

Trends in North American Strawberry Production & Supply

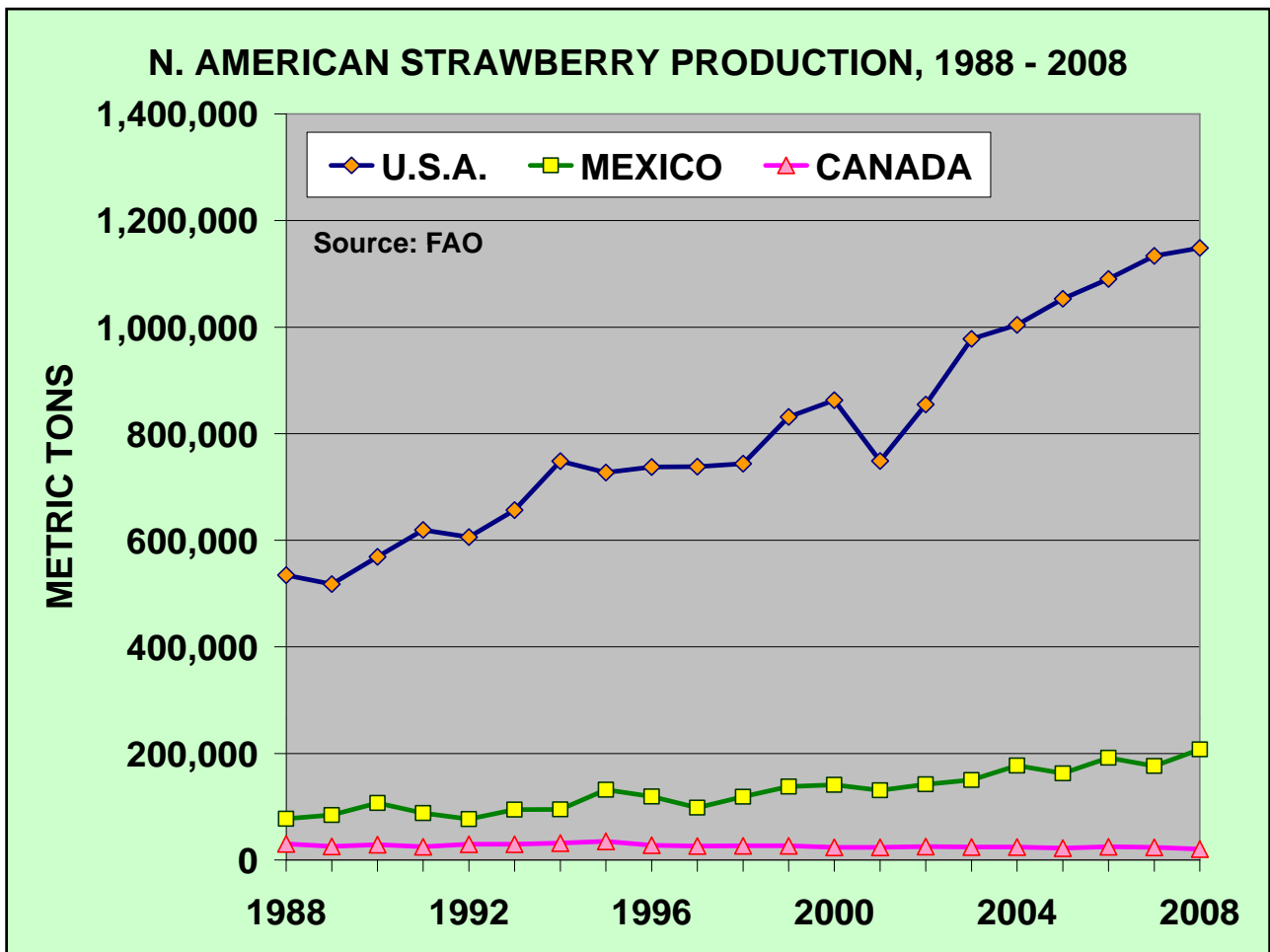
**by Tom Sjulín, Consultant
Presented at the
International Strawberry Congress
Antwerp, Belgium
1 September 2010**

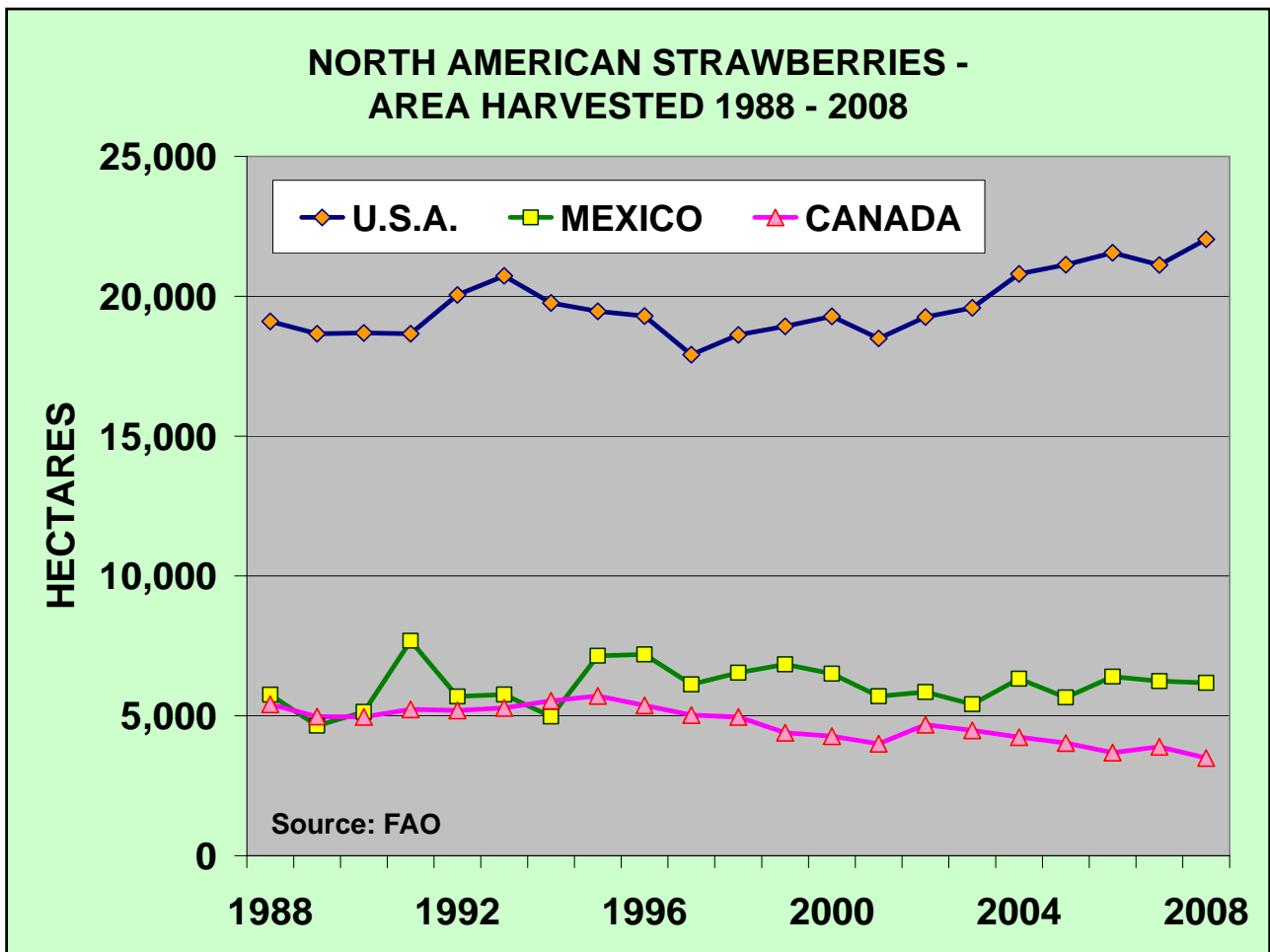
Objectives

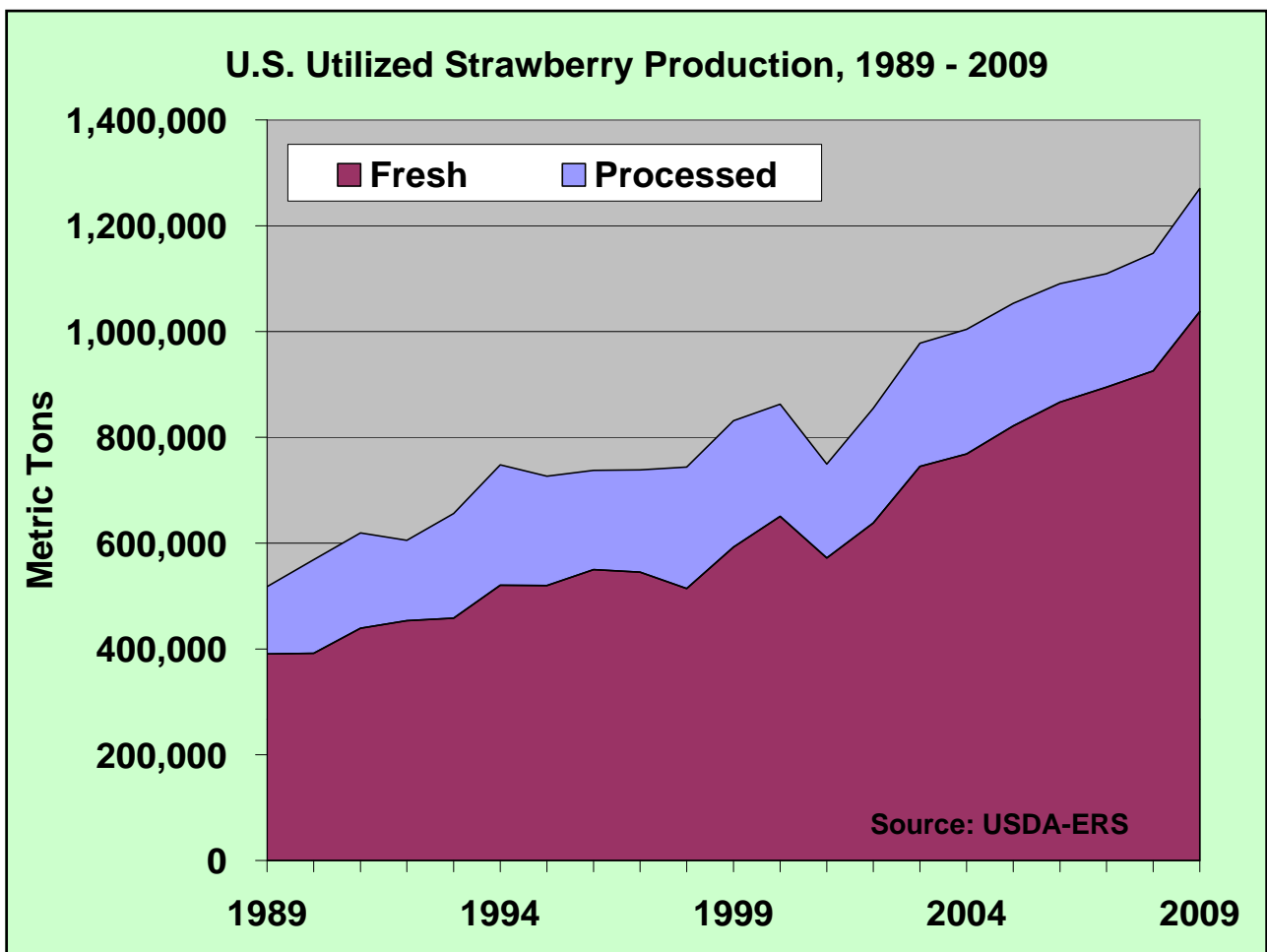
- **Review North American production trends**
- **Identify changes in demand, systems and supply that are driving production trends**
- **Project future production trends in light of expected consumption trends**
- **Identify factors affecting the sustainability of North American production**
 - **Data sources: FAO, USDA, CSC, PSAB**

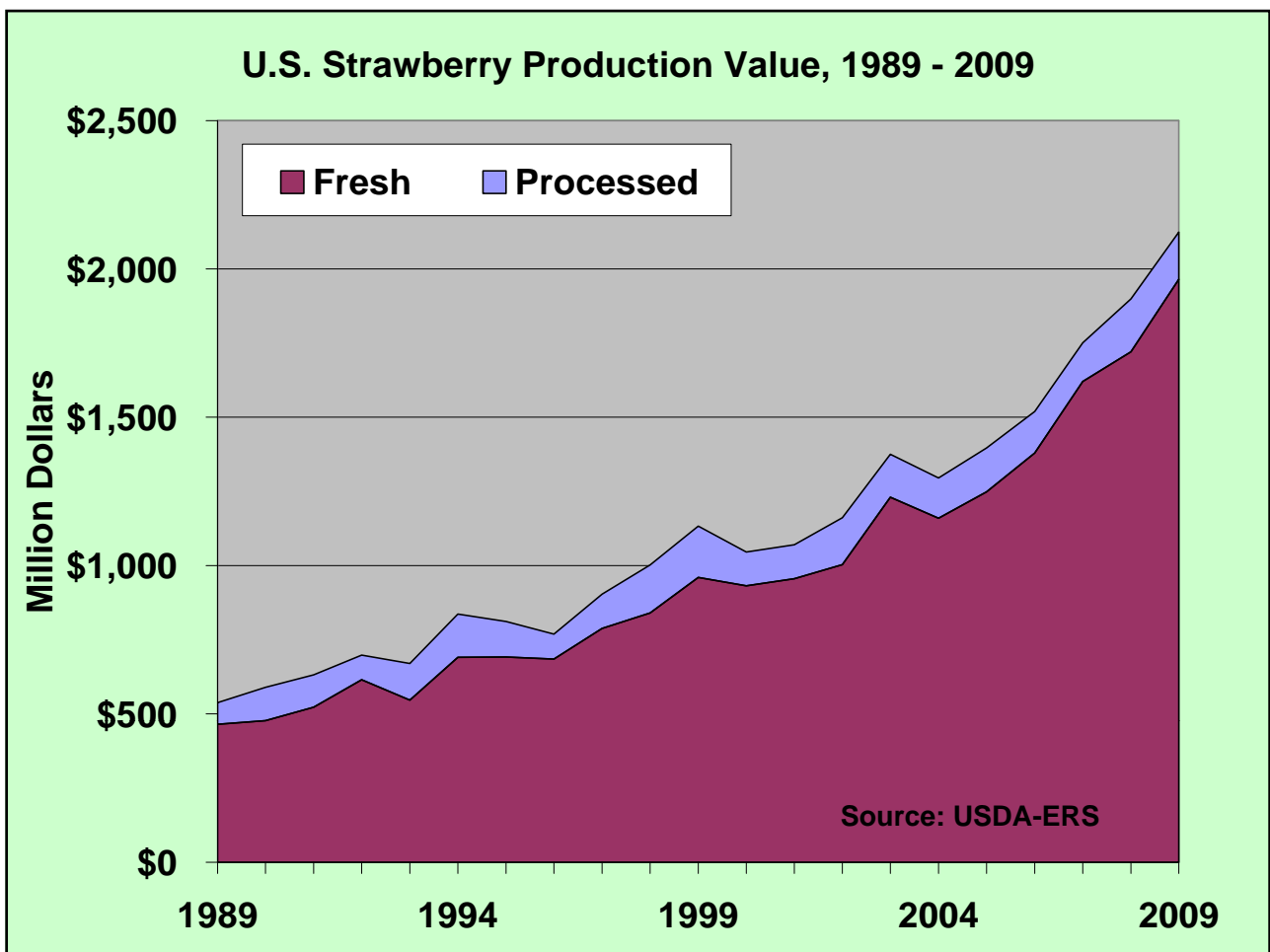
Strawberry Production Trends

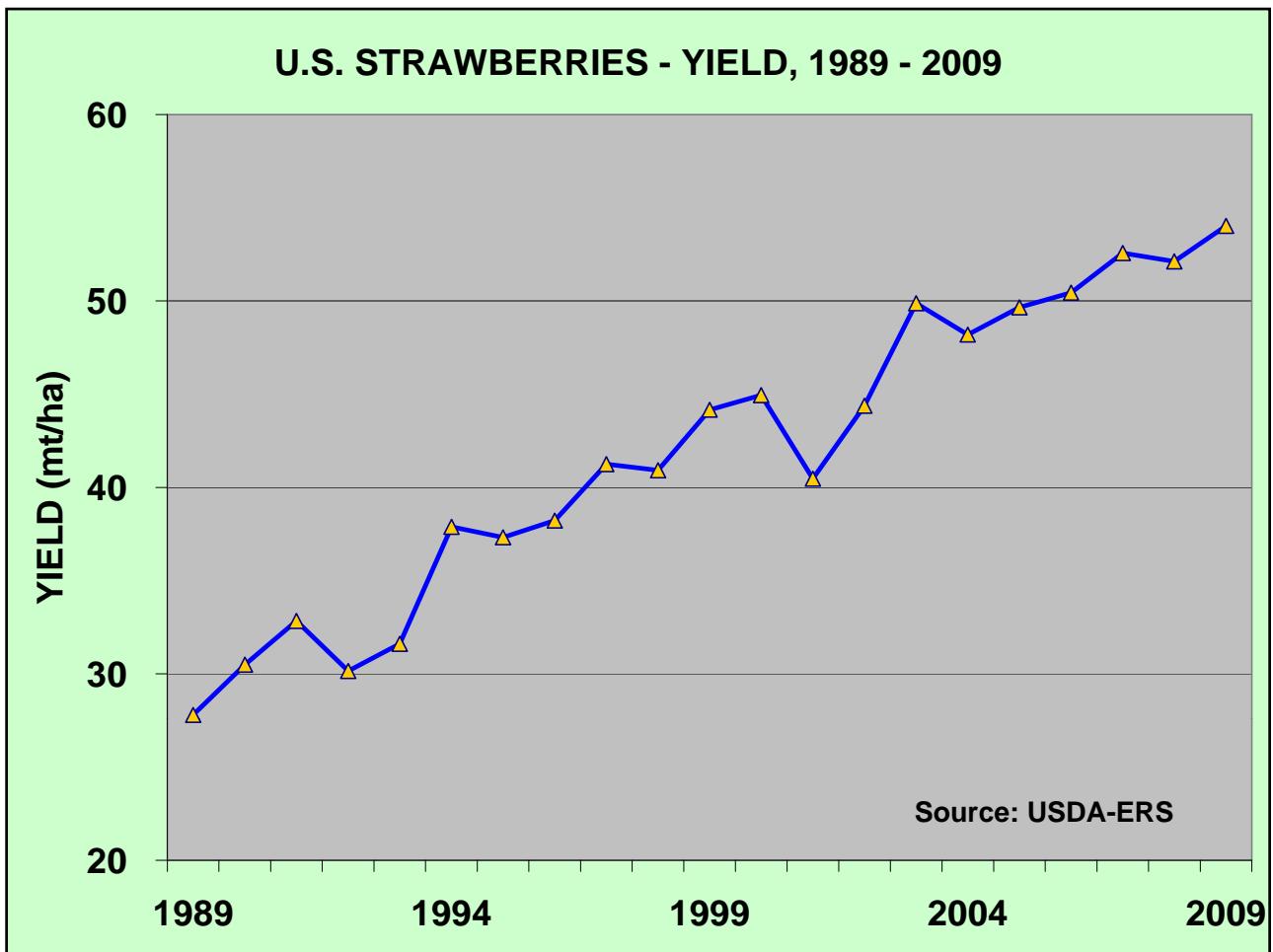
- **Production continues to grow in the major production areas**
- **Demand continues to grow, especially in “off-season” production windows**
- **Strawberries are available in good supply all year in North American markets**
- **New technologies & new production areas are impacting production**
- **Threats to traditional production areas loom on the horizon**

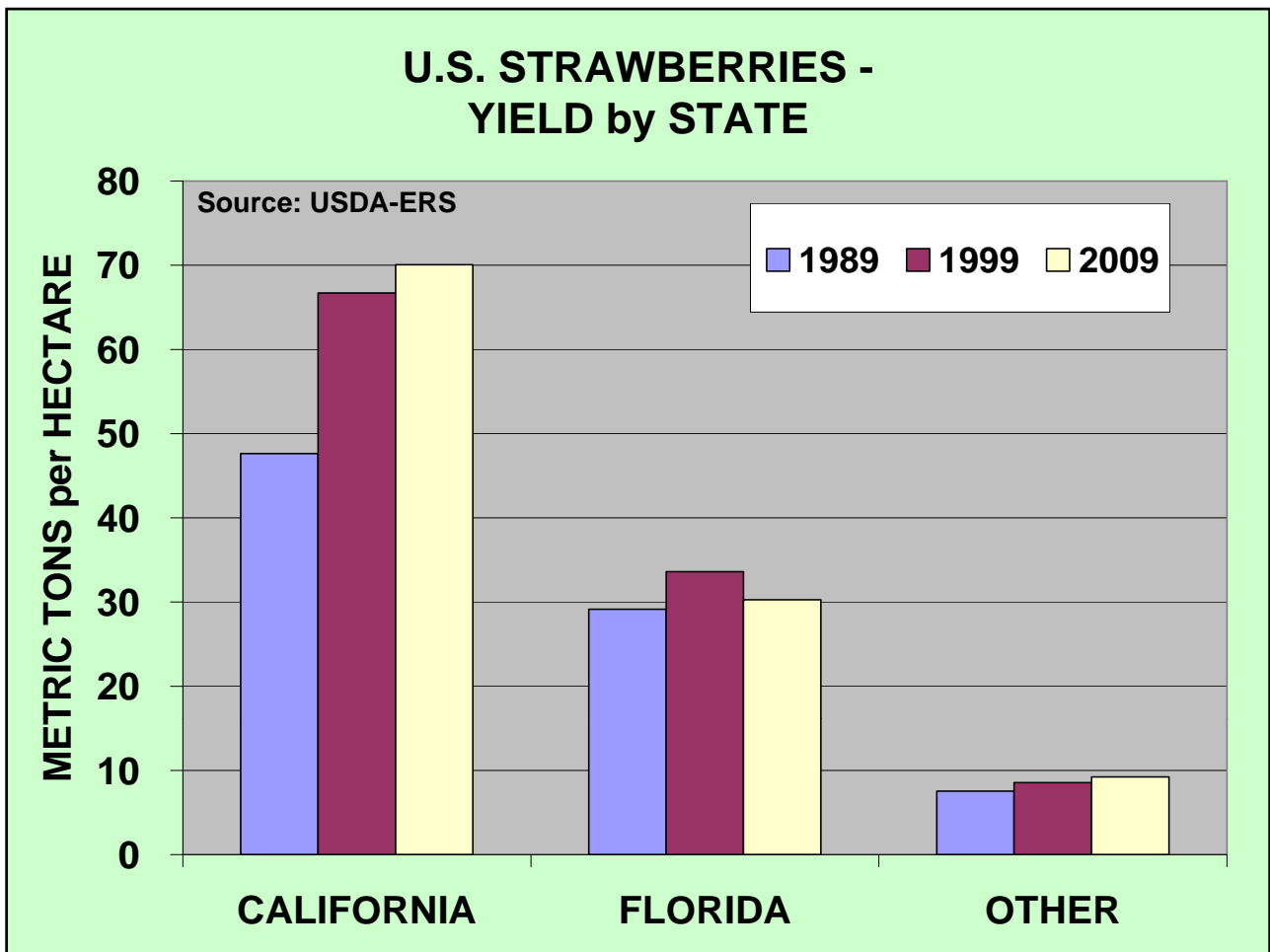


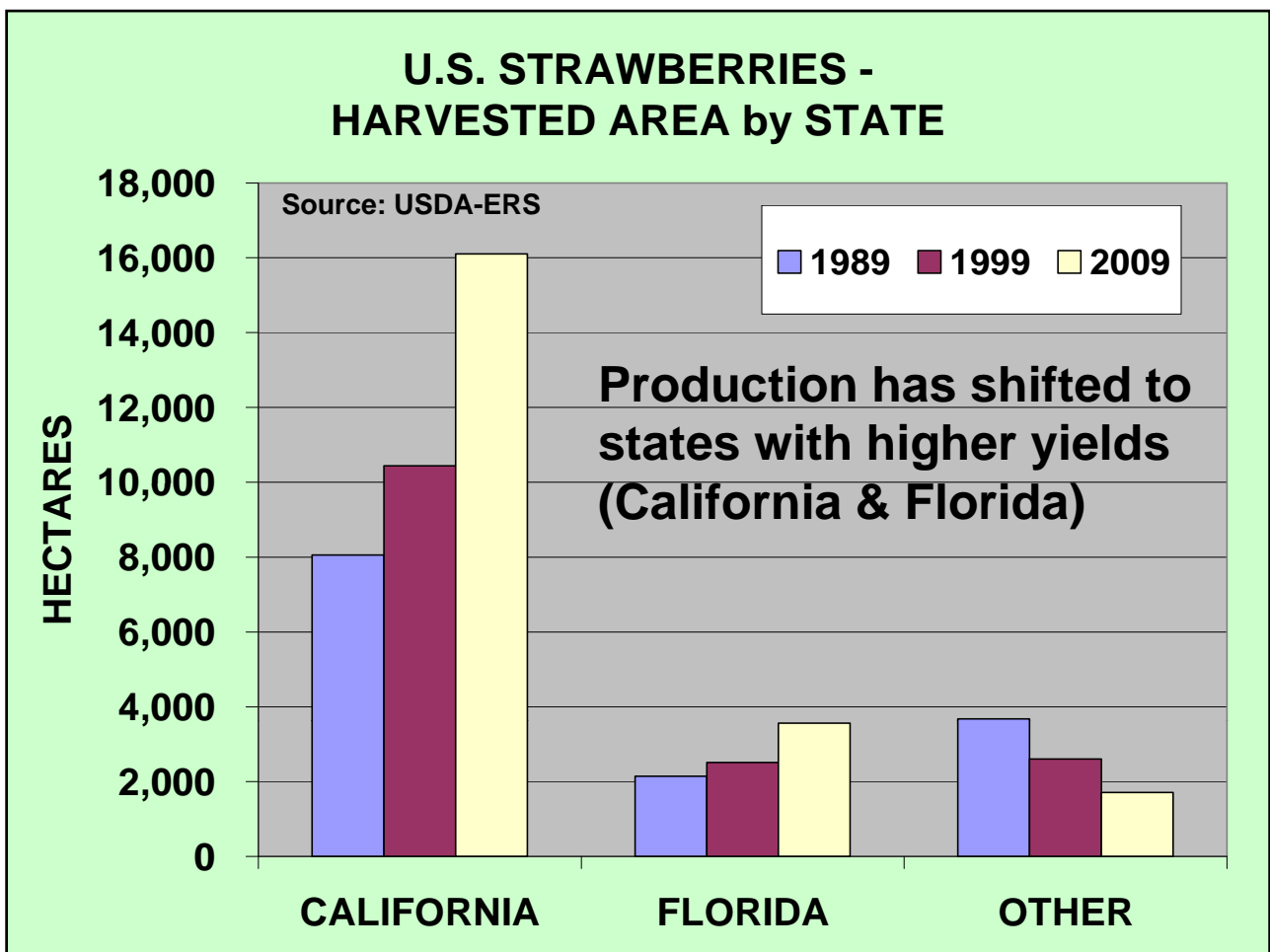






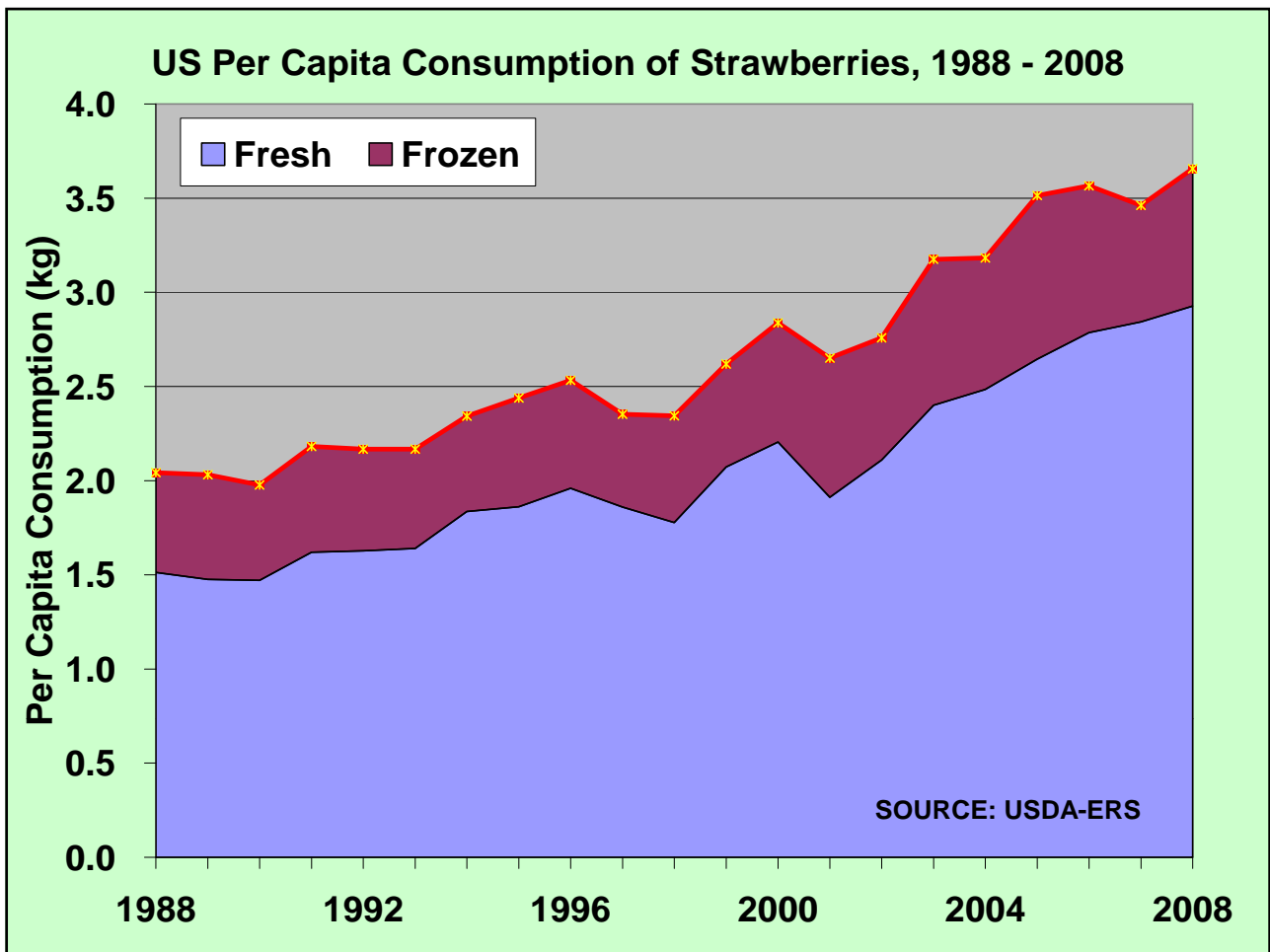


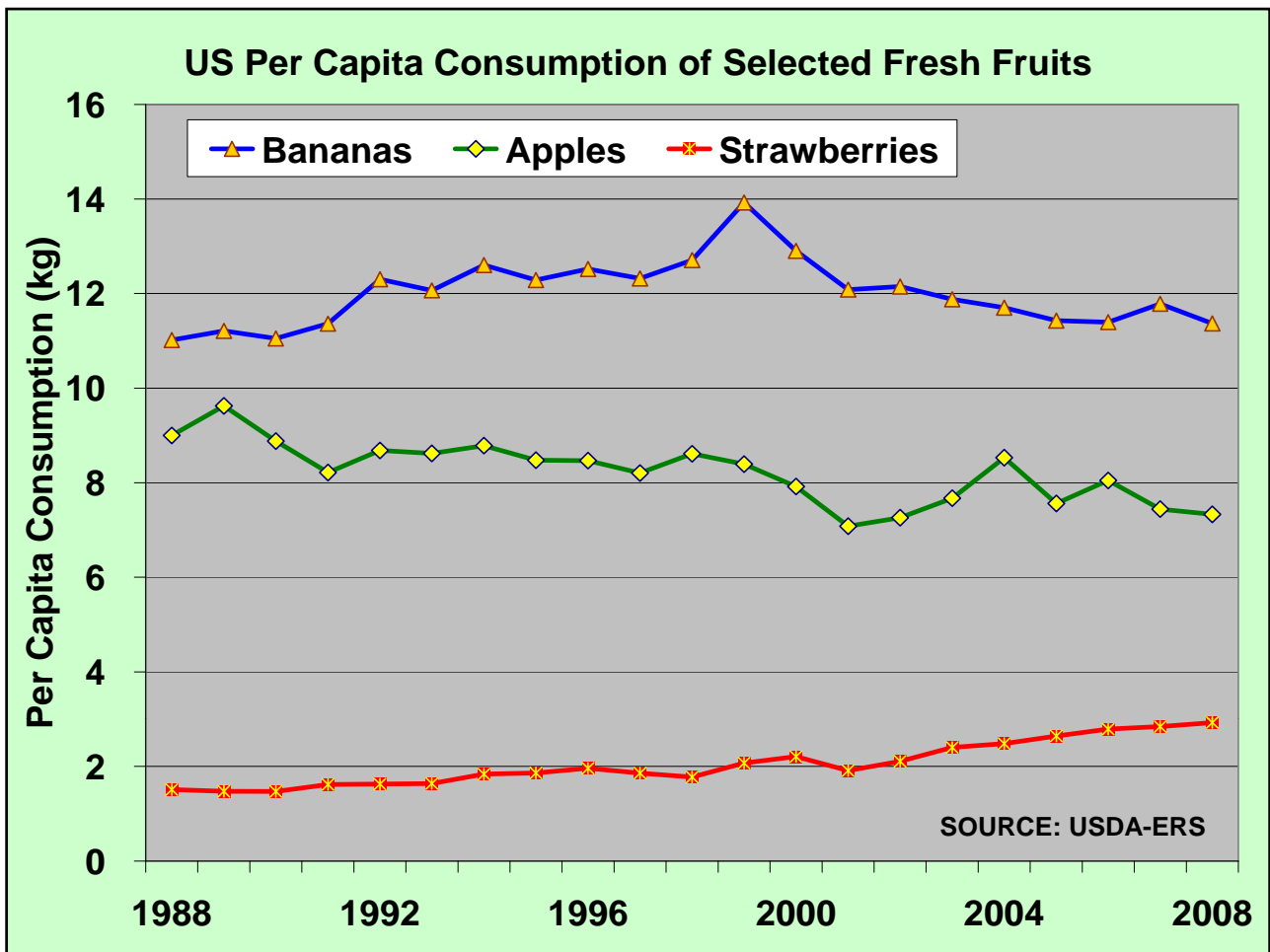




Primary North American Strawberry Production Regions







Drivers of Change

- **Berry consumption is part of a healthy lifestyle**
- **Strawberries are no longer perceived as a “seasonal” product**
- **Demand for “off-season” fruit has increased as supplies have increased**
- **Innovative growers and researchers have developed new technologies to meet this demand**

Theme: Control of Flowering

- **A constant theme underlying the changes in strawberry production has been the control flowering**
- **Control of flowering creates the opportunity to produce fruit when it is needed**

Control of Flowering

- **Flowering has historically been controlled by climate modification**
- **In North America, production has long been shifting to milder climates like Florida, California and Baja, where winter & spring flowering creates early and/or long season production**

Newer Methods Used in North America to Control Flowering

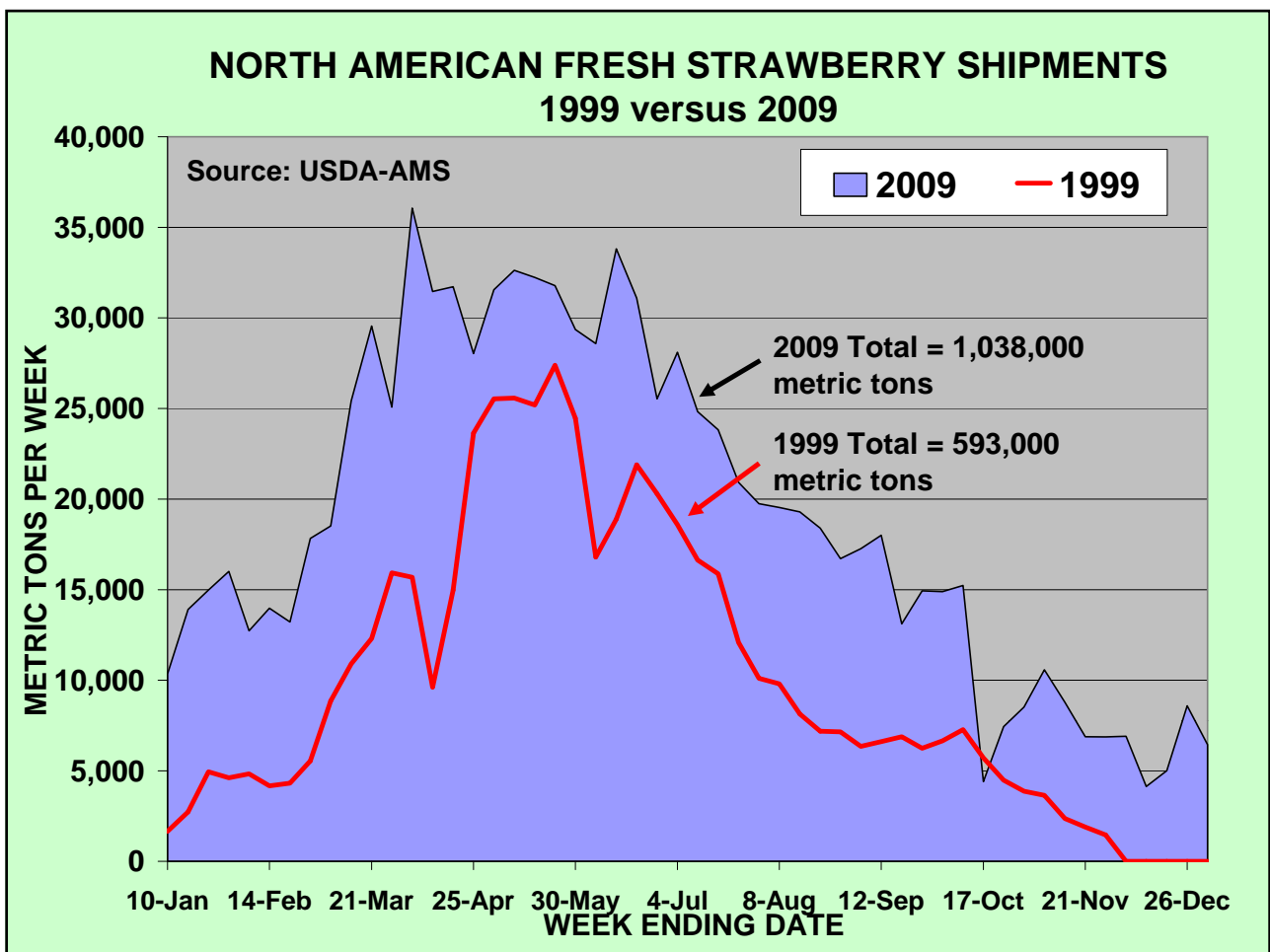
- **Day-Neutral Production**
- **Low Latitude Production**

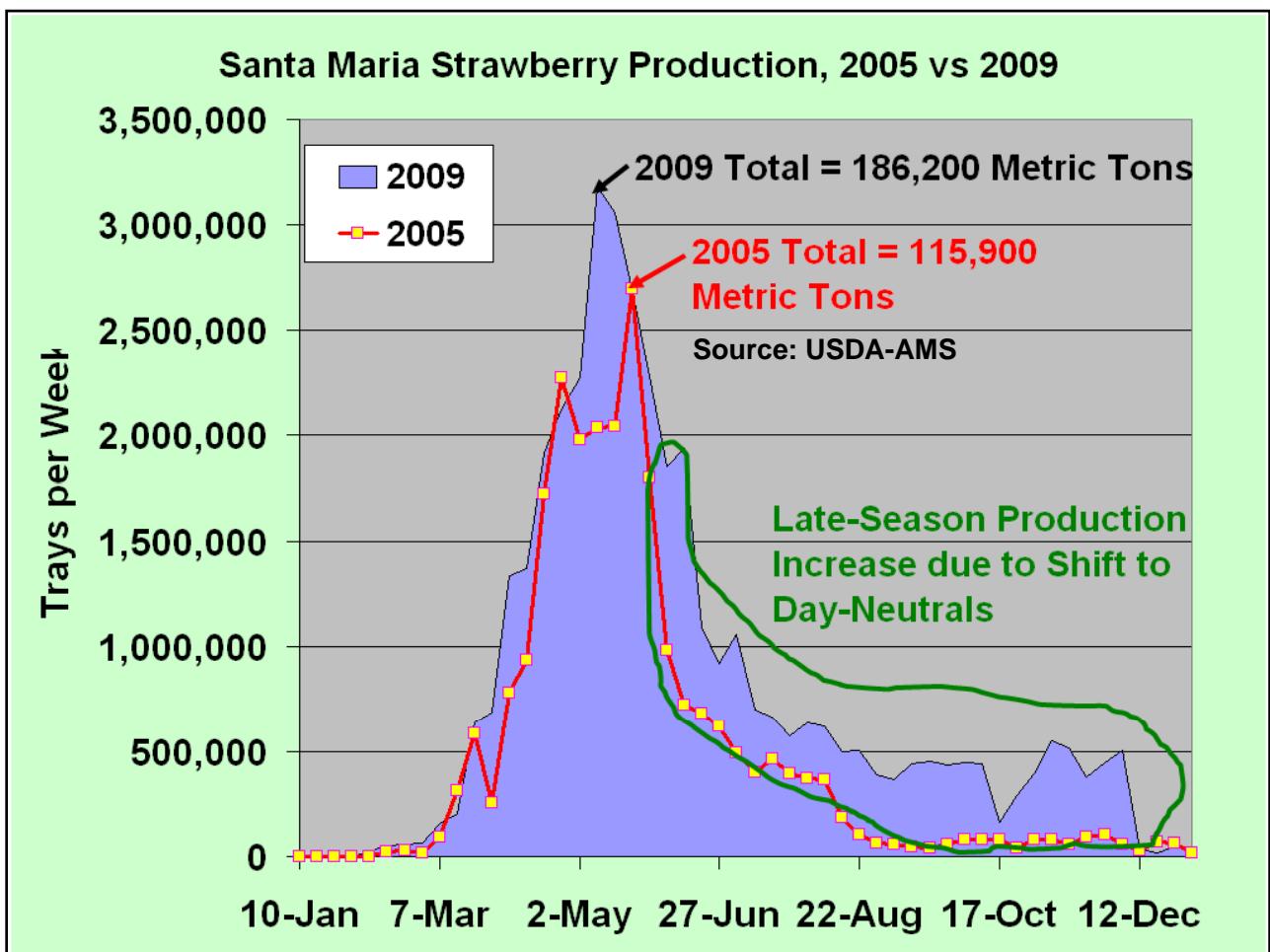
Day-Neutral Production

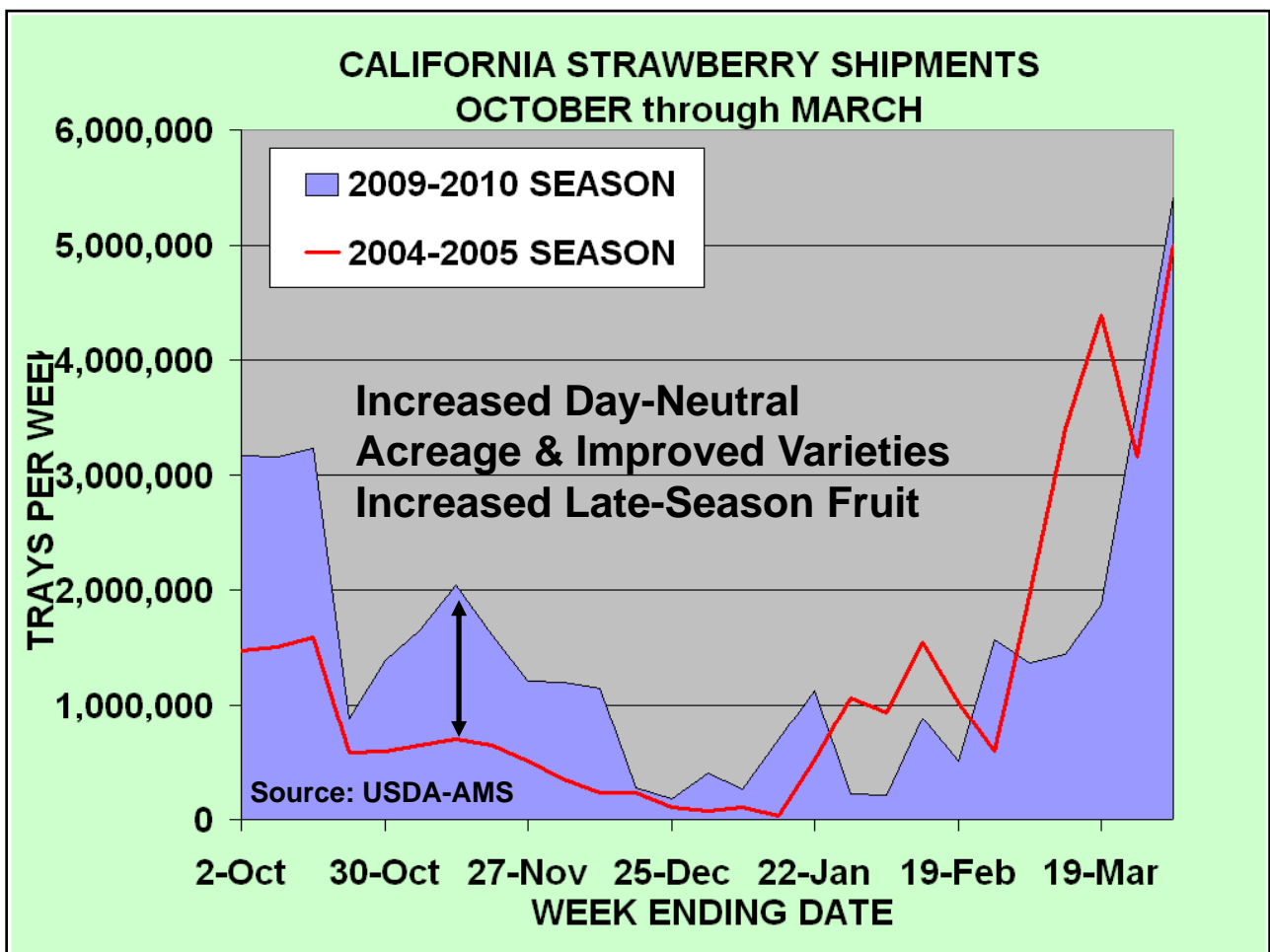
- **Pioneering work by Royce Bringhurst at UC-Davis led to the introduction of the 'Selva' variety in 1983**
- **Doug Shaw's latest releases ('Albion', 'Monterey', 'Portola' and 'San Andreas') are much improved over older varieties**
- **Private programs are also introducing high-yielding day-neutral varieties with excellent fruit quality**

Day-Neutral Production

- **Improved day-neutral varieties have markedly increased summer & fall production in California**
- **Shift from short-day to day-neutral varieties, especially in the Santa Maria district, has broadened the California supply curve, leading to a more orderly flow of product into the markets**





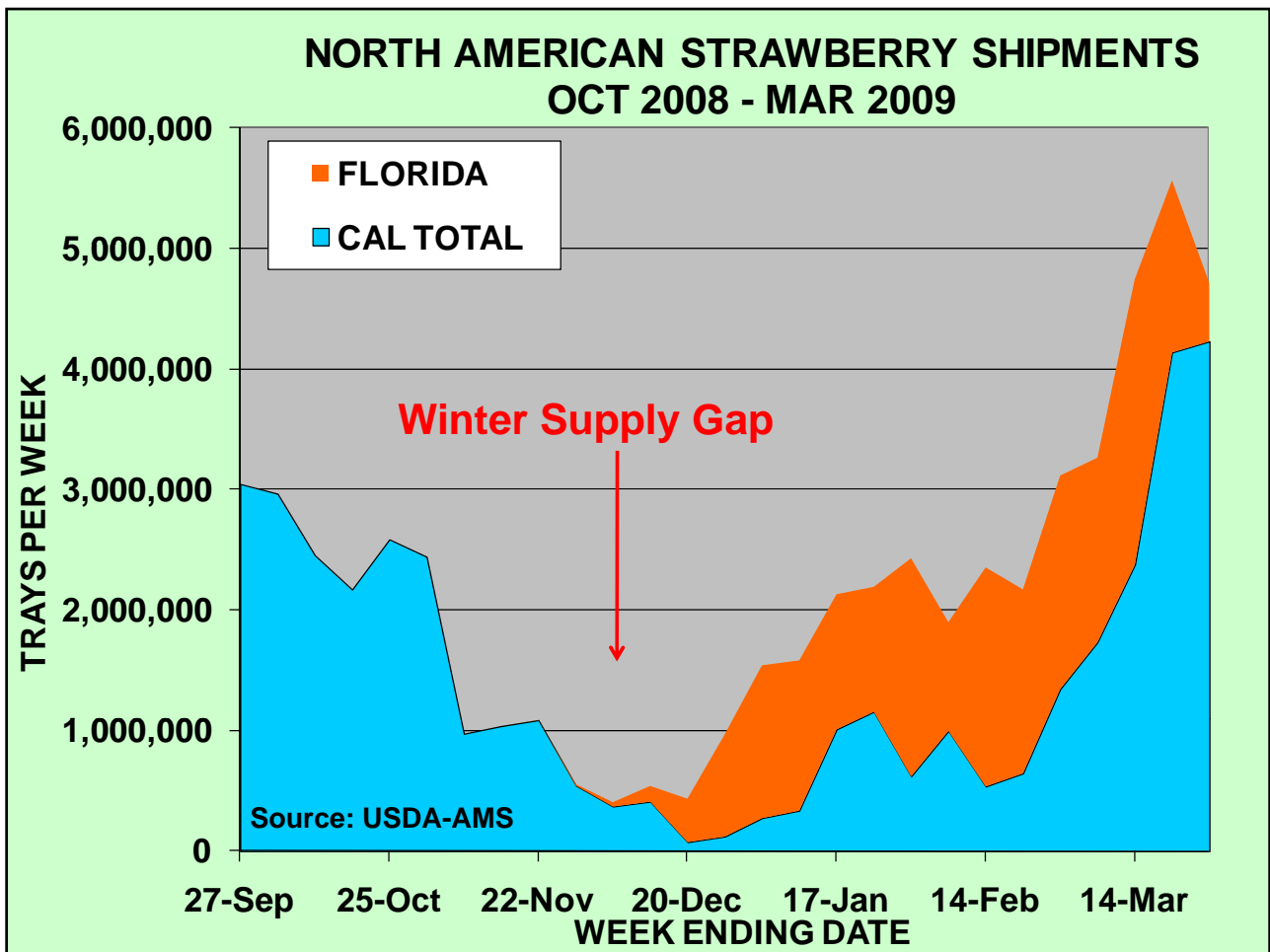


Low Latitude Production Systems



Low Latitude Production

- **North American production is lowest from mid-November to mid-February**
- **Southern California & Baja production is vulnerable to bad weather in this period**
- **Florida production does not peak until late February, and is a long distance from Western U.S. markets**
- **Could a winter production system in Central Mexico fill this gap?**



Mexico fresh market exports to the U.S.

Until recently, most exports to the U.S. from Mexico were produced in Baja California. Production systems and varieties were drawn from Southern California, and timing was somewhat earlier, but it did not fill the winter gap.



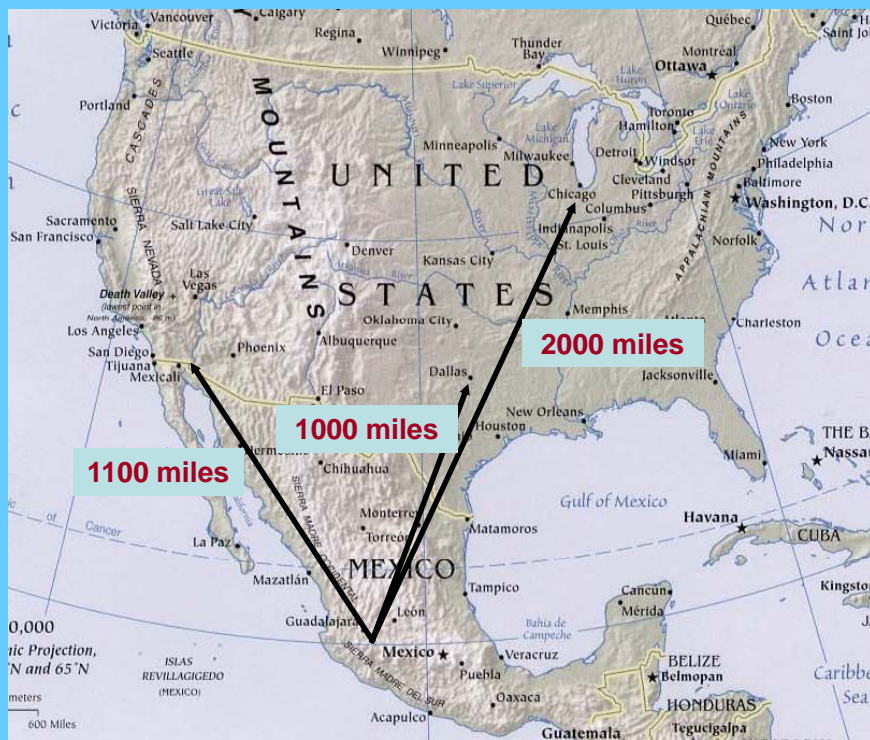
Low Latitude Production

- **Central Mexico has a long history of strawberry production, but most fruit was marketed within Mexico or processed for export**
- **The traditional system is a low-input, open-field system using Florida or California varieties**
- **Production is centered around low-latitude, high-elevation regions**

Low Latitude Production

- **Yields in traditional Central Mexico systems were low, fruit was small, and production did not peak until March**
- **Central Mexico had much to offer as a winter production region:**
 - **Truck shipments to the U.S.**
 - **Existing base of strawberry growers**
 - **Land, labor and a mild, predictable winter climate**

Proximity of Central Mexico Shipping Points to U.S. Markets



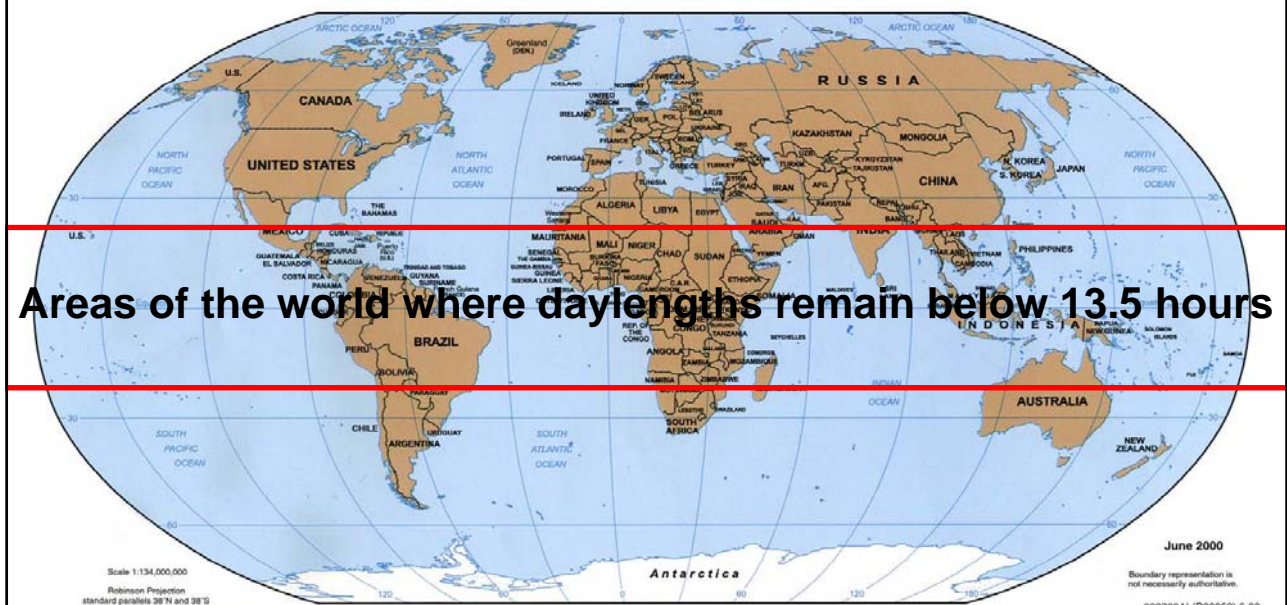
Low Latitude Production

- **In the 1990's, Driscoll's initiated research on a new production system based on high tunnels**
- **After many trials, a new system was developed that was a vast improvement in production, timing and quality**
- **The system takes advantage of the naturally occurring short daylengths in this low latitude region**

Flowering in the Strawberry

- **Many strawberry varieties are “short-day” types, which means that flowers initiate only when daylengths are below a critical point (the induction point).**
- **For most short-day varieties, the critical daylength is somewhere below 13.5 hours.**
- **Once the daylength is below the critical point, the plant begins to initiate flower primordia in the crown (induction).**

Low Latitude Regions



Low Latitude Production

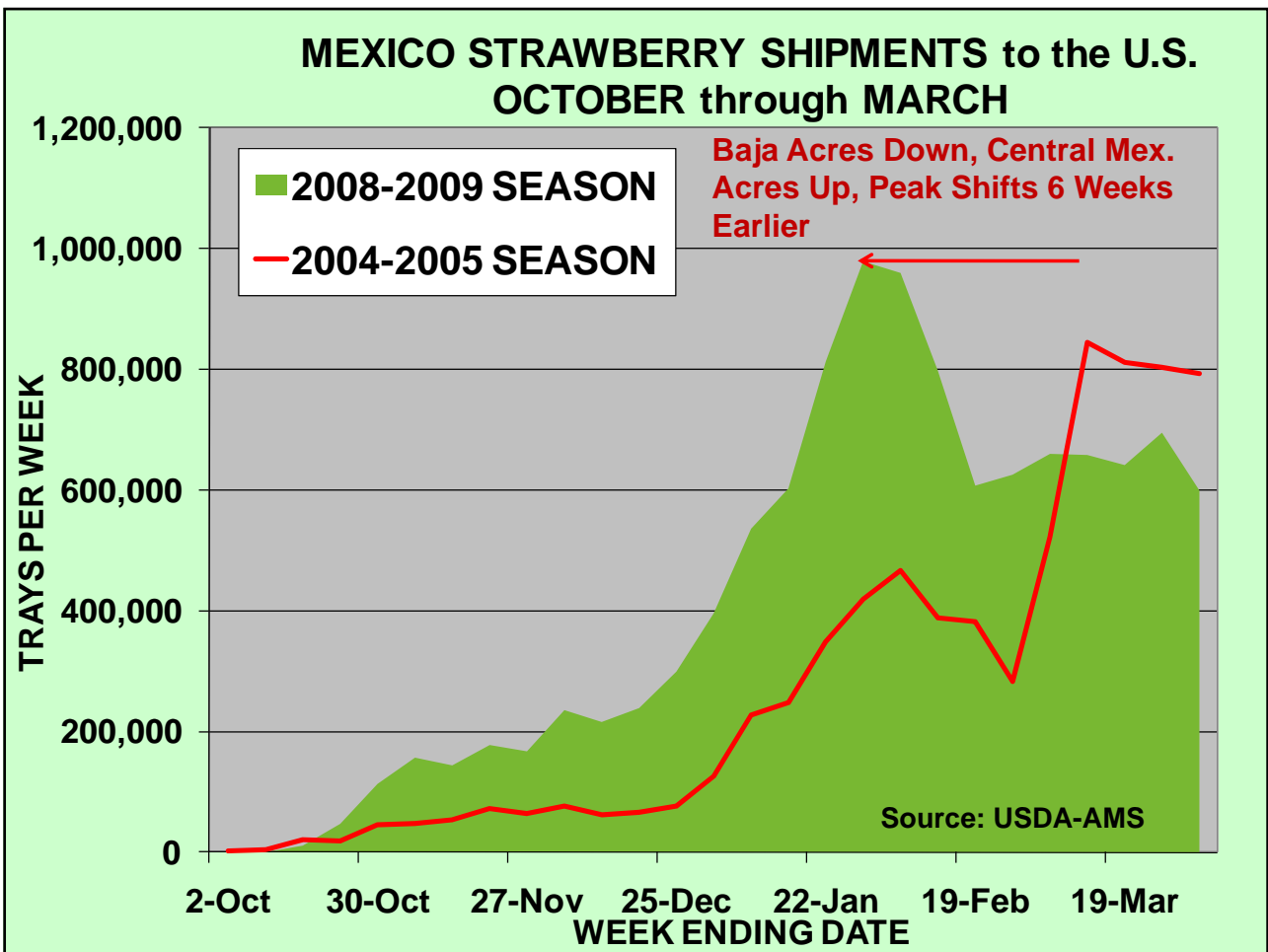
- **Few low-latitude areas outside of Mexico have a history of strawberry production**
- **Many potential areas are unsuitable**
 - Hot & humid climates
 - Politically unstable
 - Logistical issues
- **Some attempts in Kenya & Ethiopia**

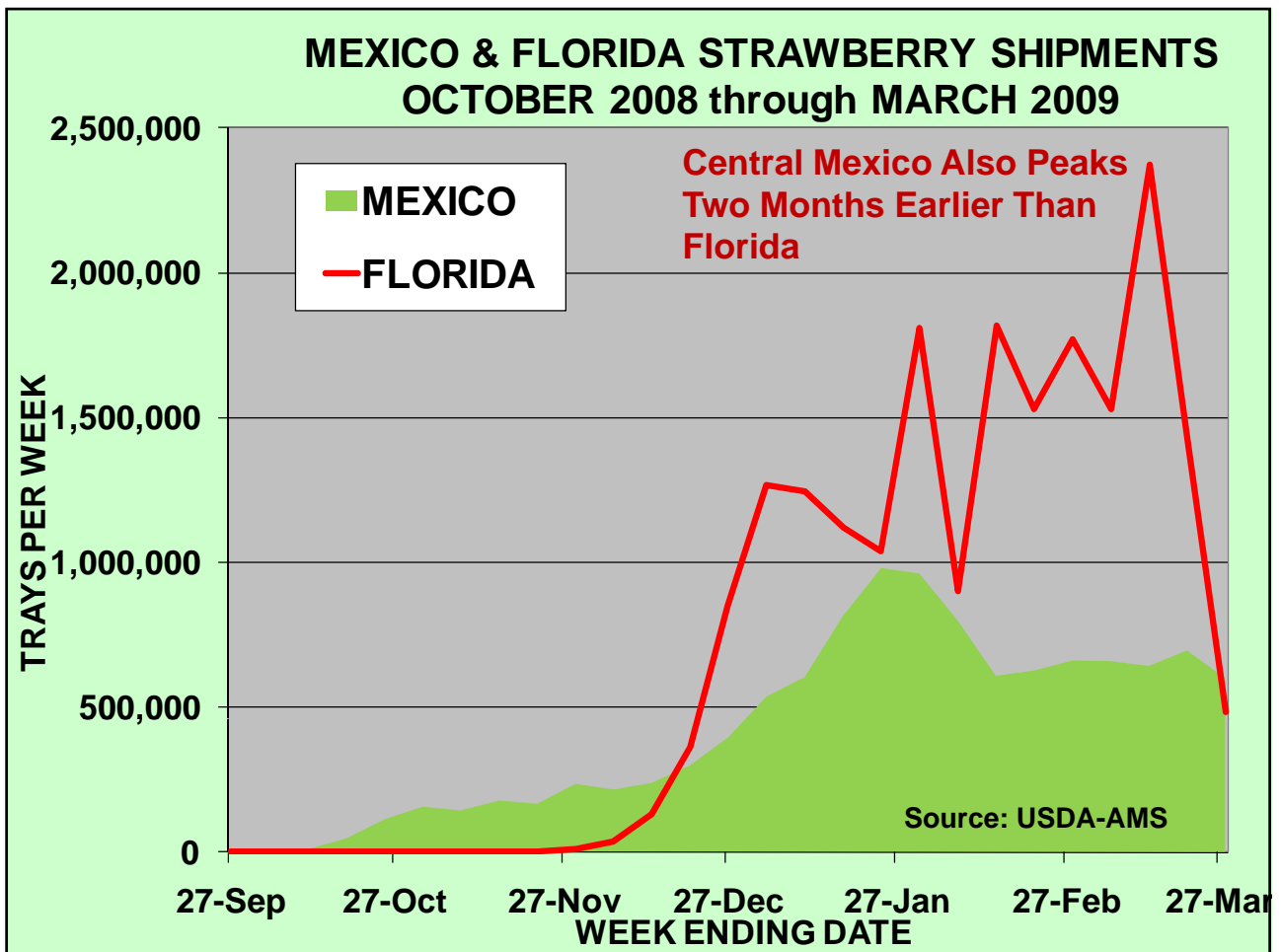
Low Latitude Production

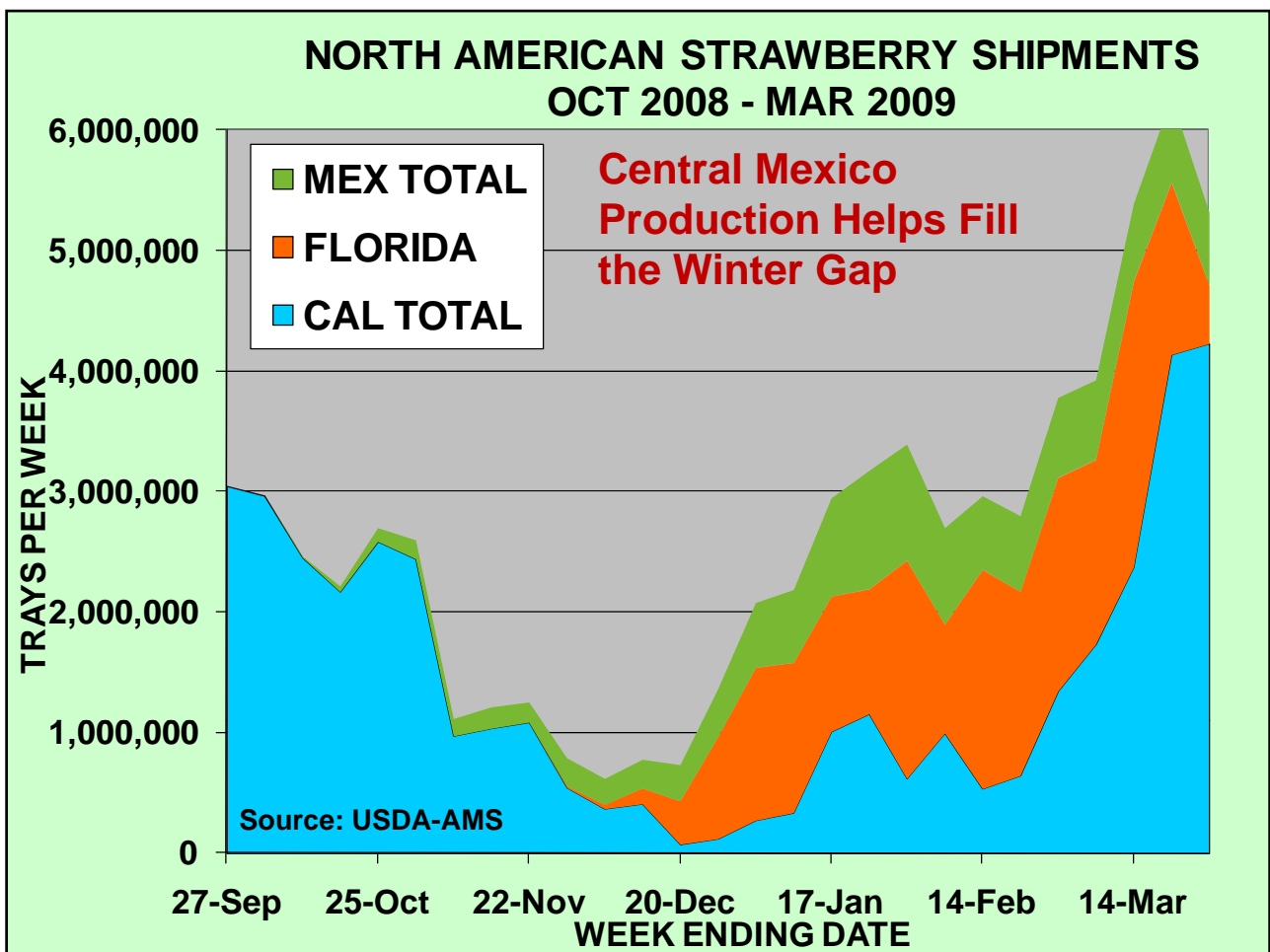
- **Driscoll's success in Central Mexico has created a surge in acreage by many grower-shipper groups**
- **Baja acreage has quickly declined**
- **Production begins & peaks about two months ahead of Florida**
- **Yields are more stable and potentially higher than Florida**



Central Mexico
Production Field in
Early December







Future Production Trends

- **I expect that the demand for strawberries will continue to increase**
- **I expect that “Off-season” production will continue to grow faster than main season production to fill supply gaps**

North American Trends

- **California growth is already slowing due to competition from Mexico and market saturation at supply peaks**
- **Central Mexico should grow rapidly, probably doubling in area under tunnels from 2,000 to 4,000 hectares over the next 5 to 6 years**

North American Trends

- **Good opportunities exist for growth in “off-season” organic production, as the organic supply is more seasonal than conventional production**
- **U.S. growers, with research support, are exploring alternative systems such as substrate and protected culture systems**

Future Production Trends



**Plug Plant Production
in High Tunnels
North Carolina
October, 2008**



Raised Bed Trough Trials – Filled with Substrate

**Research Sponsored by the
California Strawberry
Commission**

Steam Sterilization Trials



Threats to Sustainable Strawberry Production in North America

- **Distance to Market**
- **Land**
- **Labor**
- **Water**

Primary North American Strawberry Production Regions



Long Distances to Market Creates Opportunities for Local Production

- Day-neutral varieties combined with high tunnels may create opportunities for extended Pacific Northwest harvests
- Early flower initiation in plug plants may create autumn production opportunities under tunnels in North Carolina and Maryland

Land and Labor

- Land has been under development pressure in Florida and Southern California
- U.S. labor supply is affected by changes in border security and immigration policies
- Severe recession with collapse of building boom has temporarily eased land and labor issues

Water

- Water use by agriculture has long been debated, but few solutions exist
- Groundwater and surface waters are both important components of North American strawberry production, and long-term supplies are threatened
- Both Florida and California groundwater supplies are being overdrawn