

# Almond Hull Usage on California Dairies

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# Why Almond Hulls?

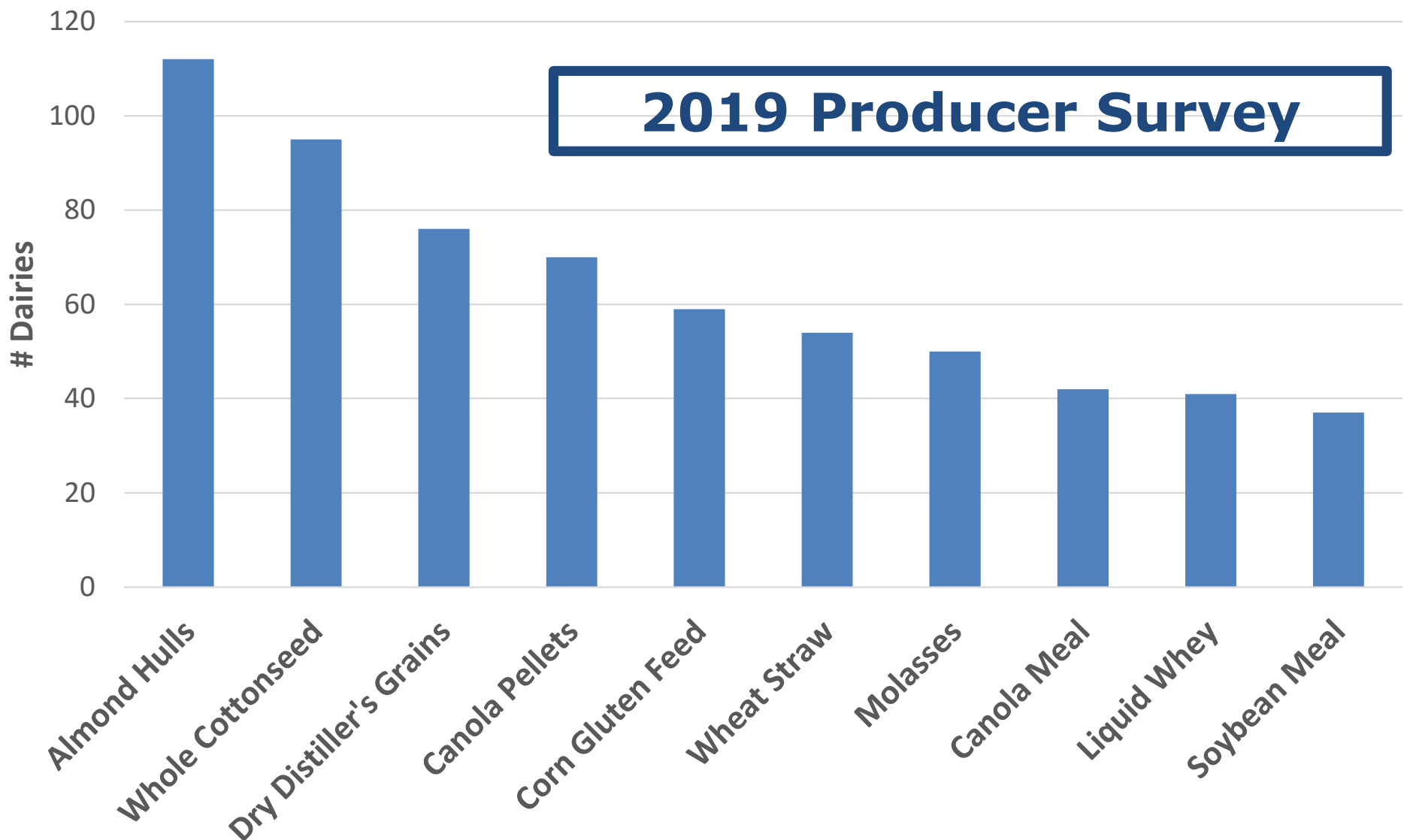
## 2017/2018 Almond Tree Fruit Weight, Crop Report

- Total weight generated: 8.4 billion pounds
  - Kernel weight: 2.3 billion pounds
  - **Hull weight: 4.5 billion pounds**
  - Shell weight: 1.6 billions pounds

**CA dairies the largest single  
consumer of almond hulls**



# Why Almond Hulls?



# Why Almond Hulls?

## UC Davis feeding study

- More on that next!

## Preliminary data, survey

- Jed Asmus – January Innovations
- Ed DePeters – UC Davis



# Today's Presentation

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## American Registry of Professional Animal Scientists (ARPAS), California Chapter

- Electronic Survey
  - 42 returned surveys
    - 40 California dairy nutritionists & 2 feed suppliers
- Almond hulls, CDFA definition
  - not to contain more than 13% **moisture**,
  - nor more than 15% **crude fiber**,
  - and not more than 9% **ash**





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# Feeding Levels

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**How has your use of almond hulls changed over the last 5 years?**



## **2014-2018**

Usage remained the same, 44%  
Increased almond hull usage, 41%  
Decreased almond hull usage, 15%

# Feeding Levels

On a lb/cow/day basis, what is the...

**AVERAGE** amount included in lactating cow rations:

- Average: 5 lbs/cow/day
- Range: 1.1 to 9.9 lbs/cow/day

**MAXIMUM** amount fed to lactating cows:

- Average: 10.1 lbs/cow/day
- Range: 2 to 18 lbs/cow/day





# Feeding Levels

What is the...

**MAXIMUM % included in lactating diets:**

- Average: 15%
- Range: 0.8 to 30%

**MAXIMUM % included in dry/growing diets:**

- Average: 21%
- Range: 1.2 to 50%





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# Utilization

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**Choose how almond hulls are utilized in the following rations:**

	Forage	Concentrate	Forage & Concentrate
Lactating Ration	30%	0%	70%
Dry Cow Ration	31%	7%	62%
Growing Ration	29%	9%	62%

**Do changes in almond hull price affect utilization?**

- 62%, Yes
- Mostly dependent on relation to forage/silage price

# Utilization

In your opinion, **how responsive** is your inclusion of AH in diets related to the following variables?

	Very	Somewhat	Not
<b>Price (n=38)</b>	32	6	0
<b>Consistency (n=38)</b>	30	7	1
<b>Mold (n=35)</b>	29	5	1
<b>Quality (n=37)</b>	27	9	1
Crude Fiber Levels (n=36)	15	16	5
ADF (n=35)	15	16	4
Ash (n=34)	14	16	4
Sugar (n=36)	13	19	3
NDF (n=36)	11	21	3

## Do you test (chemical analysis) almond hulls?

- **79%, Yes**
- Frequency varied between monthly and yearly, or when there were concerns

## Do you have concerns when feeding almond hulls?

- **66%, Yes** in lactating diets
- **70%, Yes** in dry/growing diets
- Most concerns related to quality
- The difference - energy levels in non-lactating diets



# Take Homes

## Opportunities exist to increase almond hull inclusion rates in California dairy rations

- Large range in feeding rates
- Water/forage availability

## Quality issues are a top concern

- Debris: stick & shell
- More on that coming up from Ed DePeters!





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**What's Next?**

# Byproduct Survey

## Water & Forage Production

- Current & future water regulation
- Reduced water availability, in general

Byproduct feeding is one potential measure to mitigate feed costs while providing the fiber necessary to maintain rumen function, gut health, and productivity.



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# Thank You!

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