

# Economical and Technical Aspects of Pistachio Production in Georgia

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# Presentation Outline

- I. INTRODUCTION TO PISTACHIO**
- II. GLOBAL PRODUCTION**
- III. PRODUCTION POTENTIAL FOR GEORGIA**
- IV. ECONOMICS OF PRODUCTION**

# Temperate, high desert, deciduous



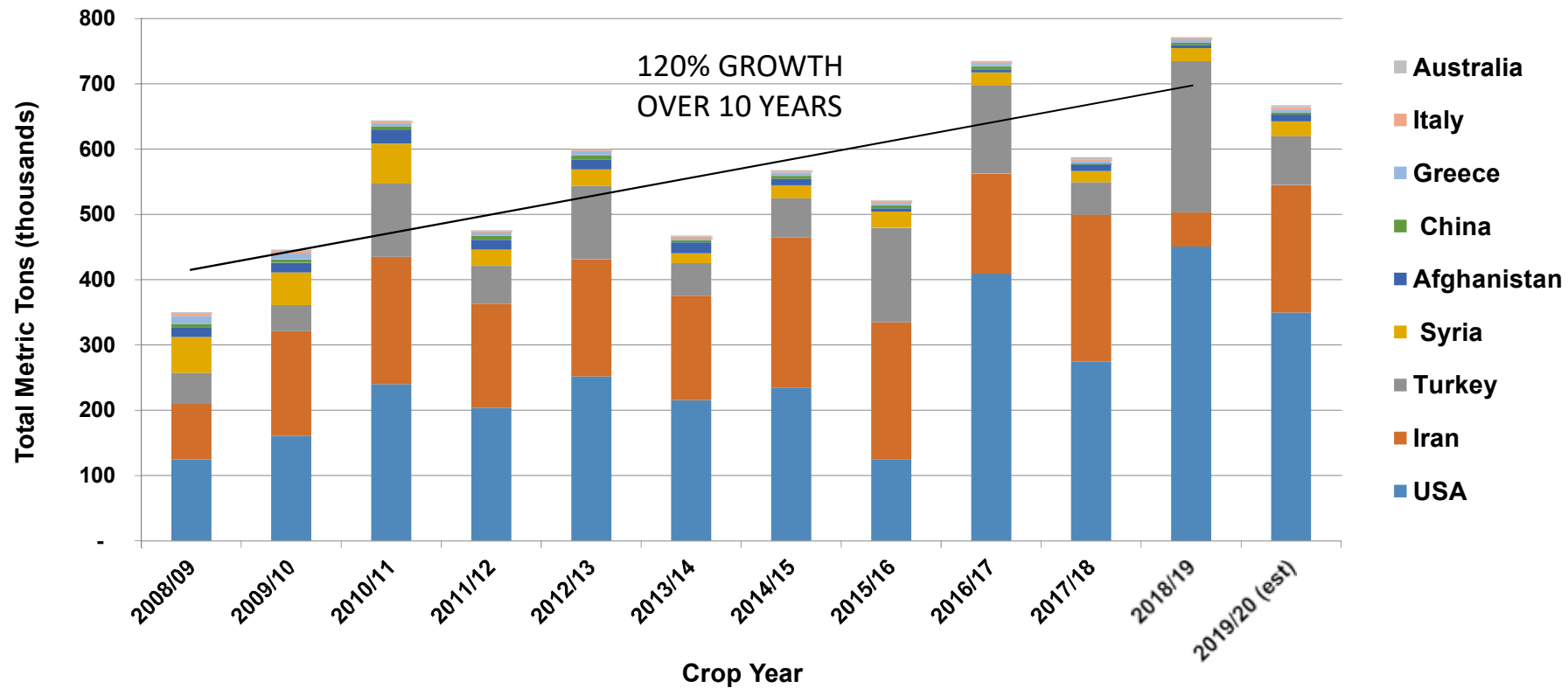
# Marketed:

- **Fresh**
- **Dried**
- **Roasted**
- **Ingredient**
- **Powder**



# II. GLOBAL PISTACHIO PRODUCTION

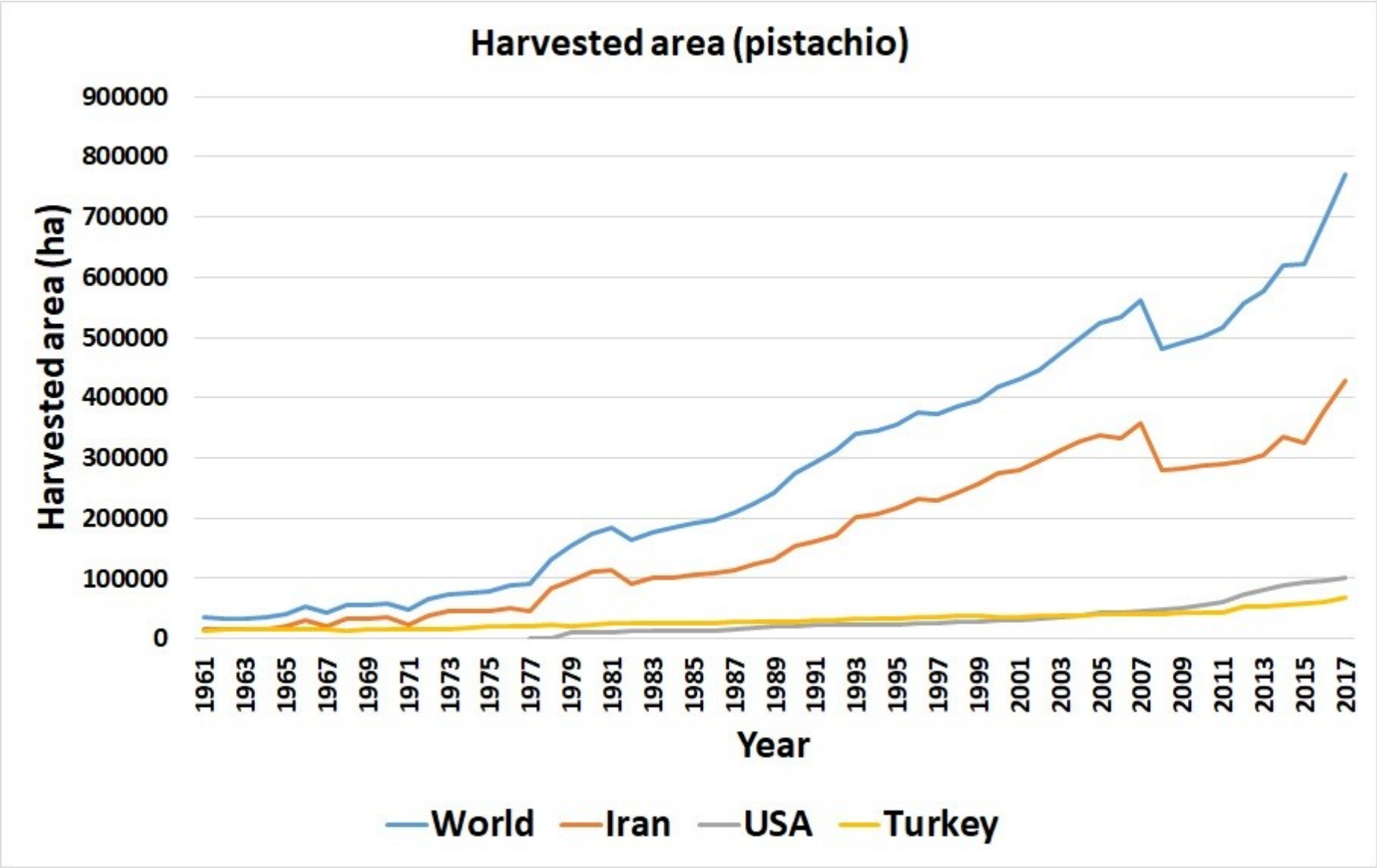
# Total World Pistachio Production



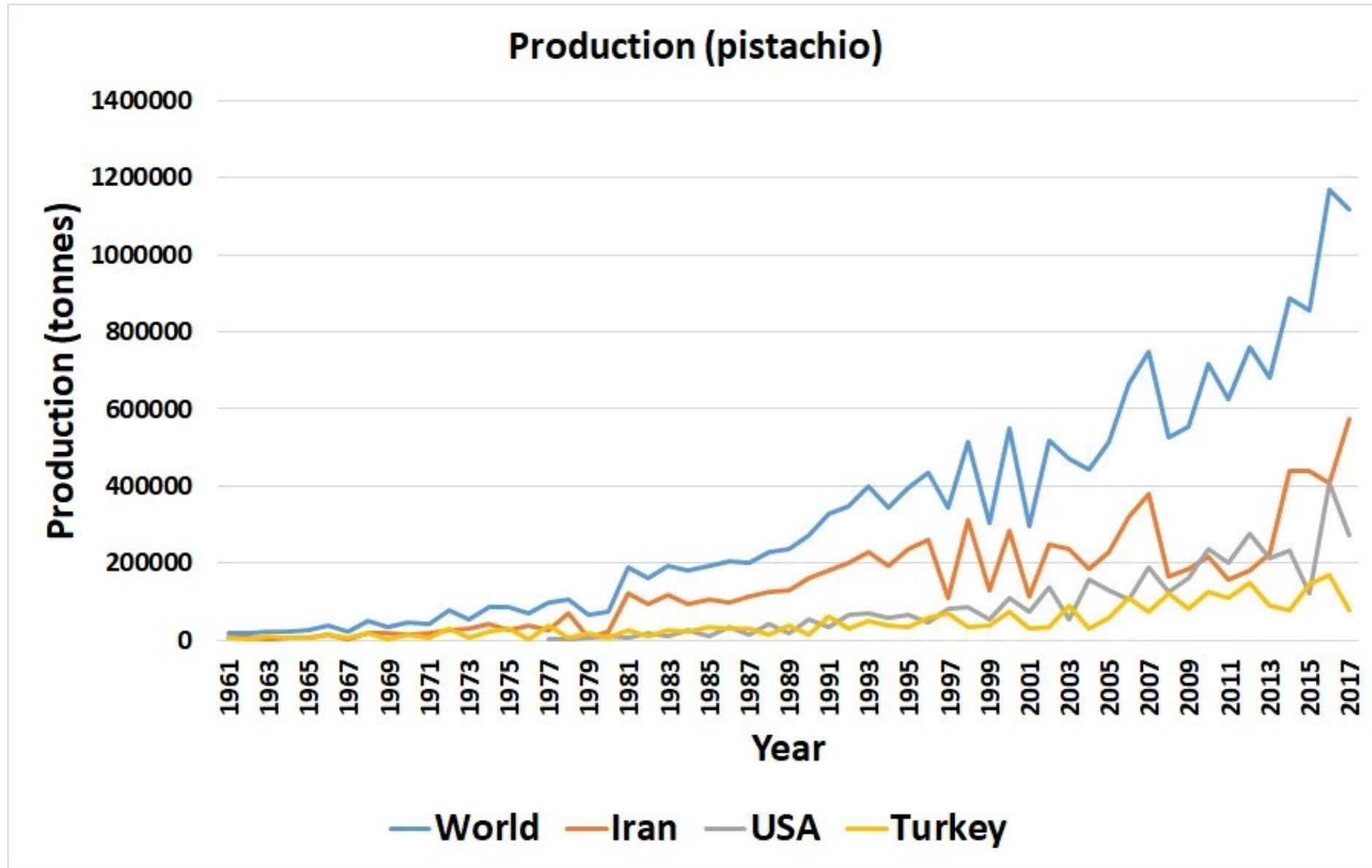
**International Nut and Dried Fruit Congress**  
**Boca Raton Fl USA**  
**May 2019**



# HECTARES OF PISTACHIOS IN MAJOR PISTACHIO PRODUCING COUNTRIES

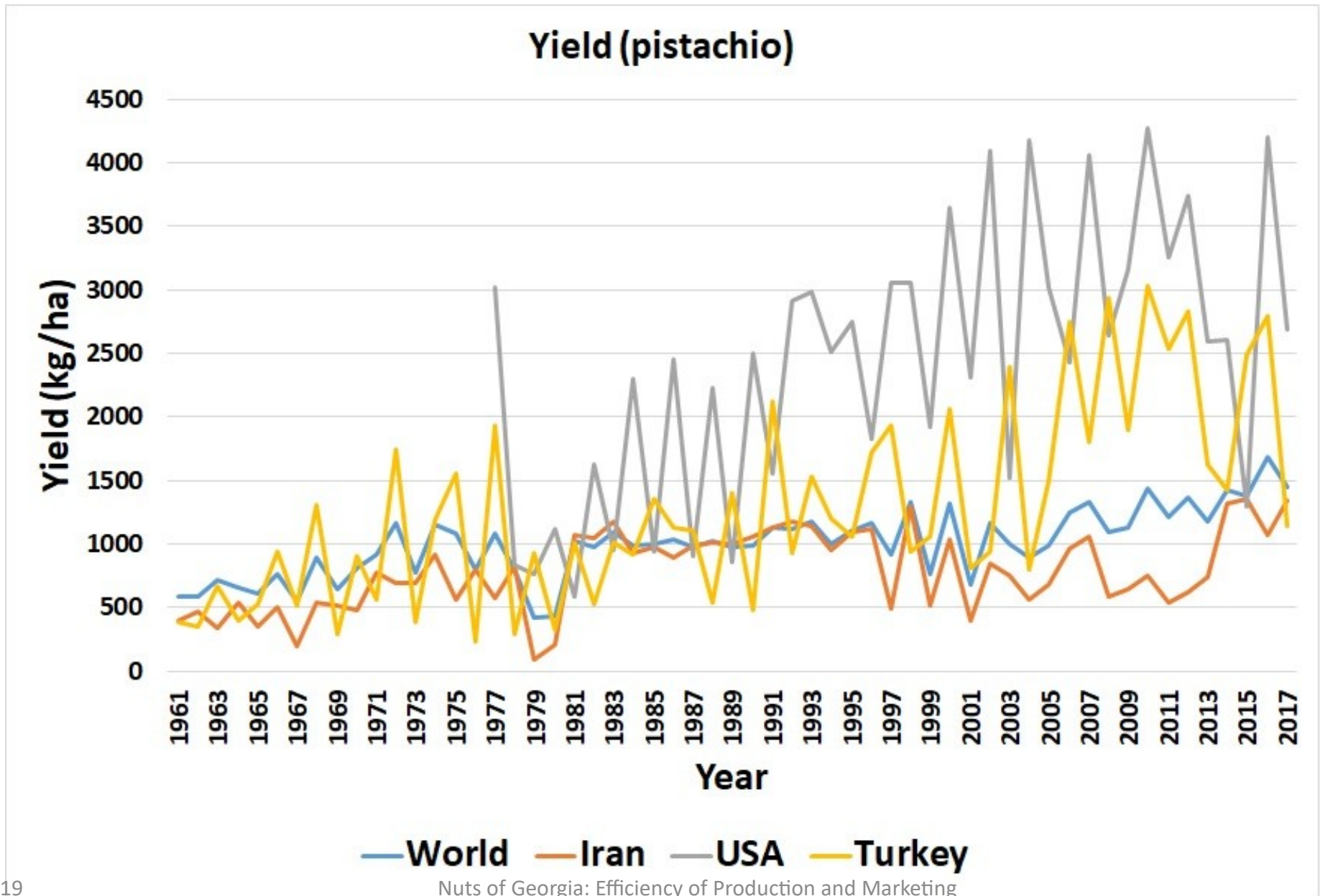


# MAJOR PISTACHIO PRODUCING COUNTRY PRODUCTION

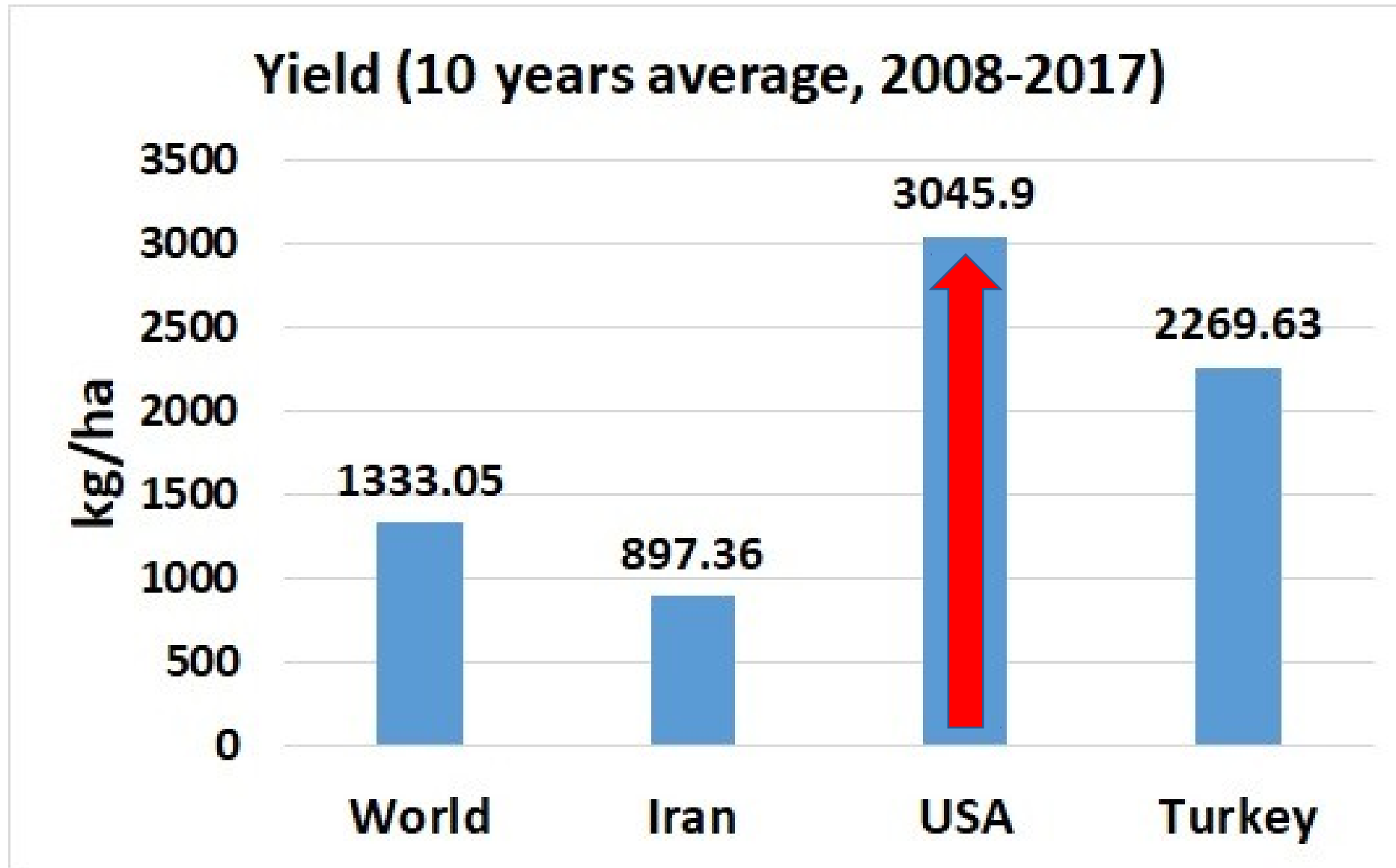




# ANNUAL YIELDS OF MAJOR PISTACHIO PRODUCING COUNTRIES: 1961 - 2017



# AVERAGE YIELD OF MAJOR PISTACHIO PRODUCING COUNTRIES



# Current Producers: 95%

- **USA: 47%**
- **Iran: 38%**
- **Turkey**
- **Local Markets:**
  - **Afghanistan, Argentina, Australia, Greece, Jordan, Italy, Madagascar, Spain, Tunisia, China, Australia, Kyrgyzstan, Uzbekistan**

# Current Markets:

- **Europe: 31.1%**
  - **Germany: 13%**
- **Hong Kong: 26%**
- **China: 8%**
- **Vietnam: 6.5%**
- **India: 5%**

## **Market trend:**

- Surge in demand for organic snacks

## **Market driver:**

- Health benefits associated with pistachios

## **Market challenge:**

- Contamination of pistachio by aflatoxin



# Global Pistachio Market Analysis & Forecast 2018-2024: ResearchAndMarkets.com

- **Global Growth Prediction: 3.21% CAGR 2018-24**
  - **Drivers**
    - Rising uses as a flavoring agent in bakery products
    - Rising consumption as a snack
  - **Opportunities**
    - Increasing use in confectionary and bakery items
  - **Restraints**
    - The high cost compared to the other nuts

# Conclusions:

- **Few major producers:**
  - **Increasing production**
- **Multiple markets:**
- **Low consumption relative to other nuts**
  - **USA: 0.5 lbs. pistachios vs 4.5 lbs. almonds annually per person**
- **Diversifying uses**
  - **Ingredient use**
- **Strong market drivers**
  - **health**
  - **natural products**

# II. GEORGIA'S POTENTIAL?

# Pistachio Production Requires:

- Climate
- Soils
- Water
- Varieties
- Rootstocks
- Markets
- Plans



02.10.2019

Nuts of Georgia: Efficiency of Production and Marketing

# Climate:

- < 1000 meters
- Chill: November - March
  - 900 hours < 7.5°C
- April – October
  - 3000 heat units > 7.5°C
  - 30-80% relative humidity





# Soils:

- **Want:**
  - **pH 7:00 – 8.5**
  - **1.5 - 2m even alluvial soils**
  - **Good drainage**
- **Do not tolerate:**
  - **Saturated soils**
  - **High water table**
  - **Saline, alkaline soils**
    - **Sodium, chloride, boron**



# Water Quality and Quantity:

- **Will live in rainfed conditions:**
  - **Need water for commercial production**
- **Varies by region: California**
  - **43 acre inches/year = 10,922 M<sup>3</sup>/hectare**
  - **Georgia may need less**
- **Source:**
  - **Groundwater wells**
  - **Snow-melt canals**
  - **Rivers**



# Potential Production Regions:

- **Kakheti: Alazani Valley**
- **Emereti: Kutaisi**
- **Tbilisi: ~40 kilometers surrounding**
- **Kartli: 2 year old trees**
  - **deep alluvial soils**
  - **pH 6-7**
  - **Mediterranean climate:**
    - **Moderate winter cold:  $< 7.5^{\circ}\text{C}$**
    - **High summer heat:  $30 - 40^{\circ}\text{C}$**
    - **Little spring - summer rain**
    - **Spring – summer relative humidity:  $< 60\%$**



# Varieties and Rootstocks:

- **TURKISH, AMERICAN AND IRANIAN:**

- **California:**

- **Kerman (Peters)**

- **Iranian:**

- **Turkish:**

- **Siirt**





**Akbari**



**Ahmad-Aghaei**



**Fandoghi**



**Kalle-Ghoochi**



**Badami Sefiid**



**Mumtaz**



# Why use a rootstock:

## Tolerance to:

- Climatic adaptation
- Soil borne diseases
- Soil and water quality
- Yield and fruit quality



# Economics: California

- **University of California Cooperative Extension  
Costs to Establish and Produce Pistachios: 2015**
- [https://coststudyfiles.ucdavis.edu/uploads/cs\\_public/50/a8/50a8805e-03a8-4092-82ca-ce18cfb92b2b/2015pistachios\\_san\\_joaquin\\_valley-south\\_oct29.pdf](https://coststudyfiles.ucdavis.edu/uploads/cs_public/50/a8/50a8805e-03a8-4092-82ca-ce18cfb92b2b/2015pistachios_san_joaquin_valley-south_oct29.pdf)

# Economics: California

- **Pistachio Orchard Establishment:**
- **6 - 10 years:**
- **US\$ 16,137/acre = US\$ 38,890 per hectare**



# Economics: California

- **Pistachio Orchard Production Costs:**
- **annual costs/acre = annual cost hectare**
  - **US\$ 2,641/acre = US\$ 6,364/hectare**



# Economics: California

- **Pistachio Per Acre/Hectare Net Returns: 2016**

- **Gross Profit:**

- **US\$ 1.68/lb. and 3,745 lb./acre = US\$6,292/acre gross profit**

- **Net Return:**

- **(US\$6,292 gross return/acre) – (US\$2,641 production cost/acre)**

- **= US\$3,651/acre net return = US\$8,799/hectare net return**



# Conclusion and Question:

- **Pistachios are profitable in California...**



- **Could they be profitable in Georgia?**

# How to proceed: expertise

- **Beginning training course:**

- **Online 24-7: can be translated**

- **[FruitsandNuts.UCDavis.edu](http://FruitsandNuts.UCDavis.edu)**



- **English speaking horticulturist to California:**

- **Pistachio Production Short Course; November 17-19 2020**

- **Internship with University of California**

- **Extension Specialists: Louise Ferguson and Giulia Marino**

# How to proceed: research

- **Nursery production: how to produce trees**
  - **Pot size and shape**
  - **Timing of production: 8 months – 15 months**
  - **Nursery budding**
- **Field production: how to grow trees**
  - **What varieties and rootstocks**
  - **Growing in your conditions**



# How to proceed: organize industry

- **Develop a grower association:**
  - **Develop government support:**
    - tax benefits
    - Irrigation support
  - **Develop EU quality standards**
  - **Meet EU export standards: Aflatoxin**
  - **Develop marketing campaign: imports**

# When will Georgia have a pistachio industry.....

- Realistically...at least 15 years

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