Almonds and Chocolate
The Dynamic Duo

Karen Lapsley
The Almond Board of California
Almonds and Chocolate
The Dynamic Duo
Session Outline

Dr Karen Lapsley, Chief Scientific Officer, ABC

The scientific rationale for almonds and chocolate being a perfect match

Peggy Fyfe, Associate Director, Trade Stewardship, ABC

Marketing insights for almonds and chocolate – the perfect pairing
Scientific overview

• **Nuts and Health** – latest research

• **Almonds** – composition and science update

• **Cocoa and Chocolate** – composition, processing and health benefits

• **Putting them all together** – ongoing research
Eat a handful of nuts daily and you may live longer

The NEW ENGLAND JOURNAL of MEDICINE

Association of Nut Consumption with Total and Cause-Specific Mortality
Ying Bao, J. Han, F. Hu, E. Giovannucci, M. Stampfer, W. Willett, & C Fuchs
Harvard School of Public Health and Dana Farber Cancer Institute, Boston

NutHealth.org
Primary Prevention of cardiovascular disease with Mediterranean diets: the PREDIMED trial.
R. Estruch, E. Ros, J. Salas Salvado and collaborators in 7 communities across Spain. February 2013

- Long term nutritional study to assess the role of the Mediterranean diet to prevent heart disease
- The Med. Diet was supplemented with extra-virgin olive oil or treenuts and compared to the control low fat diet
- Results showed the two Med. Diets reduced risk of heart disease by 30% compared to control, plus risk of stroke was also reduced
- To date 90 papers published from the study
# Nuts, legumes and seeds - key nutrient contents

<table>
<thead>
<tr>
<th></th>
<th>Water</th>
<th>Protein</th>
<th>Dietary fiber</th>
<th>Sugars + Starch</th>
<th>Total lipid (fat)</th>
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</thead>
<tbody>
<tr>
<td><strong>Almonds</strong></td>
<td>4-6</td>
<td>21</td>
<td>12</td>
<td>4</td>
<td>49</td>
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<tr>
<td><strong>Pistachios</strong></td>
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<td><strong>Walnuts</strong></td>
<td>3-5</td>
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<td><strong>Chickpeas</strong></td>
<td>60</td>
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<td>8</td>
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<tr>
<td><strong>Lentils</strong></td>
<td>70</td>
<td>9</td>
<td>8</td>
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<td><strong>Soybeans</strong></td>
<td>63</td>
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<td>21</td>
<td>9</td>
<td>3</td>
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<tr>
<td><strong>Pumpkin</strong></td>
<td>5</td>
<td>30</td>
<td>6</td>
<td>3</td>
<td>49</td>
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* cooked
<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Units</th>
<th>Whole natural</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>100g</td>
</tr>
<tr>
<td><strong>Mandatory Nutrients</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calories</td>
<td>kcal</td>
<td>575</td>
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<tr>
<td>Total Fat</td>
<td>g</td>
<td>49.4</td>
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<td>Saturated Fat</td>
<td>g</td>
<td>3.7</td>
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<tr>
<td>Monounsaturated Fat</td>
<td>g</td>
<td>30.9</td>
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<tr>
<td>Polyunsaturated Fat</td>
<td>g</td>
<td>12.1</td>
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<td>Trans Fat</td>
<td>g</td>
<td>0</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>mg</td>
<td>0</td>
</tr>
<tr>
<td>Sodium</td>
<td>mg</td>
<td>1</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>g</td>
<td>21.7</td>
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<tr>
<td>Dietary Fibre</td>
<td>g</td>
<td>12.2</td>
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<tr>
<td>Sugars</td>
<td>g</td>
<td>3.9</td>
</tr>
<tr>
<td>Protein</td>
<td>g</td>
<td>21.2</td>
</tr>
<tr>
<td><strong>Voluntary Nutrients</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin E (alpha-tocopherol)</td>
<td>mg</td>
<td>26.2</td>
</tr>
<tr>
<td>Magnesium</td>
<td>mg</td>
<td>268</td>
</tr>
</tbody>
</table>
Everything that 1 serving of almonds offers

**Crunch Power**
It takes a pretty amazing snack to give you the power to take on whatever life brings. The crunch of California Almonds helps you stay on your “A” game. That’s because ounce for tasty ounce few snacks pack more powerful nutrition, like energizing protein, hunger-fighting fiber, and heart-healthy nutrients. So each crunch unleashes everything you need to be your best anytime and anywhere—whether it's showing the treadmill who's boss, owning that PTA meeting, or fiercely planting those petunias. Plus that lively crunch makes everyday snacking more satisfying and delicious, whether you eat almonds by themselves or paired with other foods. So, grab some California Almonds for the one-of-kind crunch you need to bring it all day everyday.

<table>
<thead>
<tr>
<th>30 g Almonds</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>6 g</td>
</tr>
<tr>
<td>MUFA</td>
<td>9 g</td>
</tr>
<tr>
<td>PUFA</td>
<td>3 g</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>3.5 g</td>
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<tr>
<td>Magnesium</td>
<td>76 mg</td>
</tr>
<tr>
<td>Phytosterols</td>
<td>39 mg</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>7 mg</td>
</tr>
<tr>
<td>Polyphenols</td>
<td>174 mg</td>
</tr>
</tbody>
</table>
2003 FDA Issued First
Qualified Health Claim for Nuts

“Scientific evidence suggests but does not prove that eating 1.5 ounces per day of most nuts, such as almonds, as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease.”

July 14, 2003 FDA

Stay tuned for new almond heart health research in 2014

Total Cholesterol ↓ and LDL Cholesterol ↓ and almonds the only nut with 2 dose response clinical trials
Snacking on 43g (1.5 oz) of almonds daily can reduce hunger and the desire to eat.

**Diagram:**

AUC of hunger, fullness, and desire to eat during acute feeding session

- **Hunger:** Control (blue) - Meal (red) - Snack (green)
- **Fullness:** Control (blue) - Meal (red) - Snack (green)
- **Desire to eat:** Control (blue) - Meal (red) - Snack (green)

Statistical analysis:

- One-way ANOVA, p=0.026*
- One-way ANOVA, p=0.749
- One-way ANOVA, p=0.023*
The Skinny on the Energy Value of Almonds

D, Baer, J. Novotny, S Gebauer
Food Components & Health Laboratory USDA
Beltsville Human Nutrition Research Center
Controlled-feeding

- Participants were required to consume all foods provided during diet periods
- Not permitted to consume any outside foods
- Breakfast and dinner consumed at the Beltsville Human Nutrition Research Center, Mon-Fri
- Lunch and weekend meals were packed for offsite consumption
Measured energy value of almonds

Cocoa is a ...fruit

- A natural product grown in very specific geographic regions
- Very little processing occurs during manufacturing
- Used for hundreds of years in a variety of applications
What nutrients are in the cocoa bean?

By weight...

- 52% Cocoa Butter
- 21% Carbohydrates
- 17% Protein
- 10% Polyphenols
- Minerals

- 34% Oleic Acid
- 33% Stearic Acid
- 27% Palmitic Acid
- 6% Other

- ~1% Sugar, 20% Fiber
- Arginine, Glutamine, Leucine
- 2% Proanthocyanins
- Fe, Mg, P, K, Cu
From cocoa beans to chocolate bar……..
Most chocolate flavored beverages use alkalized or “dutched” cocoa. Cocoa is alkalized to reduce bitterness and to enhance the solubility of cocoa. The alkalization process also reduces the flavanols in cocoa.

Not all cocoa is created equal……

Cocoa Flavanols fall within the polyphenol family of bioactives

Polyphenols

Flavonoids

Anthocyanin

Flavanone

Flavonol

Flavanol

Isoflavone

Flavone

Antioxidants
Ancient Uses of Cocoa: A Modern Example

KUNA Amerindians:

- Indigenous population off the coast of Panama
- Traditional high salt diet
- Have much lower rates of CVD and Type 2 Diabetes
- Showed no rise in blood pressure with age
- Immigrants did develop hypertension

Island dwelling Kuna’s consume an average of 5 cups of cocoa per day

Interventions targeted traditional and emerging risk factors:

**Traditional**
- Blood lipids and lipoproteins
- Blood Pressure

**Emerging**
- Oxidized LDL Cholesterol
- Platelet Aggregation
- Endothelial Function
Meta-Analysis: Cocoa Consumption Reduces Total Cholesterol and LDL-Cholesterol

**Total Cholesterol**

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>N</th>
<th>Experimental Changes in TC</th>
<th>Control Changes in TC</th>
<th>Mean Difference IV,Random,95%CI</th>
<th>Weight</th>
<th>Mean Difference IV,Random,95%CI</th>
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</thead>
<tbody>
<tr>
<td>Baba (12)</td>
<td>2007</td>
<td>13</td>
<td>-7.33 (13.92)</td>
<td>-3.86 (20.06)</td>
<td>-3.47 [-17.11, 10.17]</td>
<td>12.5%</td>
<td></td>
</tr>
<tr>
<td>Balzer (19)</td>
<td>2008</td>
<td>21</td>
<td>-6.30 (27.83)</td>
<td>9.80 (31.67)</td>
<td>-16.10 [-34.38, 2.18]</td>
<td>8.8%</td>
<td></td>
</tr>
<tr>
<td>Fraga (17)</td>
<td>2005</td>
<td>27</td>
<td>-18.00 (33.13)</td>
<td>1.00 (12.88)</td>
<td>-19.00 [-32.41, -5.59]</td>
<td>12.8%</td>
<td></td>
</tr>
<tr>
<td>Grassi (11)</td>
<td>2005</td>
<td>20</td>
<td>-15.44 (21.57)</td>
<td>0.00 (19.65)</td>
<td>-15.44 [-28.23, -2.65]</td>
<td>13.4%</td>
<td></td>
</tr>
<tr>
<td>Grassi (18)</td>
<td>2005</td>
<td>15</td>
<td>3.86 (17.81)</td>
<td>0.00 (13.10)</td>
<td>3.86 [-7.33, 15.05]</td>
<td>15.2%</td>
<td></td>
</tr>
<tr>
<td>Muniyappa (20)</td>
<td>2008</td>
<td>20</td>
<td>-12.00 (34.15)</td>
<td>-13.00 (34.15)</td>
<td>1.00 [-20.17, 22.17]</td>
<td>7.1%</td>
<td></td>
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<tr>
<td>Taubert (1.5)</td>
<td>2007</td>
<td>22</td>
<td>-2.70 (10.79)</td>
<td>2.60 (14.07)</td>
<td>-5.30 [-12.71, 2.11]</td>
<td>20.2%</td>
<td></td>
</tr>
<tr>
<td>Wan (14)</td>
<td>2001</td>
<td>23</td>
<td>5.79 (28.45)</td>
<td>-3.47 (28.45)</td>
<td>9.26 [-7.18, 25.71]</td>
<td>10.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td></td>
<td>161</td>
<td></td>
<td>159</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: $\chi^2 = 41.55$, $df = 7$ ($P = 0.06$); $I^2 = 49$
Test for overall effect: $Z = 1.73$ ($P = 0.08$)

**LDL-Cholesterol**

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>N</th>
<th>Experimental Changes in LDL</th>
<th>Control Changes in LDL</th>
<th>Mean Difference IV,Fixed,95%CI</th>
<th>Weight</th>
<th>Mean Difference IV,Fixed,95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baba (12)</td>
<td>2007</td>
<td>13</td>
<td>-16.98 (19.48)</td>
<td>-6.18</td>
<td>12.3% [10.80, 41.7]</td>
<td>12.3%</td>
<td></td>
</tr>
<tr>
<td>Balzer (19)</td>
<td>2008</td>
<td>21</td>
<td>-8.50 (33.44)</td>
<td>4.40</td>
<td>5.2% [-12.90, 10.07]</td>
<td>5.2%</td>
<td></td>
</tr>
<tr>
<td>Fraga (17)</td>
<td>2005</td>
<td>27</td>
<td>-16.00 (33.54)</td>
<td>5.00</td>
<td>8.2% [-11.00, 7.40]</td>
<td>8.2%</td>
<td></td>
</tr>
<tr>
<td>Grassi (11)</td>
<td>2005</td>
<td>20</td>
<td>-15.44 (24.04)</td>
<td>0.00</td>
<td>13.8% [-15.44, -2.12]</td>
<td>13.8%</td>
<td></td>
</tr>
<tr>
<td>Grassi (18)</td>
<td>2005</td>
<td>15</td>
<td>0.00 (19.76)</td>
<td>0.00</td>
<td>15.7% [0.00, 10.30]</td>
<td>15.7%</td>
<td></td>
</tr>
<tr>
<td>Muniyappa (20)</td>
<td>2008</td>
<td>20</td>
<td>-9.00 (52.84)</td>
<td>-11.00</td>
<td>2.7% [-30.11, 34.11]</td>
<td>2.7%</td>
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<tr>
<td>Taubert (1.5)</td>
<td>2007</td>
<td>22</td>
<td>-2.30 (9.38)</td>
<td>2.00</td>
<td>33.3% [-4.30, 48.42]</td>
<td>33.3%</td>
<td></td>
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<tr>
<td>Wan (14)</td>
<td>2001</td>
<td>23</td>
<td>8.49 (35.92)</td>
<td>2.32</td>
<td>8.8% [6.17, 23.91]</td>
<td>8.8%</td>
<td></td>
</tr>
<tr>
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<td></td>
<td>161</td>
<td></td>
<td>159</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: $\chi^2 = 5.69$, $df = 7$ ($P = 0.58$); $I^2 = 0$
Test for overall effect: $Z = 2.19$ ($P = 0.03$)
Cocoa Products Reduce Blood Pressure: Meta-Analysis

Ried et al. BMC Med 2010
Dark Chocolate and Blood Pressure


• **Population:**
  
  – N=13 (55-64yrs) with stage 1 HTN
  
  – Mean systolic BP 153.2 mm Hg
  
  – Mean diastolic BP 83.8 mm Hg

• **Treatment:** (14d, 480 kcal)
  
  – 100g dark chocolate (500mg TP)
  
  – 90g white chocolate
45 healthy overweight adults

Objective: To examine the acute effects of solid dark chocolate and a hot cocoa beverage on endothelial function and blood pressure.

Phase 1
74 g Solid dark chocolate bar
74 g Cocoa-free placebo bar

Phase 2
Sugar-free hot cocoa beverage
Sugared hot cocoa beverage
Cocoa-free placebo hot beverage
From the Science to Consumers

6.3g ≈ 1.4 HERSHEY’S SPECIAL DARK KISSES
Dark Chocolate

30 Calories ~1 g Cocoa

2 HERSHEY’S EXTRA DARK Tasting Squares

90 Calories ~6 g Cocoa

3 pieces of HERSHEY’S BLISS Dark Chocolate

100 Calories ~5 g Cocoa
Chocolate Maker Obtains for EU Health Claim

Sept. 4, 2013 EU Commission approves Barry Callebaut’s health claim
**Cocoa flavanols support a healthy blood circulation**

Official validation: Cocoa flavanols contribute to normal blood circulation in human body by helping to maintain elasticity of blood vessels

Barry Callebaut’s ACTICOA® process preserves cocoa flavanols

200 mg cocoa flavonols from cocoa beverage (with 2.5 g high flavanol cocoa) or 10 g high flavanol dark chocolate Contributes to normal blood flow

Barry Callebaut has proprietary rights for five years to this technology
The Effects of Chocolate and Almonds on Heart Disease Risk Factors

Hypothesis
Together with the potential heart benefits demonstrated for both almonds and dark chocolate, there will be an additive effect of consuming the two foods together on heart health risk factors.

Objectives
To evaluate the independent and additive effects of dark chocolate and almonds on heart risk factors. Specifically, to assess the independent effects of each food on vascular endothelial function and serum markers of inflammation, and identify any potential additive effect(s).
Study Design at Penn State 2012-2014

Joint collaboration and funding between The Hershey Company and ABC; Dr. Penny Kris Etherton, Penn State University with Tufts collaboration.

Screening

Run-in diet

2 wk period

2-3 wk break

2-3 wk break

Chocolate

Almond

Choc + Almond

Chocolate

Almond

5 wk period

5 wk period

5 wk period
Research on effects of polyphenol–rich dark chocolate & almonds on cardiovascular risk factors

**Primary**
- Fasting lipid, lipoprotein profile (total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides)
- Blood Pressure and arterial health
- Inflammatory markers - CRP, IL-1, IL-6 and TNF-α.

**Secondary**
- LDL Particle Size and lipoprotein subclasses
- Plasma alpha-tocopherol, flavanols/metabolites, urinary isoprostanes, LDL oxidation

**Exploratory**
- HDL function – reverse cholesterol transport
What a sustainable partnership!!
Almonds and Cocoa
Almonds and Chocolate: The Dynamic Duo

Peggy Fyffe
The Almond Board of California
Overview

- Why Chocolate and Almonds?
- 2013 Global Chocolate Report
  - Background
  - Sample details
- A Closer Look at Consumer Demand
  - Chocolate and almonds
- Innova Research
- Almond Board of California
  - Chocolate and almond support
Global Chocolate Marketing Program

- By 2016, the global chocolate market is estimated to be almost $100B.
- Confectionery is the most important category for almonds, but hazelnuts dominate confectionery.
- Trade Stewardship is challenged to turn this around and help make almonds the confectionery nut of choice globally.
We wanted to better understand how people eat chocolate, what drives decisions when it comes to chocolate, and how those things vary in different markets around the world.

What type of chocolate do people prefer?

What would people include in their “ideal” chocolate product?

What are they looking for in their chocolate products?

What mood are people typically in when they eat chocolate?

How well are their current options delivering on what’s most important to people?
So we asked them...

Our approach:
Online study with 5,400 chocolate consumers in 10 markets; fielded in early February, 2013
THERE’S SOMETHING SPECIAL ABOUT CHOCOLATE...

- Globally, chocolate is eaten approximately 83 times per year (or 11 times per month) with France accounting for the most consumption globally, at 15.9 times per month.
  - Europe, particularly France, reports the highest chocolate consumer at 16 times per month
  - Whereas Japan reports the lowest chocolate consumption at 7 times per month
- 90% of consumers worldwide are eating more or the same amount of chocolate in the past year versus the year prior.
  - Respondents reported eating more chocolate because they like the taste and because chocolate made them happy, comforted and helped to reduce stress levels
The top reasons respondents cited for eating more chocolate compared to the prior year are associated with **happiness** and **comfort**

### Reasons for Eating More Chocolate
*(Of those who ate more chocolate in the past year)*

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just like the taste</td>
<td>43%</td>
</tr>
<tr>
<td>Makes me happy</td>
<td>42%</td>
</tr>
<tr>
<td>Comforts me</td>
<td>37%</td>
</tr>
<tr>
<td>Calms me down/helps reduce stress</td>
<td>35%</td>
</tr>
<tr>
<td>Gives me energy</td>
<td>30%</td>
</tr>
<tr>
<td>Looking for new taste experiences</td>
<td>27%</td>
</tr>
<tr>
<td>There are a lot of more interesting new products to try</td>
<td>22%</td>
</tr>
<tr>
<td>Looking for new texture experiences</td>
<td>19%</td>
</tr>
</tbody>
</table>

**Happiness & comfort**

- Just like the taste
- Makes me happy
- Comforts me
- Calms me down/helps reduce stress
- Gives me energy

**Physical benefits**

- Calms me down/helps reduce stress
- Gives me energy

**Exploration / new experiences**

- Looking for new taste experiences
- There are a lot of more interesting new products to try
- Looking for new texture experiences
Consumers seem open to new chocolate products, but familiarity is key

**Chocolate Attitudes**

- **I’ll try some of the more unusual chocolates on occasion, but stick to my favorites for the most part**
  - Agree strongly: 27%
  - Agree somewhat: 49%
  - Total: 76%

- **It’s fun to try new and interesting flavor combinations when eating chocolate**
  - Agree strongly: 30%
  - Agree somewhat: 39%
  - Total: 69%

- **I prefer chocolate that is familiar to me - chocolate I’ve eaten a lot in the past**
  - Agree strongly: 26%
  - Agree somewhat: 42%
  - Total: 68%

- **I find some of the new flavors that are being added to chocolate to be too unusual**
  - Agree strongly: 20%
  - Agree somewhat: 38%
  - Total: 58%

- **I’m always trying new chocolate products that I see in the store, regardless of whether or not I’ve ever seen the brand before**
  - Agree strongly: 20%
  - Agree somewhat: 33%
  - Total: 53%

- **I prefer chocolate products that are more unusual when it comes to ingredients and flavors**
  - Agree strongly: 17%
  - Agree somewhat: 31%
  - Total: 48%

---

**Drawn to the familiar**

**Yet open to new and interesting products**

**But not too unfamiliar or unusual!**
So what are they eating now?
Ingredients Included in Last Chocolate* Occasion

Nuts are the most common inclusion mentioned for respondents’ last chocolate occasion, and account for nearly half of all chocolate occasions globally.
Almonds, peanuts and hazelnuts are the top nuts for inclusion in chocolate.

Nuts Included in Most Recent Chocolate* Occasion

- Almonds: 58%
- Peanuts: 49%
- Hazelnuts: 46%
- Walnuts: 26%
- Cashews: 20%
- Pistachios: 10%

*Chocolate bar or pieces
What are people looking for in their chocolate experience?
Most chocolate occasions occur in the home in the afternoon or evening

60% of chocolate occasions occurring in the **afternoon** (30%) or **evening** (30%)

73% of chocolate occasions occurring in the **home**
If they could design their *ideal* chocolate product...
“Build your own” ideal chocolate product:

**Chocolate Type**
(select at most two)

- Milk, 64%
- Dark, 46%
- White, 19%

**Inclusions**
(select all that apply, if any)

- Caramel, 30%
- Strawberry, 21%
- Coffee, 19%
- Honey, 19%
- Nougat, 18%
- Peanut Butter, 17%
- Coconut, 24%
- Raisins, 24%
- Strawberry, 24%
- Cherries, 21%
- Almonds, 43%
- Hazelnuts, 36%
- Walnuts, 32%
- Peanuts, 29%
- Cashews, 27%
- Pistachios, 22%
- Wafer, 19%
- Biscuit, 19%
- Crisp Rice, 18%
- Toffee, 17%

*2010*
A Bright Future for Almonds

- They fit well into today’s trends
  - Health & wellness
  - Simplicity, transparency
  - Increased snacking / on-the-go eating

- The are versatile
  - Go with almost every flavor
  - Work as a whole food or as an ingredient

- Everyone likes them, globally
Chocolate is **HOT!**

Theobroma Chocolate Lounge
Malaysia, Australia, New Zealand.

Danish: Lu Cafe Au Petit Ecolier Extra Dark Chocolate Biscuits. Contains 70% cocoa.

UK: Marks & Spencer Belgian Triple Chocolate Cookies
Indulgent Belgian triple chocolate cookies with dark, milk and white chocolates, half coated in Belgian dark chocolate.
Multinationals: BFY and Almonds

- **General Mills**: Cereal & Energy Bars, Snack Nuts & Seeds
- **Nestle**: Cereal & Energy Bars, Chocolate, Yogurt
- **Kraft**: Snack Nuts & Seeds, Cereal & Energy Bars, Chocolate
- **Kellogg’s**: Cereal & Energy Bars
- **Danone**: Yogurt
Christmas Treats: Premium Chocolate

Finland: Fazer Joulusuklaa: Christmas Chocolate Christmas edition, spicy milk chocolate bar with fruit, gingerbread snaps and almonds.

Denmark: Julefryd Pralinere Dessertchokolade: Dessert Chocolate Pralines Christmas joy mini chocolates with four different dessert chocolates. The chocolates consist of marzipan (40%), coated with dark and milk chocolate (14%) and dark chocolate (31%) in cones. Dessert chocolates with marzipan, dark chocolate and milk chocolate, packed in a cardboard box.
Extra Dark Chocolate, Extra Premium

- 10% of all dark chocolate product launches tracked have a premium/indulgence positioning, while only 6.5% of all milk chocolate is premium.

Sweden: Marabou Premium Almond Dark Chocolate with Whole Almonds Premium dark chocolate with whole almonds. Contains 46% minimum cocoa.

United Kingdom: Lindt Excellence Blueberry Intense Fine Dark Chocolate with Almonds & Blueberries Contains 47% minimum cocoa solids.
California Almonds = *Premium Positioning*

- Manufacturers can leverage the increasing interest of consumers in the origins of ingredients by communicating the source of premium almonds from California.

**Germany:** Zentis Belmandel Roasted California Almonds with Yogurt Flavored White Chocolate Coating. Almonds from California.

**United States:** Trader Joe's Dark Chocolate Almond Toffee. Crunchy toffee and roasted California almonds, covered with premium dark chocolate.
Inclusion of Whole Almonds

• The number of global almond introductions and global chocolate introductions with the inclusion of whole almonds is increasing.

**France**: Cote D’Or Croquant Amande: Dark Chocolate Bar with Whole Almonds & Praline.

**Netherlands**: Ritter Sport Milk Chocolate with Whole Almonds. In easy knick-pack. With almonds grown in the California sunshine.
Chocolate Coated Almonds Popular in Yogurt

Chobani Greek Yogurt with Toasted Almonds & Dark Chocolate Chips: Almond Coco Loco.

Germany: Muller Corner De Luxe Bourbon Vanilla Flavored Yogurt with Tender Mild Chocolate Coated Almonds.

Estonia: Alma Yogurt with Almonds and Chocolate pieces.

Israel: Bio Yoplait: Cream yogurt with a separate compartment of chocolate coated nuts and almonds.
Almonds Create Texture in Ice Cream & Desserts

Greece: Ebra Variete Mosaiko: Chocolate Flavored Ice Cream Dessert with Cocoa Syrup, Biscuit Pieces and Almonds.

Finland: Daim Mini Pear Dream Ice Cream Cone with Nuts and Almonds Coated with Milk Chocolate.

Poland: Bakoma Satino Duo Yogurt with Chocolate Sauce. The almonds are in the yogurt.
Nuts are finding more beverage applications

- Whether it be for health or indulgence, or a combination of both, nuts are being increasingly added to beverages.

South Africa: Woolworths Food Chocolate Brownie Low Fat Flavored Milk with Nuts.

Antioxidants: Where Indulgence Meets Health

- Chocolate products with antioxidants are good examples of combining indulgent chocolate products with a health aspect.

**Australia: Nestle Club 70% Cocoa Dark Chocolate Mint Infusion.** A serving of Cub Provides 178mg of antioxidant polyphenols. Chocolate contains minimum 70% cocoa solids. Recyclable packaging.

**UK: Beyond Dark 70% Cocoa Chocolate Chips.** A 70% cocoa dark chocolate chips with intense, smooth, and sensuous flavors. Claims: Drops of pure pleasure. Naturally rich in antioxidants.
Indulgence, Pleasure and Guilt Free

Belgium: Newtree Lait Amandes Grilles Roasted Almonds Chocolate. Newtree Roasted Almonds Chocolate has the smoothness of milk chocolate enlivened by the crispness of the roasted almonds and golden flaxseeds. Less 30% fat. Contains omega 3
Clean Label has Become Mainstream

Mexico: Verde Valle Serena Mezcla Antioxidante Combinacion de Arandano, Cereza, Nuez, Almendra y Pistacho Pelado: Antioxidant Blend of Peeled Cranberry, Cherry, Walnut, Almond and Pistachio

A combination of peeled cranberries, cherries, walnuts, almonds and pistachios, in a 60g aluminum pouch. 100% natural
Products for the Critical Consumer

• Clean label (natural and no additives/preservatives claims) and ethical claims (recyclable, charity and sustainability) can be used in conjunction.

United Kingdom: Carmans Dark Choc Cranberry & Almond Bars Low GI rating of 53. Foods with a low glycemic index (GI) help control hunger and provide more sustained energy. Wheat free. 100% Australian made. Made from natural ingredients. Comes in a recyclable packaging.
“Free From”

Denmark: Almondy Mousse Creamy Chocolate Truffle Cake. Deep frozen chocolate truffle cake in 500g cardboard box. Gluten free. No preservatives or artificial colorings.
Takeaways

• Almonds are very on trend: the “perfect food”
• More than 2/3 of consumers worldwide say they’re more likely to buy chocolate with almonds than without
• Almond share of total chocolate consumption amongst global consumers increased 16% since 2010
• Better for you products: good for the bottom line
• Almonds used by most successful multinationals and by retailers in private label products
• Almonds can add premium appeal and a premium price
• Almonds bring wholesome appeal with inherent health benefits
• Almonds are versatile: work well in many applications and with all flavors – sweet, salty, ethnic
THE CHOCOLATE PHENOMENON.

Chocolate. It's rich. It's creamy. It's awe-inspiringly irresistible. For centuries, chocolate has been the culinary cue for absolute decadence, and today, more people are looking for new, unique ways to enjoy it. The fact is, consumers around the world adore chocolate and they report feeling relaxed, happy and carefree when eating it! That's why it's no wonder the category is growing by such extraordinary measures.

Worldwide, chocolate is eaten approximately 11 times per month, and 90% of consumers are eating more or the same amount of chocolate in the past year versus the year prior! Consumers also say that when eating chocolate, they're looking to indulge, relax and be entertained—a boundless opportunity for any ingredient that dares to enhance the already-sensational stance of this enchanting treat.

In addition, the world's most sought-after desserts and confections prove that almonds and chocolate make the perfect pair. It's where creamy meets crunchy, temptation meets satisfaction and familiar meets unexpected, which explains why:

FLAVOR. TEXTURE. PERFECTION.

Adding almonds to any chocolate product creates unlimited possibilities in exceptional flavor and tantalizing texture. "Tastes great" is the number one benefit for consumers when choosing a chocolate product, and when compared to other nuts, consumers around the world agree that almonds are the number one nut that makes chocolate tastier! It doesn't get much more perfect than that.

Then there's that crave-worthy crunch factor. When added to chocolate, almonds' sensorial, satisfying crunch creates a deliciously multidimensional bite that feels both upscale and impossible to replicate.

Compared to other nuts, global consumers claim almonds are the number one nut that makes chocolate crunchier! But it's not just any crunch. It's something special—an almost indescribable quality that elevates any chocolate experience into the extraordinary.

GIVING CHOCOLATE THE ALMOND TREATMENT.

If there's anything that can up chocolate's ante, it's almonds. These crunchy little morsels instantly add a whole new dimension of desire to chocolate's smooth, dreamy foundation. Want proof? The numbers don't lie: 65% of global consumers prefer chocolate products with nuts, and even more importantly, they believe almonds are the nut that best fits with both milk and dark chocolate! With stellar versatility and outstanding demand, that's a story any culinary professional should be delighted to tell.

More than two-thirds of consumers worldwide say they're more likely to buy chocolate with almonds than without:

Consumers believe the top reasons for adding almonds to chocolate are because they make products crunchier, more nutritious, tastier and higher quality;

And consumers worldwide believe almonds make chocolate more exciting, uplifting, rewarding, comforting and relaxing.

Currently, chocolate reigns as a $107.4 billion global industry and the world's craving for the sweet stuff only continues to rise. The retail value of the global chocolate category has increased 25% since 2007 and is expected to grow another 27% in the next five years. That's a lot of cocoa beans.
Chocolate + Almonds
A Sweet Sensation for Global Consumers

2 out of 3 consumers prefer their chocolate with almonds.

Consumers picked almonds as the NUMBER ONE ingredient for their ideal chocolate bar.

Almonds are the nut consumers eat most often in other chocolate and bakery items.

65% of consumers would pay more for a chocolate product with almonds.

WHAT LETS YOU STIR UP PASSION IN CHOCOLATE LOVERS?

[ALMONDS, OF COURSE.]

Because, while chocolate is the very embodiment of delicious temptation, 70% of people worldwide say it's even more enticing with almonds. Their buttery taste, distinctive crunch, and high-end appeal make them indispensable to the most desirable confections. Learn more about the essential almond at AlmondBoard.com/chocolate.

*Shelting-Rice Group for Almond Board of California, Global Chocolate Study, 2010.
Thank you