STATE OF THE INDUSTRY

HALL C | December 5 2017
AGENDA

- **Richard Waycott**, President and CEO, Almond Board of California
- **Mike Mason** Chairman, ABC Board of Directors
Metal Sponsors

PLATINUM
- Yara
  The Almond Conference

GOLD
- Borrell USA
  The Almond Conference

SILVER
- Tomra Sorting Solutions
  The Almond Conference

MERCURY
- Syngenta
  The Almond Conference

EMERALD
- JKB Energy
  The Almond Conference

BRONZE
- Coldwell Solar
  The Almond Conference

COPPER
- SATAKE
  The Almond Conference
UNLEASHING ORCHARD POTENTIAL
1st YEAR OF THE ASSESSMENT INCREASE

On April 12, 2016 the ABC Board of Directors passed the following motion:

**MOTION:** Based on recommendations from the Board’s Strategic Retreat, ABC Committees and Board Taskforces, the Proposed FY 2016/17 expenses are approved, funded by an assessment of $0.04 effective August 1, 2016 until July 31, 2019 after which the assessment will return to $0.03.
GUIDING PRINCIPLES

1. Creating demand ahead of increased supply
2. Accelerated Ag Innovation
3. Transforming consumer landscape
LEADING INTO CHANGE
YEAR 1
ACCOMPLISHMENTS
1. Launched the ABC Water Management Efficiency program
2. Expanded ground water recharge research
3. Expanded salinity tolerance research
4. Supported dust emission studies
5. Initiated joint studies with the Australian almond industry for the “orchard of the future”
6. New precision irrigation management approaches
7. Plots documenting the value variable rate irrigation zones
8. Investigating soil quality when including orchard recycling and cover crops
9. Enhancements to CASP modules and new pollinator module.
NUT OF CHOICE:
DRIVING EXPANSION INTO NEW MARKETS AND OPPORTUNITIES

South America
NUT OF CHOICE:
INCREASING INVESTMENT IN CURRENT MARKETS
ASSESSMENT INCREASE SUNSET

Assessment
Projected ABC Revenues

$74.7 M
(2.25 B Lbs)

$83.4 M
(2.51 B Lbs)

$66.1 M
(2.65 B Lbs)

$70.2 M
(2.82 B Lbs)

$74.6 M
(2.99 B Lbs)
PRODUCTION OUTLOOK

California Almond Production
FY2014/2015 – FY2021/2022 Actual/Projections (Pounds)

30% increase over five years
OUR ORCHARDS PRODUCE 4 PRODUCTS
PRIMARILY SINGULAR MARKETS
FOR CO-PRODUCTS

- HULLS
- SHELLS
- WOOD
Co-product pricing driven by supply, not demand
CO-PRODUCT RESEARCH SMALL PERCENTAGE OF TOTAL

• Minimal co-product utilization research - countered by increasing production costs and the advent of Sustainable Groundwater Management Act (SGMA)

• Need to create more value in co-product utilization to help offset increasing production costs and SGMA
ORCHARD PROFITABILITY

Sustainable Groundwater Management
CO-PRODUCT VALUES

HULLS
$65/ton to $300/ton
$500 Million gain

SHELLS
$5/ton to $50/ton
$35 Million gain

WOOD
Disposal $35/ton to Revenue $50/ton
$65 Million gain
Realization of Almond Co-product Full Values

Traditional Options
- Dairy feed stocks
- Dairy bedding
- Co-gen power

Current Interests
- Soil amendment
- Soil biosolarization or disinfection
- Thermochemical conversion
- Feed value improvement
- Foreign market access

Future Opportunities
- More large volume outlets
- Feeds for other livestock
- Value-added solutions
Almond Hulls Are Good for More Than Just Animals

<table>
<thead>
<tr>
<th>What Are in Hulls:</th>
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<tbody>
<tr>
<td>More than 60% water extractives of bone dry mass</td>
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<tr>
<td>More than 30% extractable sugars</td>
</tr>
<tr>
<td>More than 20% fibers</td>
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<tr>
<td>Rich in phytochemicals</td>
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<tr>
<td>High in minerals</td>
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<table>
<thead>
<tr>
<th>Ongoing Research</th>
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<tbody>
<tr>
<td>Fly feeding to convert sugars into high protein feed</td>
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<tr>
<td>Soil biosolarization for disinfestation and amendment</td>
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<table>
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<tr>
<th>Future Strategy</th>
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<tbody>
<tr>
<td>Feed value improvement and formulations for other livestock</td>
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<tr>
<td>Extracted sugars for sweeteners, fermentation, beverages, bioenergy, etc.; spent hulls for bioenergy, growing media, etc.</td>
</tr>
<tr>
<td>Biochemicals, bioplastics, pharmaceuticals, additives, etc.</td>
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<tr>
<td>Food grade ingredients</td>
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</table>
Almond Shells Can Add Value Too!

What Are in Shells:
- More than 10% water extractives of bone dry mass
- More than 60% fibers
- Similar heat value as other woody materials
- High in minerals

Ongoing Research
- Torrefied shells to strengthen recycled plastics
- Hydrochar of shells

Future Strategy
- Torrefied shells for plastics, tires, irrigation dripping tubes, etc.
- Cellulosic nanofibers and cellulosic nanocrystals
- Bioenergy, biochar, and biopesticides from thermochemical conversion
- Biochemicals, absorbents, soil amendments, etc.
Almond Tree Woods Don’t Need to be Burned!

What is in Tree Wood Chips:
- Similar composition to other wood materials in volatile matter, fixed carbon, and heat value levels
- Low in bark percentage
- Proved value in soil amendment

Ongoing Research
- Whole orchard wood recycling

Future Strategy
- Orchard recycling for soil amendment
- Torrefied tree wood chips
- Bioenergy, biochar, and biopesticides from thermochemical conversion
- Cellulosic nanofibers and cellulosic nanocrystals
- Paper pulping application
- Particle boards, briquette, etc.
Unleashing Growing Potential

It’s not just co-products...

Unleashing orchard potential is systemic; water, bees and pollination, pesticides, harvesting – increased industry focus and goal setting.
WE WILL USE UNIQUE ALLIANCES
GLOBAL MARKET DEVELOPMENT OPPORTUNITY

Good for YOU + Good for THE PLANET
ADAPTING ABC STRUCTURE FOR SUCCESS

Working Groups consist of:
- Sustainability/CASP Working Group
- Pest Management Working Group
- Orchard, Tree, Rootstock Working Group
- Irrigation & Nutrients, Soil Health Working Group
- Harvesting Working Group
- Pollination & Bee Health Working Group
- Biomass Working Group
State of Industry VIDEO
QUESTIONS?
Reserve your seats for lunches and Gala upstairs if you pre-purchased meal tickets.
CEUs – New Process

Certified Crop Advisor (CCA)
• Sign in and out of each session you attend.
• Pickup verification sheet at conclusion of each session.
• **Sign in sheets are located at the back of each session room.**

Pest Control Advisor (PCA), Qualified Applicator (QA), Private Applicator (PA)
• Pickup scantron at the start of the day at first session you attend; complete form.
• Sign in and out of each session you attend.
• Pickup verification sheet at conclusion of each session.
• Turn in your scantron at the end of the day at the last session you attend.

**Sign in sheets and verification sheets are located at the back of each session room.**
100 GOLDEN TICKETS WILL BE SOLD

GOLD TICKET

Throughout the conference 100 golden tickets will be sold. One lucky person will win and get their choice of one item from the live auction.

MUST BE PRESENT AT THE GALA DINNER TO WIN.

Visit the FFA silent auction booth to purchase a golden ticket and learn more!

The golden ticket winner will be drawn prior to the live auction.
General Session
Wednesday at 8:00 a.m.
Hall C