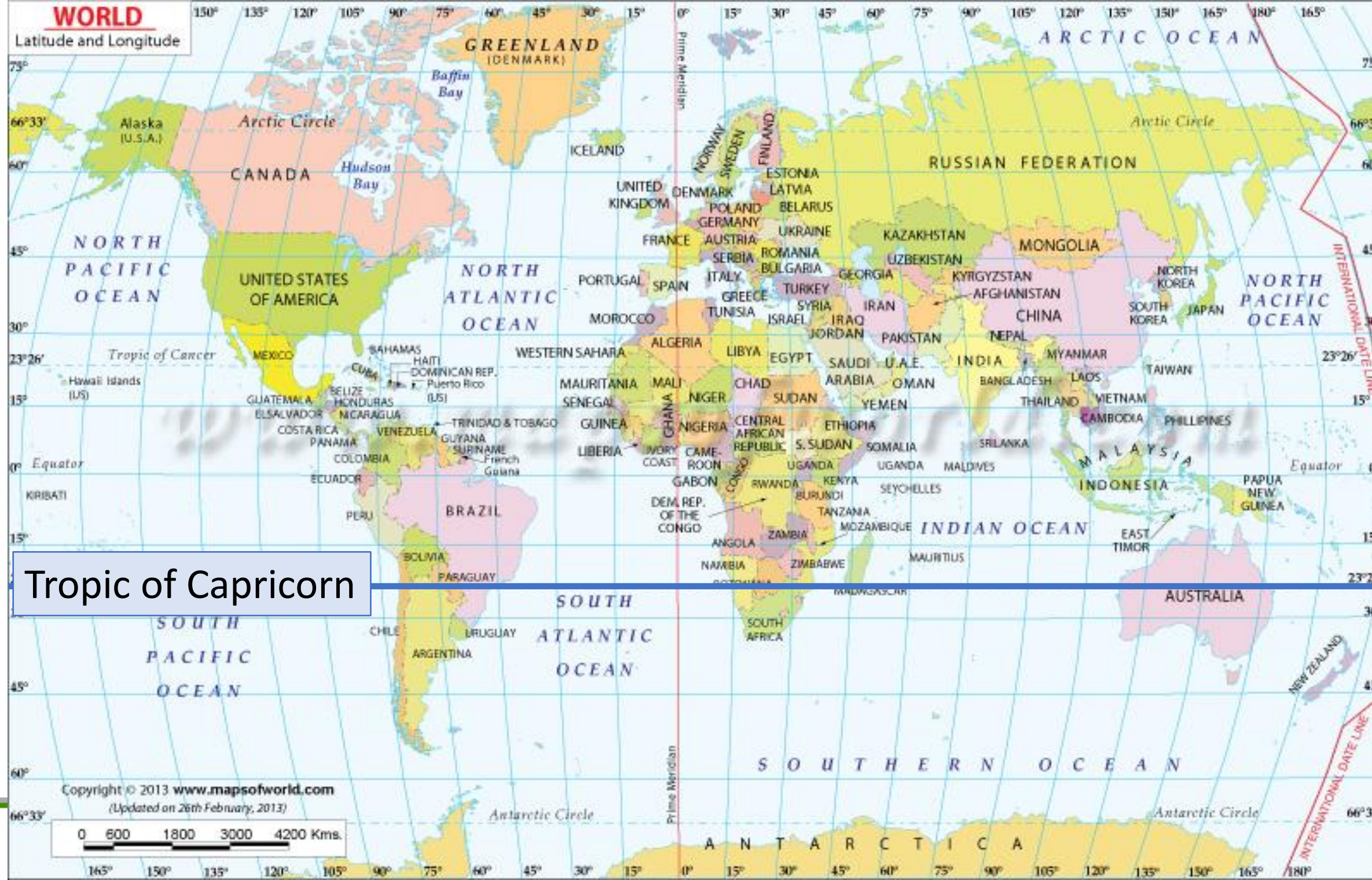


South Africa's Integrated Production System; from Rearing to Feedlot

Conrad Coetzer (PPM, Pri Sci Nat, PhD)



South Africa is
on similar
latitude as South
of Brazil



Tropic of Capricorn

**70% of Feedlots
within 300 km
radius from
Johannesburg**

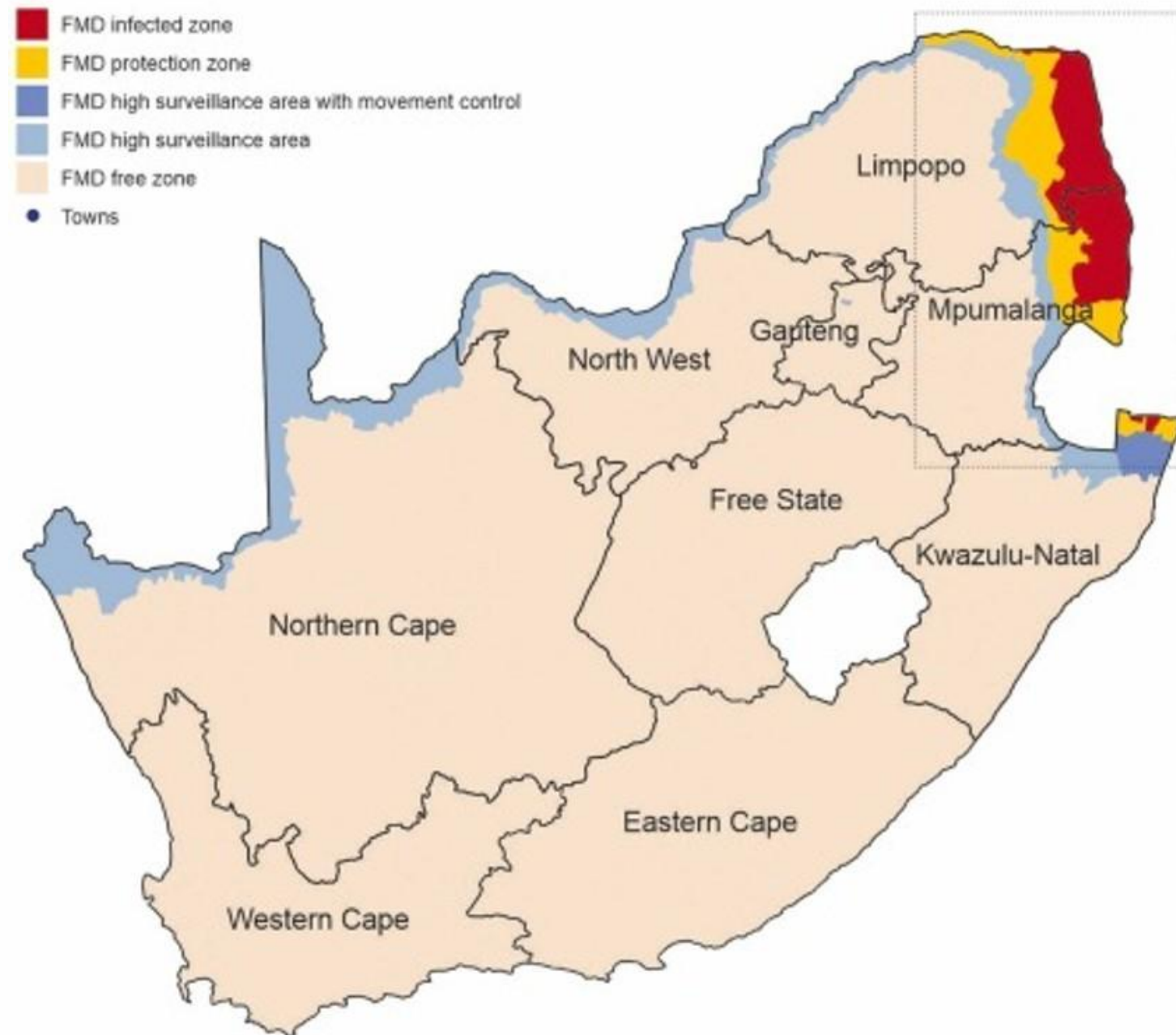


Kruger National Park: Endemic FMD

- Buffalo
Permanently
Infected**



South Africa's FMD control zones



FMD Control System

-  **FMD Infected zone**
-  **FMD protection zone (vaccination)**
-  **FMD surveillance zone with movement control**

3 Serotypes of FMD:

- **SAT 1, 2 and 3 (Southern African Territories)**

Challenging to Contain FMD only in Kruger Park

Elephants Break Park Fences

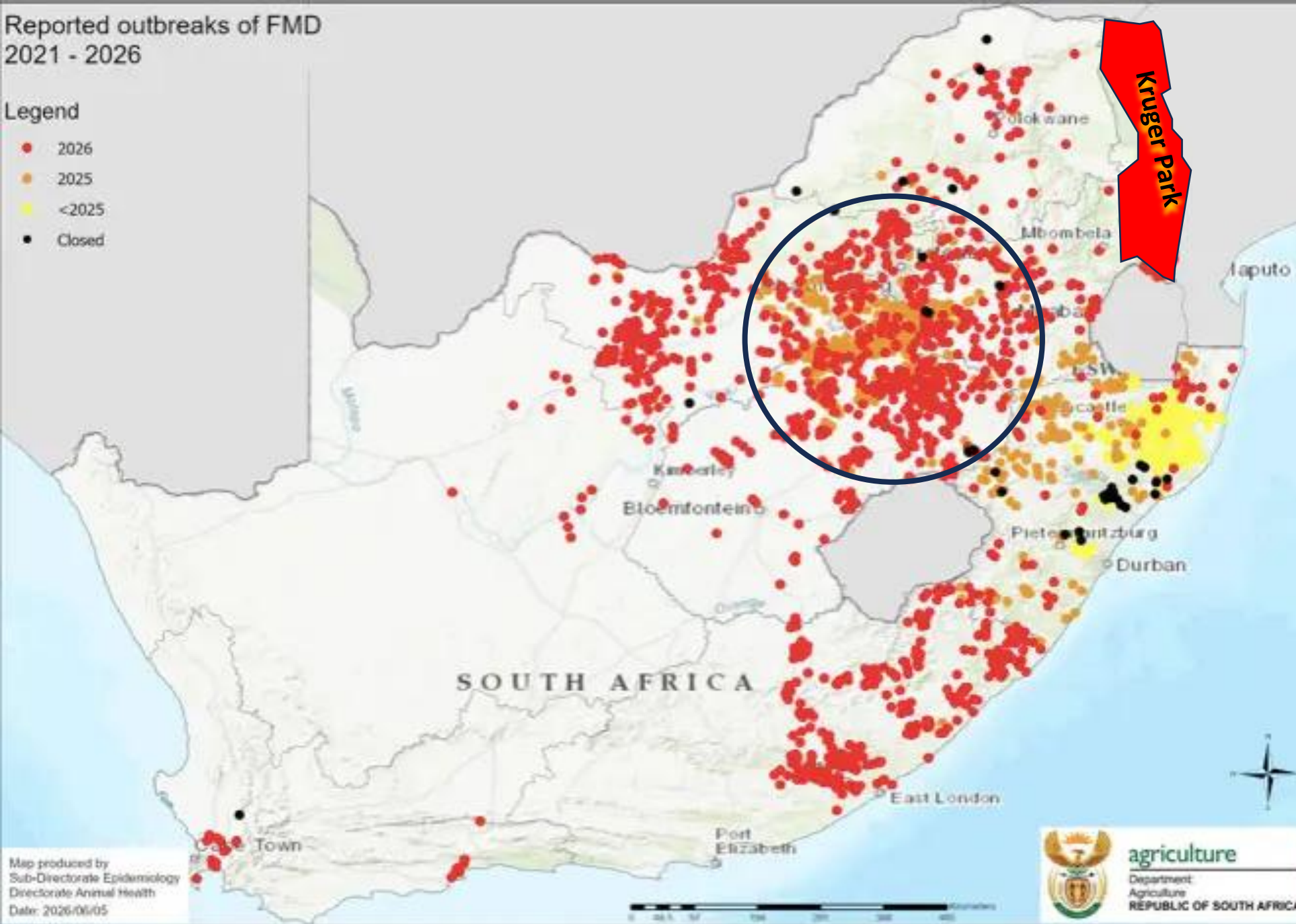


Persistently infected with FMD



Antelope jump over fences



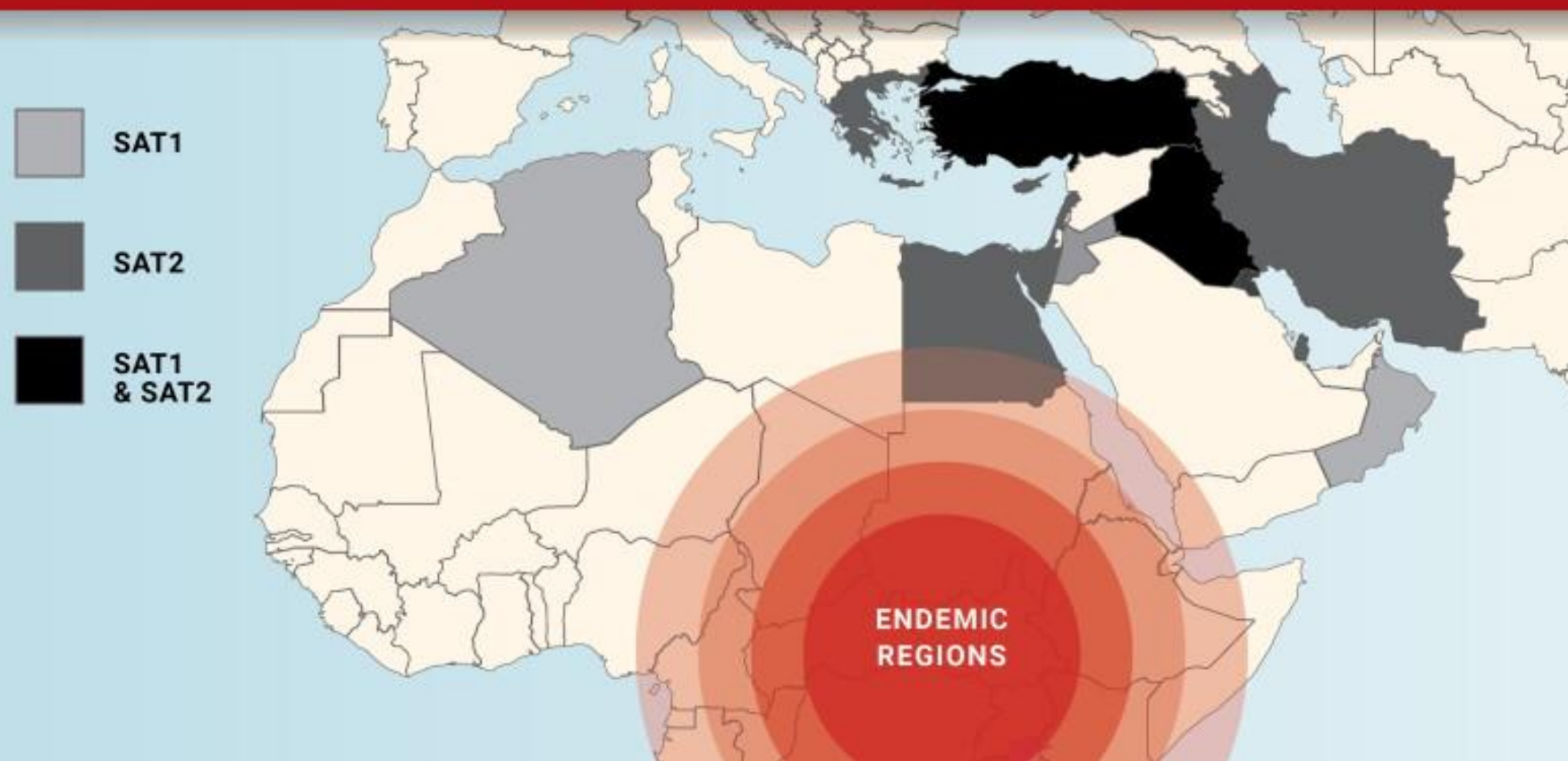


2021 - 2026 FMD Pandemic

- During COVID 19 Pandemic a Breach Occurred in FMD Control System:
 - Maintenance of Park Fences
 - Vaccination in protection zone
 - Surveillance
 - Movement control
- **FMD spread rapidly across the country!**

FOOT-AND-MOUTH DISEASE

SAT Serotypes Reported Outside Endemic Regions (2023-2026)



Africa: Very widely spread in South, Central and Northern parts

The Middle East & West Asia: Israel, Iran, Iraq, and Jordan.

East & Central Asia: China, Uzbekistan and Mongolia.

Europe: Turkey, Cyprus and Greece

South Africa's Response to FMD

- Large Scale vaccination of the whole National herd with Tri-valent vaccines
- Animal movement restrictions
- Large scale surveillance program

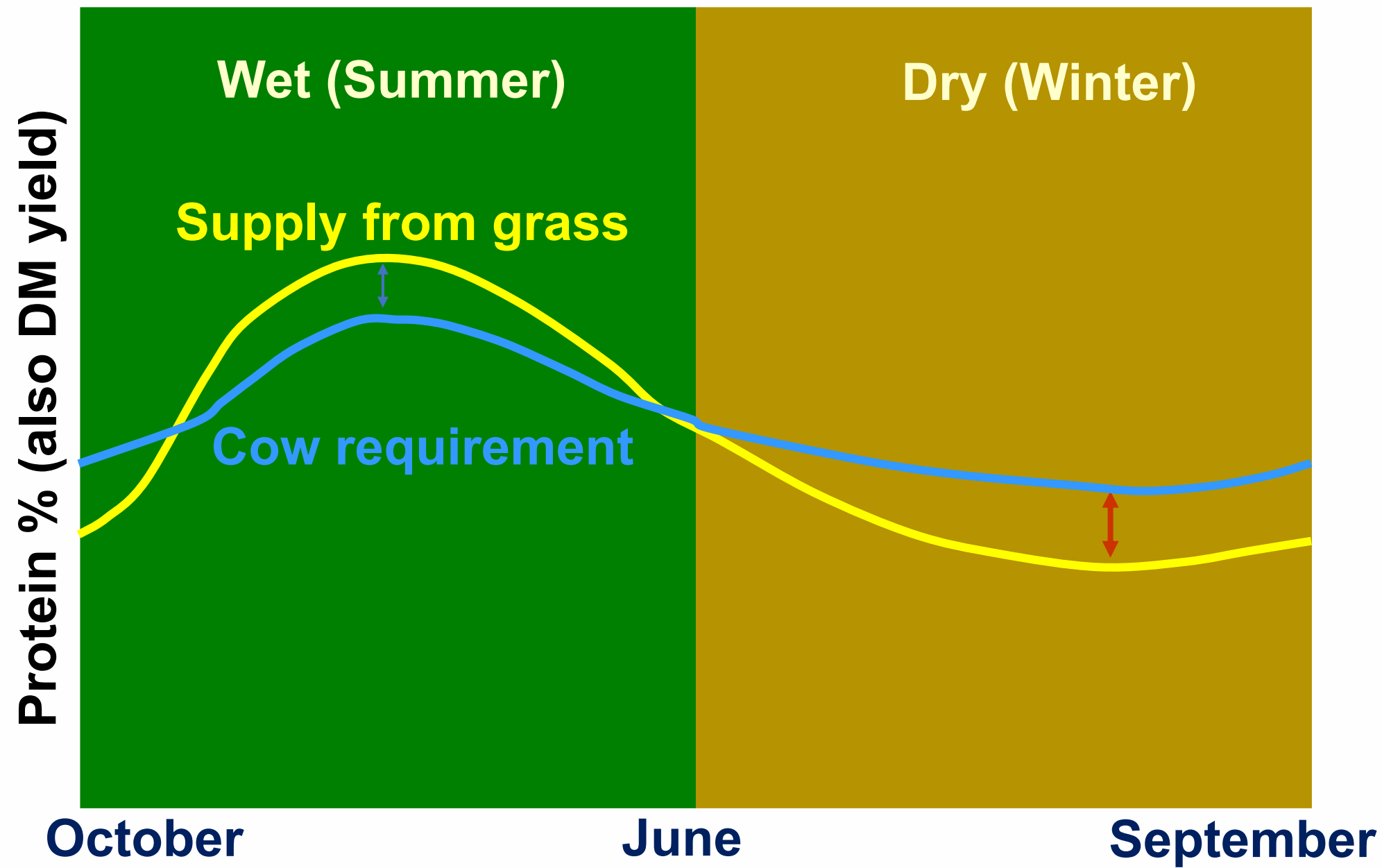
Please Take Care!



South African Livestock Industry

- SA Population around 60 million people
- National beef herd: 12.5 million
 - 7 million commercial
 - 5.5 million communal
- 1.3 million dairy cattle
- 20 million sheep
- 6 million goats



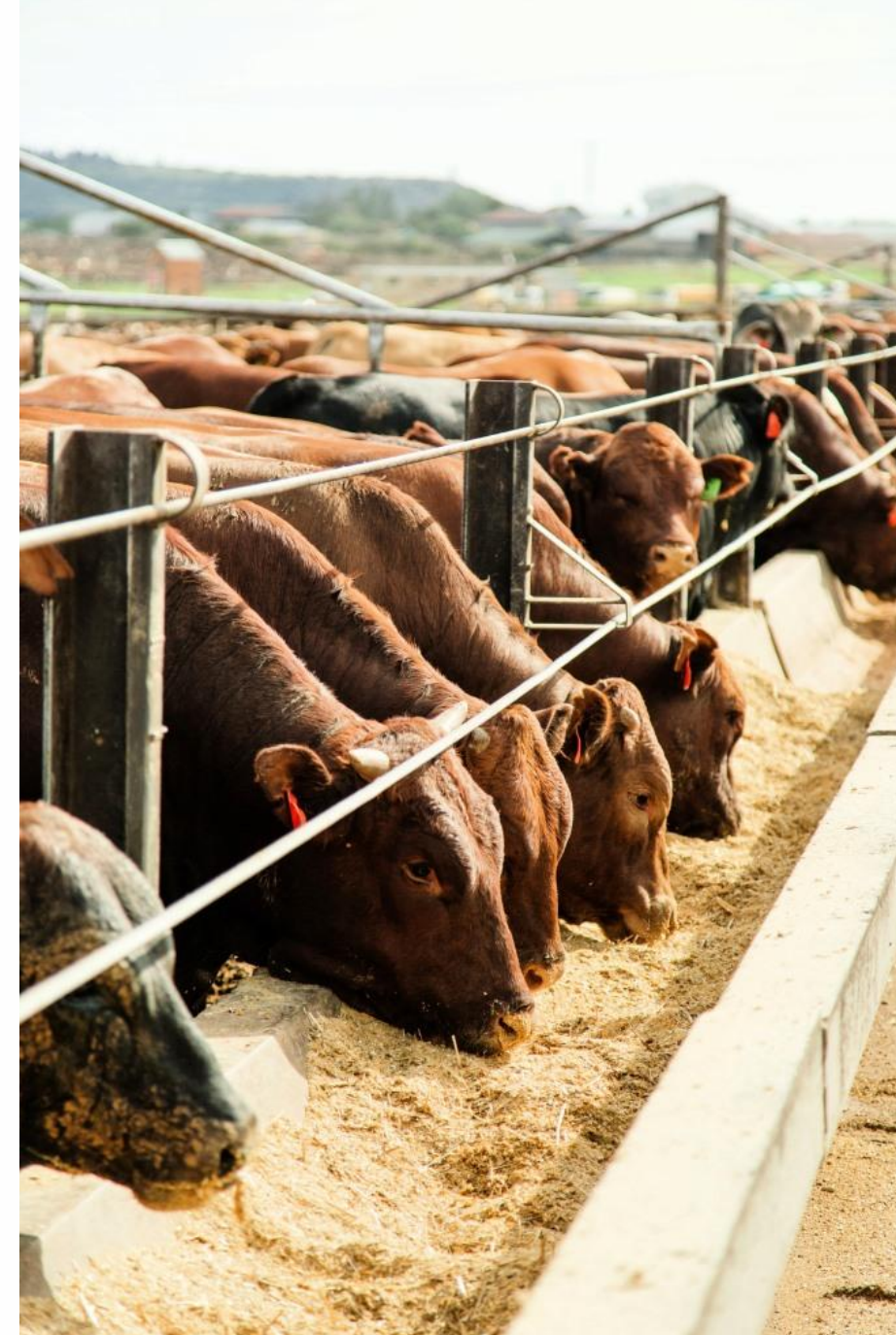


Predominantly Early Wet Season Calving



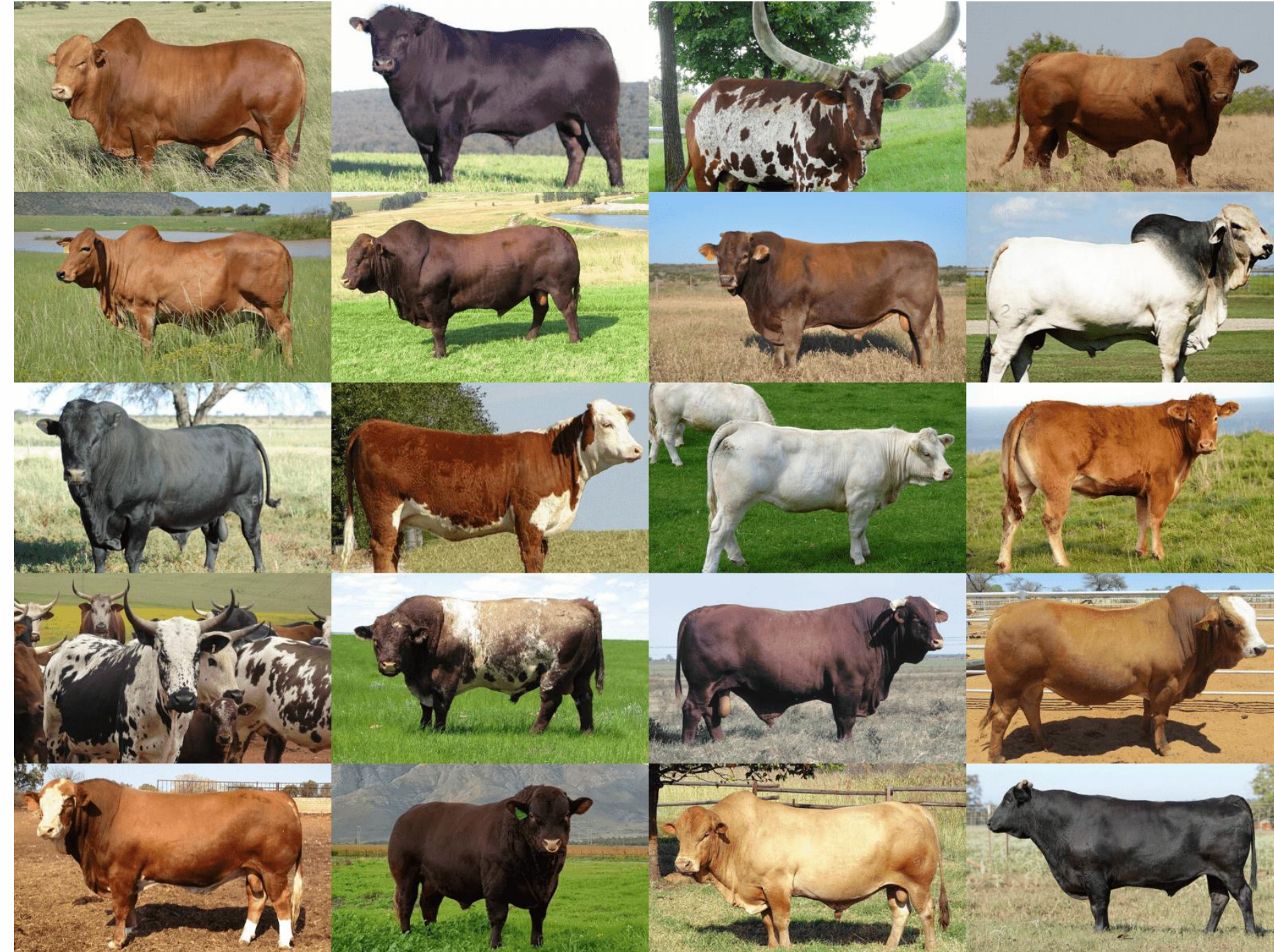
South African Feedlot Industry

- **Feedlot standing capacity: 700 000 head**
 - **Around 100 feedlots in total**
 - **2 Feedlots (Karan and Sparta ~ 50%)**
- **Standing days on feed: 130 days ~ 2.8 cycles per year**
- **Finish 1.9 million head per annum**
- **75% of all beef finished in feedlots**



Breeds:

- **Mainly Crossbred Animals (Brahman dominant)**
- **Composite breeds like Bonsmara, Beefmaster, Brangus, Simbra, Braford, Santa Gertrudis**
- **Brahman, indigenous Sanga breeds like Nguni**
- **Continental breeds like Simmental, Charolais and Limosine**
- **British breeds (Angus, Sussex, Hereford)**



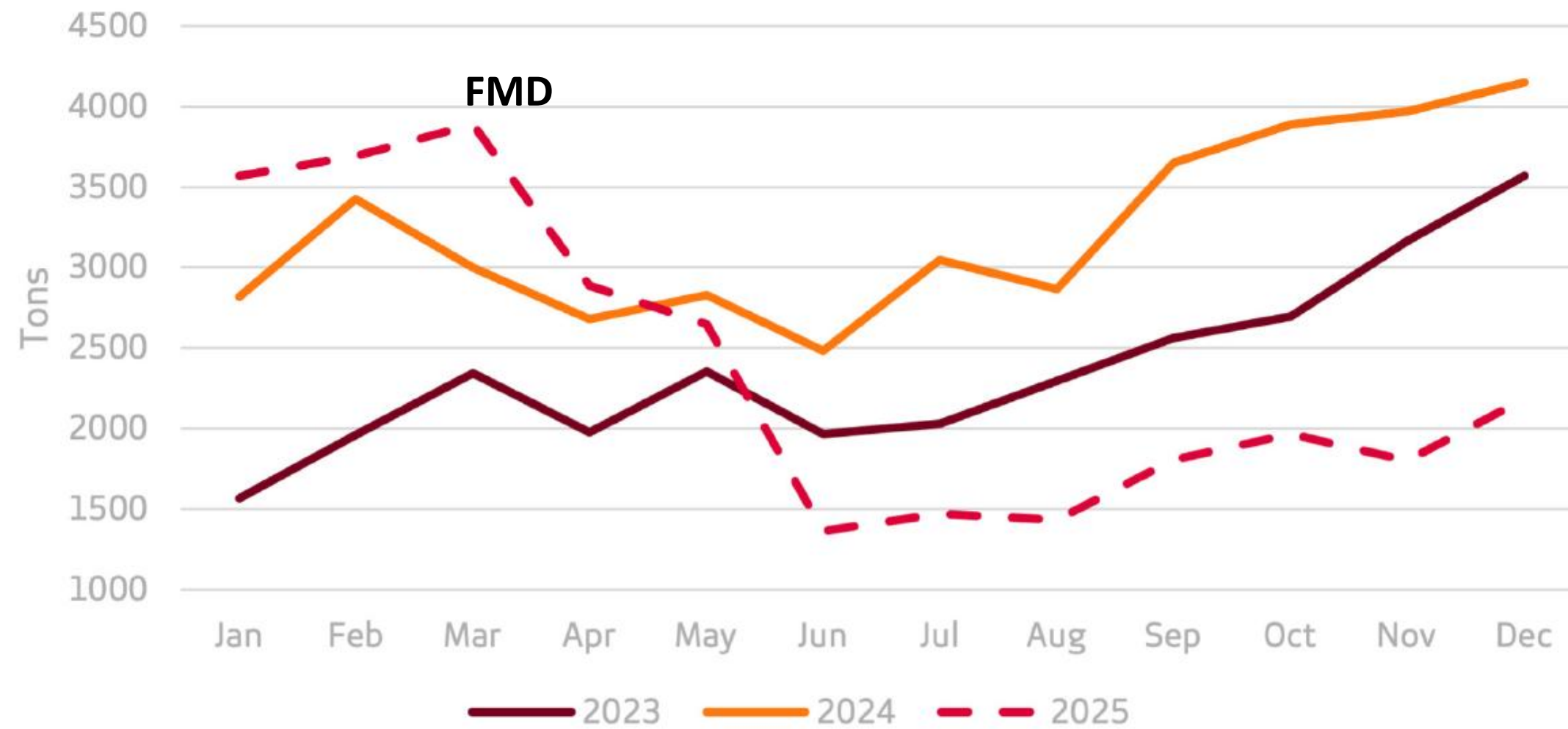
SA Feedlot Industry in 2024

Feedlot Standing Capacity	680,000
Standing Days	130
Cycles	2.81
Feedlot Cattle Slaughtered	1,909,231
Grazing Cattle Slaughtered	893,769
Total Cattle Slaughtered	2,803,000
Cold Carcass Weight (kg)	285
Beef Produced (Ton)	798,855
Beef Consumed (Ton)	759,800
Imported (Ton)	1120
Exported (Ton)	40,175



SA beef exports

Figure 4.2: Average monthly beef exports (Jan 2023–Dec 2025)



SUMMARIZED OVERVIEW

2017 - 2024 (YTD)

	Quantity (Mass)	
Country	Total	Average
China	44,399 ton	5,550 ton
Kuwait	32,267 ton	4,033 ton
Jordan	28,519 ton	3,565 ton
United Arab Emirates	27,575 ton	3,447 ton
Mozambique	24,663 ton	3,083 ton
Lesotho	22,121 ton	2,765 ton
Qatar	10,392 ton	1,299 ton
Egypt	7,508 ton	939 ton
Hong Kong	6,339 ton	792 ton
Angola	4,890 ton	611 ton



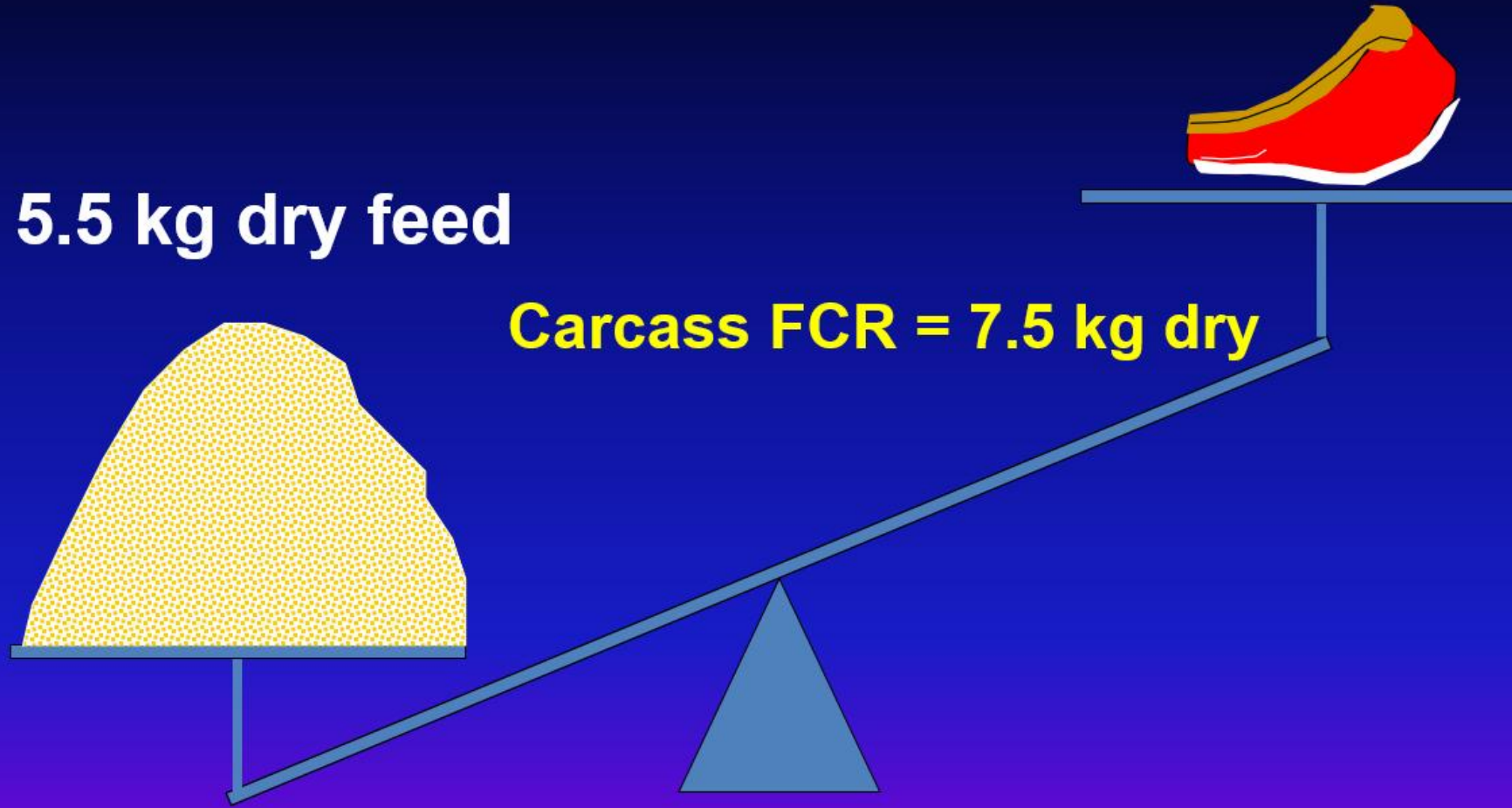
Typical Production Systems

	Preconditioning	Preconditioning	Backgrounding	Backgrounding
Weaner calf (7 months old) (kg)	225	225	225	225
Preconditioning/backgrounding Days	35	42	56	63
ADG (kg/day)	1.25	1.05	0.85	0.75
Weight gain (kg)	43.89	44.268	47.824	47.502
Into Feedlot Weight (kg)	268.9	269.3	272.8	272.5
Feedlot Standing Days	130	129	126	125
ADG Feedlot (kg/day)	1.65	1.66	1.67	1.68
ADG (Carcass) (kg/day)	1.140	1.142	1.144	1.146
Weight gain (kg)	215.0	214.7	210.9	210.5
Final Live Weight (kg)	483.9	483.9	483.7	483.0
Total Feeding Days	165	171	182	188
Slaughter % (cold carcass)	58.91	58.9	58.9	58.9
Cold Carcass Weight (kg)	285.1	285.0	285.0	284.7

1 kg ADG
(0.73 kg carcass-ADG)

5.5 kg dry feed

Carcass FCR = 7.5 kg dry



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Precon/background Days	35	42	56	63
ADG (kg/day)	1.25	1.05	0.85	0.75
Rainy Season	TMR Ad lib	1.8% of BW	500-750g	250-500g
				
Dry Season	TMR Ad lib	2% of BW	1.5% of BW	1.2% of BW
				



FEED INGREDIENTS

- **Maize (corn) hominy feed/chop**
- **Byproduct of the corn dry milling industry**

Staple food: Cooked Corn porridge called “PaP”



- **FEED INGREDIENTS**

- **Maize (corn) hominy chop/feed**
- **Dry rolled maize (dent corn)**
- **Wheat bran/middlings**
- **Maize gluten feed (20% CP)**
- **Molasses**
- **Brewery by-products**
- **Citrus pulp**
- **Protein oilcakes (soya, cotton, sunflower)**
- **Maize (corn) or forage sorghum silage**
- **Grass hay or wheat straw**

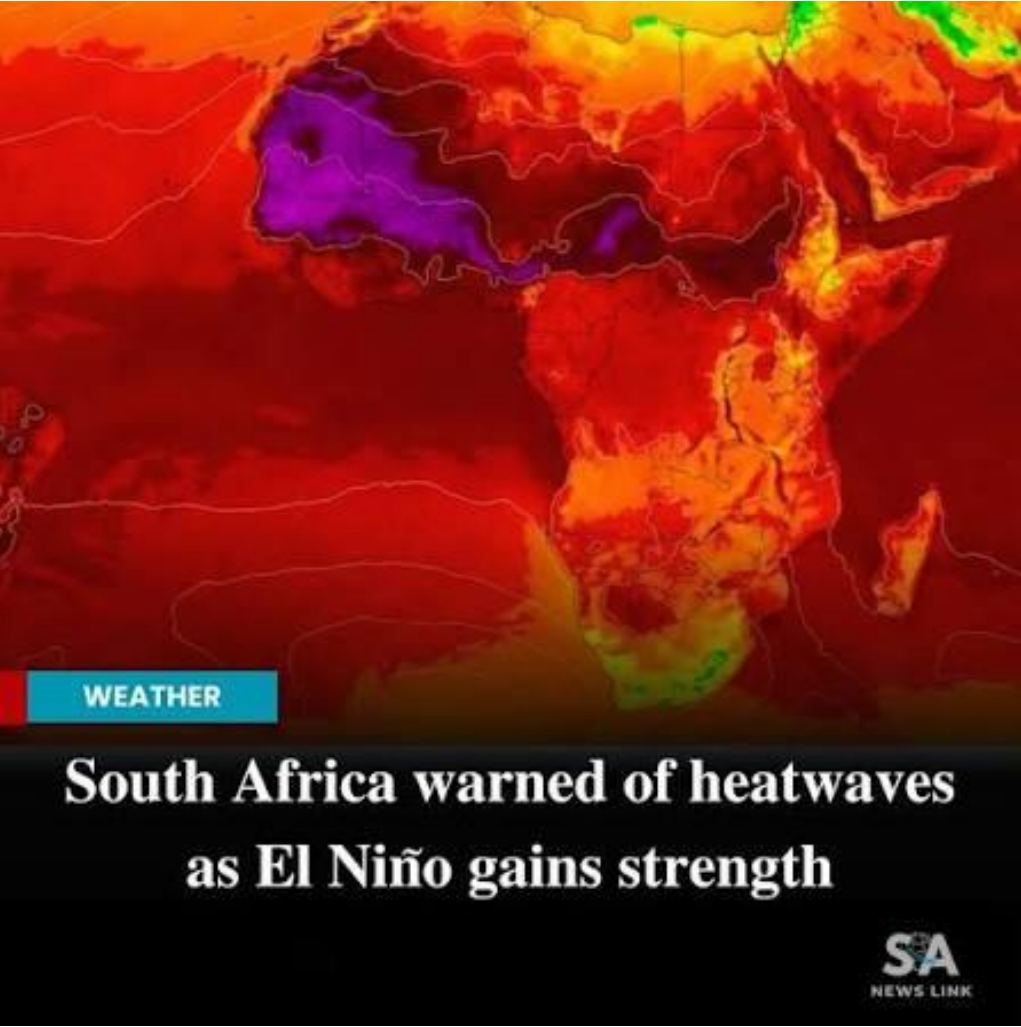


Corn Price



R\$1280/ton
US\$245/ton

Super El Niño Fears?





- **Prices**
 - **Feed: R\$1400/t dry matter (US\$270/t)**
 - **Weaner Calf: R\$16.10/kg (US\$3.13)**
 - **Cold Carcass: R\$21.60/kg (R\$324/15kg)**
 - **Profit: R\$165/animal (US\$32)**

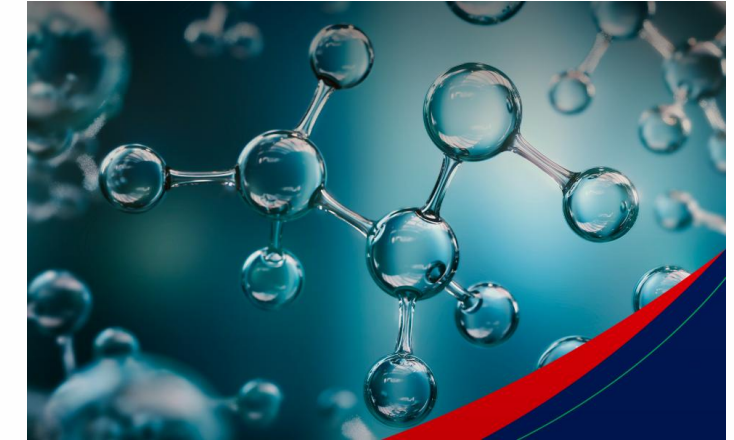




Use Technology Tools Extensively

South African Feedlot Industry

- **USE TECHNOLOGY EXTENSIVELY**
 - **Ionophores (mostly monensin)**
 - **In-feed Antibiotics (Virginiamycin, flavomycin, tetracyclines, sulphas, tylosin, bacitracin)**
 - **Beta-agonists (Zilpaterol, R-Salbutamol, Ractopamine)**
 - **Prebiotics, Probiotics, Tannins, Saponins, Essential Oils etc.**



South African Feedlot Industry

- **USE TECHNOLOGY EXTENSIVELY**
 - Hormone ear implants used widely
 - Zeranol (estrogenic analogue)
 - Combinations of Trenbolone acetate (male hormone analogue) and 17*B*-estradiol

Economics:

- **Beta Agonists: 5.5:1 ROI (R\$140 return/animal)**
- **Hormone Implants: 14:1 ROI (R\$210 return/animal)**
- **Combined (R\$350 return/animal)**



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South African Feedlot Industry can not survive without these!

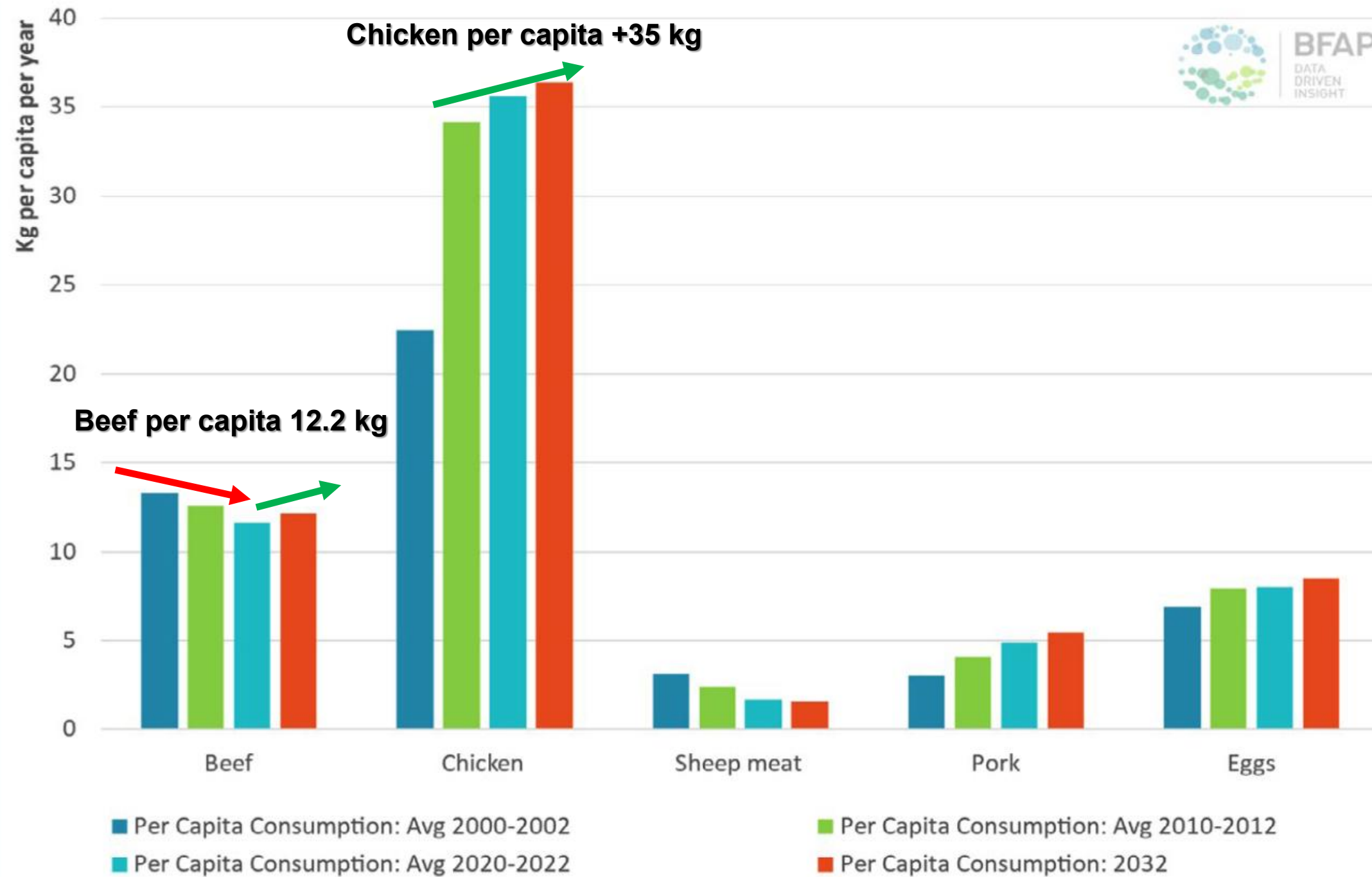
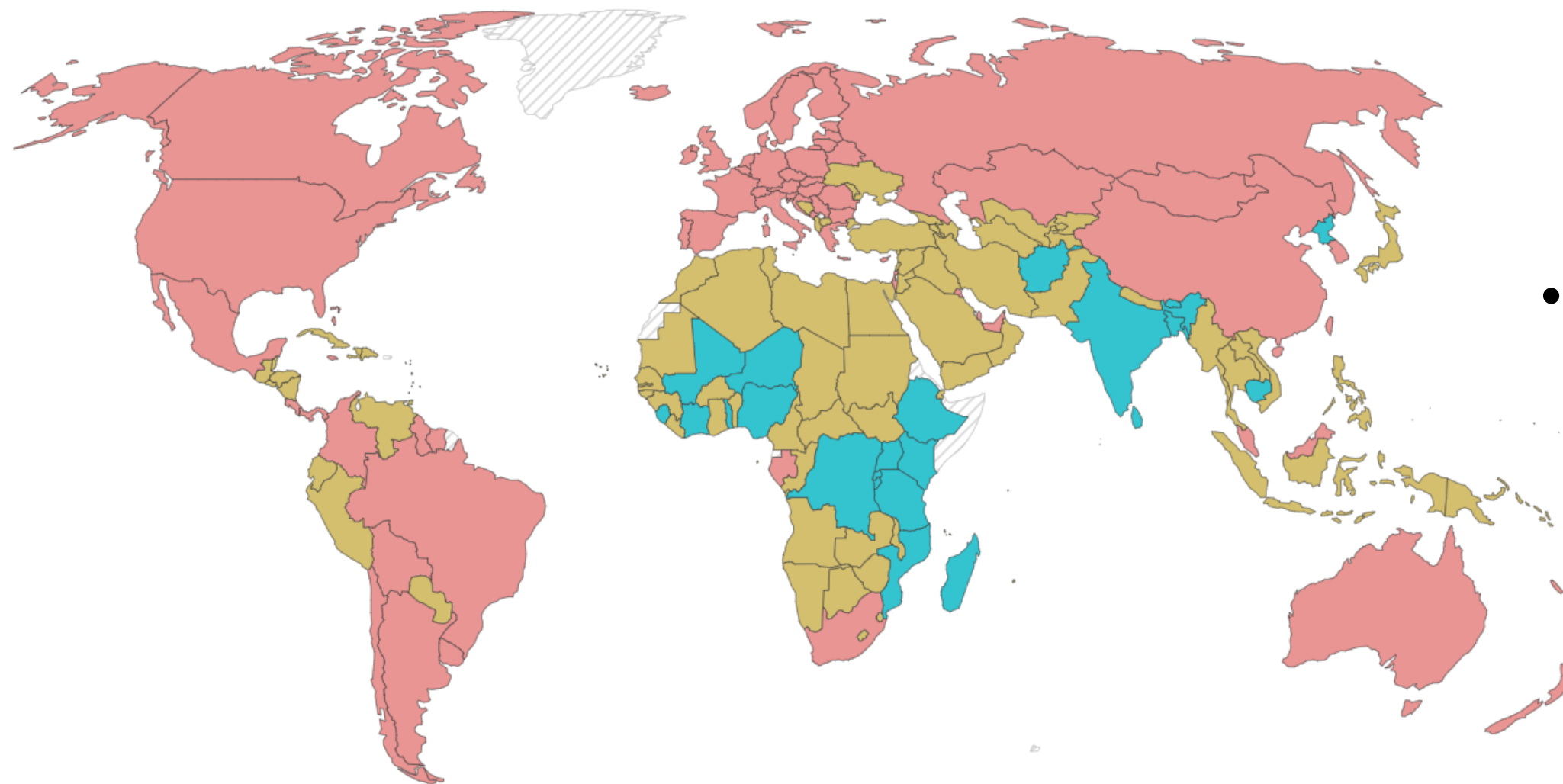


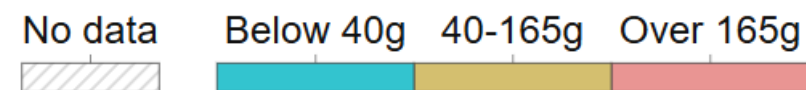
Figure 45 Growth in per capita meat demand: 2032 vs. current and history

Daily meat consumption per person, 2021

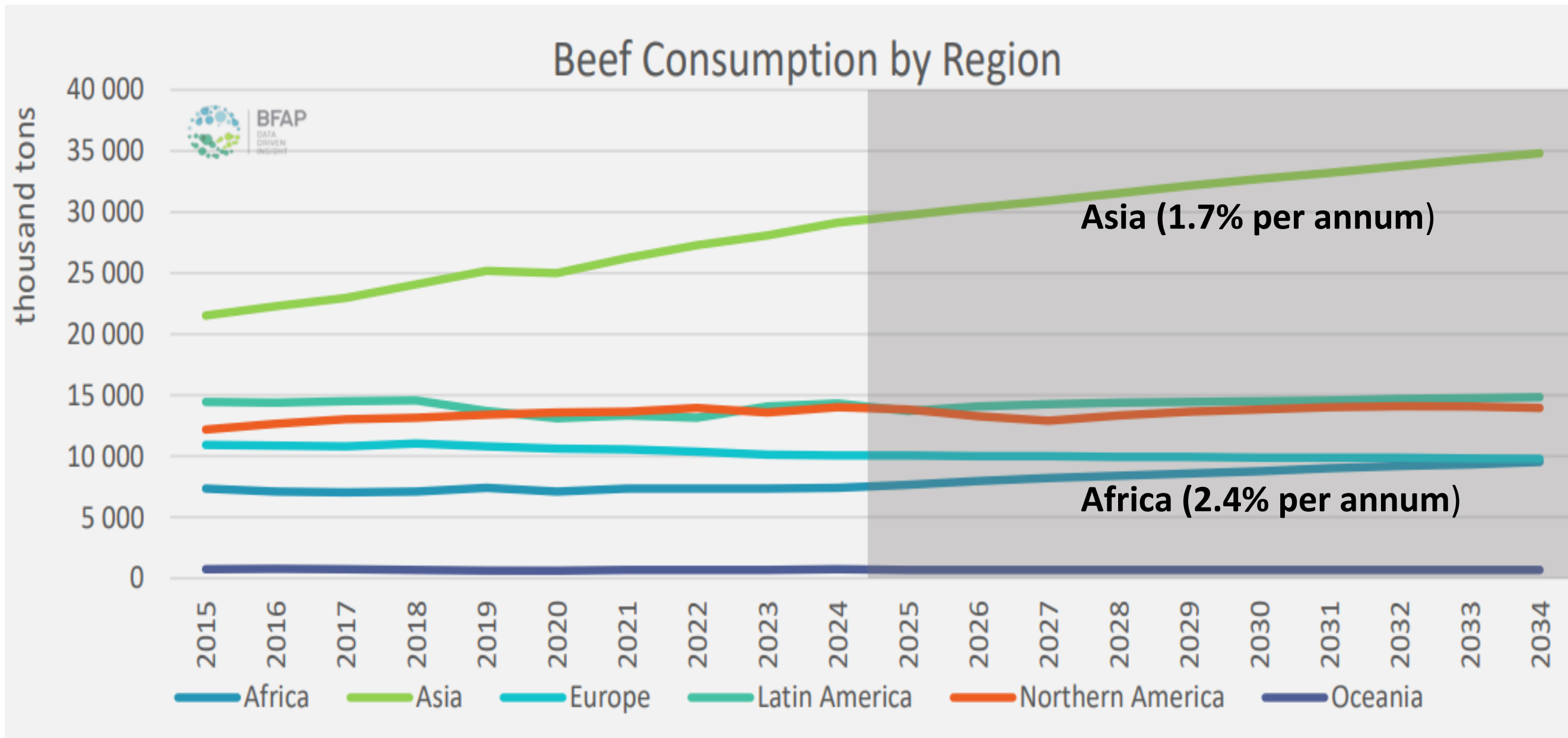
Daily meat consumption is shown relative to the expected EU average of 165g per person in 2030. This projection comes from the livestock antibiotic scenarios from Van Boeckel et al. (2017).



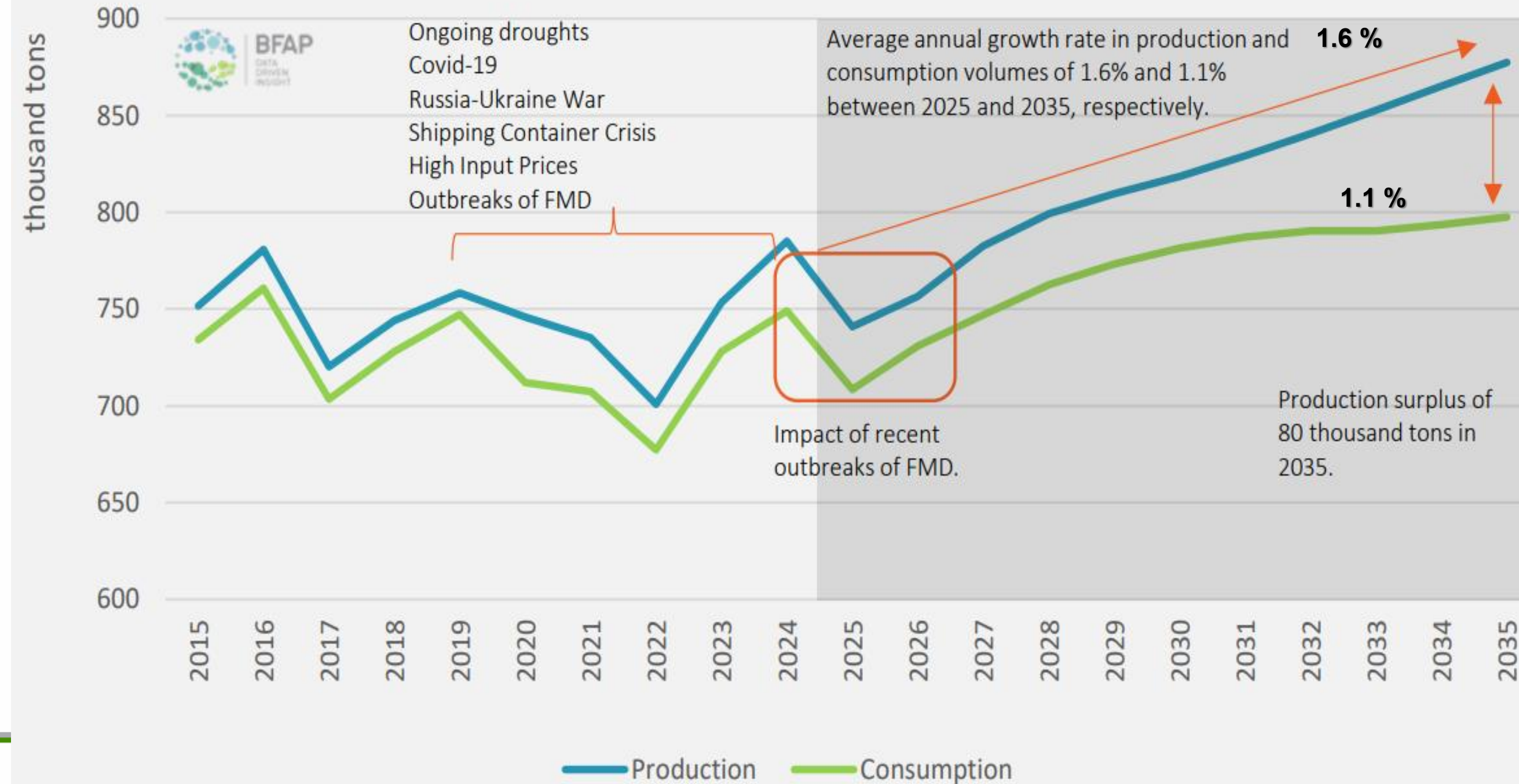
- **Huge Opportunity to Grow Exports in Africa!**



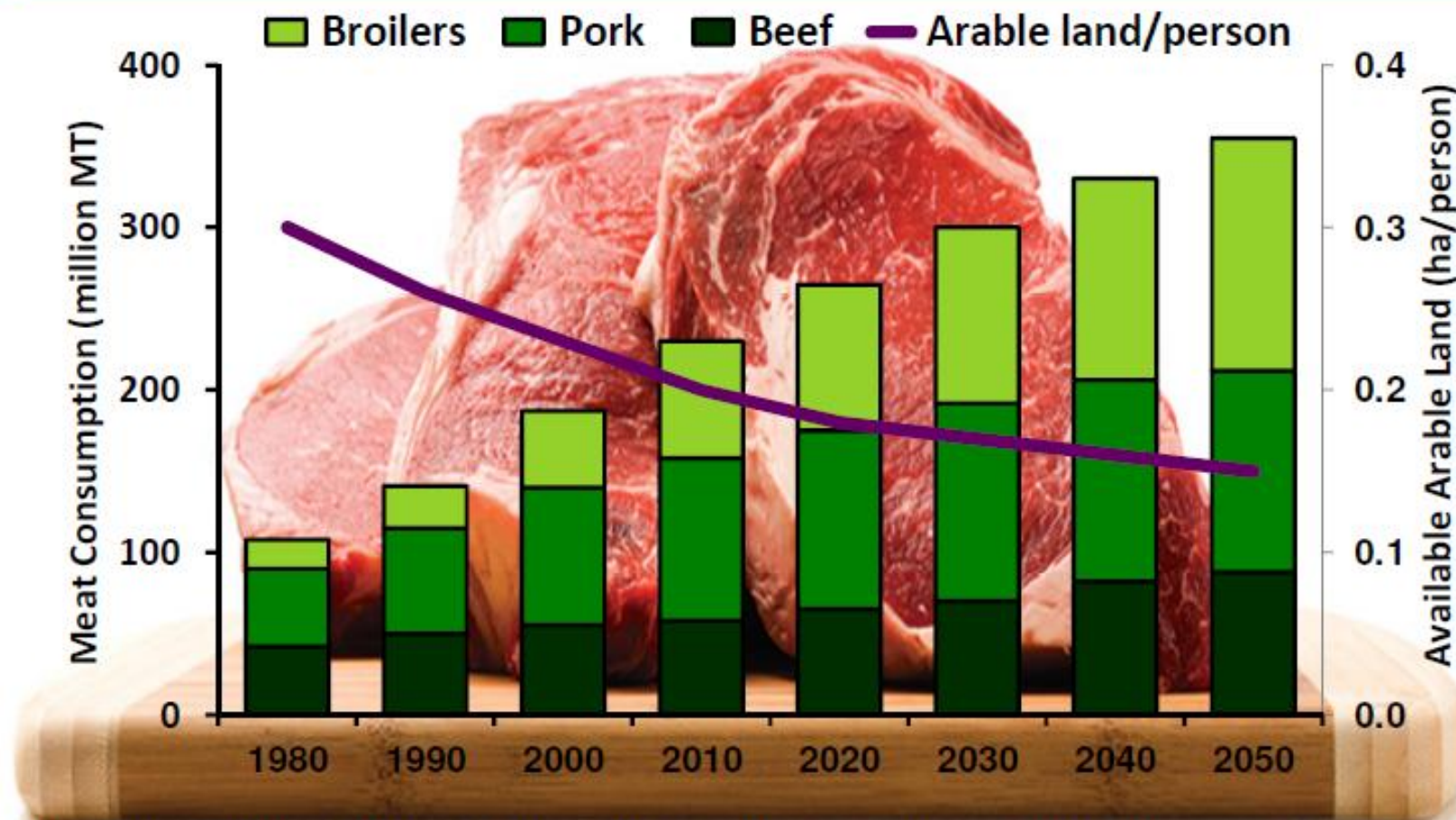
Data source: Food and Agriculture Organization of the United Nations (2023)



Beef Production and Consumption Volumes



World Beef, Pork and Poultry Consumption: 1980 - 2050



Sources: Global Insight Demand Analysis to 2050; Bauman and Capper (2011) Southwest Nutrition and Management Conference, Tempe, AZ.

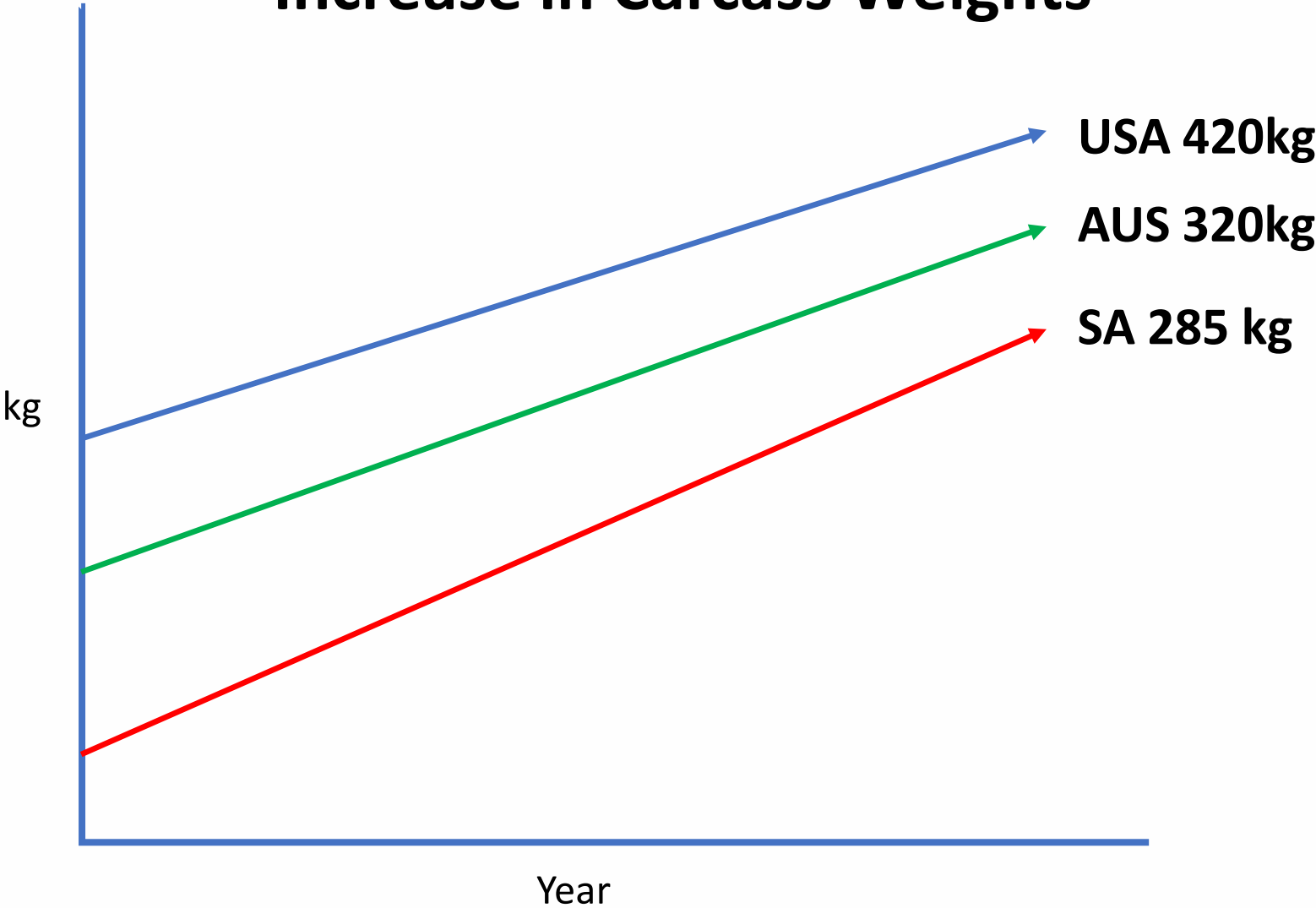
- Available Arable Land (ha/person) is decreasing
- Beef Consumption Increasing
- Will have to produce more meat with less land
- Will have to increase production efficiency!

We will have to rely on New Tech to meet increasing demand!



Source: Created by Dr. Jude L. Capper, 2012

Increase in Carcass Weights



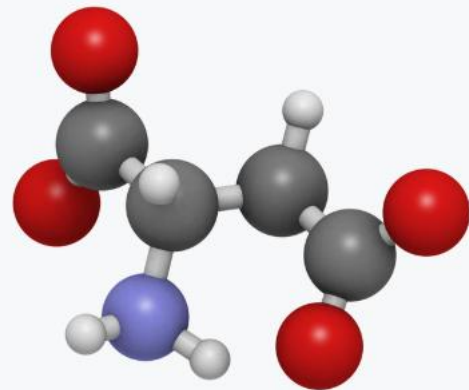
South Africa will have to use Technology to stay Competitive in the World Market!

- **WHAT TECHNOLOGY IS NEXT ON THE HORIZON?**
 - **Beta-ligands like lubabegron fumarate (Experior)**
 - **Bio-active Peptides**
 - **Now registered in South Africa and we will be starting with feedlot and grazing trials soon**
 - **Dominant Technology in Humans and Animals**
 - **We are very excited to have this tool in the Technology Tool Box!**



Bioactive Peptides: Many Possible Biological Targets

Influencing More Than Just Growth



RUMEN FERMENTATION

- Modulate microbial populations
- Improve fermentation efficiency
- Influence VFA production
- Support rumen wall health



IMMUNITY

- Modulate innate and adaptive immune responses
- Enhance disease resistance
- Support immune balance



GUT HEALTH

- Strengthen gut barrier function
- Enhance nutrient absorption
- Support gut repair
- Promote overall gut health



INFLAMMATION

- Regulate cytokine signaling
- Reduce excessive inflammation
- Support tissue recovery



ANTIOXIDANT DEFENSE

- Neutralize reactive oxygen species
- Reduce oxidative stress
- Support cells during heat stress or disease



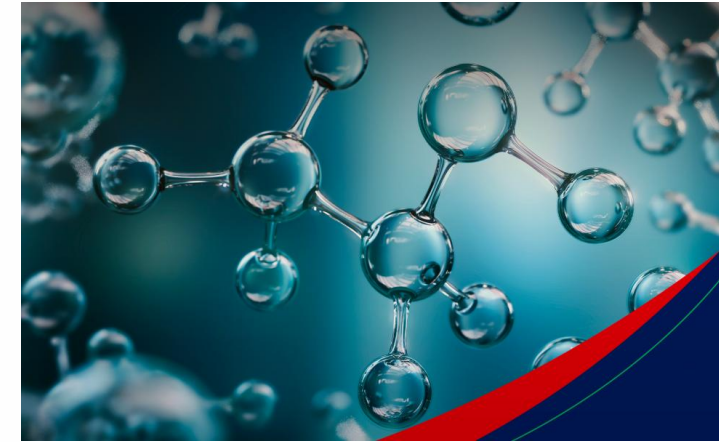
STRESS RESILIENCE

- Improve resilience to physiological stress
- Support adaptation to heat, transport and other stressors



• FUTURE RESEARCH

- **Need more research on how Combining or Stacking Technologies changes nutrient utilization and requirements**
- **Big opportunity to look for possible feed cost savings**
- **Example in broilers where a combination of peptides improves the efficiency of nutrient utilization and the Industry is already applying this in the formulation matrix – same should apply for Beef!**





Thank you!

conrad@rankinggroup.co.za

