Almond Board of California

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2018 MRL Harmonization Workshop

california almonds®
Almond Board of California

Scope of the Almond Industry

Spanning 500 miles (804 km)

6,800 growers

101 handler/processors

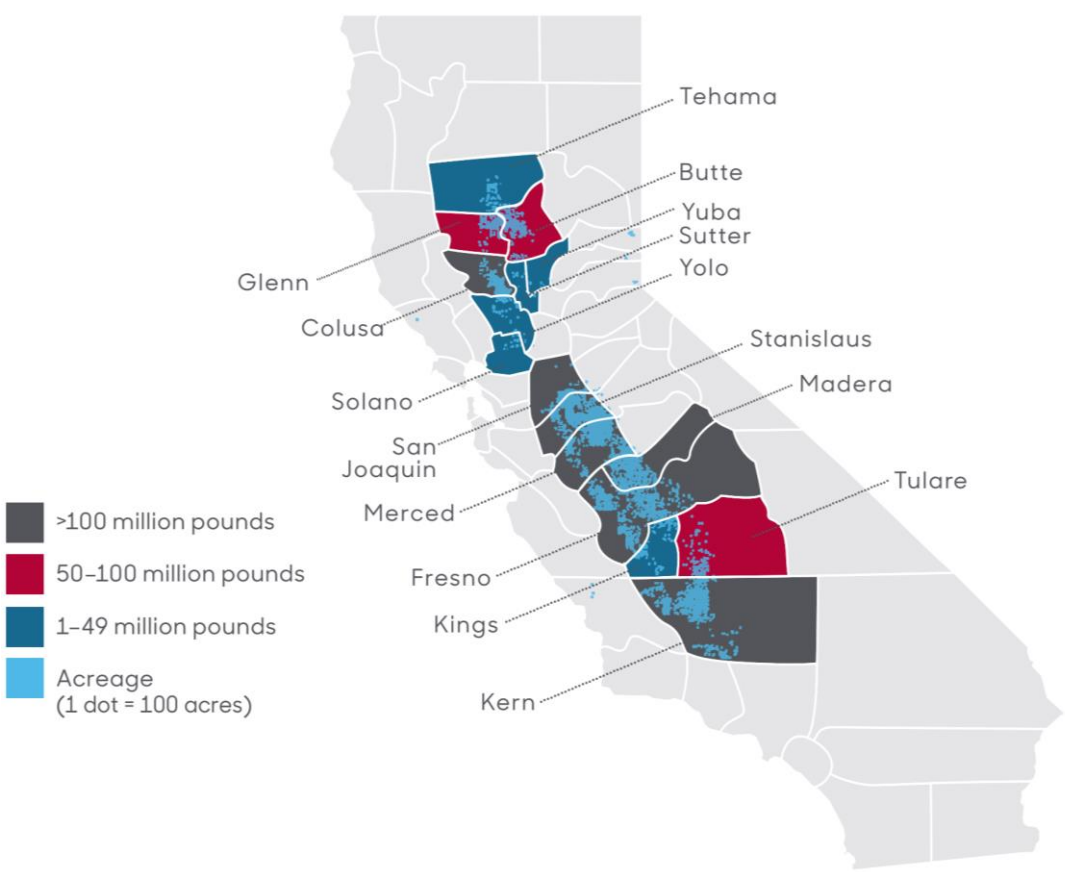
91% family owned farms

Production

- 100% of U.S. production
- 68% export; 32% domestic
- 80% of worldwide production

Exports by value

- Top California agricultural export
- Top U.S. specialty crop export



Sources:
*USDA National Agricultural Statistics Service, Pacific Region (NASS/PR)
**U.S. Department of Commerce, Foreign Trade Statistics

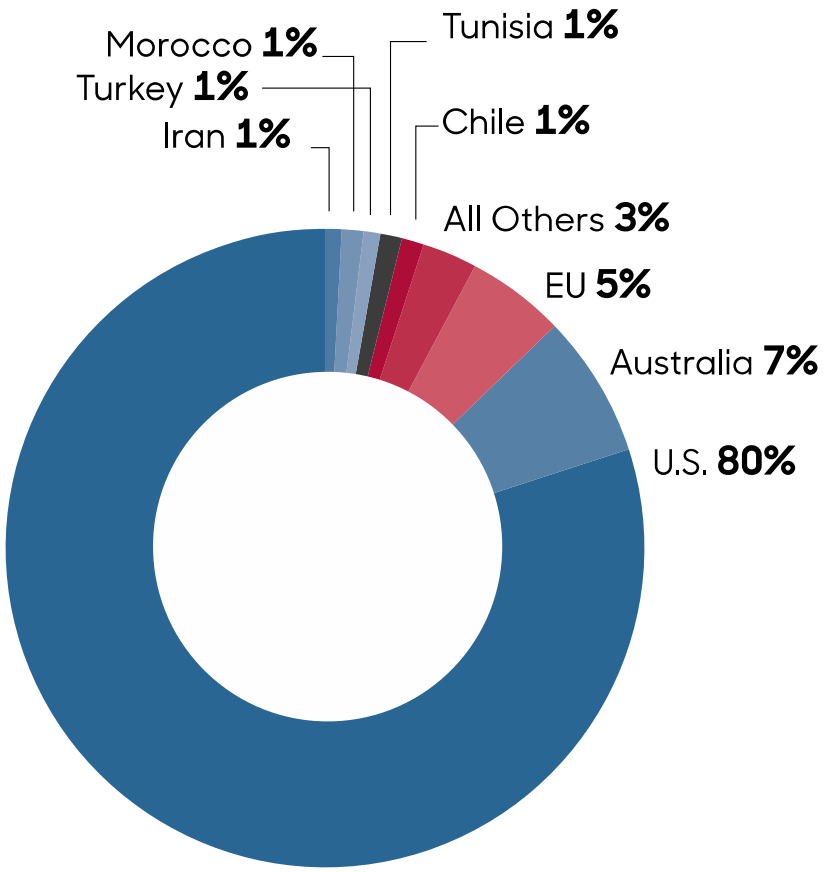
Agenda

- Update on Almonds
- European Union
- South Korea
- China

World Almond Production

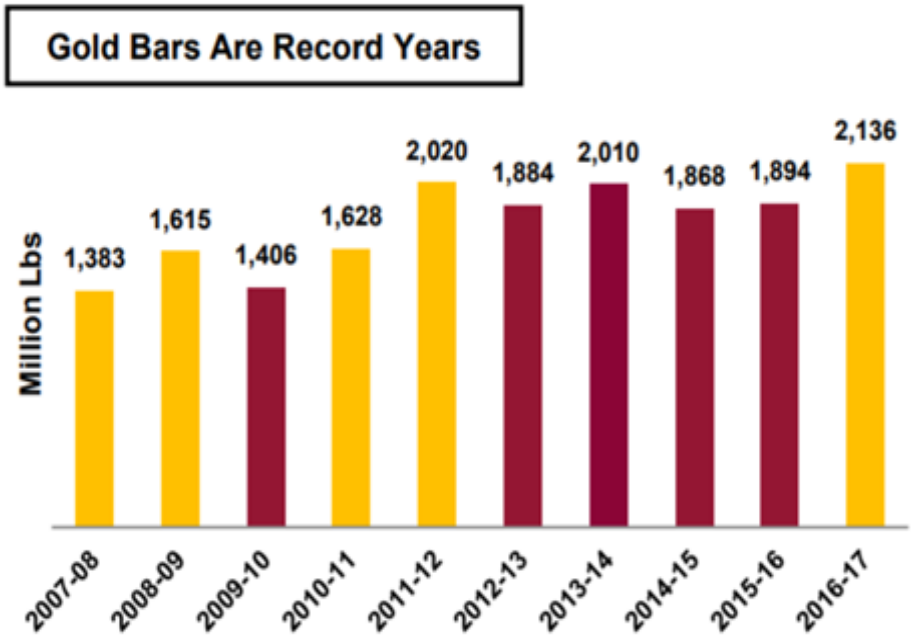
CROP YEAR 2016/17

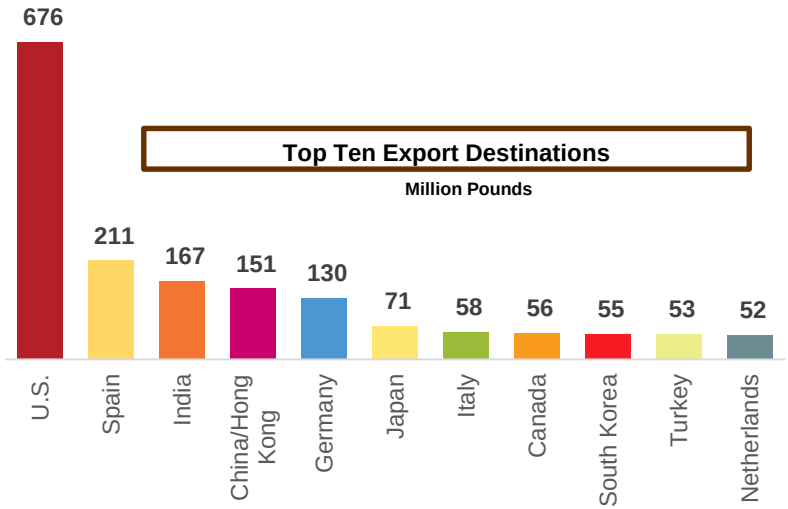
Global Production
≈ 1.3 million MT

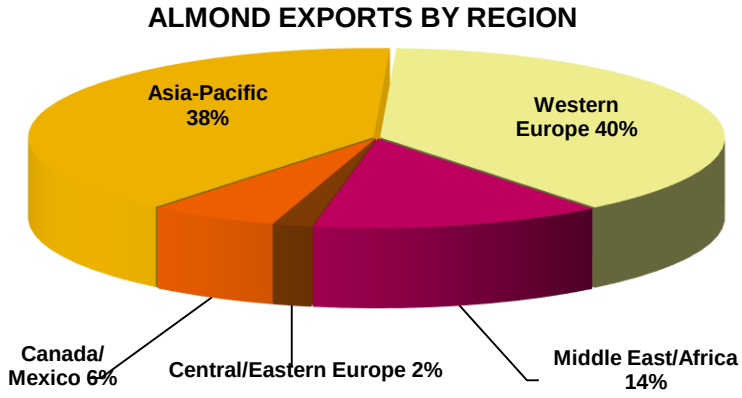


Source: Almond Board of California, Almond Board of Australia and International Dried Fruit Council

2016/17 California Almond Shipment Overview







Examples from top markets: European Union

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European Union: Cut-Off Criteria

Legislation was passed by the European Parliament in 2008

Endocrine Disruptors, Carcinogens, Mutagens, & Toxic for Reproduction

The EU is reviewing all pesticides to understand if they have endocrine disruptor, carcinogen, mutagen, or toxic for reproduction properties. EU legislation requires that use of such compounds be "cut-off" from use in the EU. Furthermore, once a compound has been "cut-off", EU farmers will not be allowed to use these compounds and import Maximum Residue Limits (MRLs) will be removed.

US and Global Risk Assessment Process

- **Hazard x Exposure = Risk to human health**
- To do a complete risk assessment, scientists need both how hazardous the compound is, as well as risk of exposure to the human body. (e.g. skin contact, diet, water, air etc.)

EU Risk Assessment Process

- **Hazard x ~~Exposure~~ = Risk to human health**
- If a compound meets one of the cut-off criteria, then EU only considers the hazard. It **does not** account for human exposure, creating an incomplete picture of risk to human health.

Impact on Disease Control – example Brown Rot Blossom Blight

- Currently 20 different AIs or AI combinations listed as providing control of Brown Rot in almonds.*
- Includes AIs from 9 different Fungicide Resistance Category

Fungicides for use for Blossom Brown Rot (Monilinia) in Almonds per UC-IPM website	*Resistance Category (FRAC)*	*2016 CA acres treated*	*US MLR (ppm)*	*EU MRL (ppm)*
propiconazole	3	345,737	0.1	0.01
febuconazole	3	19,419	0.05	0.05
difenoconazole	3	219,774	0.03	0.05
metconazole	3	431,378	0.04	0.05
tebuconazole	3	121,334	0.05	0.05
myclobutanil	3	3,563	0.01	0.05
difenoconazole/cyprodinil	3/9	219,774/ 199,975		
azoxystrobin	11	381,705 / 345,737	0.02	0.01
azoxystrobin/propiconazole	11/3	381,705		
pyraclostrobin/boscalid	11/7	420,224 /190,130	0.04 /0.7	0.02 /0.05
pyraclostrobin/fluxapyroxad	11/7	420,224 / 230,095	0.04 /0.06	0.02 /0.04
trifloxystrobin	11	308,378	0.04	0.02
fluopyram/trifloxystrobin	7/11	380,521 / 308,377	0.05	0.05
fluopyram/tebuconazole	7/3	380,521 / 431,378	0.05/0.05	0.05/0.05
thiophanate methyl	1	48,490	0.1	0.2
iprodione	2	388,110	0.3	0.2
pyramethanil	9	104,172	0.2	0.2
cyprodinil	9	199,975	0.02	0.02
captan	M4	24,386	0.25	0.07
fenhexamid	17	0	0.02	0.02

* From UC-IPM Website for almonds: http://ipm.ucanr.edu/PMG/r3100111.html

Impact on Disease Control – example Brown Rot Blossom Blight

Based on a 2009 COLEACP assessment of compounds **possibly** affected by cut-off criteria*. Other lists have other compounds….

➔12 of 20 compounds/ combinations might be affected = 8 left

➔Resistance management harder: Reduce FRAC from 12 to 9.

➔Already have resistance to FRAC 11….

➔Note the compounds are not equally effective.

*https://www.coleacp.org/en/system/files/file_fields/2016/05/11/eng-bd2520pip2520position2520paper2520potential2520impact2520proposed2520changes2520to2520eu2520pesticide-0.pdf

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~~fluopyram/tebuconazole~~	~~7/3~~	~~380,521 / 431,378~~	~~0.05/0.05~~	~~0.05/0.05~~
~~thiophanate methyl (if as carbendazim)~~	~~1~~	~~48,490~~	~~0.1~~	~~0.2~~
~~iprodione~~	~~2~~	~~388,110~~	~~0.3~~	~~0.2~~
pyramethanil	9	104,172	0.2	0.2
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Cut-off criteria making pest management more complicated….
Finding even a list of possibly affected compounds not easy

Active substance	US	EU	Codex	Type of Pesticide	CMR Based on EFSA/ECHA	Option 2 ED	Reasons for usage in CA almonds
Boscalid	0.7	1	0.05	Fungicide		yes	Until recently in combination w/ pyraclostrobin top used fungicide in almonds for bloom/late spring diseases
Iprodione	0.3	0.2	0.2	Fungicide		yes	Over last 7-10 years in top 5 fungicides used in almonds; bloom/late spring diseases, good all round control of common diseases
Mancozeb	0.1	0.05	0.1	Fungicide		yes	Usage recently increased due to new bacterial disease
Myclobutanil	0.1	0.05		Fungicide		yes	
Tebuconazole	0.05	0.05	0.05	Fungicide		yes	Other triazoles fungicides in top 5 used last 5 years for bloom diseases. Sold combined with a top 5 fungicide
Thiophanate-methyl	0.1	0.2	0.1	Fungicide		yes	
Ziram	0.1	0.1	0.1	Fungicide		yes	Multisite, thus good rotational material to reduce chance of resistance development
2,4-D	0.2	0.2	0.2	Herbicide		yes	Particularly good for seedling dandelion, curly dock
Flumioxazin	0.02	0.05	0.02	Herbicide	R1B		Active on Johnson grass (limited Ais are)
Glufosinate	0.1	0.1	0.1	Herbicide	R1B		Control for many common almond weeds
Pendimethalin	0.1	0.05		Herbicide		yes	Has been in top 5 herbicides used
Flubendiamide	0.06	0.1	0.1	Insecticide		yes	Use cancelled in the US for env. reasons
Malathion	8	0.02		Insecticide		yes	Not used much, but in past used for fruit fly outbreaks by State
Spirodiclofen	0.1	0.1	0.05	Insecticide		yes	Used in mite control

http://ipm.ucanr.edu/PMG/selectnewpest.almonds.html

Example of impacts of cut-off criteria

Iprodione (Rovral) - fungicide

- First compound reviewed under Cut-Off Criteria
- Registration cancellation within the EU announced in November 2017 for March/June 2018
- MRLs are still in place - awaiting EU determination (in June?) to set date for MRLs to revert to default
- Almond bloom in February/March, harvest in Aug/Sept, shipments to EU Oct 2018 through August 2019, placement on EU retail shelf Nov 2018- Dec 2019
- Different registrants in the EU vs the US

➔Chaos preceding and during bloom whether can use iprodione as not sure when MRLs will change

- ➔Growers already had iprodione in hand.
- ➔Handlers dealing with buyers

➔EU buyers demanding it not be used while still legal to use in the EU/ still have legal MRL.

➔Unclear/uncertainty for channels of trade

- ➔Within EU notice language that can provide 6 month transition period if treated before changed MRL
- ➔But only if no acute risk concerns, then new MRL has immediate effect
- ➔Revisions to that language are treat imports differently from domestic production
- ➔Absolutely no consideration given to different shelf lives of products

➔US Registrant submitted import MRL packages to several countries and two have refused to take it on despite cut-off legislation not amending the MRL setting legislation.

Other uncertainties with cut-off criteria / in the EU

- Compounds can get hung up by a metabolite that meets one or more of the cut-off criteria
  - Example: buprofezin and the possibility of anilin as a metabolite.

➔ Need better lists of potential active ingredients possibly affected by cut-off criteria

➔Grower groups and researchers need to be able to assess possible impacts on current pest management systems for research

➔Consider Pest Strategic Management Plan revisions with current EU and US regulatory issues.

➔Need a reasonable transition system in the EU that accounts for shelf-lives of different food products.

➔FDA good model – if can prove application occurred when legal and within old MRL, then OK.

➔Import tolerance system…..

Other issues in the EU:

Glyphosate registration nearly cancelled

- Even though EFSA didn't have concerns
- Issue highly political

Neonics Banned for Bee Health

- Clothianidin
- Imidacloprid
- Thiamethoxam

European Union – Fosetyl-Al/Phosphite

Fall 2013: EU changes definition: phosphonate under Fosetyl regardless of source

2mg /kg

Dec 2014: Walnut recall in Germany due to "fosetyl-Al"

75 mg/kg (Fall, 2014)

Effective until Dec 31,2015

Generate science-based information

Rational & purpose for use
true plant health effects

Monitoring data
domestic/import data

Analytical Methods
multiplier in MRL definition?

Field trials
develop residue data for MRL setting with IR-4

2014-2016

Summer 2015: Standing Committee **adopted** legislation to extend tMRL for 6 tree nuts

February 2016: Publication of Regulation extended tMRL to March 2019 and retroactive to 1 January 2016

Sept 2016 Dossier submitted by Tree Nuts proposing permanent MRL for tree nut group

Autumn 2016-February 2018

February 2018, Standing Committee adopted EFSA proposed 500 ppm MRL as fosetyl-Al. Awaiting publication

Asian Markets – second largest export region for California Almonds

- China
- South Korea

China

Lack of MRLs

No import MRL system

Do adopt Codex MRLs

Role for APEC conversation?

China – lack of import tolerance process

- Have about 109 US tolerances
- Have about 24 Chinese MRLs for those US tolerances
  - have several MRLs for products no longer used in the US

- China currently only sets MRLs for use within China
  - When it does, they do often adopt Codex MRLs.

➔ Need import tolerance process

South Korea - Example of Transition to Positive List System

- Reminder tree nuts, tropical fruit and oil seeds require Korean set MRL as of Jan 1, 2017
- Developed priority list based on residues and use data
- Contacted registrants to request data packages submission for almonds/tree nuts

Successful Transition!!

- 69 Almond/Nut MRLS established at acceptable level or default level (0.01)
  - 15 set at default level of 0.01
  - 5 MRL's that are less than US or CODEX MRL's
    - Thiophanate-methyl
    - Tebufenozide
    - Pyraclostrobin
    - Methoxyfenozide
    - Hexythiazox
- 3 Compound which registrants have committed to data packages
- 9 Compounds which submission status is unclear

*South Korea has agreed to maintain current MRL through 2021

Clofentezin*	**Permethrin***	**Propylene oxide**
Fenbutatin-oxide*	**Piperonyl butoxide**	**Pyrethrins***
Norflurazon	**Propiconazole***	**Simazine***

Some additional thoughts re next steps in MRL setting

- Great to hear that Codex is considering Global Joint Review
- Chile raised issue of biopesticides/low risk products/no residue products. How to harmonize definitions, sense they have been reviewed for international trade.
  - Is a real need
  - Need some sense compound has been reviewed by competent authorities
  - Differences in definitions when something is exempt from a tolerance
  - Differences in data requirements

Thank You!

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