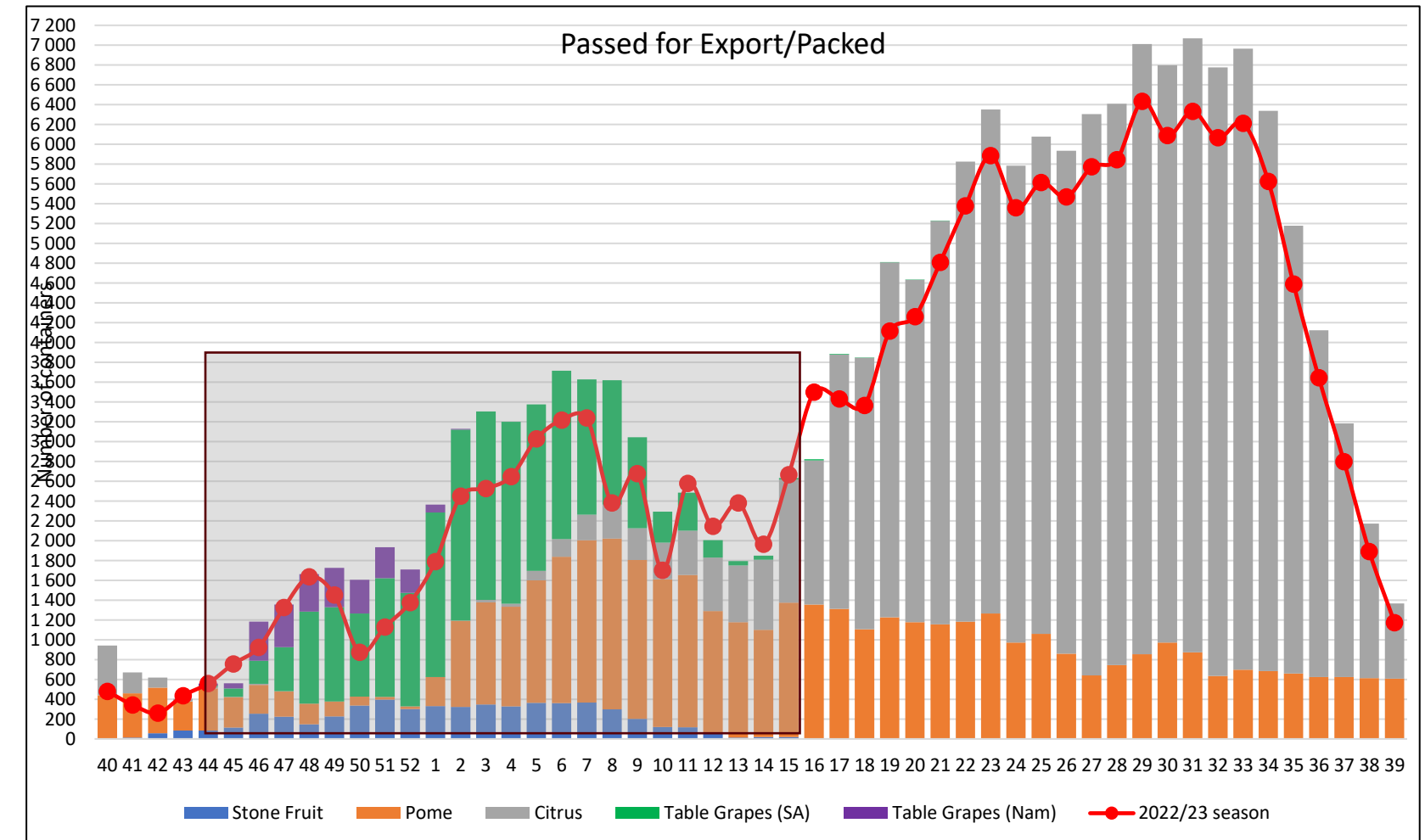
What still needs to happen before the project is complete

Feedback sessions to key stakeholders

- Formally show model results to stakeholders to finalise baseline sign-off (In-progress)

Completion of scenarios

- Run all the required scenarios
- Analyse scenario results
- Provide recommendations based on scenarios



Feedback session to deep-dive model build and results

- Will set up online sessions where more details can be provided around model build process and results
- SATI will send out invites once dates have been finalised

Next Steps

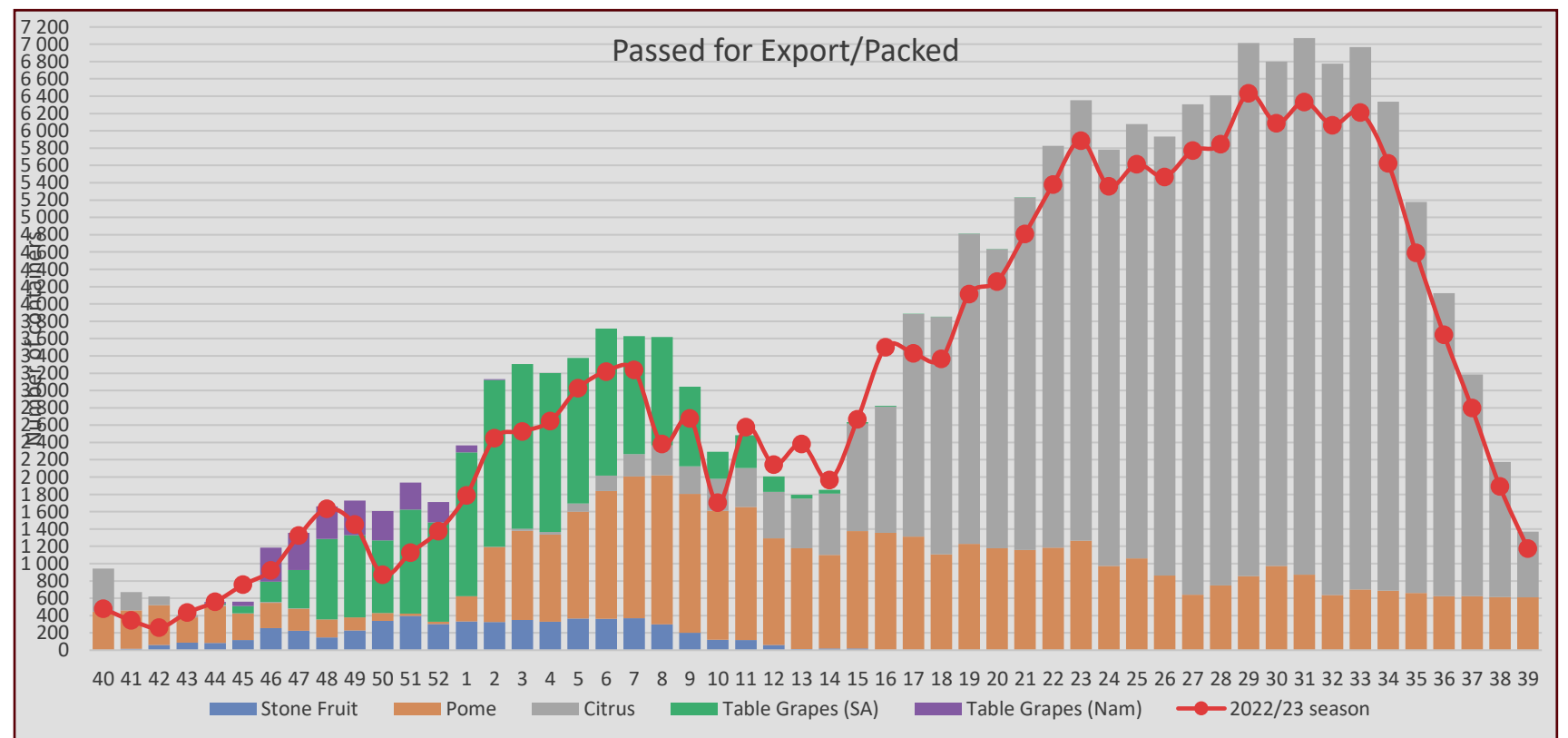
What happens after current project completed

Model Enhancements:

1. Transition current model into environment where up to date data can be used
2. Use the model to plan for the 2024/2025 table grape season
3. Provide feedback to Shipping Lines and Port Authorities around requirements for the upcoming season

Conceptual Industry optimisation thoughts.....

1. Expand the model to include other fruit industries
2. Allows the model to be utilised throughout the year



THANK YOU

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