Arizona is known as one of the most productive and efficient agricultural regions in the world and one of the most diverse agricultural production states in the nation.

AZ Agriculture:
- $17.1B Economic Impact
- 77,000 Jobs
- ½ livestock and ½ crops
- 1 Farmer Feeds 160 People (vs. 19 in 1940)

Exports to 70 countries

AZ Dairy Industry
- 210,000 cows produce 4.8 billion #’s of milk
- Most productive in the U.S.: 23,000#/cow
- Herd size of 2,000 = 2nd in nation
- Requires lots of hay and forage
- Family-owned & operated = 98%

AZ Cotton Industry
- 200M #’s produced on 130,000 acres
- Makes a pair of jeans for every person in the US
- Also produces cottonseed for food (oil) and feed

AZ Farm Bureau

3 of Arizona’s “Five C’s”
• High value specialty crop industry ($3.2 Billion)
• Produces 90% of the nation’s leafy greens Nov-Mar
• One of the top producing areas worldwide of Medjool Dates (5,000+ acres)

Arizona’s top producer
Vegetable production (#3 in USA)
Lemons
Tangelos
Tangerines
Watermelon
Cantaloupe
Durum Wheat (exported to Italy)

• Year-round growing season, 150+ crops
• 230,000A of Fertile soil
• Available workforce
• Senior water rights
• Progressive farmers exploring/utilizing technology
• Great Community Support
Yuma ranks highly among US counties in agricultural sales & crop acreage

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Yuma’s rank among US counties in sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables &amp; Melons</td>
<td>Top 0.1%</td>
</tr>
<tr>
<td>All Crops</td>
<td>Top 0.5%</td>
</tr>
<tr>
<td>All Agricultural Products</td>
<td>Top 1%</td>
</tr>
<tr>
<td>Other Crops &amp; Hay</td>
<td>Top 1.2%</td>
</tr>
<tr>
<td>Nursery, Greenhouse</td>
<td>Top 23%</td>
</tr>
<tr>
<td>Grains, Oilseeds, Beans &amp; Peas</td>
<td>Top 28%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Yuma’s rank among US counties in acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>Top 0.1%</td>
</tr>
<tr>
<td>Lettuce</td>
<td>Top 0.2%</td>
</tr>
<tr>
<td>Durum Wheat</td>
<td>Top 9%</td>
</tr>
<tr>
<td>Forage</td>
<td>Top 9%</td>
</tr>
</tbody>
</table>

George Frisvold, Department of Agricultural & Resource Economics
University of Arizona
## AGRICULTURE IN YUMA

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>$ / Acre Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohave County</td>
<td>$162.50</td>
</tr>
<tr>
<td>La Paz County</td>
<td>$190.22</td>
</tr>
<tr>
<td>Pinal County</td>
<td>$211.09</td>
</tr>
<tr>
<td>Maricopa County</td>
<td>$368.70</td>
</tr>
<tr>
<td>Pima County</td>
<td>$519.91</td>
</tr>
<tr>
<td>Yuma County</td>
<td>$680.81</td>
</tr>
</tbody>
</table>

Gross Cash Crop Receipts per Acre-Foot of Water Withdrawn, 2010
Net Farm Income, 2012

AGRICULTURE IN YUMA

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<table>
<thead>
<tr>
<th>County</th>
<th>AZ Cash Rents ($ / acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuma</td>
<td>$584</td>
</tr>
<tr>
<td>La Paz</td>
<td>$182</td>
</tr>
<tr>
<td>Maricopa</td>
<td>$157</td>
</tr>
<tr>
<td>Pinal</td>
<td>$120</td>
</tr>
<tr>
<td>Other Counties Average</td>
<td>$118</td>
</tr>
<tr>
<td>Cochise</td>
<td>$111</td>
</tr>
<tr>
<td>Graham</td>
<td>$108</td>
</tr>
<tr>
<td>Pima</td>
<td>$99</td>
</tr>
<tr>
<td>Mohave</td>
<td>$98</td>
</tr>
<tr>
<td>Navajo</td>
<td>$68</td>
</tr>
<tr>
<td>Greenlee</td>
<td>$60</td>
</tr>
</tbody>
</table>

AGRICULTURE IN YUMA

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Agriculture is the single largest private sector contributor to Yuma GDP (2012)
Contribution of Agricultural Sectors to Yuma’s Economy: Employment

- Direct Effect: 1 in 5 jobs
- Total Effect: 1 in 4 jobs
Location Quotients (LQ) Examples

- Napa Wine & Spirit Merchant Wholesalers
  LQ = 13.3

- Silicon Valley Computer and Electronic Product Manufacturing
  LQ = 13.4

- Detroit Motor Vehicle Manufacturing
  LQ = 16.3

- Yuma Agriculture’s LQ = 24.5
“YUMA IS TO AGRICULTURE WHAT NAPA IS TO WINE AND SILICON VALLEY IS TO COMPUTER TECHNOLOGY.”

GEORGE FRISVOLD
Looking Ahead – Demands on Agriculture

More People

More Food

Water Use Efficiency

Organic vs Conventional

Other Environmental Issues

Fallowing

Technology as a solution

Precision Agriculture

GMO & other Plant Breeding

Increase production 70% by 2050
U of A in Yuma

Teaching
- 14+ Degrees
- Scholarships
- Internships
- Workforce Development

Research
- Yuma Agricultural Center
- Experiment Station
- Yuma Center of Excellence for Desert Agriculture

Extension
- Outreach
- Applied Ag Research
- Youth Development (4-H)
- Family & Consumer Sci. Educational programs
"Solutions to Desert Agriculture’s Pressing Problems"
Q: How can the University better support the Desert Ag Industry?

A: **Center of Excellence** dedicated to addressing on-the-ground industry needs!

- High-priority issues identified by industry stakeholders
- Bring funding and research teams together:
  - Over $1MM in grants!
  - University + Industry + Government agencies
- Provide rapid, direct value-adding responses

Improve all aspects of desert crop production systems & economics
Housed in CALS

Univ. of AZ

University provides office facilities, access to CALS Admin Support, Research infrastructure, Cooperative Extension Researchers & infrastructure

Public-Private Partnership

created 2013

Funded by Industry

Industry

Tax deductible donations to UA Foundation support daily operations and direct-value research projects

YCEDA Advisory Council guides the ED on the focus of research/programs

Executive Director

Paul Brierley

Robby Barkley

Barkley Ag

Vice Chair

Vic Smith

JV Smith Companies

John D'Arrigo

D'Arrigo Brothers

Ex-Officio

Dr. Shane Burgess

VP & Dean

U of A

Jon Jessen

Gowan Co.

Steve Martori

Martori Farms

Mike Antle

Tanimura & Antle

Mark Smith

Smith Farms

Kelly Keithly

Keithly-Williams Seed

College of Agriculture and Life Sciences

Yuma Center of Excellence for Desert Agriculture
YCEDA Priority Issues

Production Efficiencies & Yield Maximization

Plant Diseases

Water Management

Plant Pests

Food Safety

Nutrient Management
What are we doing about all of this?
What are we doing about all of this?
Advanced measurement equipment and extensive sensor network track water application, crop usage, evaporation and soil salinity movement over a year’s cropping pattern.

- $630,000 Research Grant Funding
- $160,000 UA funding for research equipment
- Will show the need for and quantify the leaching coefficient

Will develop new evapotranspiration data (crop coefficients)

Mobile Apps will be developed to manage irrigation quantity/timing
Disease Mitigation Research

FUSARIUM WILT OF LETTUCE

- First commercial field trials in 12 years
- 2015 International Symposium
- 2016 Fusarium Conference in CA
- Early / Remote detection research projects
- DNA Analysis of Disease Pressure

industry & academia working together in a unified effort
How can we improve productivity?

Work with a USDA National Lab and a Big Data Analytics Company to create a Decision Tool to assist in decisions impacting disease triggers!

(soil health, soil moisture, climate, etc.)

Utilizing the decision tool

- Planting decisions
- Soil preparation
- Irrigation Management
- Pesticide treatments
- Production decisions
- Yield estimation
- Harvest timing
DRONES

- Develop and License Apps for Commercialization
- Testbed/Ground-truth Commercial Applications
- Provide Remote Sensing for Research Projects
- Operator Training Certification
Utilizing Technology

Mechanization/Labor

Food Safety
Bird Deterrent Discussion & Design Challenge

YCEDA sponsored 1-day seminar w/industry, researchers and technologists & design challenge
**WEBSITE**

DesertAgSolutions.org becoming “go-to” site for actionable research

**CENTER of EXCELLENCE SEMINAR SERIES**

Bringing research topic overviews to industry

**MEDIA**

Strong presence in newspaper, TV and radio

**SOCIAL MEDIA**

Growing presence enables discussion with larger audience

Informing industry and the public

YCEDA OUTREACH
Paul Brierley
Executive Director
PaulBrierley@email.arizona.edu
o: 928-782-5873
c: 928-920-4983
Website: DesertAgSolutions.org

Located at the Yuma Ag Center
6425 W. 8th St.

CONNECT WITH US!

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@YCEDA_DesertAg