

UC DAVIS

DEPARTMENT OF PLANT SCIENCES

College of Agricultural and Environmental Sciences

State of the Pistachio Industry

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and
Stephen Vasquez and Chris Joyce**



Australian# mdfk lr# urgxfwlrq#k.rw#
Frxwh#





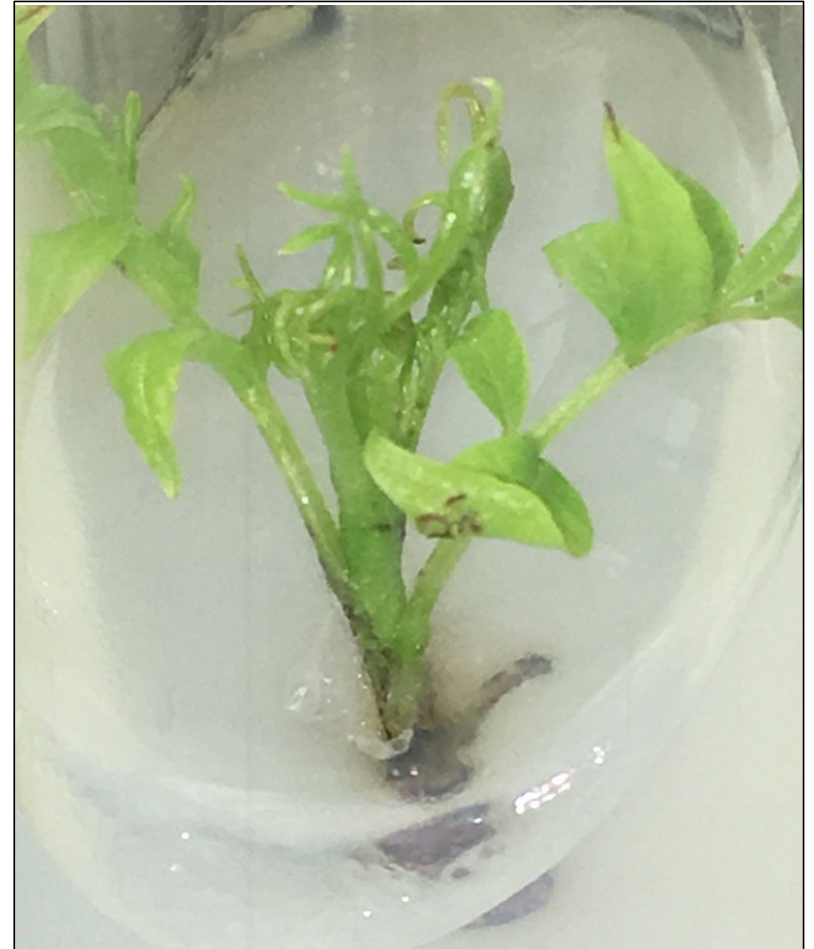
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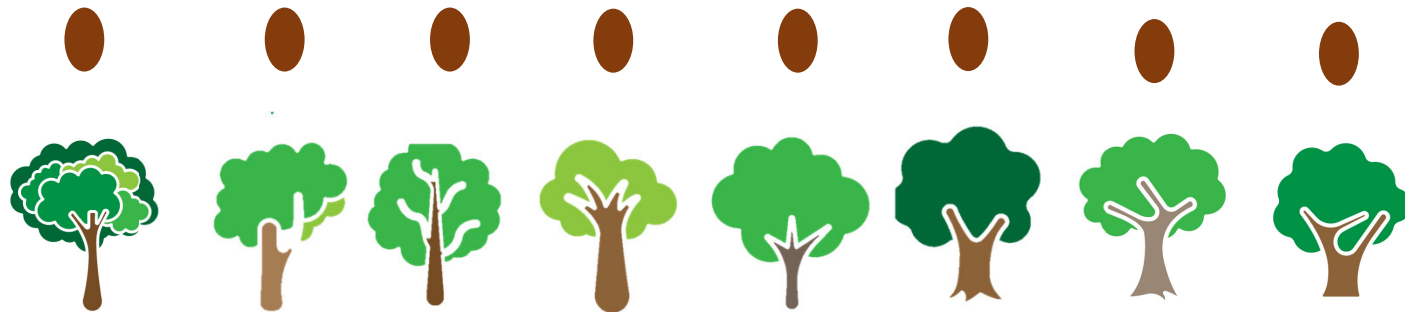
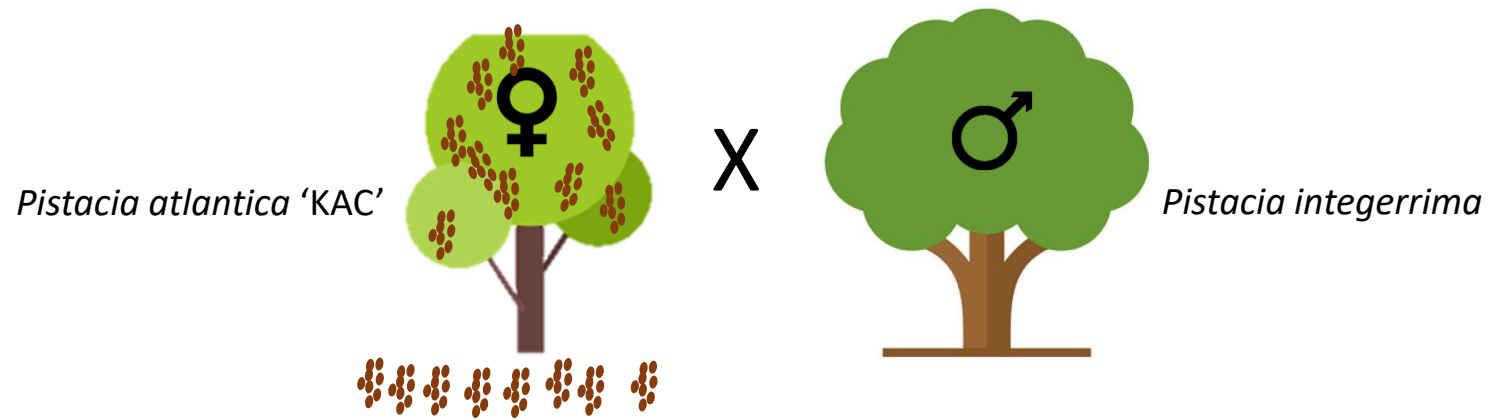
San Juan, Argentina November 21st 2015

Kerman, Golden Hills, Lost Hills



PG1, UCB1, Platinum®

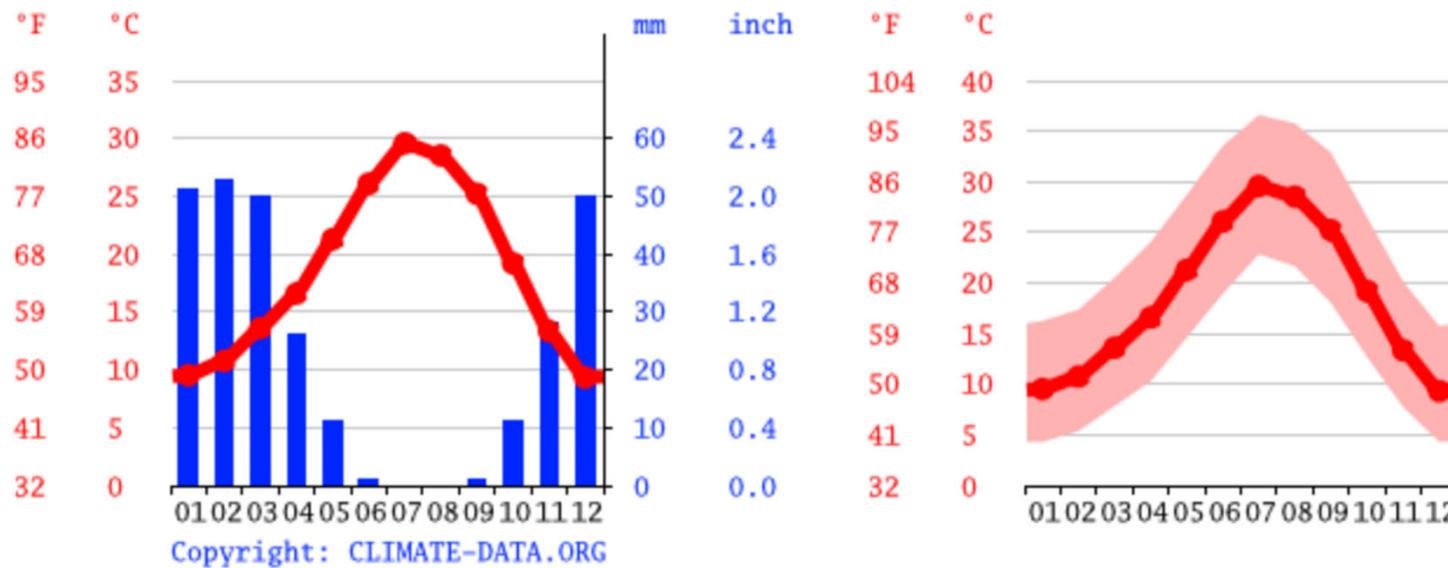




'UCB1' Seedling Rootstock

BAKERSFIELD CLIMATE (UNITED STATES OF AMERICA)

DATA AND GRAPHS FOR WEATHER & CLIMATE IN BAKERSFIELD

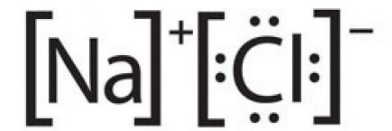
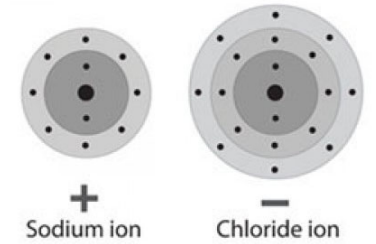




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Australian Pisachio Production Short Course

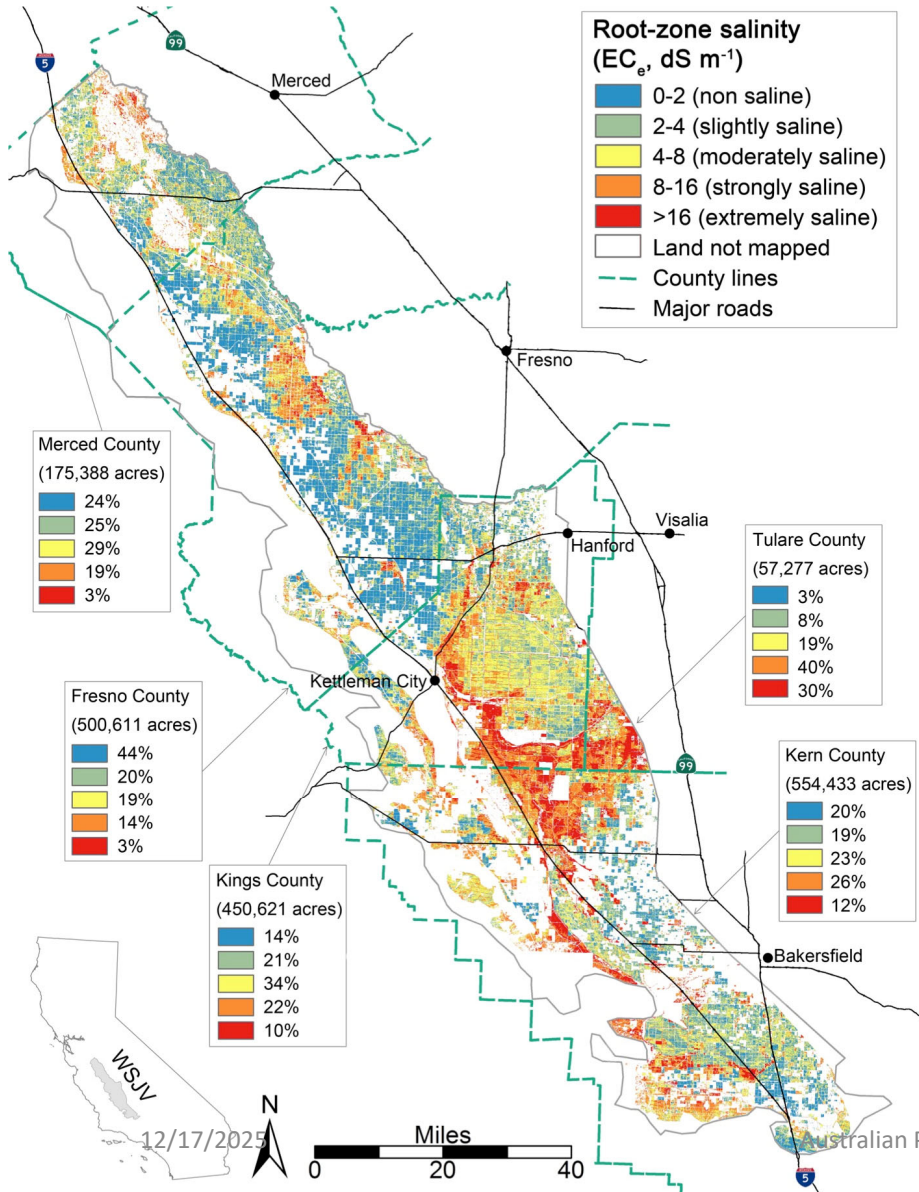


Cations: Ca^{2+} , Mg^{2+} , **Na^+** , K^+

Anions: SO_4^{2-} , **Cl^-** , **HCO_3^-** , CO_3^{2-} , NO_3^-

B (H_3BO_3 (boric acid) and H_2BO_3^- (borate))

Surface Soil Salinity in Western San Joaquin Valley (2015-16)



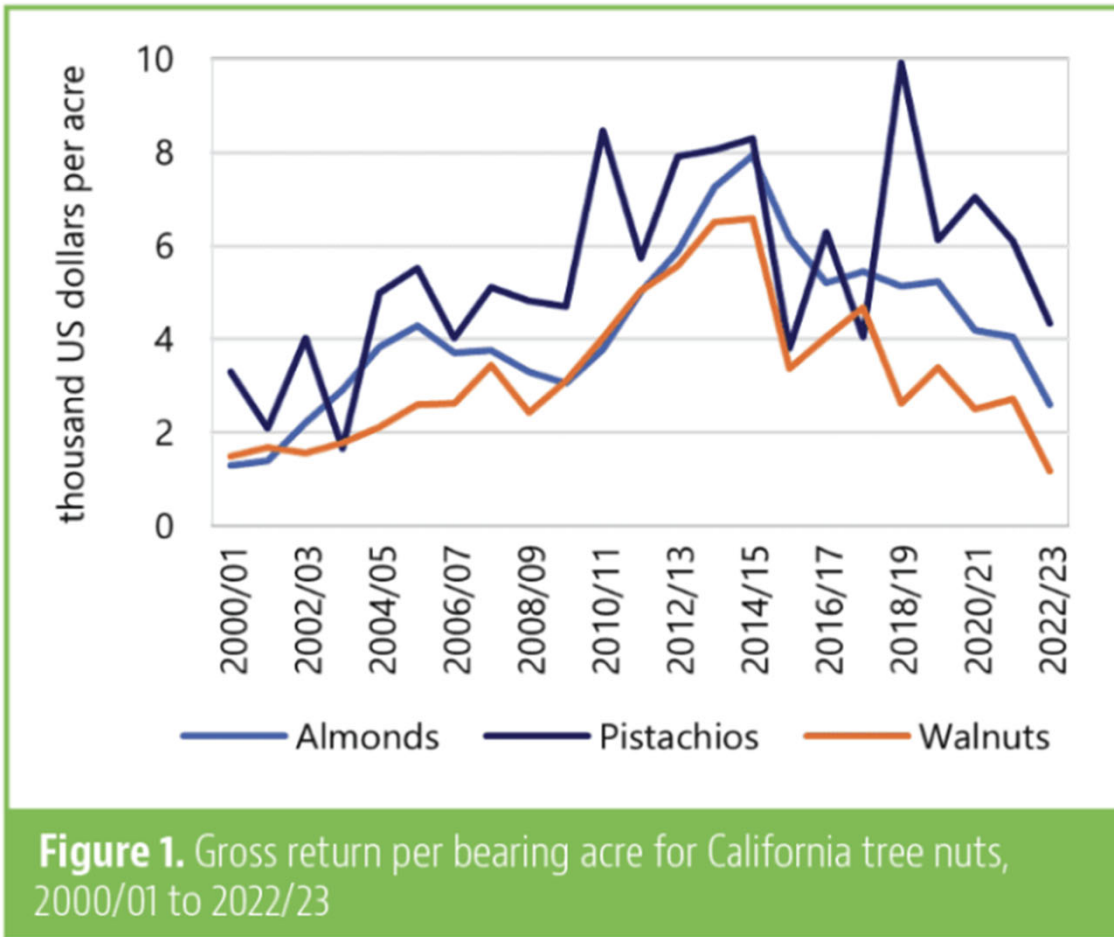
- ☐ ~ 85 % bearing pistachio acres in 4-16 dS/m soils
- ☐ Primary ions are Na⁺ and Cl⁻ in Meq/L
- ☐ Micronutrient boron in ppm

Elia Scudiero*, Dennis L. Corwin, Ray G. Anderson, Kevin Yemoto, Wes Clary, Zhi Wang, Todd H. Skaggs: "Remote sensing is a viable tool for managing soil salinity in agricultural lands". *California Agriculture*.

California Pistachio Production



- Soil prepared: ~ 2 m
- Trained 6 years
- Annual mechanical + hand pruning
- Drip irrigated
- IPM for insects and fungal diseases
- Mechanically harvested
- Sold to processor



**This is the primary reason growers plant pistachios:
- lesser quality soil and water**

Figure 1. Gross return per bearing acre for California tree nuts, 2000/01 to 2022/23

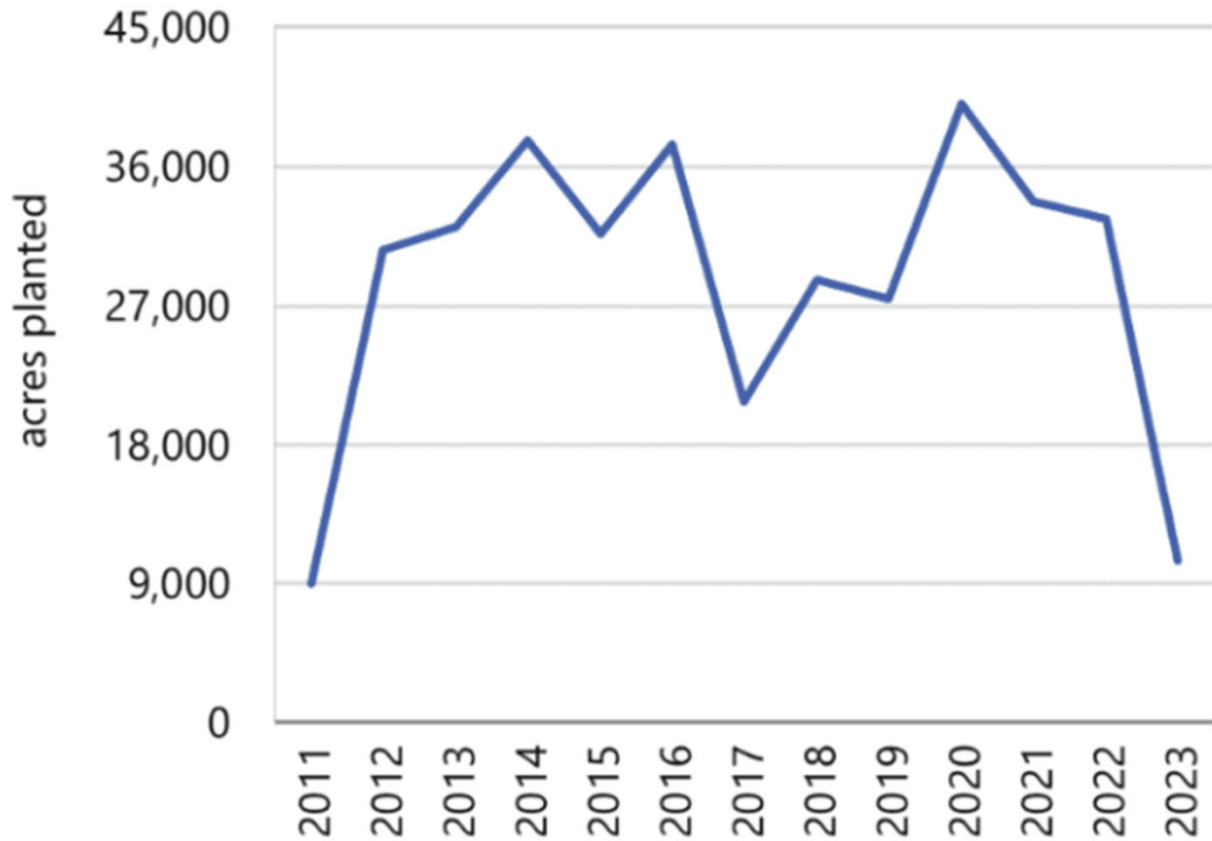
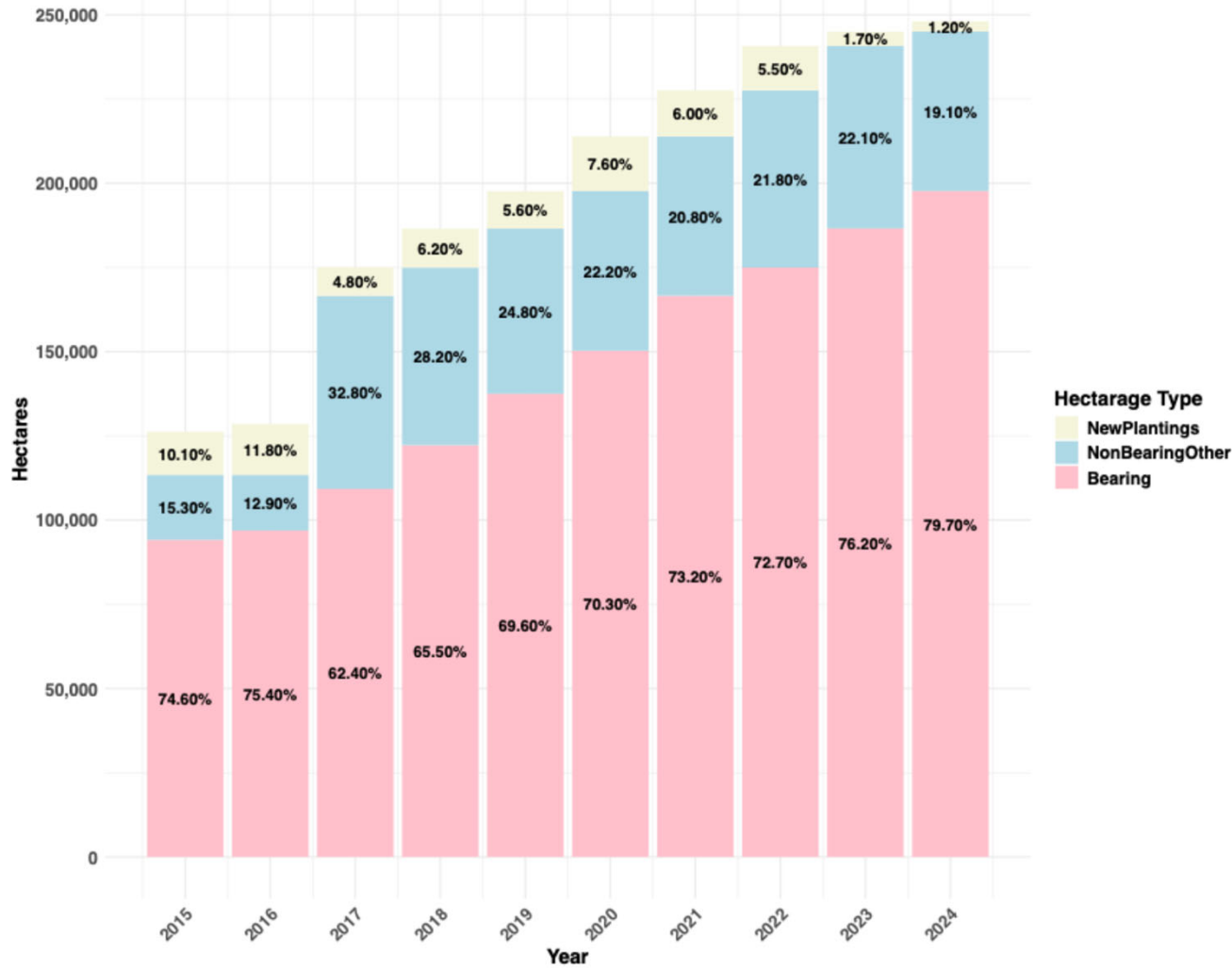


Figure 2. New pistachio plantings in California per year, 2011 to 2023

New plantings have slowed...

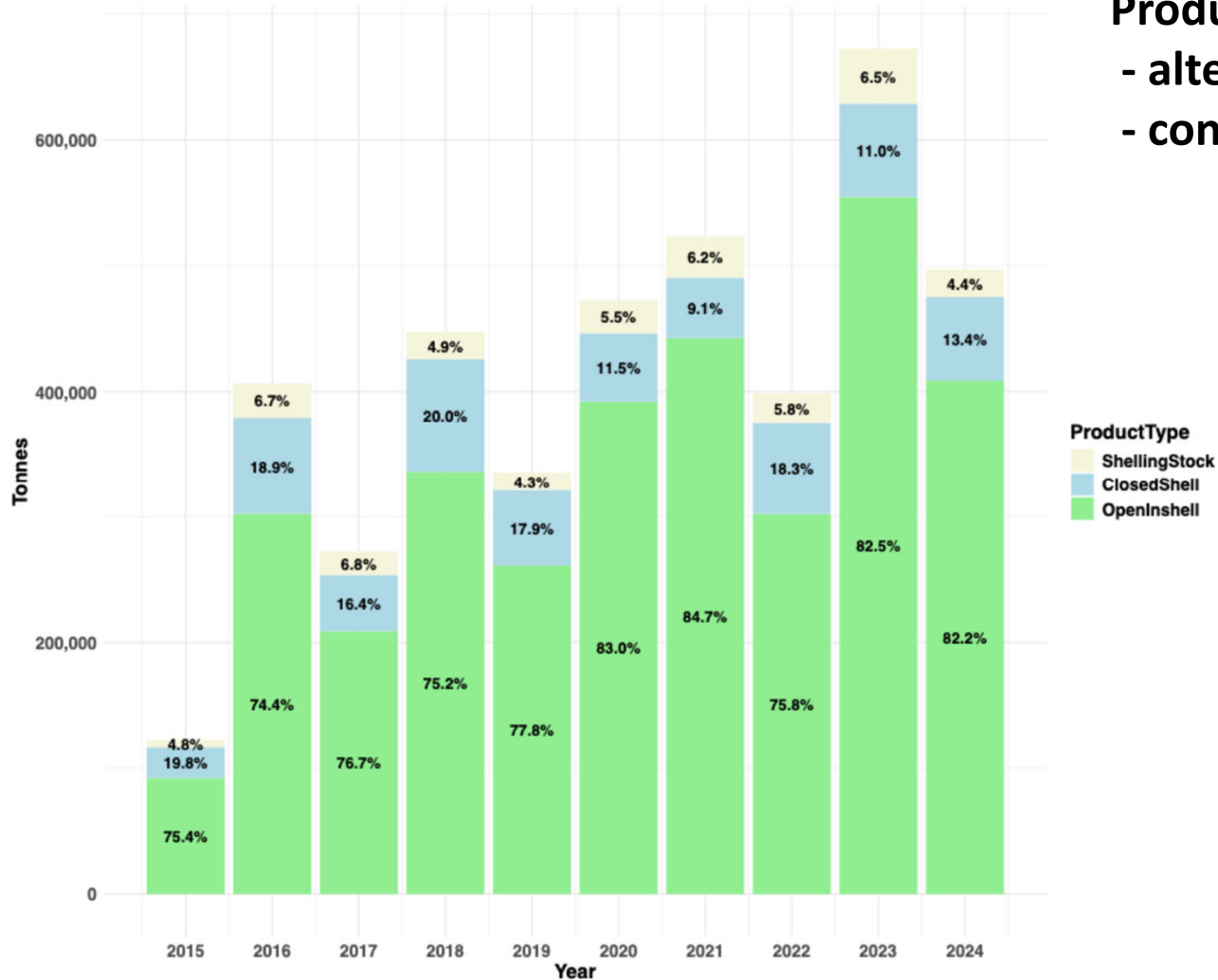
Pistachio Hectarage Breakdown



New plantings have slowed..

- **Lower price to growers**
- **Higher cost inputs**
- **Less net return**
- **Water supplies**
- **Climate change**
 - **Less chill**
 - **Summer heat**

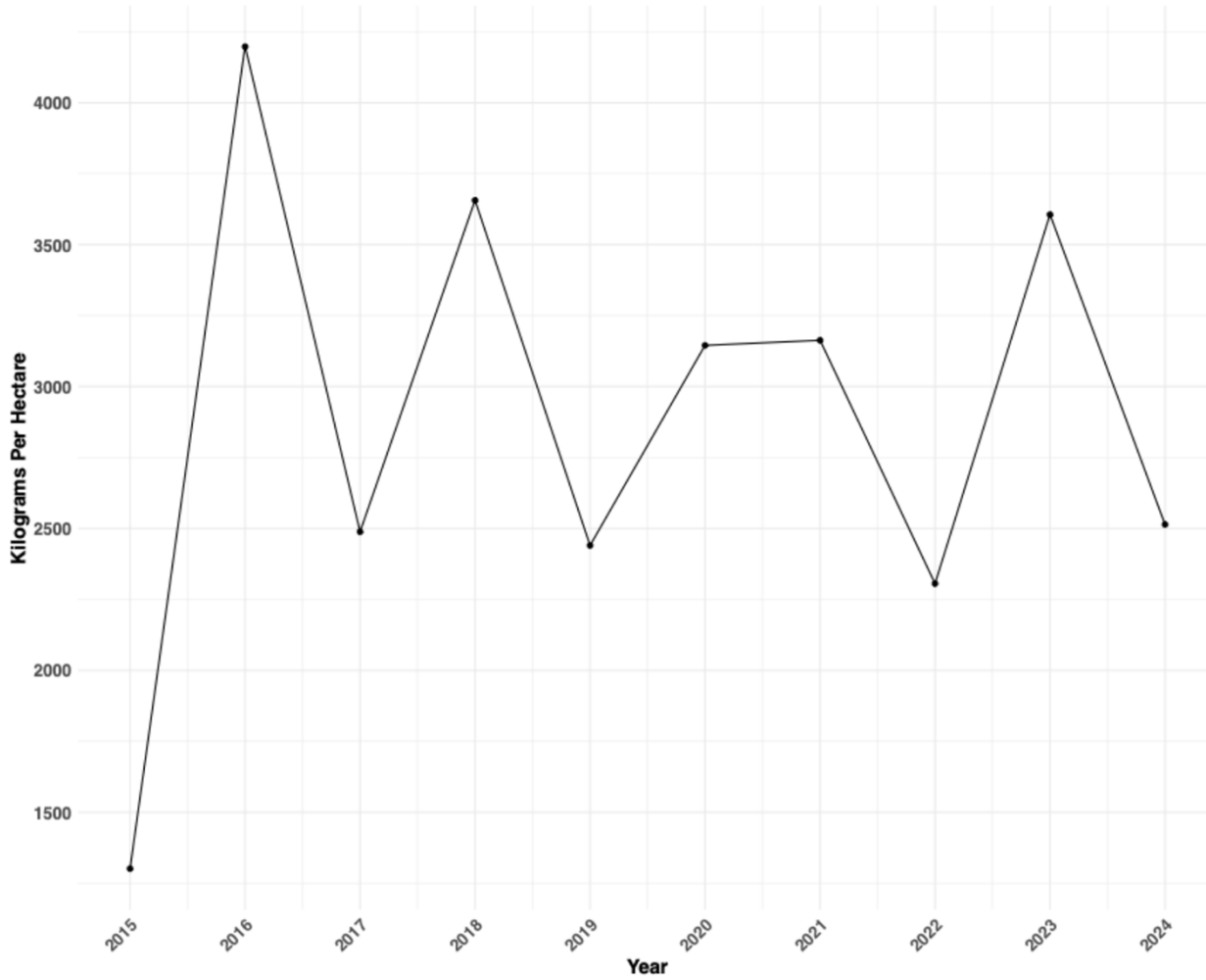
Production History



Production steadily increasing...
- alternate bearing
- consistent 80% + inshell splits

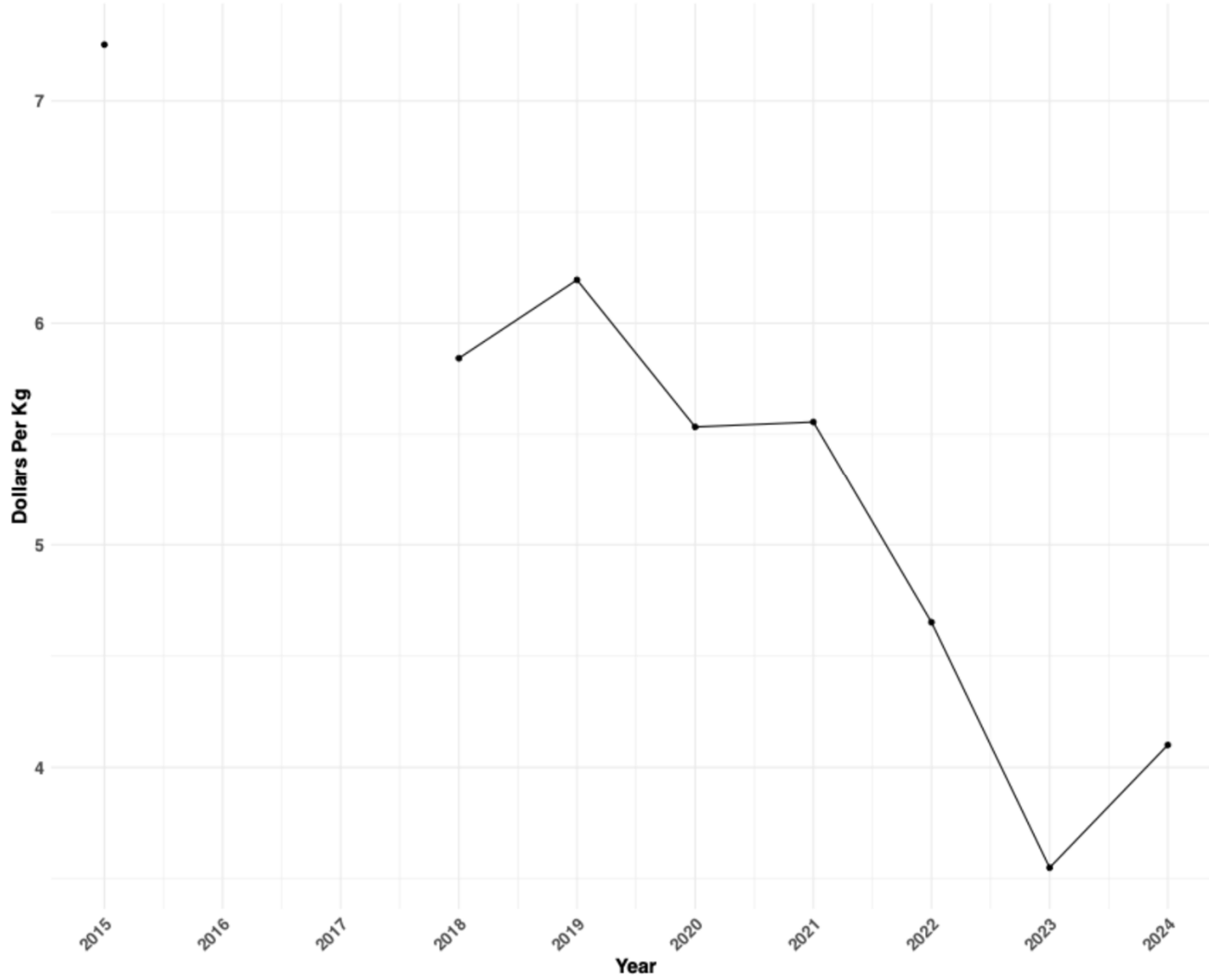
Australian Pisachio Production Short Course

California Pistachio Yield per Bearing Hectare



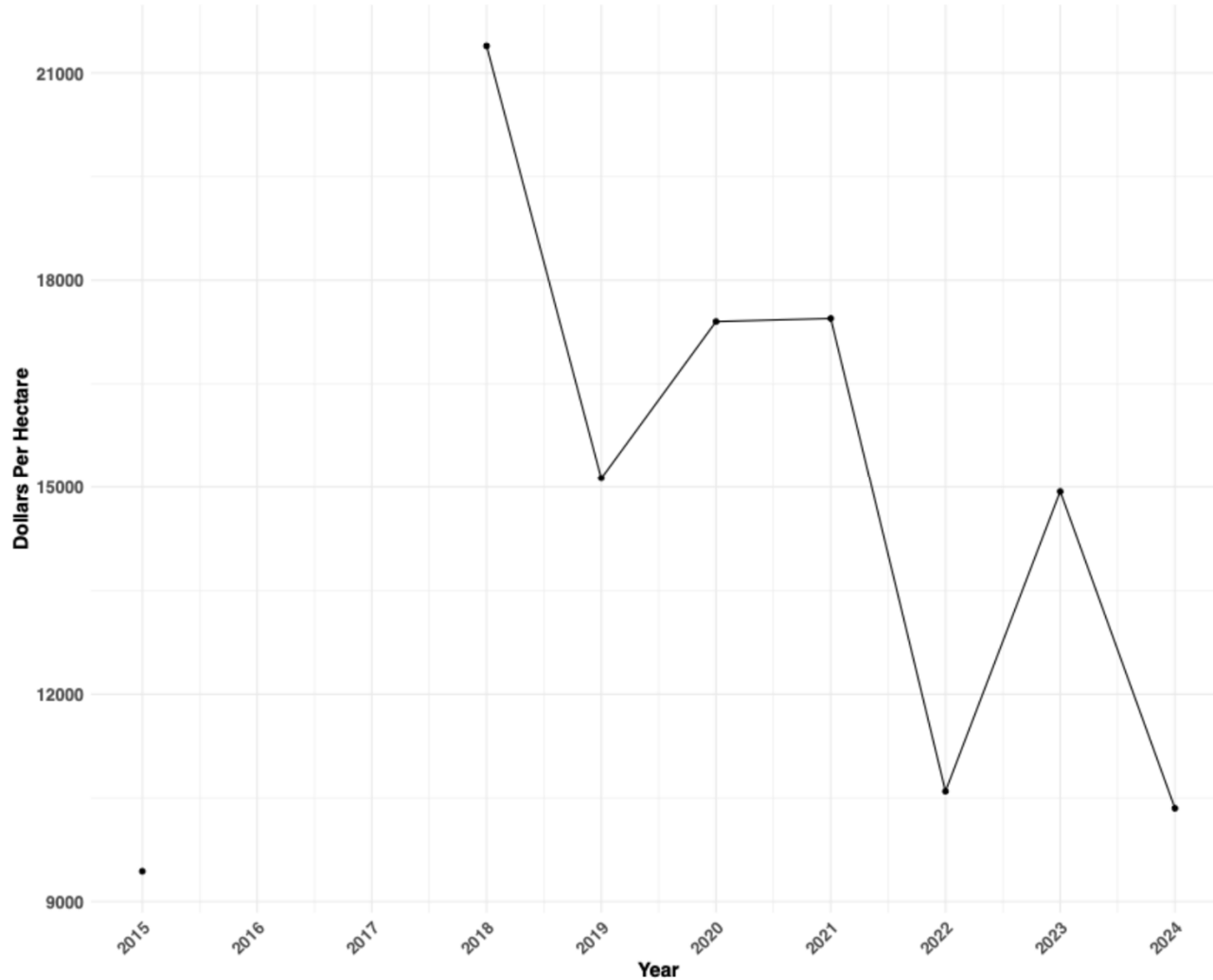
Steady 2-year average yields...
- alternate bearing
- rootstock effect

Average Return Per Kilogram



Grower price decreasing....

Average Return Per Hectare

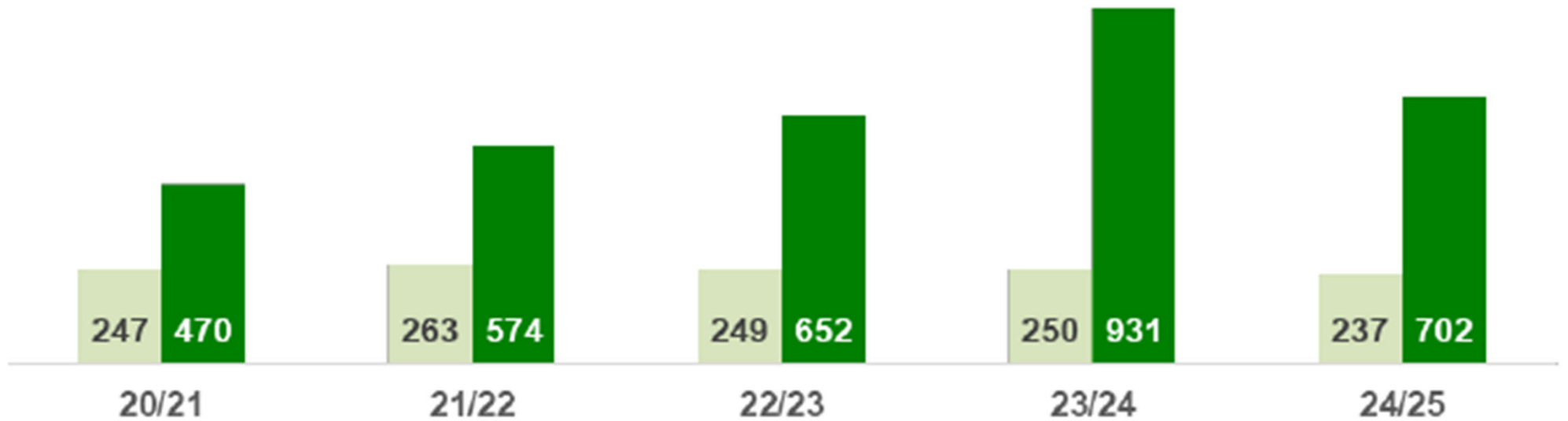


**Gross return decreasing...
- net even more due to
higher input costs
- water
- labor
- power**

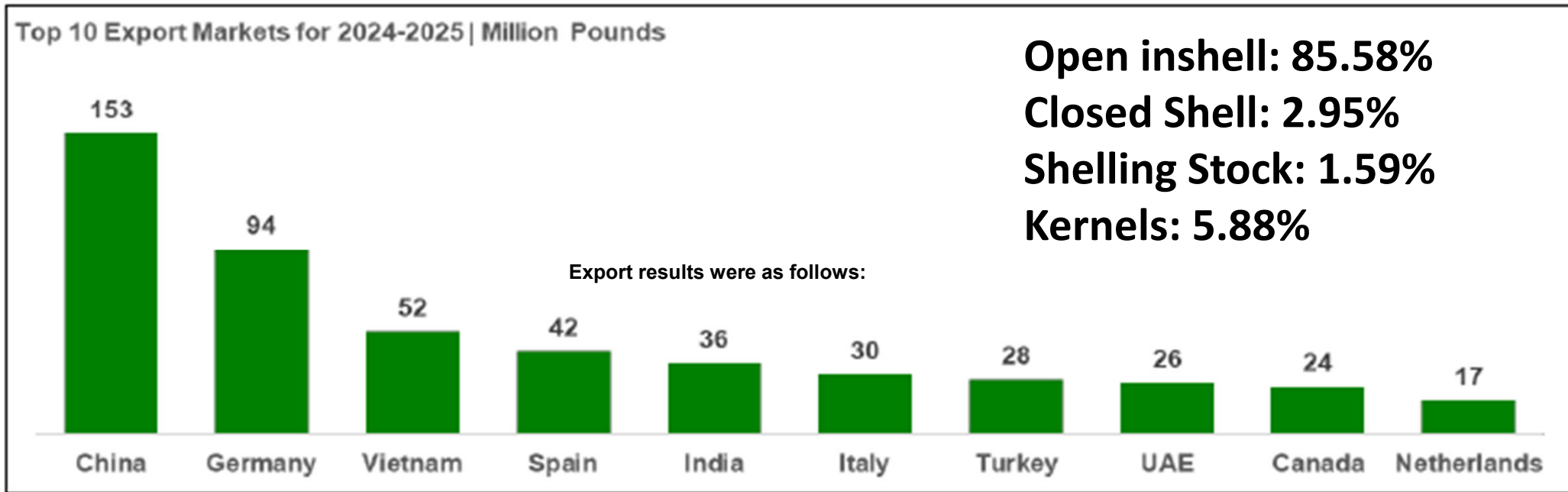
5-year Domestic and Export Shipments: - domestic market saturation

Five-year Domestic & Export Shipments | Million Pounds

■ Domestic ■ Export

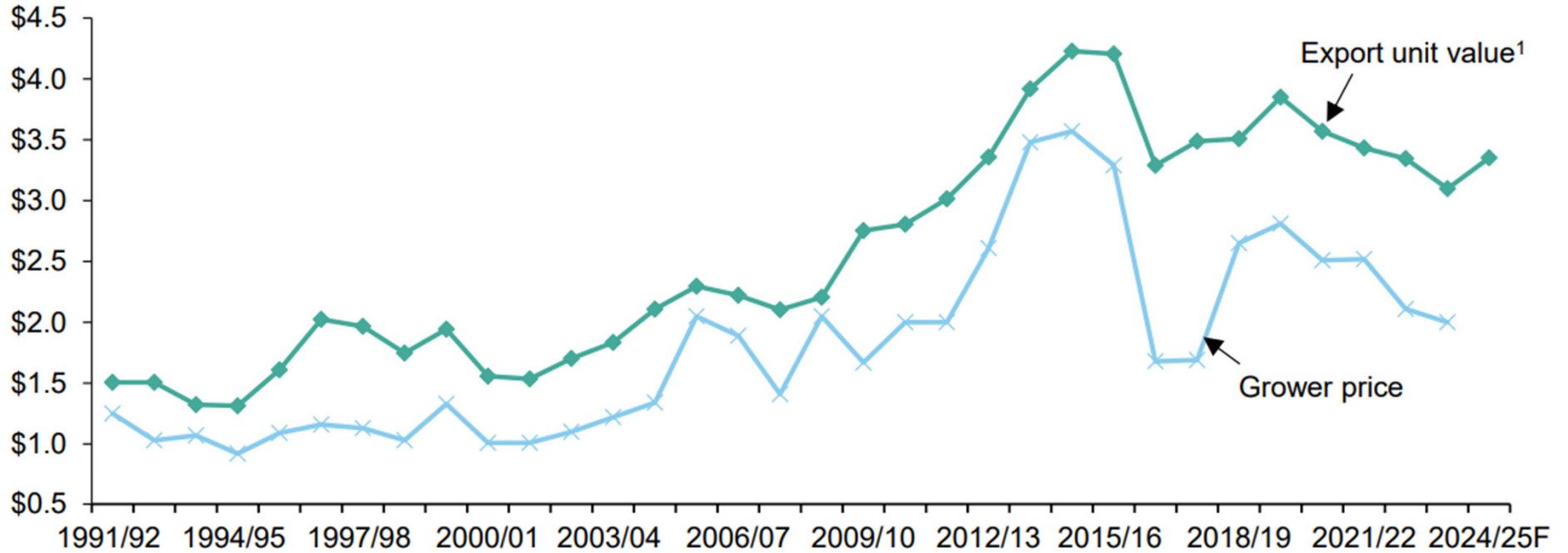


Top 10 Export Markets – 2024-2025



U.S. pistachio season average grower prices and export unit value (in-shell)

Dollars per pound



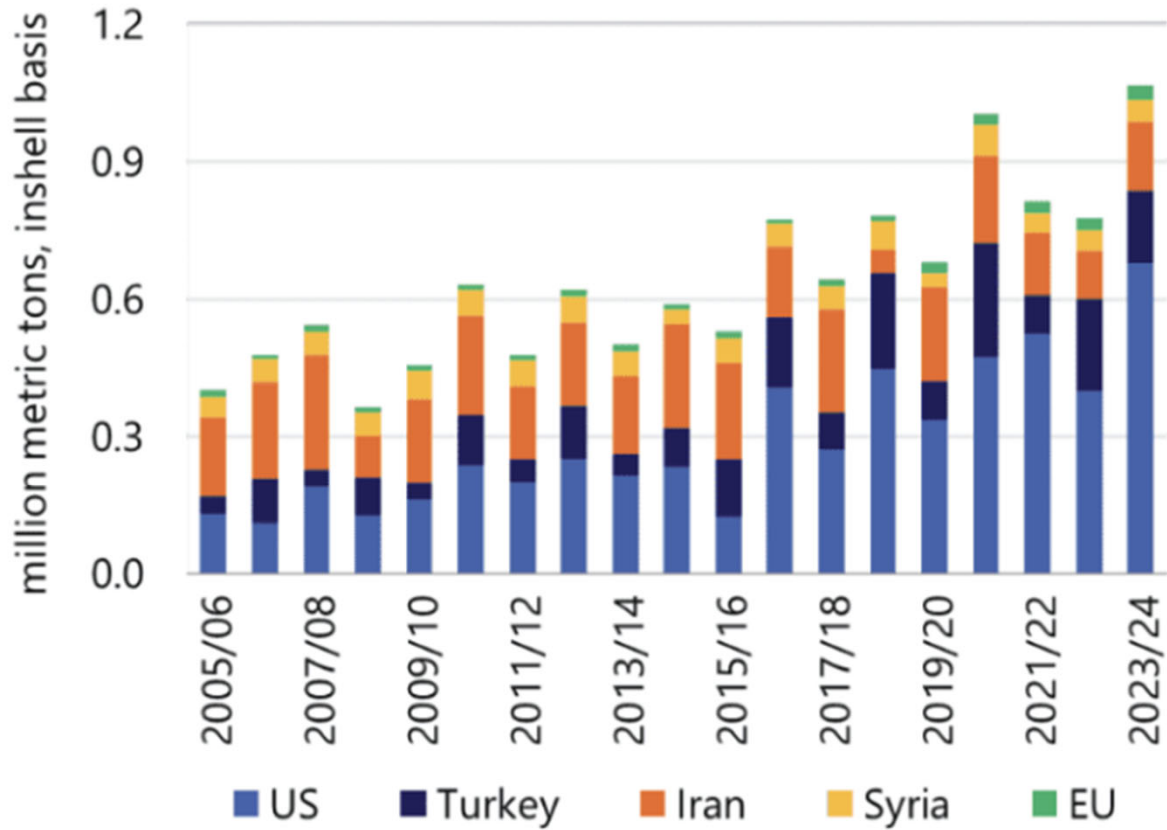
F = Forecast.

Note: Pistachio marketing year begins in September and ends in August of the following year.

¹ Export unit value is calculated by dividing total export value by total export volume for in-shell pistachio trade code 0802510000.

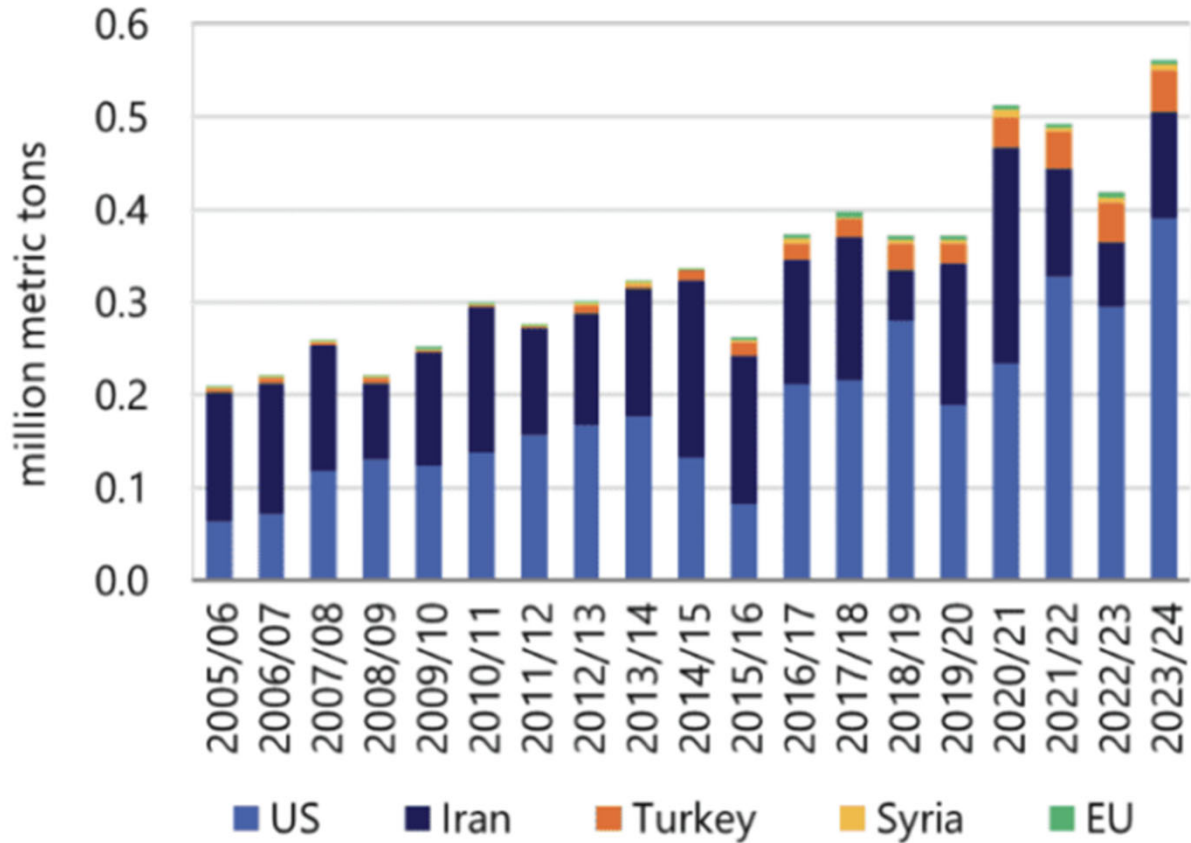
2024/25 export unit value calculated from data from September 2024 through January 2025.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census and USDA, National Agricultural Statistics Service.



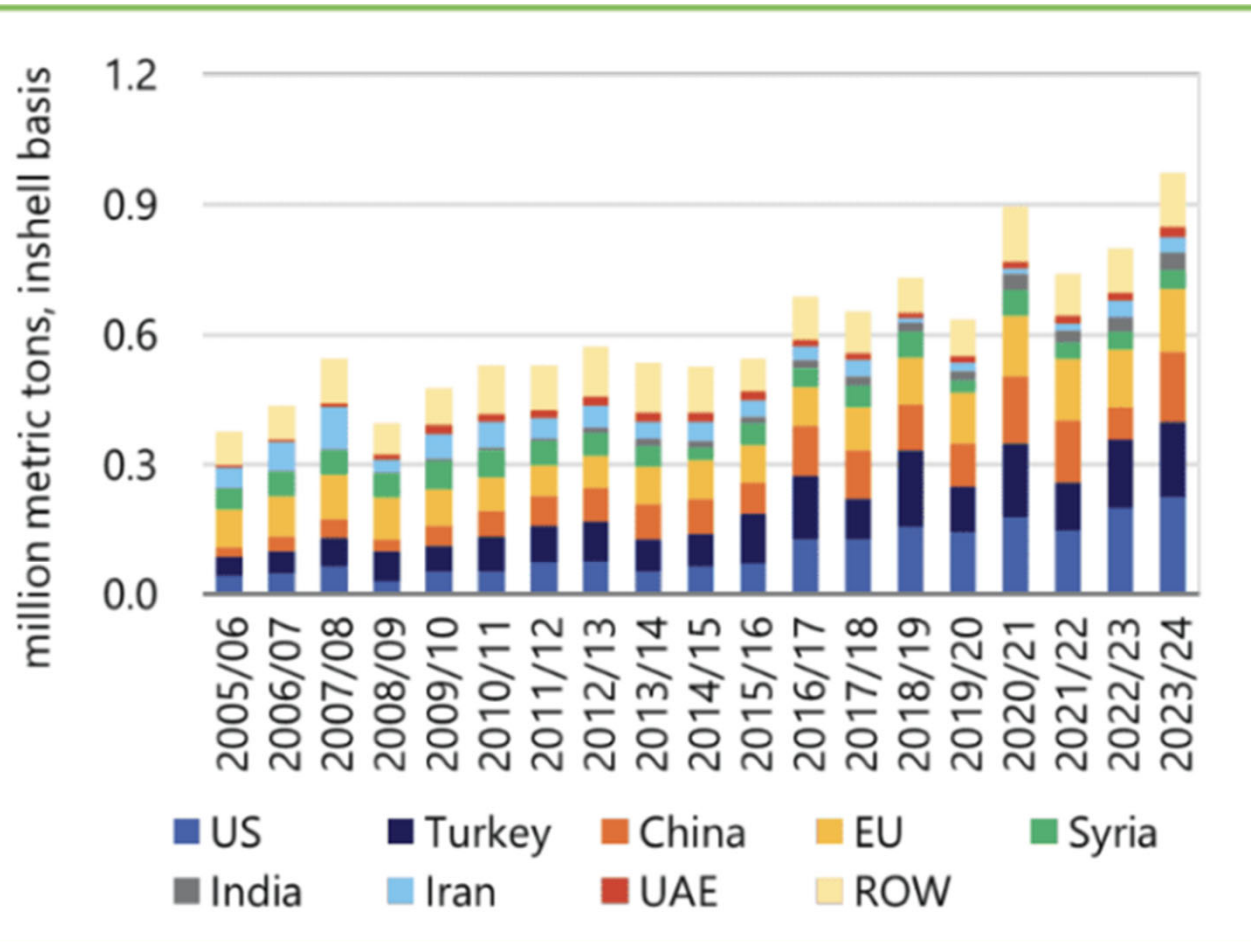
Our competition...

Figure 3. Global pistachio production, 2005/06 to 2023/24



Foreign export production....

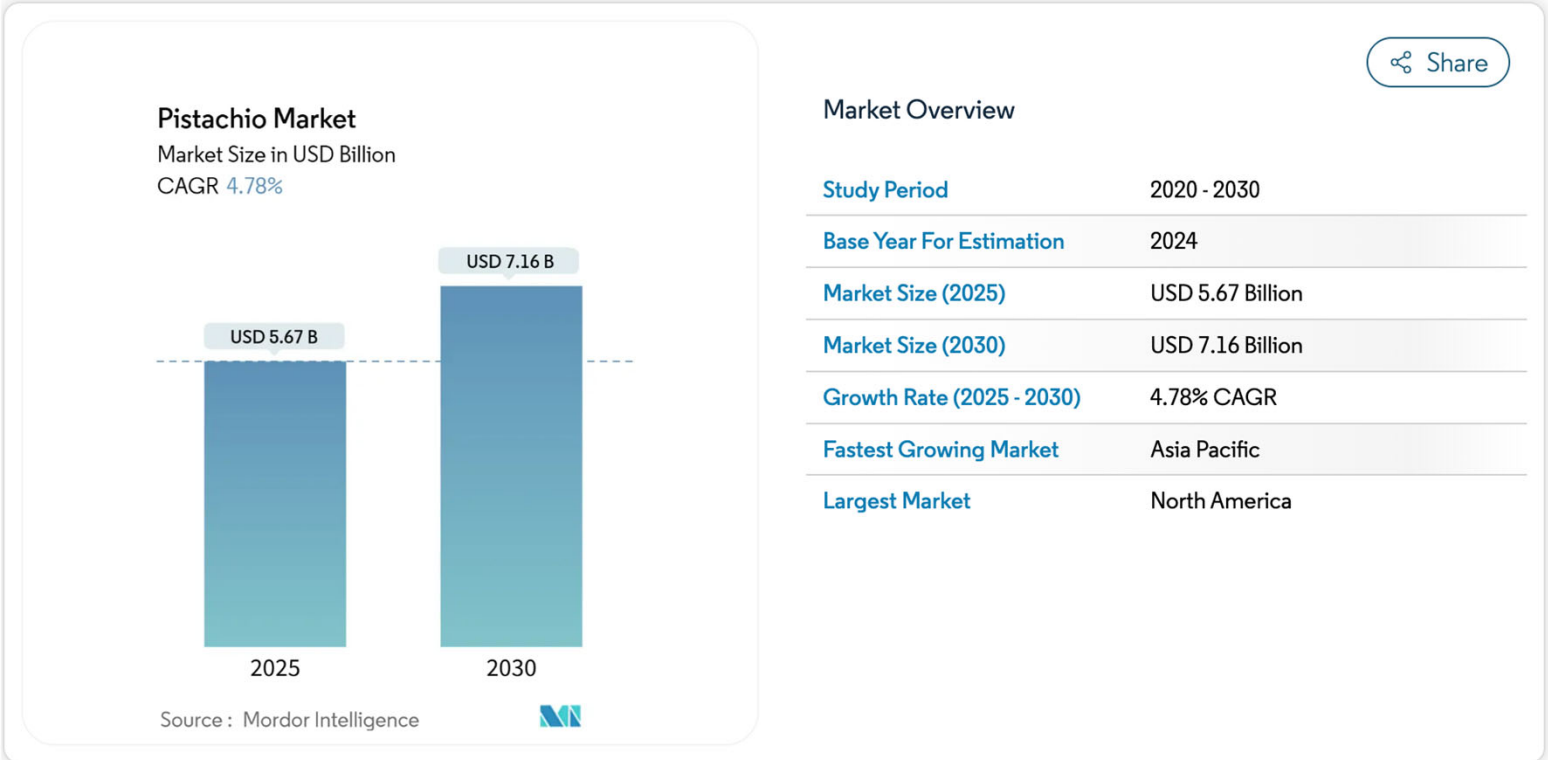
Figure 5. Global pistachio exports by region of origin, 2005/06 to 2023/24



Global consumption....

Figure 4. Global pistachio consumption by market, 2005/06 to 2023/24

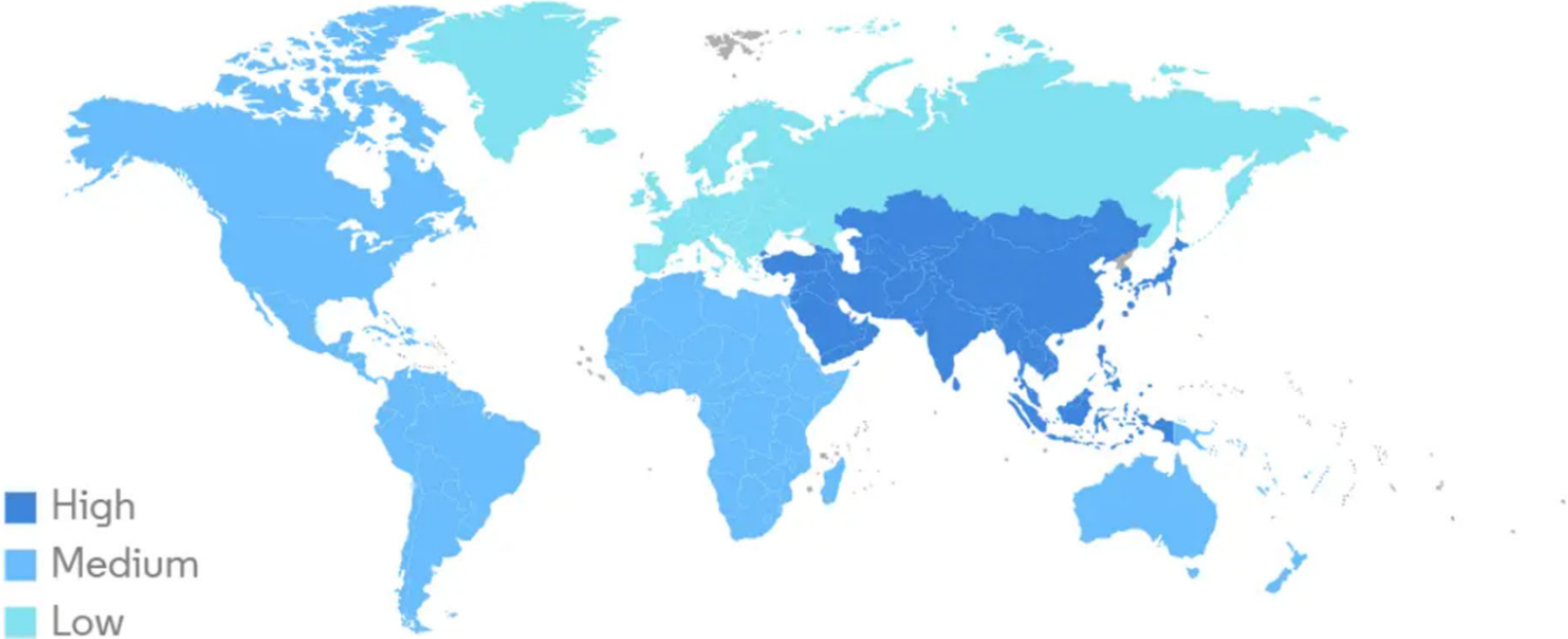
Pistachio Market Size and Share



~ 5% projected growth

COMPARE MARKET SIZE AND GROWTH OF PISTACHIO MARKET WITH OTHER MARKETS IN AGRICULTURE INDUSTRY

Pistachio Market CAGR (%), Growth Rate, by Region, 2025 - 2030

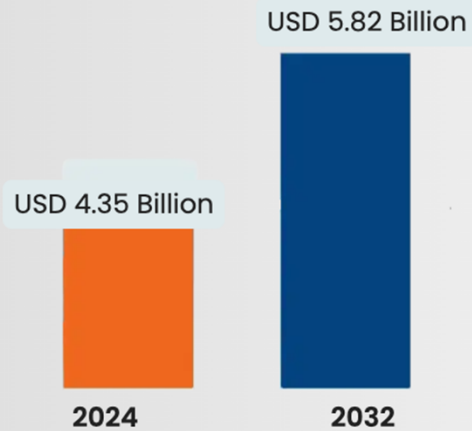


Source: Mordor Intelligence

Global Pistachio Market

Market Size in USD Billion

CAGR : 3.70%



Forecast Period

2025 –2032



Market Size (Base Year)

USD 4.35 Billion



Market Size (Forecast Year)

USD 5.82 Billion



CAGR

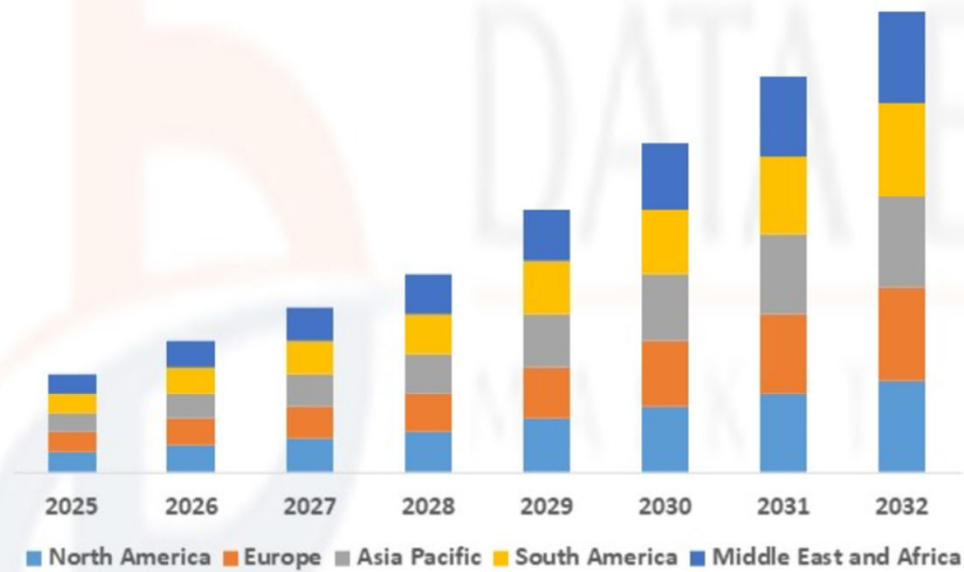
3.70 %



Major Markets Players

- The Wonderful Company LLC
- Horizon Growers
- Nichols Farms
- Keenan Farms
- Setton Pistachio of Terra Bella

Global Pistachio Market is Expected to Account for USD 5.82 Billion by 2032



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Source: Data Bridge Market Research Market Analysis Study 2025

Global Pistachio Market, By Regions, 2025 to 2032



DATA BRIDGE MARKET RESEARCH



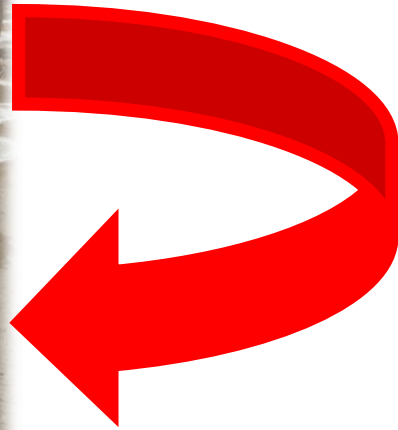
Production and Market Summary:

- **New plantings have slowed**
- **~ 20% orchards nonbearing**
 - Production is increasing
- **Prices stable or decreasing**
- **Production costs increasing**
 - **Water**
 - **Labor**
 - **Power**
- **Domestic markets saturated**
- **Develop new global markets:**
 - **Easter subcontinent**
- **Diversify uses:**
 - **Processing: fresh, raw,**
 - **Ingredient use in different forms**

US Pistachio Industry Top 5 Challenges

- **Water quality and availability**
- **Climate change and adaptation**
- **Invasive pests and diseases**
- **Loss of AI's (pesticides) and lack of harmonization of MRL's for established pests and diseases**
- **Energy policy (e.g. affordability)**

Climate change in Mediterranean climates...



Salinization!

- **Less precipitation:**
 - less ground water
 - more irrigation
 - less leaching?
- **Lower humidity:**
 - higher evapotranspiration

Pistachio salinity (in)tolerance appears as...

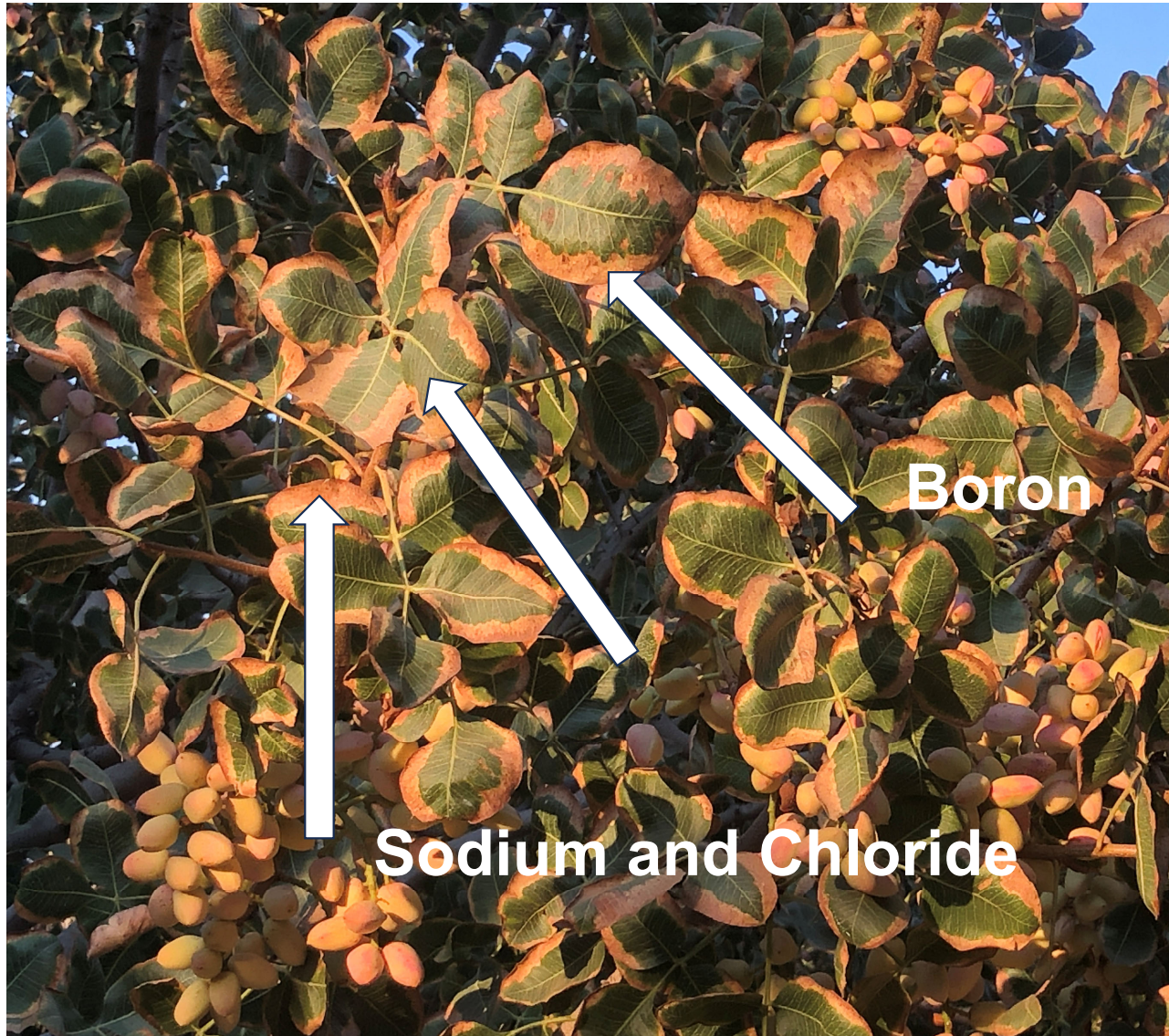


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osmotic pressure and specific ion damage

**Micronutrient
boron
creates most
specific ion
damage...**

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Climate Change Effects on Bloom, Mortality



Erratic onset of dormancy and spring, low winter chill, summer heat and rains....

Invasive and Current Pests



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Australian Pistachio Production Short Course

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Our solutions:

- **Short and midterm....**

- **Horticultural**

- irrigation

- **Chemical**

- dormancy, IPM

- **Physiological**

- carbon

- **Long term...**

- **Accessions**

- not active

- **Crop improvement via Breeding**

- climate adaptation

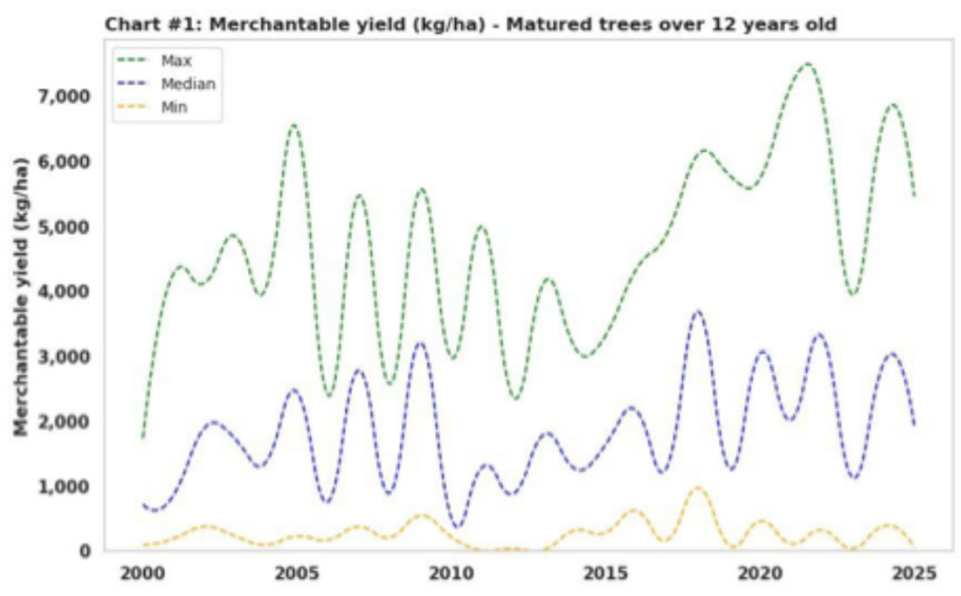
Australian Industry: 2024

- **40 growers with 1500 hectares in production**
- **20 growers with 1500 hectares of juvenile orchards.**
- **Most <10 hectares**
- **Growers with 50 hectares to 400 hectares produce ~80%**
- **2024 crop ~4,500 mt**

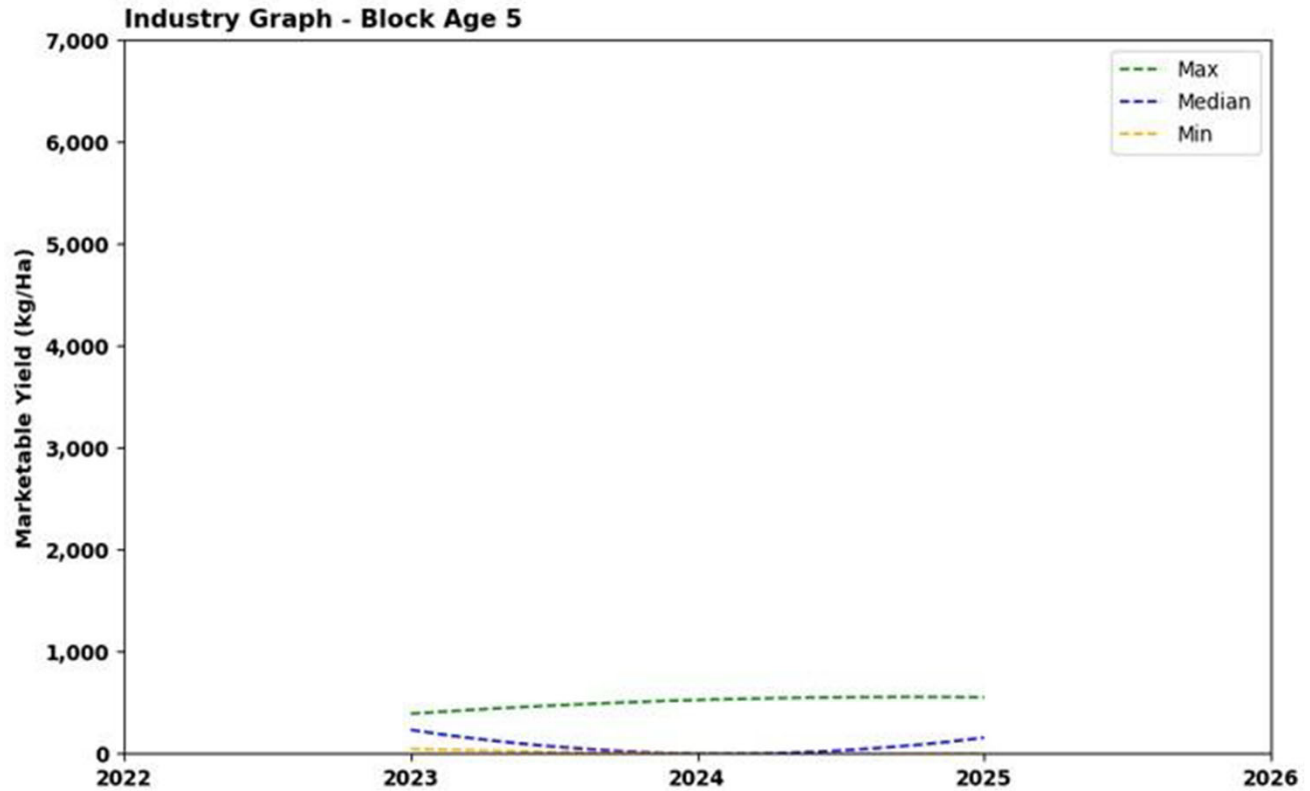
Australia's Industry...mature tree average

Courtesy: C. Joyce

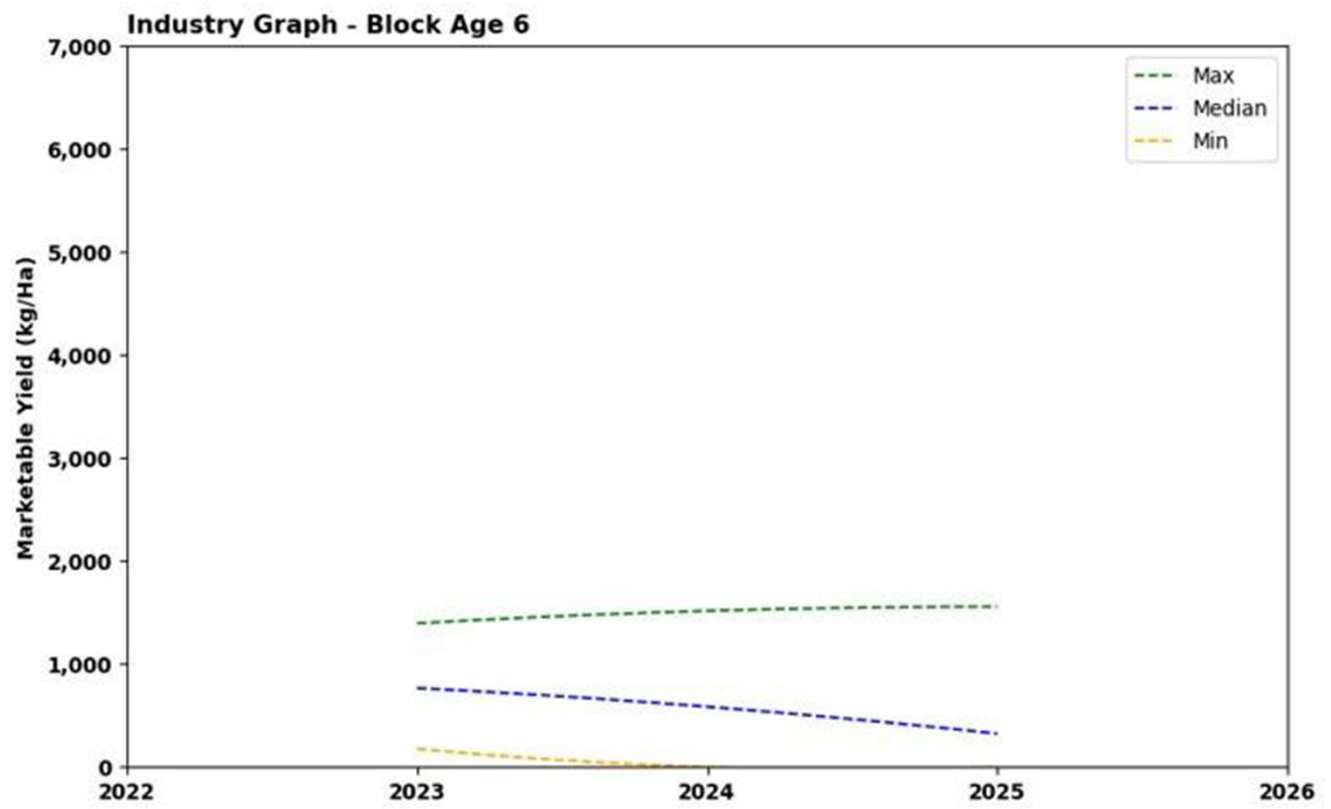
Mature trees (above 12 years age)



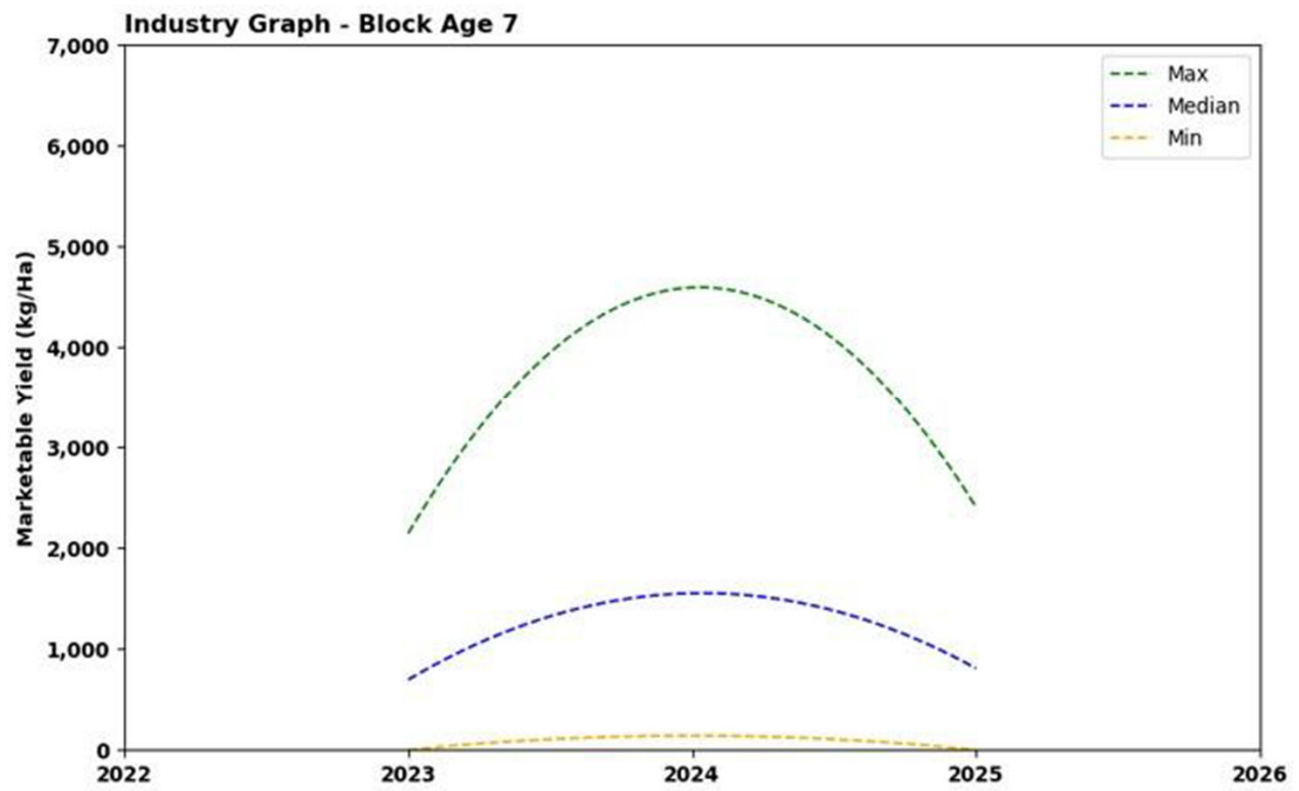
Australia's Industry... age 5 average



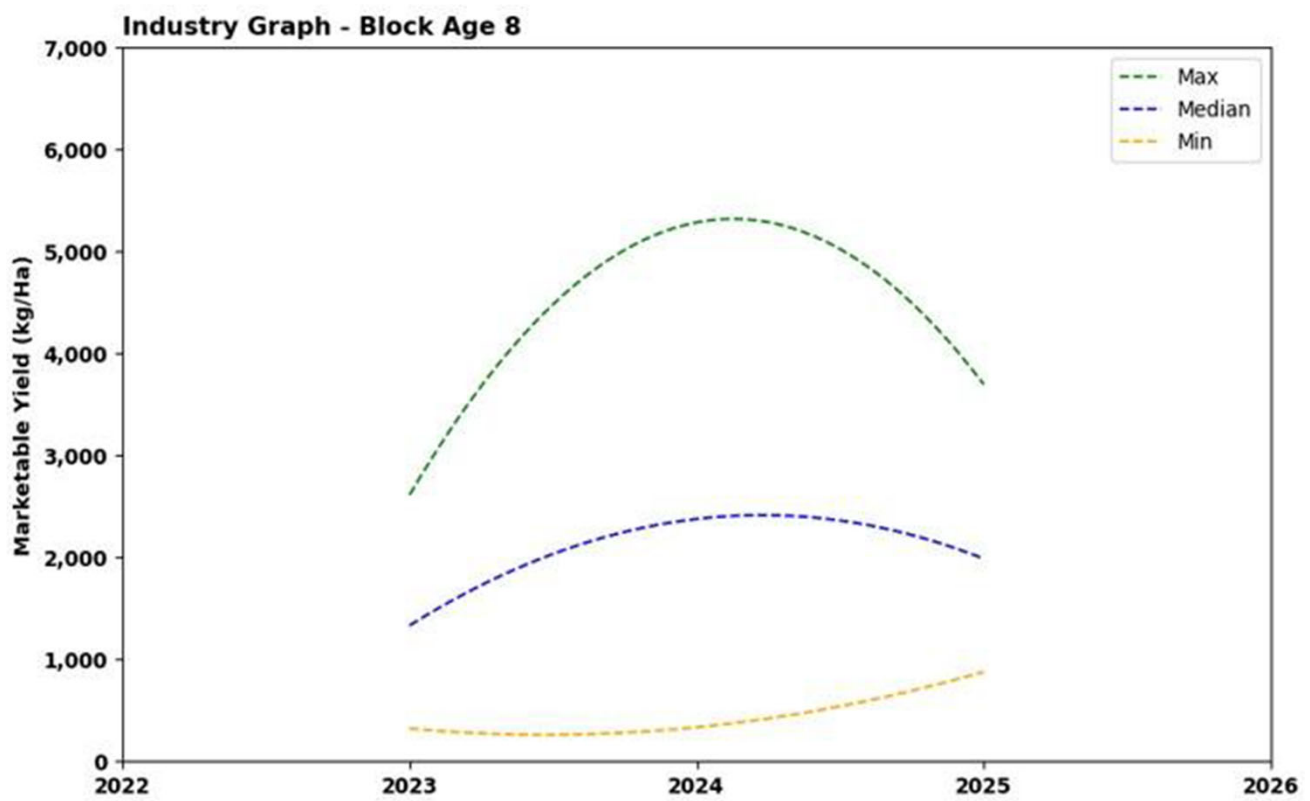
Australia's Industry... age 6 average



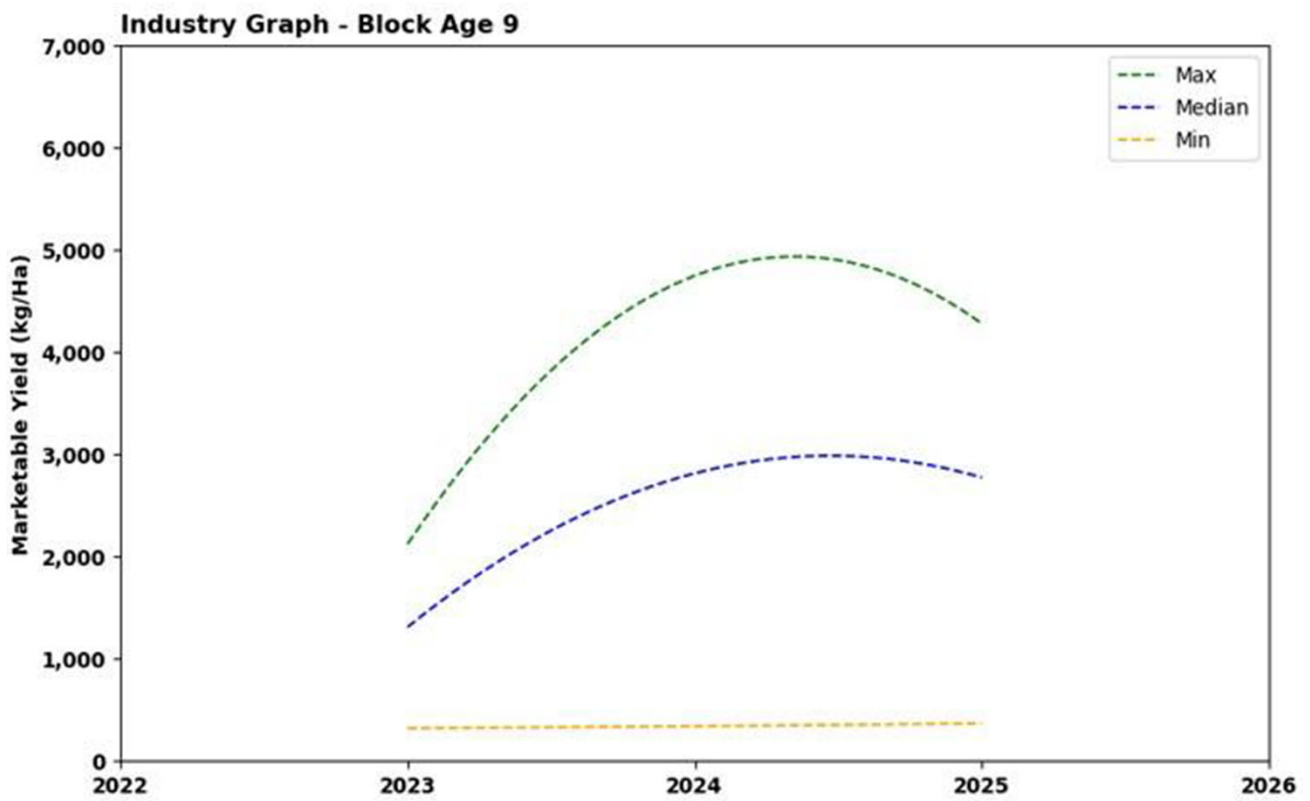
Australia's Industry... age 7 average



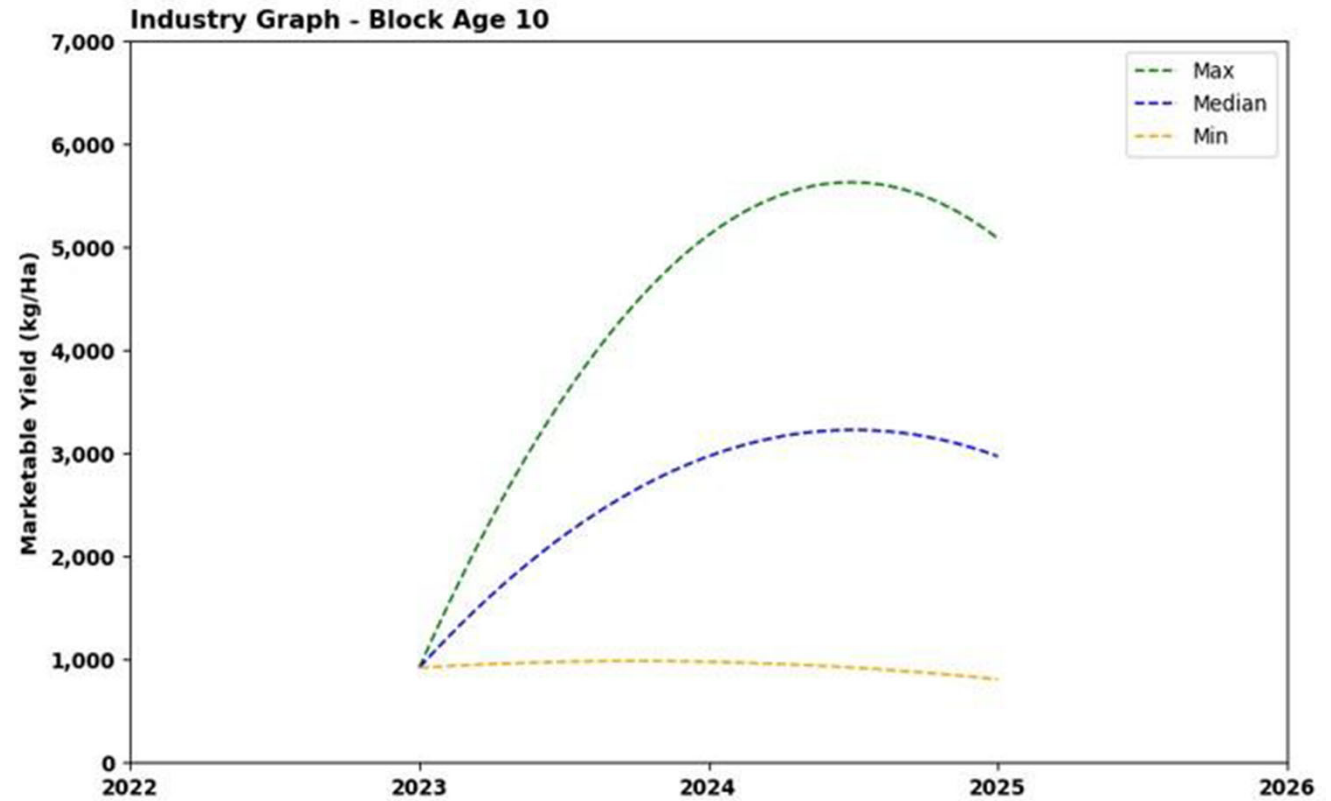
Australia's Industry.... age 8 average



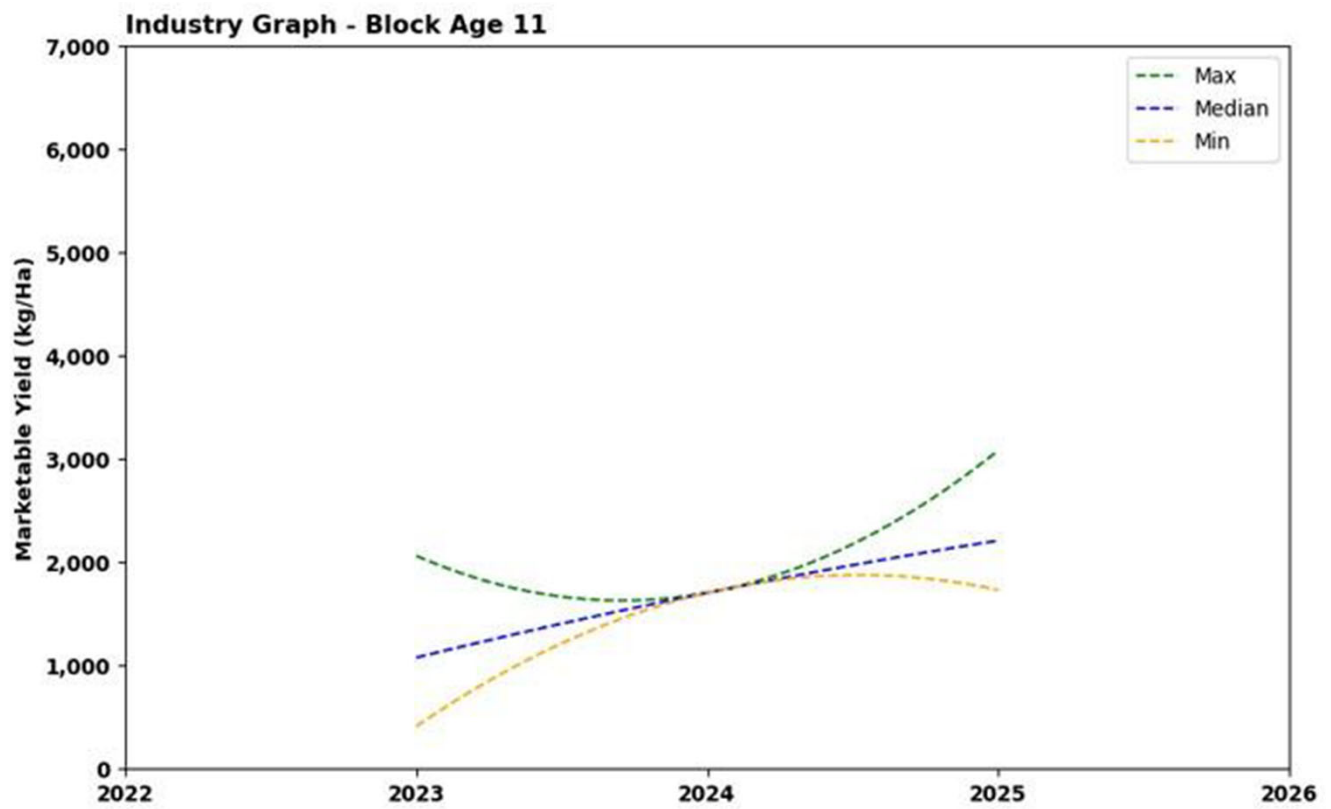
Australia's Industry... age 9 average



Australia's Industry... age 10 average

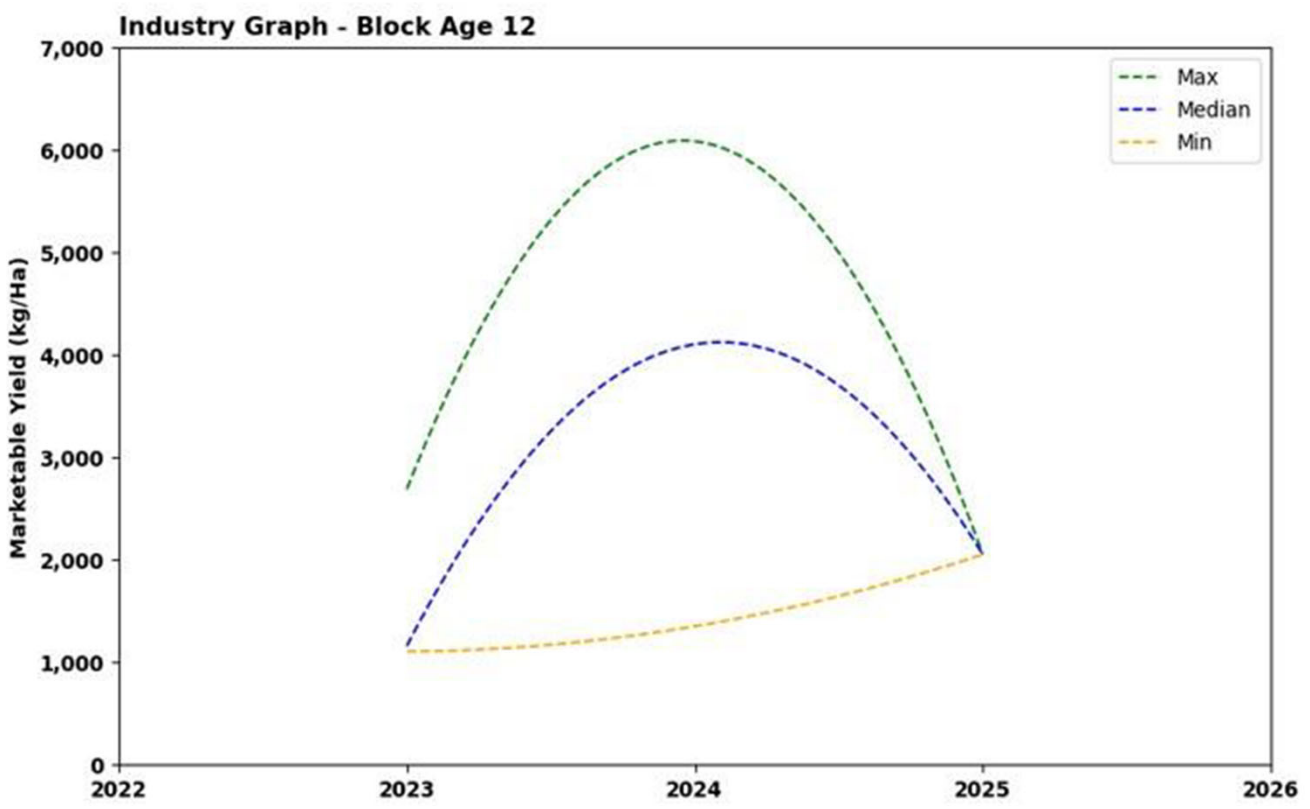


Australia's Industry... age 11 average



Alternate bearing begins....

Australia's Industry... age 12 average



Australian Industry Status...

- **Increase in plantings**
- **Increased average per hectare yields**
- **Increased total industry production**
- **Increased export potential**

Australian Industry Challenges...

- **2028-2032: 9000-14,000 tons**
 - **Increase processing capacity**
 - **Increase domestic markets**
 - **Increase export markets beyond China**
 - **Competition from California and Iran**
- **Solutions:**
 - **Research and Development**
 - **Extension Education**

Australia's industry priorities*

High Priority, Urgency and Financial Impact:

- Fungal diseases
- Pruning to mitigate alternate bearing
- Monitoring and mitigating (lack of) chill
 - Global warming
- Diversify cultivars: Kerman

*Source: 4/2/2021 PGAI Strategic
Plan

Australia's industry priorities*

Medium Priority, Urgency and Financial Impact:

- Water volume and timing
- Kernal fill split and blanking
- Alternate bearing

***Source: 4/2/2021 PGAI
Strategic Plan**



Australia's industry priorities*

**Low Priority, Urgency
and Financial Impact:**

- **Insects**

***Source: 4/2/2021 PGAI
Strategic Plan**

Conclusion:

- In next two days we hope to discuss what we have learned and and how it may apply to your industry...

12/17/2025

