Lutton, Sara - AMS

From: Maher, Missy <Missy.Maher@edelman.com>
Sent: Wednesday, November 27, 2013 2:07 PM
To: Kevin Burkum; Joanne Ivy
Cc: Schaffner, Serena; Jensen, Elizabeth (Schreiber); Grosshandler, Jennifer; Maher, Missy
Subject: Beyond Eggs Scope
Attachments: Beyond Eggs Outreach Budget 11.26.13.xlsx

Here's a little something for your inbox for when you return from Thanksgiving. We've pulled together the attached Beyond Eggs budget that scopes out programming and counsel for the next three months. In the budget, we've provided estimates on work to date (LTE's), recommended media outreach/follow-up, a robust blogger/influencer program and ongoing strategic counsel. Unfortunately, the Environmental study budget is tapped at this point (and we are continuing to follow up and wrap up the influencer coverage).

We look forward to your thoughts and getting started with media outreach asap, once we receive approval. We can connect on Monday with any questions. Happy Thanksgiving!!

Missy

==========

	Fee	Expense	Total	Notes
Beyond Eggs Outreach	**$46,000.00**	**$16,500.00**	**$62,500.00**	
WSJ and HuffPo Letters to the Editor	$5,500.00	$0.00	$5,500.00	Fee includes strategic counsel to date, drafting, submitting and follow up of (2) Letters to the Ed submissions to WSJ and Huffington Post
Media Relations, Monitoring and Follow-Up	$15,000.00	$0.00	$15,000.00	Fee includes real-time response to Beyond Egg coverage; following up with top 25 print food, fe and health reporters (75+ reporters); monitoring reporting.

Blogger Relations	$18,000.00	$15,000.00	$33,000.00	Fee includes research and negotiations with ke influential bloggers in food, tech and health/nutr space, drafting key messaging and coordinating OOPs include 10 sponsored post partnerships bloggers
Ongoing Strategic Counsel	$7,500.00	$1,500.00	$9,000.00	Fee includes ongoing strategic counsel (approx per month for 3 months - should funds not be u can work to apply it to future programming/opportunities) OOPS includes miscellaneous administrative ex

Lutton, Sara - AMS

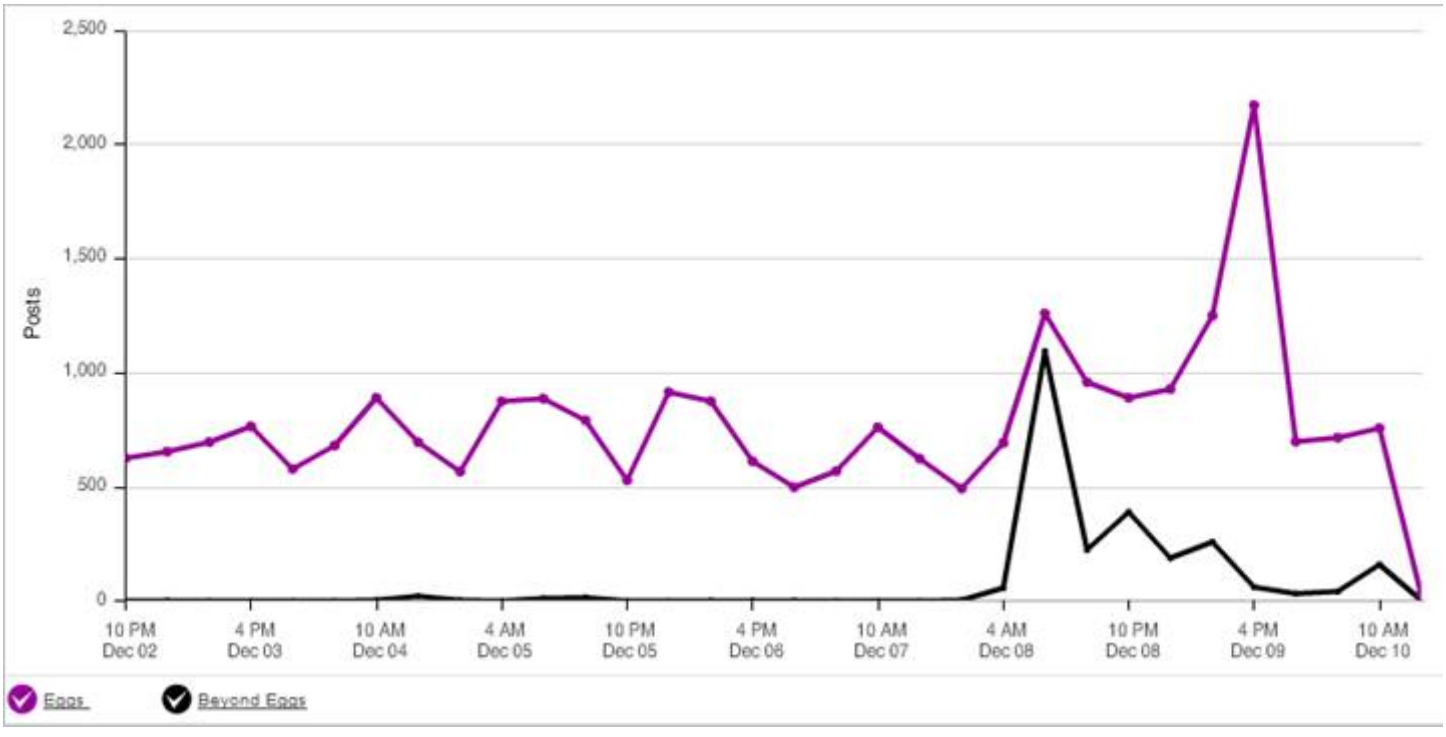
From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Tuesday, December 10, 2013 6:47 PM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: Beyond Eggs Update 12.10 - PM

Hi all –

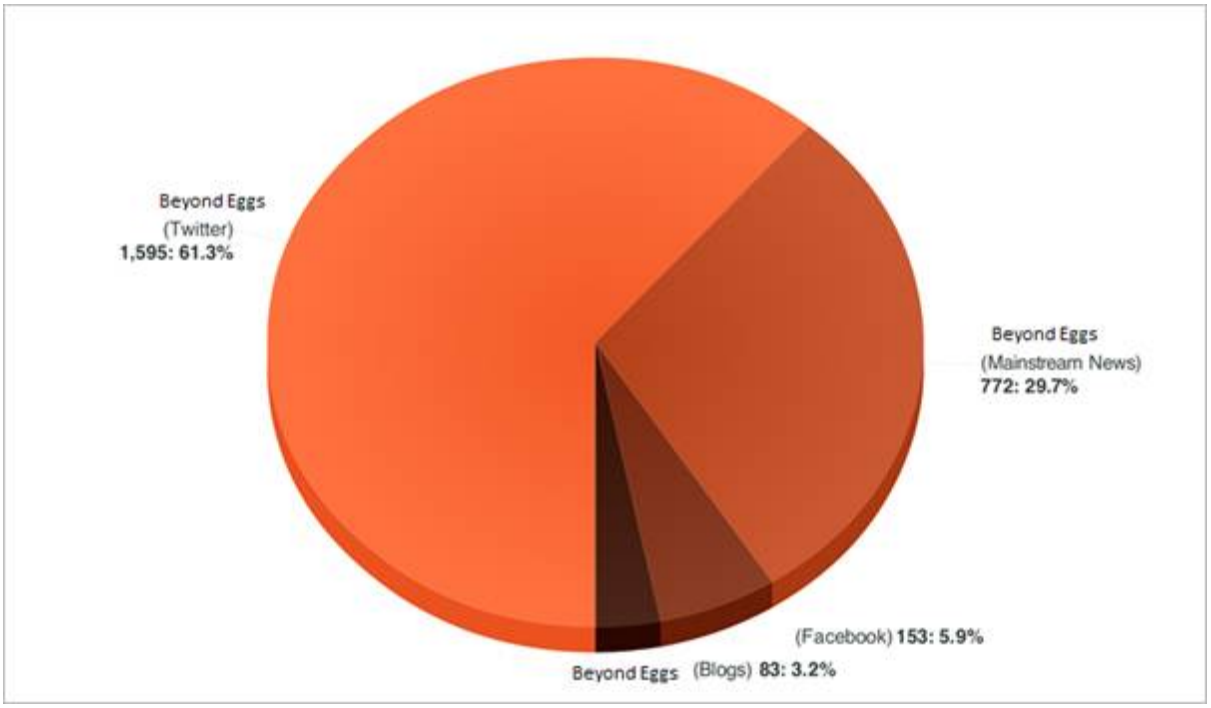
Since our last report on Beyond Eggs this morning, coverage volume has continued to remain minimal and neutral in sentiment, with two new articles in the The Guardian and KCET. The reporter from KCET shares that he typically eats several eggs every day but does not enjoy them and is therefore looking forward to the Beyond Eggs product.

We also wanted to include a brief retrospective of coverage volume from mainstream and social media for the past week since we started detailed reporting, and have shared below a few graphs to give you a better idea of coverage to date and segmentation of coverage by media type. As you can see, general coverage of eggs remains strong, positioning real eggs at the forefront of overall conversations in comparison to Beyond Eggs. There was a large uptick in coverage as a result of the AP story syndication over the last days, with coverage peaking on December 8 and then significantly decreasing again. Conversation on Twitter has begun to pick-up, with the majority posts sharing links to online coverage. Please see the graphs below for more detail.

(12/2 – 12/10) - Beyond Egg vs. Egg Coverage Volume
(*Please note, this includes mainstream media coverage and social media conversation totals)*



Beyond Eggs Coverage Segmentation by Media Type:



We will continue to keep an eye on coverage – both online and on social media, and will plan to provide another update in the morning tomorrow. Please don't hesitate to reach out with any questions.

Best,
Jenny

Jenny Englert
200 East Randolph Drive | Chicago, IL 60601
Tel: 312.240.3385 | Cell: (b) (6)
jenny.englert@edelman.com | www.edelman.com

Lutton, Sara - AMS

From: Jensen, Elizabeth (Schreiber) <elizabeth.jensen@edelman.com>
Sent: Wednesday, December 11, 2013 11:01 AM
To: Englert, Jenny; Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: RE: Beyond Eggs Update 12.11 - AM

Hi everyone,

We wanted to share an article from Business Insider entitled 6 Scientific Reasons to Eat Eggs. This is a great example of third-party helping tell our story. We may want to consider using this as story we link back to via Outbrain. Also, we're looking into the author a bit more to see if he's a fit for the blogger outreach. More to come on both of those fronts!

Elizabeth

From: Englert, Jenny
Sent: Wednesday, December 11, 2013 8:33 AM
To: Joanne Ivy; Kevin Burkum; John Howeth (JHoweth@aeb.org); Mia Roberts; Kristin Livermore; Mitch Kanter (MKanter@eggnutritioncenter.org)
Cc: Torvik, Erika; Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: Beyond Eggs Update 12.11 - AM

Hi all,

Since last evening's update on Beyond Eggs, coverage has remained minimal. A local outlet, The Snap Online, repurposed the Slate story from last week, while additional outlets below have shared new content on the fake egg product.

- Oregon Live mentions Beyond Eggs in passing in a food round-up story about new meatless products.
- Veggie Fans focuses on the Bill Gates angle, summarizing all the "food-tech" companies that he has supported in the past, including Hampton Creek Foods.
- A new Wired article takes a deeper dive into the background of Hampton Creek Foods, highlighting the reasons why the company and its founder feel it's necessary to create a fake egg product.

Overall, sentiment of coverage remains fairly neutral. We will provide another update on volume of coverage by the end of the day. Please let us know if you have any questions in the meantime.

Best,
Jenny

Jenny Englert
200 East Randolph Drive | Chicago, IL 60601
Tel: 312.240.3385 | Cell: (b) (6)
jenny.englert@edelman.com | www.edelman.com

Lutton, Sara - AMS

From: Mitch Kanter
Sent: Tuesday, April 01, 2014 1:44 AM
To: Liuzzi, Andrew
Cc: Joanne Ivy; Mia Roberts; Kevin Burkum; John Howeth; Singer, Jamie; Jensen, Elizabeth (Schreiber); Englert, Jenny; Maher, Missy
Subject: Re: Beyond Eggs Update

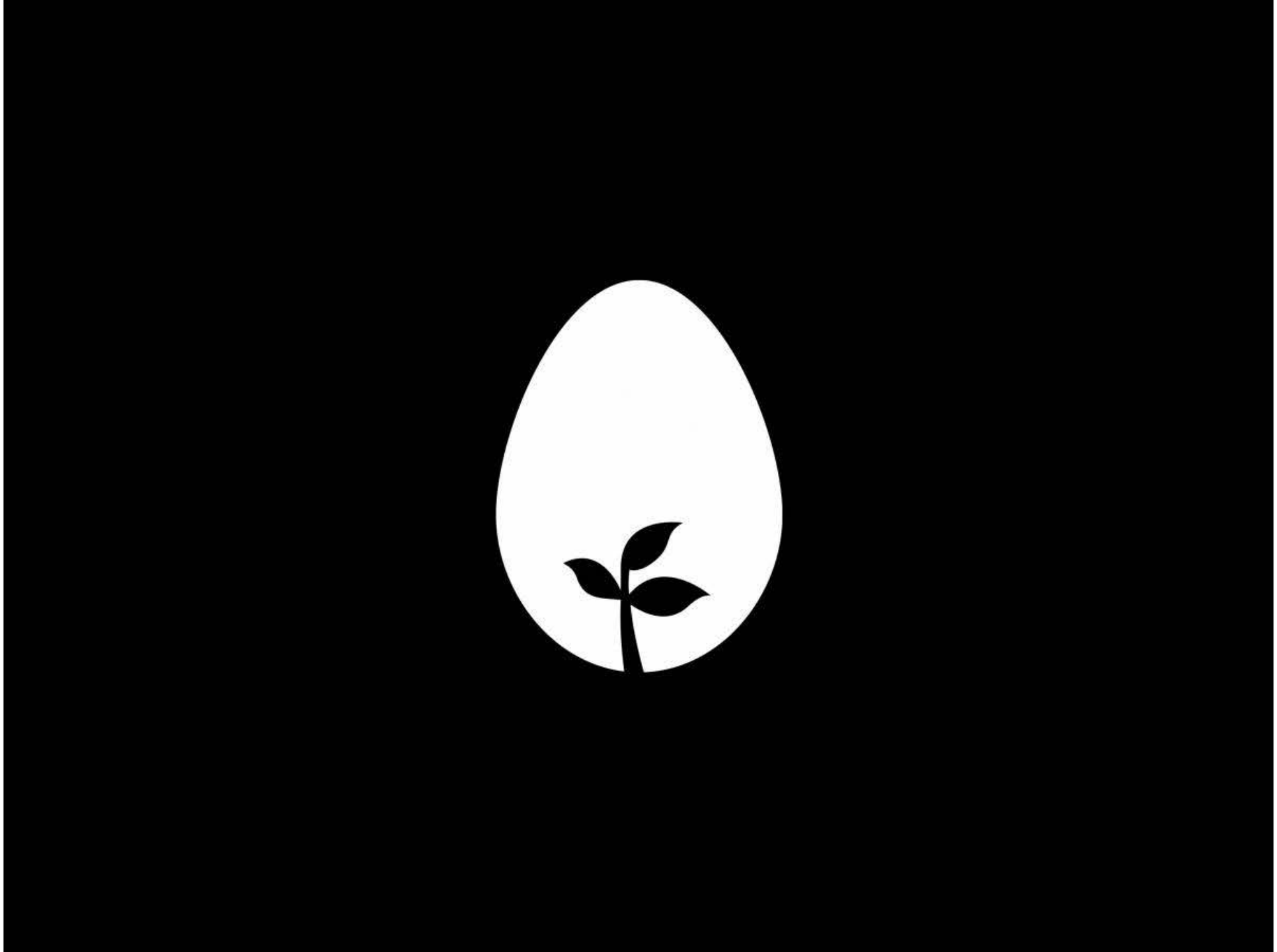
Andrew
Am on the road, so I read your message quickly and will offer a quick response. Regarding the plant aspect, an easy retort is the protein quality aspect of real eggs vs the BE product. There's no doubt that whatever plant source they use, the protein quality will be inferior to that of eggs. For folks like seniors, children and others for whom eggs are a key source of their daily protein intake, switching to an inferior quality protein could be the difference between adequate protein intake and inadequate intake.

Though, at this point this is a bit of a moot point because the amount of the BE product contained in applications like mayo is almost negligible anyway. If BE ever creates a stand alone egg substitute my argument above becomes more germane.
Mitch

Sent from my iPhone

> On Mar 31, 2014, at 7:10 PM, "Liuzzi, Andrew" <Andrew.Liuzzi@edelman.com> wrote:
>
> Afternoon all—We wanted to quickly flag two Beyond Eggs articles that recently hit online on Business Insider<http://www.businessinsider.com/hampton-creek-pitch-deck-2014-3> and Entrepreneur<http://www.entrepreneur.com/slideshow/232530>, which provide an inside look into Josh Tetrick's strategy for recruiting potential investors. Beyond the actual coverage, the interesting aspect is that Hampton Creek's full pitch deck was included within the articles, providing us with valuable insight into Hampton Creek's overall media and communications strategy.
>
>
>
> We've attached the deck for you and have pulled out some key insights along with some next steps:
>
>
>
> * Key Takeaways
> * Tetrick is focused on targeting and appealing to the mainstream, economically-conscious consumer as opposed to the fringe, animal-loving activist. While this may not be a sustainable approach for him, it clearly represents the larger market opportunity
> * As previously mentioned, Tetrick has positioned his company as a science- and research-based technology company amongst the likes of Amazon to enhance credibility. However, as evidenced by our BE research, this focus on science/technology could backfire a bit with mainstream consumers and represents a competitive advantage for eggs.
> * Looking at the company and team of advisors, they have clear ties into industry (former Del Monte CEO), progressive media (HuffPo) and NGO community (HSUS) so we should not be surprised by past, present or future activist campaigns, progressive media coverage or questions from industry establishment
>
> o As expected, food manufacturers are a key target and should be ours as well

>
> * Tetrick's argument against egg industry
> * Within the slides, Tetrick lays out the argument against the Egg Industry, citing: food safety concern, animal mistreatment, cost volatility and genetically-modified feed. While cost and animal well-being are well-known, food safety and GM feed are two areas Tetrick hasn't put much focus on.
> * Regarding food safety, Tetrick specifically calls out Salmonella (via egg recall), FDA regulations and Avian flu.
> * For consideration
> * Given how much his platform is based on the plants, have we ever given any thought to how we can attack the plant aspect? Meaning-we spend our time defending the benefits of the egg, but I wonder if any scientists/academics could offer a substantive report on why plants are a bad choice?
>
> · Next Steps
>
> o Based on this information and in order to be prepared, we feel it is important to develop messaging in response to the key areas within Tetrick's argument against the industry.
>
> o If aligned, we can draft up messages regarding GM feed and food safety.
>
> We are happy to talk through next steps and how to leverage this information in more detail. In the meantime, please let us know if you have any questions!
>
>
>
> Best,
>
> Andy
>
>
> <HamptonCreekPitchDeck.pdf>



"A technology company pioneering e-commerce." - Bezos

amazon.com → **CORE CAPABILITY** A software engine for selling virtually everything online → ~~BARNES & NOBLE~~ ~~TOYS R US~~ ~~GROCERY STORES~~

A technology company pioneering food.

→ **CORE CAPABILITY** An engine for identifying and utilizing plants to dominate food markets → ~~MAYO~~ ~~COOKIE DOUGH~~ ~~SCRAMBLED EGGS~~ ~~EVERY CONVENTIONAL EGG~~


WHERE 99% OF EGGS COME FROM
FOOD SAFETY
INHUMANE & CRUEL
GM FEED
RISING & VOLATILE COSTS


Bringing healthier and more affordable food to everyone, everywhere.

“Earth changing.”

Andrew Zimmern, Travel Channel Host

Hampton Creek wins 2013 Popular Science Best of What's New Grand Award for its “Plant-Based Egg”

POPULAR SCIENCE

HAMPTON CREEK

Josh Tetrick, CEO/Founder

April Oh, Chief of Staff

Yuebo (Grace) Zhu, Financial Analyst

Bianca Ruffin, Operations Manager

Jordan Viola, Creative Director

Ashley Seo, Creative Designer

Colby Macri, Filmmaker

Morgan Oliveira, Director of Communications

Oliver Ryan, Recruiter

Marc Laveson, Director of Supply Chain

Jose Manjarrez, Supply Chain Specialist

Karin Olsson, Director of International & Institutional Relationships

Caroline Love, Director of Corporate Partnerships

Sarah Forney, Director of Community & Partnerships

Jordan Tetrick, Relationship Team Member

Jackie Leavitt, Corporate Partnerships Specialist

Stephanie Cheng, Corporate Partnerships Specialist

Michelle Leu, Customer Loyalty Specialist

Josh Hyman, Corporate Partnerships Specialist

Graham Oliveira, Relationship Specialist Fellow

Chris Jones, Director of Culinary Innovation

Trevor Niekowal, Research Chef

Andrew Schultze, Food Technician

Joshua Klein, Director of Biochemistry R&D

F. Douglas Ivey, Senior Scientist, Biochemistry

Gosia Jakubasch, Senior Scientist

Brenna Gibson, Research Associate

Carla Li-Carrillo, Research Associate

Jake Kleiner, Biochemistry Research Associate

Camilla Hall, Biochemistry Research Associate

Shweta Rao, Director of Bakery Innovation

Swetha Mahadevan, Food Scientist

Susan Thiell, Research Scientist

Julie Uccelli, Associate Food Technologist

Kara Ricciardi, Associate Food Technologist

Andrew TenEyck, Associate Food Scientist

Trung Hoang, Associate Food Scientist

Uyen Tran, Lab Technician

Xiaotian Zhang, Sensory Scientist

Matt Tom, Systems Engineer

Drew Ross, Process Engineer

ADVISORS

Richard Wolford, Former CEO Del Monte

Josh Balk, Director of Food Policy, The Humane Society of the United States

Kathy Freston, NYT Best Selling Author and contributor for Huffington Post

Ian Ross, Director of Customer & Product Insight, Disney Interactive Media Group

David Mann, Business Operations, Dropbox

Nathan Wolf, Director of Global Viral

Hampton Creek has told its story to millions.

THE MARKET & HAMPTON CREEK

MASSIVE OPPORTUNITY

GLOBAL MAYO MARKET

$11.3B

US	$3.5B	China	$0.04B	Mid East	$0.51B
Canada	$0.5B	AUS/NZ	$0.24B	Other Asia	$1.73B
UK	$0.5B	India	$0.02B	Other LatAm	$1.32B
Rest of Europe	$1.9B	Mexico	$0.48B	Russia	$0.67B

*Source: Euromonitor

US RETAIL COOKIE DOUGH MARKET

$1.7B

General Mills Annual US Dough Sales	$1.16B
Other Annual US Dough Sales	$0.54B

**Source: General Mills 10K, Nestle annual report*

5 FACTORS DRIVING DEMAND

1. **Rising + Volatile Egg Ingredient Costs**
2. **Sustainable Eating** (Driven by Millennials)
3. **Cholesterol**
4. **Food Safety** (Concern over antibiotic use & Avian Flu)
5. **34 Million have Egg Allergies or Egg Sensitivities in the US**

DIVING DEEPER: SUSTAINABLE EATING

RATIO OF ENERGY INPUT TO FOOD-ENERGY OUTPUT

LAMB 57:1

BEEF CATTLE 40:1

EGGS 39:1

SWINE 14:1

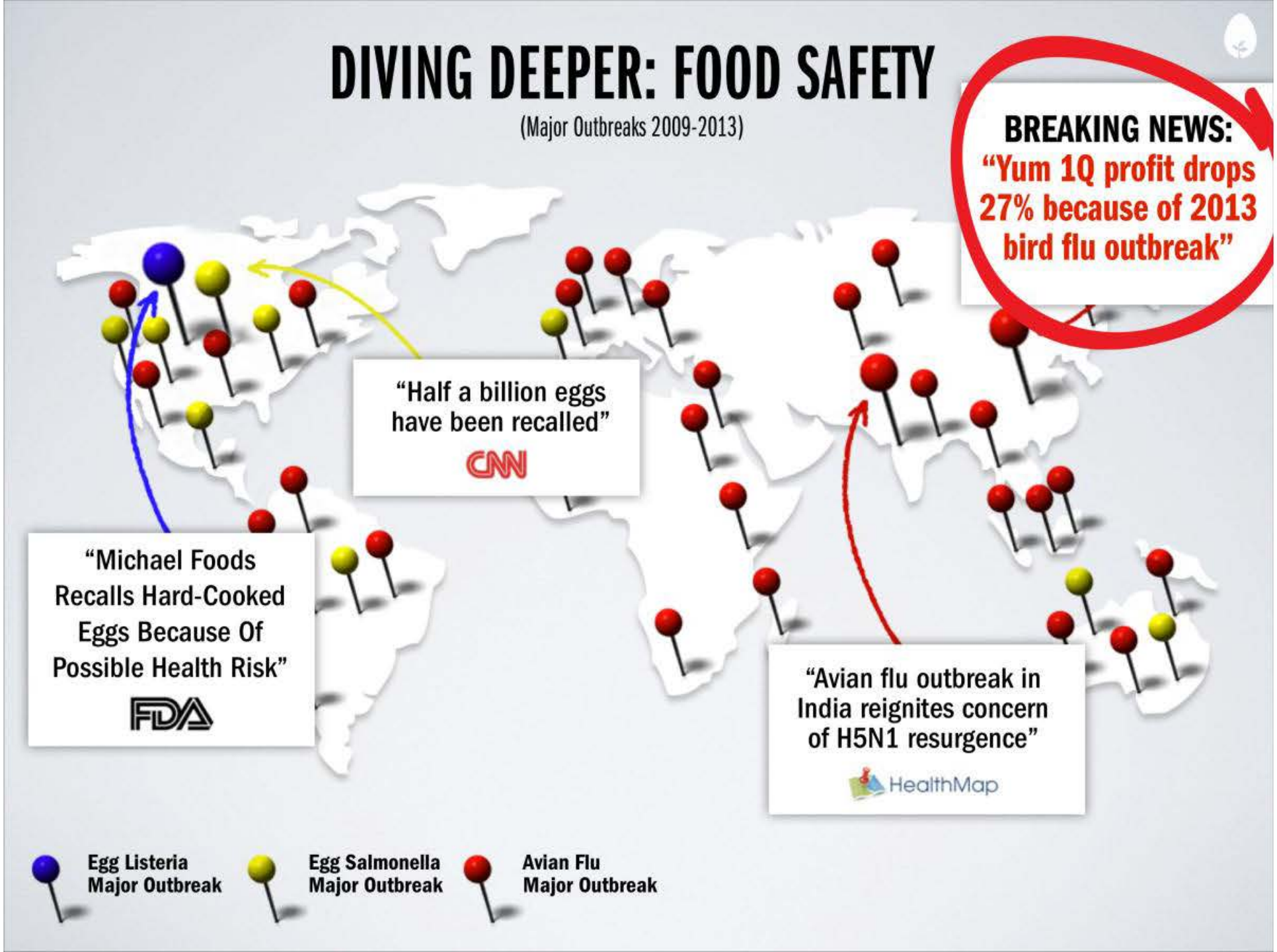
DAIRY (MILK) 14:1

TURKEY 10:1

CHICKEN 4:1

HAMPTON CREEK 2:1

Source: Sustainability of Meat-Based and Plant-Based Diets and the Environment


DIVING DEEPER: FOOD SAFETY
(Major Outbreaks 2009-2013)
BREAKING NEWS:
"Yum 1Q profit drops 27% because of 2013 bird flu outbreak"
"Half a billion eggs have been recalled"
CNN
"Michael Foods Recalls Hard-Cooked Eggs Because Of Possible Health Risk"
FDA
"Avian flu outbreak in India reignites concern of H5N1 resurgence"
HealthMap
Egg Listeria Major Outbreak
Egg Salmonella Major Outbreak
Avian Flu Major Outbreak

DIVING DEEPER: OUR COST ADVANTAGE

WE ARE 48% MORE COST EFFECTIVE

THAN CONVENTIONAL CHICKEN EGGS

SALES PRICE - $/LBS. PRICE DOES NOT INCLUDE PACKAGING OR DISTRIBUTION PACKAGES

Source: http://usda.mannlib.cornell.edu/usda/ams/PYWEGGPRODUCTS.pdf


TECH PLATFORM


HAMPTON CREEK SCREENS THROUGH HUNDREDS WEEKLY

TWO CANADIAN YELLOW PEA SPECIES GIVE RADICALLY DIFFERENT RESULTS


just
MAYO
HAMPTON CREEK


katie
EAT THE Dough

COMING SOON...

Lutton, Sara - AMS

From:	Maher, Missy <Missy.Maher@edelman.com>
Sent:	Monday, November 25, 2013 5:31 PM
To:	Joanne Ivy; Kevin Burkum; John Howeth; Kristin Livermore
Cc:	Schaffner, Serena; Jensen, Elizabeth (Schreiber); Grosshandler, Jennifer; Liuzzi, Andrew; Jaffe, Brad; Singer, Jamie; Anderson, Sarah; Mia Roberts
Subject:	Beyond Eggs

Hi there, we've regrouped internally to provide thought starters on how we can address the growing coverage of Beyond Eggs and associated industry views. We expect this story will continue to be picked up by journalists as it's backed by Bill Gates and other high profile investors (Kholsa Investors), and also features the CEO of Twitter who is talking about the latest/newest advances in Food Technology.

While it may not be top of mind for consumers at this point, we understand the concern about industry image. Following are a few recommendations we can talk though, or of course send us any immediate thoughts. Once we align on action, we can detail next steps and scope.

- IMMEDIATE ACTION: Submit an op-ed/letter to the editor to both the Huffington Post and Wall Street Journal from egg farmer Bob Krouse, that addresses the misconceptions about the egg industry, using key points from the environmental study and his experience with retailers.
    - This brings the industry to life through a hard-working egg farmer, while putting facts in front of readers that help correct the misconceptions.
    - We can help draft this piece

- Compile a list of Tech Editors (the technology angle is what's also taken off) who have covered the Beyond Eggs Story and reach back out to them with the Environmental Study key facts and offer up interviews with Bob Krouse/AEB.

- Work with a handful of influential, high-reach consumer/food bloggers to proactively address the consumer preference for real eggs vs. egg substitutes. We can also tap current blog partners to reinforce advocacy for real eggs vs. egg substitutes.
    - Look at high level of influencers and consider sponsored posts
    - By enlisting blogger advocates (both consumer and HP), we reach consumers via outlets they implicitly trust and look to for information about foods they purchase for their families and recommend to friends, etc.

- Go back out to the top 25 print outlets (food, features and health editors) and re-offer up the Environmental Study information in light of increasing coverage about Beyond Eggs; offer interviews with Bob Krouse/AEB.

We will of course continue to respond in real-time to traditional media coverage/social media commentary that offer inaccurate portrayals of the natural egg industry's environmental impact by providing proof points from Environmental Study.

Let's connect soon! Joanne, any word from Forbes? If no response, let's also talk about when we reach out to his editor.

Lutton, Sara - AMS

From: Jensen, Elizabeth (Schreiber) <elizabeth.jensen@edelman.com>
Sent: Friday, December 06, 2013 7:53 PM
To: Joanne Ivy; Kevin Burkum; Kristin Livermore; Mia Roberts; John Howeth
Cc: Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Torvik, Erika; Englert, Jenny; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie
Subject: Blogger Recommendation for Review
Attachments: Blogger Program Overview.docx

Hi everyone,

Attached for your review please find the blogger partnership recommendation surrounding Beyond Eggs outreach. We are happy to talk you through it early next week – just let us know what works best for you!

Have a great weekend,
Elizabeth

Date: December 6, 2013

To: AEB

From: The Edelman AEB Team

Re: **Beyond Eggs Blogger Recommendations**

To support the Beyond Eggs outreach, we recommend working with a mix of influential food and registered dietitian bloggers (five to ten) to showcase the benefits of eating all-natural eggs. Please see below for our recommended approach along with bloggers we recommend engaging (in order of preference).

Approach

Engage five to ten food and registered dietitian bloggers to publish content on the many benefits of eggs to generate buzz and awareness for all-natural eggs versus egg replacers. We want to reach a lot of consumers with our messaging, so the goal is to secure participation from influential bloggers with large followings on their blogs and social channels. Because the influencers outlined below have a large footprint, they may ask for higher compensation so we will need to gauge their fees to determine exactly how many bloggers we can support within the budget of $7,500 to $10,000.

Blogger Roles/Responsibilities

- Each blogger will publish one blog post that will include the following key messages:
  - Eggs are all-natural and packed with a number of nutrients, including high-quality protein. The quality of egg protein is so high that scientists often use eggs as the standard for measuring the protein quality of other foods.
  - Egg farmers work hard to provide safe, nutritious food while maintaining the highest quality care for their hens. Today's hens are producing more eggs and living longer due to better health, nutrition and living environment.
  - Egg production today uses fewer resources and produces less waste. A new Egg Industry Center study shows the industry has decreased greenhouse gas emissions by more than 70 percent and uses 32 percent less water over the past 50 years.
  - At an average of just 15 cents apiece, eggs are the most affordable source of high-quality protein.
- Each blogger will Tweet 1-2 times; @IncredibleEggs will retweet. Tweets may include:
  - Links to the blog posts
  - Egg recipes
  - Nutrition nuggets
- Each blogger will post to Facebook 1-2 times. Facebook posts may include:
  - Links to the blog posts
  - Hashtag #TeamEggs
- All social media posts should use the hashtag #TeamEggs

Assets

We will share the following assets with each blogger:

- Environmental fact sheet and infographic
- Holiday fails/fixes list
- Dozen Reasons to Love Eggs fact sheet

Candidate Criteria and Rationale

Candidates are listed below and have been vetted using the following criteria:

- Has a large, active blog readership
- Has a large "social media foot print" with presence on sites like Twitter and Facebook
  - Note: Blog readership/footprints vary by candidate (e.g. some have more Facebook likes, but less Twitter followers, etc.), however the overall footprint of each candidate makes them a good partner
- Interested in nutritious, meal-time solutions and are egg-friendly
- Has not written about animal welfare concerns, organic/free-range focus, extreme religious views in the past

Influencer	Expertise	Social/Traditional Media Footprint
 **Gina Homolka** **Skinny Taste** New York, NY	• Focus on healthy, low-fat and nutritious meal options • Author, photographer and recipe developer • Currently testing recipes for first cookbook, due fall of 2014 • Marries taste with nutrition to create satisfying meals • Focus on portion control and eating whole foods • Fitness Magazine Best Healthy Eating Blog Winner (2012) The Daily Meal Top 25 Food Blogs 2012 • Huffington Post Living 35 Diet and Nutrition Experts to Follow (2012)	• 475K+ UMV • 360K+ Facebook fans • 28K+ Twitter followers • 420K+ Pinterest followers • Skinnytaste has been featured in Runner's World, Oprah.com, Glamour.com, Gourmet Live, The Kitchn, Finecooking.com, Fitness Magazine, More Magazine, Country Living
 **Maria and Josh Lichtv** **TwoPeasandtheirPod** Salt Lake City, UT	• Couple team, blogging about family cooking • Focuses on eating at home/cooking every night with simple, fresh and family-friendly ingredients • Developed several e-cookbooks, blog is frequently featured on other blogs/media sites	• 175K+ unique monthly visitors • 96,000+ fans on Facebook • 25,000+ followers on Twitter • 117,000+ followers on Pinterest • Contribute recipes that have recently appeared in The Huffington Post, BuzzFeed, The Kitchn, Ladies' Home Journal and Reader's Digest
 **Lori Lange** **Recipe Girl**	• Food Blogger/Writer & Recipe Developer • Creates and delivers recipes that inspire novices and veterans alike and makes cooking in the kitchen fun, and her blog houses more than 2,700 original and adapted recipes, many of which include eggs as an ingredient or centerpiece • Lori's first cookbook, "The Recipe Girl Cookbook" was published in April 2013	• 165K+ unique monthly visitors • 180K+ Facebook fans • 29K+Twitter followers • 202K+ Pinterest followers • Work has been featured in Saveur, LA Times, Huffington Post, Shape, Bon Appetit, The Daily Meal, *Parade Magazine*, *Taste of Home, Ladies Home Journal* and *USA Today Weekend*

 **Keri Glassman MS, RD, CDN** **Nutritious Life** New York, NY	• Founder and president of Keri Glassman, Nutritious Life, a nutrition practice based in New York City • "Whole person" approach to health and wellness • Member of *Women's Health Magazine* advisory board and writes a popular monthly column called "Lighten Up" and a page called "Flat Belly Day" • Has authored four books, including *The New You and Improved Diet,* which gives readers 8 rules they'll ever need to know to find their best body ever • Keri recently participated in AEB's Back-to-School outreach with a blog post on eggs for breakfast on Livestrong	• 1K+ unique monthly visitors • 8,700+ Facebook fans • 13K+ Twitter followers • 1K+ Pinterest • Keri is frequently featured on national television programs including NBC's *The Today Show*, ABC's *Good Morning America*, *The Chew*, *Dr. Oz*, *The Doctors*, MSNBC, The Fox News Channel and CNN
 **Alison Lewis** **Ingredients, Inc.** Birmingham, AL	• Food, health and travel blogger and nationally known cookbook author, Alison also develop recipes, is a culinary nutritionist and media consultant • Focuses on simple, approachable recipes and lifestyle tips to help her readers make healthy food choices • Part of her personal nutrition services includes a grocery shopping tour to help clients create healthier habits in-store	• 12K+ unique monthly visitors • 3,700+ fans on Facebook • 7,500+ followers on Twitter • 34K+ followers on Pinterest • Editor-in-Chief and Founder of "Healthy Travel," a U.S. and International Travel Magazine launching in print and digitally in March 2013 • Creator of "The FoodLife Project" devoted to educating people on living a healthy lifestyle • A monthly radio guest on WMJJ Magic 96.5 in Birmingham, AL
 **Gaby Dalkin** **What's Gaby Cooking** Los Angeles, CA	• Private chef, recipe developer, food stylist/photographer and food writer specializing in simple and sassy recipes for the home cook • Frequently shares recipes that are healthy; focuses on developing well-rounded dishes	• 30K+ UVM • 11K+ Facebook fans • 14K+ Twitter followers • 26K+ Pinterest followers • Has been featured in Redbook, LAWeekly and on PBSFood.com

 **Rebecca Scritchfield, MA, RD, LD** RebeccaThinks Washington, DC	• Rebecca Scritchfield is a registered dietitian and fitness expert specializing in helping people build healthy lifestyles through her work in nutrition counseling, professional speaking, and media communications. • Rather than encouraging people to diet, she helps them learn eating skills that balance individual nutrition needs, hunger, satiety, appetite, and pleasure. • Named as The Huffington Post Diet & Nutrition Expert You Should Already be Watching	• 1.9K+ UMV • 400+ Facebook fans • 9,500+ Twitter followers • 775 Pinterest followers • Featured on national television, including Today Show, Fox News, MSNBC, and CNN. • Quoted in Oprah the Magazine, Shape, Runners, Prevention and more
 **Carolyn O'Neil, RD** O'NeilOnEating Atlanta, GA	• Noted nutrition expert, award winning food journalist and television personality • She is a registered dietitian and award-winning author and journalist who reported on food and travel at CNN for nearly 20 years. • Carolyn is the co-author of "The Dish on Eating Healthy and Being Fabulous!" and her new cookbook, a Southern Living cookbook on healthy Southern foods called "Slim Down South: Eating Well and Living Healthy in the Land of Biscuits and Bacon!" was just released this month.	• 1K+ unique monthly visitors on blog • 3,500+fans on Facebook • 3,700+ followers on Twitter • 500+ followers on Pinterest • Writes a weekly column for the Atlanta Journal-Constitution, "Healthy Eating Out", • Contributes to WebMD as a nutrition expert • Nutrition advisor to BestFoodFacts.org which answers consumers' questions on food, nutrition, cuisine and agriculture by tapping into a network of 150 university-based experts to find the best food facts
 **Susan Whetzel** Doughmesstic Virginia	• Susan is a SAHM who is a self-taught cook, chronicling her cooking experiences on her blog and learning as she goes. • Susan has written several cookbooks and has also become a cake decorator and has a small catering business. • Participated in GEP farm tour at Willamette Egg Farm in 2010	• 17K+ unique monthly visitors • 36,500+fans on facebook • 54,000 followers on Twitter • 12,000+ followers on Pinterst • Susan has been featured on Taste of Home and Betty Crocker

 **Alysa Bajenaru, RD** **InspiredRD** Gilbert, AZ	• Alysa's background as an RD, as well as a certified fitness professional, makes her a trusted voice in the fitness and healthy lifestyle community. • Alysa shares recipes for all diets and fitness for the whole family • Alysa is the official dietitian for Mamavation.com, nutrition and fitness expert for EcocentricMom.com, member of NutritionBlogNetwork.com, brand ambassador for The California Raisins, and featured blogger at BlogHer, TheRecipeRedux.com, 30SecondMom.com, and the wildly popular blog Simple Mom	• 7.3K+ unique monthly visitors • 4K+ fans on Facebook • 7,600+ followers on Facebook • 5,600+ followers on Pinterest • Alysa's expert voice on diet and nutrition has been included in many print and online publications including Shape Magazine, Health Magazine, ACE Fitness, MSN's Fitbie, Fitness Magazine, ABC News, iVillage Health, EverydayHealth.com, Today's Dietitian, Examiner.com, and local Arizona news and TV programs

We look forward to your thoughts and are happy to discuss in more detail. In the meantime, please let us know if you have any questions.

Best,
Edelman Team

Date: December 16, 2013

To: AEB

From: The Edelman AEB Team

Re: **Beyond Eggs Revised Blogger Recommendations**

To continue to drive positive and balanced conversations about real eggs in light of the Beyond Eggs coverage, we recommend working with a mix of influential real-food/agriculture advocates and RD bloggers (five to ten) to showcase the benefits of eating all-natural eggs. Please see below for our revised recommended approach along with bloggers we would like to engage (in order of preference).

Approach

Engage five to ten bloggers to publish content on the many benefits of eggs to generate buzz and awareness for all-natural eggs. We want to cast a wide net to reach consumers with our messaging, so the goal is to secure participation from influential bloggers with large followings on their blogs and social channels. Because the influencers outlined below have a large footprint, they may ask for higher compensation so we will need to consider their fees to determine exactly how many bloggers we can support within the budget of $7,500 to $15,000.

Blogger Roles/Responsibilities

- Each blogger will publish one blog post that will include the following key messages:
  - Eggs are all-natural and packed with a number of nutrients, including high-quality protein. The quality of egg protein is so high that scientists often use eggs as the standard for measuring the protein quality of other foods.
  - Egg farmers work hard to provide safe, nutritious food while maintaining the highest quality care for their hens. Today's hens are producing more eggs and living longer due to better health, nutrition and living environment.
  - Egg production today uses fewer resources and produces less waste. A new Egg Industry Center study shows the industry has decreased greenhouse gas emissions by more than 70 percent and uses 32 percent less water over the past 50 years.
  - At an average of just 15 cents apiece, eggs are the most affordable source of high-quality protein.
- Each blogger will Tweet 1-2 times; @IncredibleEggs will retweet. Tweets may include:
  - Links to the blog posts
  - Egg recipes
  - Nutrition nuggets
- Each blogger will post to Facebook 1-2 times. Facebook posts may include:
  - Links to the blog posts
  - Hashtag #TeamEggs
- All social media posts should use the hashtag #TeamEggs

Assets

We will share the following assets with each blogger:

- Environmental fact sheet and infographic
- Holiday fails/fixes list

- Dozen Reasons to Love Eggs fact sheet
- Fresh Start tips

Candidate Criteria and Rationale

Candidates are listed below and have been vetted using the following criteria:

- Has a large, active blog readership
- Has a large "social media foot print" with presence on sites like Twitter and Facebook
    - Note: Blog readership/footprints vary by candidate (e.g. some have more Facebook likes, but less Twitter followers, etc.), however the overall footprint of each candidate makes them a good partner
- Interested in nutritious, meal-time solutions and are egg-friendly
- Has not written about animal welfare concerns, organic/free-range focus, extreme religious views in the past

Influencer	Expertise	Social/Traditional Media Footprint
 **Ree Drummond** **ThePioneerWoman** Osage County, OK	• Ree is an award-winning blogger, best-selling cookbook author and mother of four. • Ree's blog focuses on her transition from corporate city girl to domestic country wife. • The most popular section of her website focuses on cooking, where she posts step-by-step photos of all the "cowboy-friendly" dishes she's cooked through the years. • She has numerous recipes on her blog that showcase eggs as the star of the dish. • *NOTE: It does not appear that Ree is currently doing sponsored content on her site* • *NOTE: Partnering with Ree would start upwards of $25K*	• 1.5M+ unique monthly visitors • 1.3M+ fans on Facebook • 440K+ followers on Twitter • 286K+ followers on Pinterest • She has been featured in USA Today, Parade and The New York Times, among others. • Ree has a show on Food Network that focuses on her family's adventures on the ranch and cooking for all occasions – from throw-together suppers to elegant celebrations.
 **Temple Grandin, PhD** **TempleGrandin** Fort Collins, CO	• Temple is a renowned doctor of animal science and professor at Colorado State University, bestselling author, autistic activist (she is autistic), and consultant to the livestock industry on animal behavior. • In 2010, Temple was listed in the Time 100 list of the 100 most influential people in the world. • Has said that she sees nothing wrong with the use of large feedlots or confinement facilities as long as the animals have enough space to move and lie down, do not get overheated and can have some semblance of privacy for such acts as hens' laying eggs. • In regard to Prop 2 and Egg Bill, Grandin said, "Enriched colony housing is a system that the egg industry should adopt."	• 8,600K+ unique monthly visitors • 100K+ fans on Facebook • 1,800+ followers on Twitter • Temple has been featured on major media programs, such as the *Today Show*, and has been the subject of feature stories in in Time, USA Today, Forbes and The New York Times, among others. • In 2010, HBO released an Emmy Award winning film on her life.

 **Hemi Weingarten** **Fooducate** San Francisco, CA	• Hemi is a technology entrepreneur, business consultant and father of three young children. He also takes on the cooking duties in his home and his website to help others healthfully navigate the supermarket. • He has developed an app that shares nutritional and other health information for users to leverage while shopping. • The app was chosen by Apple as the best health app of the year and also came in first place in the US Surgeon General's Healthy App Challenge. • He blogs daily about nutrition in the news, ways to eat healthier and other health/lifestyle cross-over content.	• 89K+ unique monthly visitors • 83K+ fans on Facebook • 22K+ followers on Twitter • Hemi is a semi-regular featured columnist for The Huffington Post.
 **Kris Gunnars** **AuthorityNutrition**	• Kris is a medical student and personal trainer who has a passion for all aspects of health and nutrition. • Kris blogs about nutrition and meal planning through a scientific lens; his posts have an evidential focus and are supported through peer-reviewed literature. • He lists eggs as one of his "basics" of a good low-carb meal plan. • His posts are frequently written in a list/numerically ordered format, which leads to easily shared content.	• 112K+ unique monthly visitors • 75K+ fans on Facebook • 3.7K+ followers on Twitter • Kris recently had his pro-egg piece titled "6 Scientific Reasons to Eat Eggs" featured on Business Insider; the article has been viewed nearly 30K times since 12/5. • His work has also been featured on the Gawker Media property io9.
 **Kath Younger, RD** **KathEatsRealFood** Charlottesville, VA	• She is a registered dietitian who uses her blog to share updates on her personal weight loss goals, healthy recipes and various other family-oriented lifestyle content. • Proponent of "real food": "There is plenty of research to support the consumption of real food. Numerous studies have found epidemiological evidence that eating whole foods (particularly plants!) has a protective effect on health and reduces risk of chronic disease…. Obviously foods like apples, eggs and green beans are real food." • Kath also runs several other offshoot sites to Kath Eats Real Food, including writing about motherhood at Baby KERF and motherhood and health at Real Health. • She has a section on blog devoted to oatmeal; she is not paid by Quaker – she just loves oatmeal. She includes a wide variety of egg breakfast recipes throughout the site.	• 21K+ unique monthly visitors • 5K+ fans on Facebook • 14K+ followers on Twitter • 5K+ followers in Instagram • Kath has won several blog awards over the past few years, including the FoodBuzz's Best Food Blog 2009 and Best Healthy Living Blog 2011. • She has been profiled and her recipes featured on many top-tier national media outlets, including TechCrunch, O, The Oprah Magazine and Shape.

 **Gina Homolka** **Skinny Taste** New York, NY	• Focus on healthy, low-fat and nutritious meal options • Author, photographer and recipe developer • Currently testing recipes for first cookbook, due fall of 2014 • Marries taste with nutrition to create satisfying meals • Focus on portion control and eating whole foods • Fitness Magazine Best Healthy Eating Blog Winner (2012) The Daily Meal Top 25 Food Blogs 2012 • Huffington Post Living 35 Diet and Nutrition Experts to Follow (2012)	• 475K+ UMV • 360K+ Facebook fans • 28K+ Twitter followers • 420K+ Pinterest followers • Skinnytaste has been featured in Runner's World, Oprah.com, Glamour.com, Gourmet Live, The Kitchn, Finecooking.com, Fitness Magazine, More Magazine, Country Living
 **Lori Lange** **Recipe Girl** Lake Tahoe, CA	• Food Blogger/Writer & Recipe Developer • Creates and delivers recipes that inspire novices and veterans alike and makes cooking in the kitchen fun. Her blog houses more than 2,700 original and adapted recipes, many of which include eggs as an ingredient or centerpiece • Lori's first cookbook, "The Recipe Girl Cookbook" was published in April 2013	• 165K+ unique monthly visitors • 180K+ Facebook fans • 29K+Twitter followers • 202K+ Pinterest followers • Work has been featured in Saveur, LA Times, Huffington Post, Shape, Bon Appetit, The Daily Meal, *Parade Magazine*, *Taste of Home, Ladies Home Journal* and *USA Today Weekend*
 **Keri Glassman MS, RD, CDN** **Nutritious Life** New York, NY	• Founder and president of Keri Glassman, Nutritious Life, a nutrition practice based in New York City • "Whole person" approach to health and wellness • Member of *Women's Health Magazine* advisory board and writes a popular monthly column called "Lighten Up" and a page called "Flat Belly Day" • Has authored four books, including *The New You and Improved Diet,* which gives readers 8 rules to finding their best body ever • Keri recently participated in AEB's Back-to-School outreach with a blog post on eggs for breakfast on Livestrong	• 1K+ unique monthly visitors • 8,700+ Facebook fans • 13K+ Twitter followers • 1K+ Pinterest • Keri is frequently featured on national television programs including NBC's *The Today Show*, ABC's *Good Morning America*, *The Chew*, *Dr. Oz*, *The Doctors*, MSNBC, The Fox News Channel and CNN

 **Alison Lewis** **Ingredients, Inc.** Birmingham, AL	• Food, health and travel blogger, Alison also develop recipes, has published a cookbook and is both a culinary nutritionist and media consultant • Focuses on simple, approachable recipes and lifestyle tips to help her readers make healthy food choices • Part of her personal nutrition services includes a grocery shopping tour to help clients create healthier habits in-store	• 12K+ unique monthly visitors • 3,700+ fans on Facebook • 7,500+ followers on Twitter • 34K+ followers on Pinterest • Editor-in-Chief and Founder of "Healthy Travel," a U.S. and International Travel Magazine launching in print and digitally in March 2013 • Creator of "The FoodLife Project" devoted to educating people on living a healthy lifestyle • A monthly radio guest on WMJJ Magic 96.5 in Birmingham, AL
 **Gaby Dalkin** **What's Gaby Cooking** Los Angeles, CA	• Private chef, recipe developer, food stylist/photographer and food writer specializing in simple and sassy recipes for the home cook • Frequently shares recipes that are healthy; focuses on developing well-rounded dishes	• 30K+ UVM • 11K+ Facebook fans • 14K+ Twitter followers • 26K+ Pinterest followers • Has been featured in Redbook, LAWeekly and on PBSFood.com
 **Rebecca Scritchfield, MA, RD, LD** **RebeccaThinks** Washington, DC	• Rebecca Scritchfield is a registered dietitian and fitness expert specializing in helping people build healthy lifestyles through her work in nutrition counseling, professional speaking, and media communications. • Rather than encouraging people to diet, she helps them learn eating skills that balance individual nutrition needs, hunger, satiety, appetite, and pleasure. • Named as The Huffington Post Diet & Nutrition Expert You Should Already be Watching	• 1.9K+ UMV • 400+ Facebook fans • 9,500+ Twitter followers • 775 Pinterest followers • Featured on national television, including Today Show, Fox News, MSNBC, and CNN. • Quoted in Oprah the Magazine, Shape, Runners, Prevention and more

 **Carolyn O'Neil, RD** **O'NeilOnEating** Atlanta, GA	• Noted nutrition expert, award winning food journalist and television personality • She is a registered dietitian and award-winning author t who reported on food and travel at CNN for nearly 20 years. • Carolyn is the co-author of "The Dish on Eating Healthy and Being Fabulous!" Her new cookbook, a Southern Living cookbook on healthy southern foods called "Slim Down South: Eating Well and Living Healthy in the Land of Biscuits and Bacon!" was just released this month.	• 1K+ unique monthly visitors on blog • 3,500+fans on Facebook • 3,700+ followers on Twitter • 500+ followers on Pinterest • Writes a weekly column for the Atlanta Journal-Constitution, "Healthy Eating Out", • Contributes to WebMD as a nutrition expert • Nutrition advisor to BestFoodFacts.org which answers consumers' questions on food, nutrition, cuisine and agriculture by tapping into a network of 150 university-based experts to find the best food facts
 **Susan Whetzel** **Doughmesstic** Virginia	• Susan is a SAHM who is a self-taught cook, chronicling her cooking experiences on her blog and learning as she goes. • Susan has written several cookbooks and has also become a cake decorator and has a small catering business. • Participated in GEP farm tour at Willamette Egg Farm in 2010	• 17K+ unique monthly visitors • 36,500+fans on Facebook • 54,000 followers on Twitter • 12,000+ followers on Pinterest • Susan has been featured on Taste of Home and Betty Crocker
 **Alysa Bajenaru, RD** **InspiredRD** Gilbert, AZ	• Alysa's background as an RD, as well as a certified fitness professional, makes her a trusted voice in the fitness and healthy lifestyle community. • Alysa shares recipes for all diets and fitness for the whole family. • Alysa is the official dietitian for Mamavation.com, nutrition and fitness expert for EcocentricMom.com and member of NutritionBlogNetwork.com	• 7.3K+ unique monthly visitors • 4K+ fans on Facebook • 7,600+ followers on Facebook • 5,600+ followers on Pinterest • Alysa's expert voice on diet and nutrition has been included in many print and online publications including Shape Magazine, Health Magazine, ACE Fitness, MSN's Fitbie, Fitness Magazine, ABC News, EverydayHealth.com, Today's Dietitian

We look forward to your thoughts and are happy to discuss in more detail. In the meantime, please let us know if you have any questions.

Best, Edelman Team

Lutton, Sara - AMS

From: Mia Roberts
Sent: Wednesday, April 09, 2014 5:17 PM
To: Kevin Burkum
Subject: FW: Beyond Eggs Survey Results
Attachments: Egg Board-Egg Replacer Survey_2014.xls

I thought you were copied on this but just double checked and you weren't -- apologies! (Or maybe Joanne has already forwarded?) Sending through through to you now.

Good results! We should speak with JI about this early next week when she's in the office...

Mia

From: Liuzzi, Andrew [Andrew.Liuzzi@edelman.com]
Sent: Thursday, March 27, 2014 11:34 AM
To: Joanne Ivy; Mia Roberts
Cc: Burch, Kellie; Jensen, Elizabeth (Schreiber); Maher, Missy; Singer, Jamie
Subject: Beyond Eggs Survey Results

Morning Joanne/Mia—We have received the Beyond Eggs survey results and, topline, believe that the data is very positive for AEB and supports our approach to date. While the raw data is attached, we have provided a snapshot of the results below along with key takeaways and next steps. Please let us know if you have any immediate questions or if you'd like us to circulate to a larger group. If possible, it might be good to set up some time next week to talk through. As always—thanks!

Cheers,
Andy

As you recall, our intent with the survey is to put the BE media coverage in perspective (especially as it relates to impact to the bottom line)to ensure a consistent response moving forward and help ease concern among farmers. As such, once we're aligned on how best to position, we recommend communicating the findings to the egg farmers, provide context on why the survey was done and showcase the results as an update to the ongoing discussion around replacers. As the goal of the survey was not to generate media, we recommend keeping the results internal and not for use in media (might inadvertently pick a public fight with BE and proactively cause another news cycle).

Results: *The survey was conducted online with a random sample of 1,000+ men and women*

- 92% of participants are not familiar with plant-based replacers
- 87% of respondents are not familiar with Beyond Eggs, 90% are not familiar with Just Mayo and a whopping 98% don't know who Josh Tetrick is
- Nearly 90% of participants would not consider purchasing a replacer
- 93% of participants are do not feel positively towards artificially produced food and 92% would not purchase artificially produced food
- Interesting data from the 18-24 demographic in that, for most part, they are more familiarity/comfort with the Beyond Eggs position
  - Note: this is not overly surprising given that this is likely the audience that is more predisposed to the Beyond Eggs message

Key Takeaways

- Despite the media blitz, headline coverage and celebrity investors, Beyond Egg still have very low awareness with the key demographic of grocery shoppers.
- Josh Tetrick, despite being highly visible as the voice of BE and Hampton Creek, has little to no name recognition which presents an opportunity for Industry to fill that void on an expert within the space.
- The results demonstrate that mainstream grocery shoppers are highly reluctant to purchase or endorse products that are artificially produced—an idea that should become a messaging focal point.

Next Step

- Discuss how to best package and communicate findings to egg farmers

Lutton, Sara - AMS

From: Joanne Ivy
Sent: Tuesday, November 26, 2013 12:11 PM
To: Maher, Missy (Missy.Maher@edelman.com); Kevin Burkum; John Howeth
Cc: Schaffner, Serena; Jensen, Elizabeth (Schreiber); Liuzzi, Andrew (Andrew.Liuzzi@edelman.com); Jaffe, Brad (Brad.Jaffe@edelman.com); Singer, Jamie (Jamie.Singer@edelman.com); Grosshandler, Jennifer (Jennifer.Grosshandler@edelman.com); Mia Roberts
Subject: FW: Bill Gates' Food Fetish article

Missy, I received a response and the editor stands behind Ryan's copy. I decided to address his opinions. It is just frustrating to read their justification.

Since they are not going to make any corrections, I think we need to use the comments section on the story to voice our opinion as he suggested. The article is mainly about the "horrible" egg industry, so we may want to post the contents of our letter to Ryan starting with the production section followed by the inaccuracies. What do you think Kevin?

Joanne C. Ivy, CAE | *President & CEO*
American Egg Board
O 847.296.7043 | **D** 224.563.3701 | **C** (b) (6)
PO Box 738, 1460 Renaissance Drive, Park Ridge, IL 60068
IncredibleEgg.org AEB.org

From: Joanne Ivy
Sent: Tuesday, November 26, 2013 10:47 AM
To: 'Mac, Ryan'
Cc: Upbin, Bruce
Subject: RE: Bill Gates' Food Fetish article

Ryan, Thanks for relating your opinion, but my comments were definitely mischaracterized in the article.

1) AEB is conducting a campaign targeted to food manufacturers **not consumers** as stated in the article. Beyond Eggs is an egg replacer, which is used as an ingredient in food formulations, such as mayo. AEB campaign's features the benefits of REAL eggs compared to egg replacers for food formulations. Plus, the campaign reminds food manufacturers that 93% of consumers want food products that have a clean label with familiar ingredients -- REAL eggs not a list of synthetic ingredients.

2) Beyond Eggs, is just another plant-based replacer that has been available to food manufacturers for years. It is nothing new. **Our campaign is not addressing egg substitutes, such as Egg Beaters.** I never mentioned egg substitutes or Egg Beaters, which are still "eggs," and it is another form of egg available to consumers. I realize that was your added commentary, but it is presented as part of my statement so it appears that AEB is targeting egg substitutes such as Egg Beaters. Totally false and misleading.

3) It was disappointing that the article was filled with negative, incorrect information about the egg industry, so it would have been appreciated that, at least, the information from our interview was correct and not misleading.

I appreciate you taking the time to respond. Yes, I will use the comment section to voice my opinion.

Joanne

Joanne C. Ivy, CAE | President & CEO
American Egg Board
O 847.296.7043 | D 224.563.3701 | C (b) (6)
PO Box 738, 1460 Renaissance Drive, Park Ridge, IL 60068
IncredibleEgg.org AEB.org

-----Original Message-----
From: Mac, Ryan [mailto:RMac@forbes.com]
Sent: Tuesday, November 26, 2013 9:37 AM
To: Joanne Ivy
Cc: Upbin, Bruce
Subject: RE: Bill Gates' Food Fetish article

Hi Joanne,

My editors do not feel we mischaracterized your statements in the story and we stand by our piece. You contend that I mischaracterized your quote about egg replacers and attributed the line on Egg Beaters to you. The exact line reads as follows:

"President Joanne Ivy maintains that the campaign was not directed at Hampton Creek, and indeed, egg substitutes such as ConAgra's Egg Beaters have been around for years."

The second part can be read as commentary from Forbes.

We believe the story is accurate and fair and we encourage you to use the comments section on the story to voice your opinion.

Many thanks,

Ryan Mac
Reporter
Forbes, San Francisco
Office: 1-415-544-4911
Cell: (b) (6)
Site: http://www.forbes.com/sites/ryanmac/
Twitter: http://twitter.com/rmac18

_____
From: Joanne Ivy [JIvy@aeb.org]

Sent: Monday, November 25, 2013 11:05 AM
To: Mac, Ryan
Subject: Bill Gates' Food Fetish article

Dear Ryan,

I am writing on behalf of the American Egg Board in response to your recent Forbes article dated November 23, 2013: "Bill Gates' Food Fetish: Hampton Creek Foods Looks to Crack the Egg Industry." As I was interviewed and quoted as part of this article, I am disappointed that several characterizations of the natural egg industry in the article are patently false.

American Egg Board's "Accept No Substitutes" campaign While the article suggests our campaign targets consumers, it actually focuses on highlighting the benefits of using real eggs as opposed to egg replacer ingredients for food manufacturers. These benefits include that eggs are a simple food that cannot be replicated by a product produced by scientists in a laboratory; are multi-functional while retaining taste and nutritional benefits; and demonstrate the latest egg production advances in science and technology to ensure high quality.

Clarification of "egg replacer"
The article inaccurately suggests that the American Egg Board acknowledges egg replacers like Egg Beaters have been around for years. However, this was a mischaracterization of my quote; Egg Beaters were never mentioned, as Egg Beaters are still an egg and not an egg replacer. Rather, I suggested in the interview that we recognize that plant-based egg replacers, such as Beyond Eggs, have been around for years.

While we recognize the emergence of new egg replacement options, we believe strongly that, for a variety of reasons, the time-tested, all-natural egg remains the best option for consumers, food manufacturers and food service companies alike. Therefore, we are disappointed by the undeserved attacks on the natural egg industry in this article.

Ingredient comparison
We do not feel the article presented an accurate comparison of ingredients in natural eggs vs. egg replacers. America's egg farmers are committed to providing nutritious, all-natural eggs, which are rich in vitamins and minerals. Our research shows that 93 percent of consumers want a clean label with familiar ingredients. On the other hand, egg replacers – such as Hampton Creek Foods' product – have a list of unnatural ingredients.

Protein comparison
In my interview, I also compared the nutrition of plant-based protein to the protein in real eggs – a point we believe is important to share with your readers but did not surface in the article. Natural eggs provide one of the highest quality proteins of any food available. In fact, the quality of egg protein is so high that scientists often use eggs as the standard for measuring the protein quality of other foods. The notion that you can replace an egg, which is the gold standard of high-quality protein, with a combination of low quality plant protein sources, is misguided.

Environmental impact/animal welfare
Finally, the article presupposes environmental and animal welfare failings of the natural egg industry which are a woeful misreading of the truth. In reality, egg farmers in local communities across the country continue to provide safe, fresh, locally-produced eggs, while caring for hens in accordance with the highest standards in the nation. Egg farmers have also made great strides toward making egg production practices more efficient, allowing them to provide an affordable source of high-quality protein while producing less waste and requiring fewer resources. In fact, in October 2013, the Egg Industry Center released a landmark study revealing that the egg production industry has significantly reduced its environmental impact over the past 50 years. Lifecycle analysis findings of U.S. egg production from 1960-2010 found environmental efficiencies as a result of a wide range of factors:

· Decreased pollution. Egg production process releases significantly less polluting emissions, including 71 percent lower greenhouse gas emissions.

· Reduction in natural resource use. Hens now use 32 percent less water per dozen eggs produced.

· Improved hen feed. Today's hens use a little more than half the amount of feed to produce a dozen eggs.

· Better disease control and advancements in hen housing systems. Today's hens are living longer as a result of improved building ventilation, temperature control, better lighting and a more secure housing environment.

Given many of the characterizations of the natural egg industry were disparaging and my comments from the interview were inaccurately presented in the article, we request corrections be made on the points outlined above. I would appreciate if you would acknowledge receipt of this email.

Sincerely,

Joanne C. Ivy, CAE | President & CEO
American Egg Board
O 847.296.7043 | D 224.563.3701 | C (b) (6) PO Box 738, 1460 Renaissance Drive, Park Ridge, IL 60068
IncredibleEgg.org<http://www.incredibleegg.org/> AEB.org<http://www.aeb.org/>

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<https://www.facebook.com/IncredibleEdibleEgg> [cid:image003.png@01CEE9DE.FC70DE70]
<https://twitter.com/IncredibleEggs> [cid:image004.png@01CEE9DE.FC70DE70]
<http://pinterest.com/incredibleeggs/> [cid:image005.png@01CEE9DE.FC70DE70]
<http://www.youtube.com/americaneggboard> [cid:image006.png@01CEE9DE.FC70DE70]
<http://www.linkedin.com/company/american-egg-board>

Lutton, Sara - AMS

From: Mitch Kanter
Sent: Thursday, December 26, 2013 8:24 AM
To: Joanne Ivy; Kevin Burkum; John Howeth; Elisa Maloberti; Tia Rains
Subject: Fwd: Patent
Attachments: Beyond Eggs Patent-WO2013067453A1.pdf; ATT00001.htm

Patent assessment from Gil Leveille. He doesn't seem overly impressed.
Mitch

Sent from my iPhone

Begin forwarded message:

> **From:** "Gilbert Leveille" <leveilleg@optonline.net>
> **To:** "Mitch Kanter" <MKanter@eggnutritioncenter.org>
> **Subject: RE: Patent**
>
> Mitch, a Christmas present for you!
>
> I have now read through the patent and still come to the same conclusion - it is a composition patent which, by nature is not very strong and could be easily challenged with an alternate product. It is usually "iffy" if such patents will be approved but they lucked out and did get this one approved. Their challenge, from a business point of view, is to market the substitute. I believe this will be difficult but I have no real basis for that conclusion; also that is beyond the scope of what you asked me to do.
>
> From your perspective it seems to be a question of how the marketing strategy can be blunted. It seems that their main attribute (at least touted in the patent) is that this product offers major advantages of shelf stability and avoiding the potential of pathogenic contamination from eggs. The shelf stability argument has some validity, however the safety argument is moot from the perspective that most of the product applications would involved cooked products which would destroy any potential pathogen. The other selling point would be the appeal to vegans, but this seems like such a small market that it is of little concern.
>
> It seems to me that the primary counter to the proposed product would be on the nutritional quality side. They claim that their product has similar nutritional quality, clearly that is not true. They do have an equivalent amount of protein but make no reference (at least that I could find) to the quality of the protein. I believe this would be a major counter also the nutrient content of eggs is something that you (ENC) have touted, quite appropriately. They make no reference to matching the nutrient profile of eggs. Were I in your position I would focus on nutritional quality and on the emerging science, much of which ENC has sponsored.
>
> Also, I have attached the patent you sent me with highlighted sections that address some of the nutrient issues they have addressed (pg 9 & 11); clearly there are few comments regarding the nutritional quality of their proposed products.
>
> Don't know how helpful this will be, but hopefully it at least gives you one additional

perspective.

Let me know if there is anything else I can help with.

Happy New Year!

Gil

Gilbert A. Leveille
Tel - 973-366-7823
e-mail: leveilleg@optonline.net

From: Mitch Kanter [mailto:MKanter@eggnutritioncenter.org]
Sent: Wednesday, December 11, 2013 6:57 PM
To: 'Gilbert Leveille'
Subject: RE: Patent

Thanks for quick top line review. A more extensive one would be great. A week-to-ten days would work.

Have a good Christmas.

Take care for now.
Mitch

From: Gilbert Leveille [mailto:leveilleg@optonline.net]
Sent: Wednesday, December 11, 2013 4:51 PM
To: Mitch Kanter
Subject: RE: Patent

Mitch, good to hear from you and best wishes for a terrific holiday season!

I have quickly looked at the patent and agree with you that there isn't much there - in fact, I'm surprised that the patent was issued! Anyway I can look this over more closely but I don't think it will take much time. But I cannot get to it for a week or ten days - too much holiday stuff. But I will get something to you. If that timing is OK.

Be well,

Gil

Gilbert A. Leveille
Tel - 973-366-7823
e-mail: leveilleg@optonline.net<mailto:leveilleg@optonline.net>

From: Mitch Kanter [mailto:MKanter@eggnutritioncenter.org]
Sent: Monday, December 09, 2013 6:23 PM
To: 'Gilbert Leveille'
Subject: FW: Patent

Gil-

Hope you're doing well and staying warm, wherever you are at the moment.

Don't know if you've seen any of the press lately about a new egg replacer that's about to hit the market, called Beyond Eggs. At first blush I don't think the product is any different than any other egg replacer that's out there, but the folks who have created the product seem to be masters of PR. They are attacking the egg industry on animal ethics issues, as well as environmental footprint issues. They are saying they plan to "bring down" the egg industry and it's "inhumane" practices. A big factor in their favor is the fact that the Gates Foundation gave them a couple of million dollars in startup money to launch the product. They are definitely trying to appeal to the non-animal protein crowd, and if nothing else they've been successful so far at getting press. They've been written up in all the big newspapers/magazines, etc.

While I don't think anyone in the egg industry considers these folks to be a significant threat, there's always the concern that they can harm the industry on a couple of fronts. So we're trying to do due diligence on the product and the prospects for its success. Among other things, we've got a copy of their patent (attached) and will be reviewing it to see if they've really got anything novel here.

I was wondering if you might have some time to review the patent, and give me some general thoughts on what you find. Is there real novelty here? Do they make claims that they can strongly protect? Is the product a variation on various other similar products that have come before them?, etc. Any insights you can provide would be helpful.

Of course we'll compensate you for your time. So please let me know if this is something you'll have the time to do. A fairly quick turnaround would be preferred, so if you're tied up for the next few weeks it might not make sense for you to review. But if you can get us some info in the next couple of weeks your insights would be greatly appreciated.

Thanks for considering. Hope you and your family have a great holiday season. Hope to hear from you soon, whether you have the time to review the patent or not.

Take care for now.
Mitch

Plant-based egg substitute and method of manufacture

WO 2013067453 A1

ABSTRACT

Disclosed herein are non-egg compositions that can be used as egg substitutes. The disclosure is directed to egg substitutes and methods of manufacturing the same, and compositions comprising the egg substitutes, including edible compositions such as baked goods and edible emulsions.

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DESCRIPTION (OCR text may contain errors)

PLANT-BASED EGG SUBSTITUTE AND METHOD OF MANUFACTURE

[0001] This application claims priority under 35 U.S.C. 119 to U.S. Provisional Application 61/554,928, filed November 2, 2011, and to U.S. Provisional Application 61/621,425, filed April 6, 2012, the entire contents of each of which is hereby incorporated by reference.

FIELD OF THE INVENTION

[0002] The invention is directed to an egg substitute and a method of manufacturing the same, and compositions comprising the egg substitute, including edible compositions such as baked goods.

BACKGROUND OF THE INVENTION

[0003] Eggs are a versatile and near ubiquitous food and food component. The market for egg ingredients has been estimated to be $1.8 billion domestically and $6 billion globally, and continues to grow. Eggs are highly valued for numerous reasons. Eggs not only provide high nutritional content, they are also an essential component of a wide range of food products, ranging from, but not limited to: breads, cakes, cookies, custards, souffles, muffins, scones, biscuits, pasta, dressings, sauces, and ice cream.

[0004] However, eggs have a number of drawbacks. For example, eggs contain high levels of cholesterol and saturated fats, which increases risk for cardiovascular diseases and obesity.

Therefore, consumers that desire to reduce their risk of cardiovascular disease, or are otherwise concerned over maintaining a healthy diet and weight, represent an untapped market for eggs or egg- containing products. Other consumers that would benefit from the high nutritional content and enjoyment of egg-containing products may be prevented from doing so due to food allergies or other dietary restrictions. For instance, 1-2% of young children are estimated to be allergic to eggs. Significant population segments follow voluntary dietary restrictions, e.g., vegans and others may not eat eggs for religious or other reasons. In addition, the industrial scale production of eggs are associated with industrial farming of chickens, which incur high costs, such as, e.g., costs related to food health and safety restrictions for farmers, high transportation costs, and the cost of feeding and housing egg- laying birds. Furthermore, industrial chicken farming has a negative environmental impact, and raises a number of important humanitarian issues.

CLAIMS (OCR text may contain errors)

WHAT IS CLAIMED IS:

1. A composition comprising

(i) protein in an amount up to 80% by dry weight, and

(ii) fat in amount from 5% to 15% by dry weight;

wherein said composition is essentially egg- free, and wherein said composition provides binding, moisturizing, leavening, and/or emulsifying properties similar to an egg.

2. The composition of claim 1 wherein the protein content is between 10 and 20% by dry weight.

3. The composition of claim 1, wherein said protein comprises plant-based protein.

4. The composition of claim 3, wherein said plant-based protein comprises protein from beans or peas.

5. The composition of claim 1, wherein said fat comprises plant-based oils.

6. The composition of claim 5, wherein said plant-based oils comprise oils from garbanzo and/or fava beans.

7. The composition of claim 1, further comprising

(iii) one or more flours in an amount of 50% or more by dry weight, and

(iv) one or more gums and/or starches in an amount less than 20% by dry weight.

8. The composition of claim 7, further comprising high- fiber material in an amount up to 15%) by dry weight.

9. The composition of claim 8, wherein said high- fiber material comprises one or more brans.

10. The composition of claim 9, wherein said one or more brans comprise micronized corn bran.

11. The composition of claim 1, wherein said composition provides binding properties similar to that of a whole egg.

Moreover, eggs have limited shelf life, and are at risk of harboring infectious pathogens, such as, for example, Salmonella, E. coli, and other pathogens which may endanger public health. [0005] Many attempts have been made to create an egg substitute that recapitulates the desired features of natural eggs while minimizing the unwanted features of eggs. These attempts range from home-cooking based substitutes, e.g., mashed bananas and/or applesauce to replace eggs in baking, baking powder/baking soda mixtures to provide leavening, flour/water mixtures to provide binding and leavening. Commercially available substitutes include, for example, Eggbeaters™, Ener-G™ egg substitute, Bob's Red Mill Egg Replacer™. However, all of these substitutes have certain limitations. For example, many of the home-based egg substitutes provide only a single limited desired property of eggs in cooking, e.g., mashed fruit provide moisture and binding but not leavening, baking powder/soda and flour/water substitutes provide some leavening but limited binding properties. Eggbeaters™ is made from real egg whites, and is thus associated with low shelf life and risk of carrying pathogens, and is also avoided by vegans. Ener-G™ vegan egg substitute, acts as an imperfect substitute for many baking purposes because of its inferior binding qualities. Disclosed herein are compositions for use as a whole- egg substitute that addresses the limitations of the current art.

SUMMARY OF THE INVENTION

[0006] Disclosed herein are multifunctional compositions that can be used as a whole egg substitute, driven by molecular gastronomy. In some embodiments, the compositions replace the whole egg or a part of the egg (e.g. the egg white or the yolk) in food products on a 1 : 1 basis by weight after reconstitution with water or other liquid, has a nutritional profile similar to eggs, and replicates one or more, if not alL of the egg's core functionalities. In some embodiments the whole egg is understood to include the contents of the egg as poured from the shell of the egg. In some embodiments, the core functionalities can be, but are not limited to achieving a desired crumb density, structure/texture, elasticity/springiness, coagulation, binding, mouthfeeL leavening, aeration/foaming, creaminess, and emulsification of the food product. The

functionalities described above can overlap or may be interdependent. In some embodiments, the compositions can functionally replace the whole egg or a part of the egg in baked goods and/or emulsions. In some embodiments, the compositions replace whole eggs or a part of the egg on a 1 :5 basis by weight, wherein 1 weight unit of the compositions replaces 5 weight units of eggs. In other embodiments, the compositions replaces whole eggs on a 10: 1, 9: 1, 8: 1, 7: 1, 6: 1, 5: 1, 4: 1, 3: 1, 2: 1, or 1 : 1 basis by weight. In other embodiments the compositions replace whole eggs or a part of the egg on a 1 : 10, 1 :9, 1 :8, 1 :7, 1 :6, 1 :5, 1 :4, 1 :3, 1 :2, or 1 : 1 basis by weight.

[0007] In some embodiments, the compositions may be used to replace egg yolks. In other embodiments, the compositions may be used to replace egg whites. In some embodiments, the compositions may be used as an egg substitute in non-food products, e.g., shampoos. In some embodiments, the compositions may be used to replicate desired functions of eggs while overcoming the limitations of natural eggs, e.g., high saturated fat content, high cholesterol content, and allergenic properties. In yet other embodiments, the compositions may be used for functions other than as an egg substitute, e.g., water binding function.

[0008] In one aspect, the composition comprises protein in an amount up to 80% by dry weight, and (ii) fat in amount from 5% to 15% by dry weight; wherein the composition is essentially egg- free, and wherein the composition provides binding, moisturizing, leavening, creaminess, and/or emulsifying properties similar to an egg.

[0009] In one aspect, the compositions comprises 10-20% protein and 5-15% fat by dry weight, wherein the composition is essentially egg free and can be used to provide binding, moisturizing, leavening, and/or emulsifying properties similar to an egg. In some cases, the protein comprises plant-based protein. In

12. The composition of claim 1, wherein said composition provides moisturizing properties similar to that of a whole egg.

13. The composition of claim 1, wherein said composition provides leavening properties similar to that of a whole egg.

14. The composition of claim 1, wherein said composition provides emulsifying properties similar to that of a whole egg.

15. The composition of claim 1, wherein said composition is egg-free.

16. The composition of claim 1, wherein said binding, moisturizing, leavening, and/or emulsifying properties are measured at between about 90-110% of the binding, moisturizing, leavening, and/or emulsifying properties of an egg.

17. A composition, comprising:

a) 60-99.5%) by dry weight of one or more bean flours; and

b) 0.5- 15%) by dry weight of one or more gums and/or starches.

18. The composition of claim 17, wherein said bean flour comprises garbanzo flour.

19. The composition of claim 18, wherein said garbanzo flour comprises about 40% or more of the dry weight of the composition.

20. The composition of claim 18, wherein said garbanzo flour comprises about 75% or more of the dry weight of the composition.

21. The composition of claim 18, wherein said garbanzo flour comprises about 85% or more of the dry weight of the composition.

22. The composition of claim 18, wherein said bean flour further comprises fava bean flour.

23. The composition of claim 22, wherein said fava bean flour and said garbanzo flour together comprise about 80% or more of the dry weight of the composition.

24. The composition of claim 22, wherein said garbanzo flour comprises from 80-85% of the dry weight of the composition, and wherein said fava bean flour comprises from 12.5-17.5%) of the dry weight of the composition, and wherein the combination of garbanzo flour and fava been flour is a maximum of 99.5% by dry weight of the the composition.

25. The composition of claim 22, wherein said garbanzo flour comprises about 45-55% of the dry weight of the composition, and wherein said fava bean flour comprises about 35-45% of the dry weight of the composition, and wherein the combination of garbanzo flour and fava been flour is a maximum of 99.5% by dry weight of the the composition.

26. The composition of claim 17, wherein said bean flour is essentially free of soy flour.

27. The composition of claim 17, wherein said bean flour is free of soy flour.

28. The composition of claim 17, wherein said one or more gums is selected from xanthan gum, acacia gum, and combinations thereof.

29. The composition of claim 28, wherein said one or more gums is a combination of xanthan gum and acacia gum.

30. The composition of claim 29, wherein said combination is an essentially 1 : 1 ratio by weight of xanthan gum and acacia gum.

more particular cases, the plant-based protein comprises protein from garbanzo, fava beans, yellow pea, sweet brown rice, rye, golden lentil, chana dal, soybean, sorghum, sprouted green lentil, du pung style lentil, and/or white lima bean. In some cases, the fat comprises plant-based oils. In more particular cases, the plant-based oils comprise oils from garbanzo, fava beans, yellow pea, sweet brown rice, rye, golden lentil, chana dal, soybean, sorghum, sprouted green lentil, du pung style lentil, and/or white lima bean.

[0010] In some cases, the composition comprises over 50% by dry weight of one or more flours, and less than 20% of a mixture of one or more gums and/or starches. In some cases, the composition comprises over 60% by dry weight of one or more flours, and less than 20% of a mixture of one or more gums and/or starches. In some cases, the composition additionally comprises 0-15% of a high fiber material. In some cases, the high fiber material comprises one or more brans. In a particular case, the one or more brans comprise micronized corn bran.

[0011] In another aspect, the compositions comprise 60-99.5%) of bean flour and 0.5-15% of a mixture of gums and/or starches by dry weight. In some cases, the bean flour comprises garbanzo flour. In some cases, the garbanzo flour comprises more than about 40%, more than about 75%), or more than about 85% of the dry weight of the composition. In more particular cases, the bean flour comprises fava bean flour. In some cases, the fava bean flour and garbanzo flour together comprise more than 80% of the dry weight of the composition. In some cases, the garbanzo flour comprises about 80-85% of the dry weight of the composition, and the fava bean flour comprises about 12.5-17.5%) of the dry weight of the composition. In some cases, the garbanzo flour comprises about 45-55% of the dry weight of the composition, and the fava bean flour comprises about 35-45% of the dry weight of the composition. In some cases, the bean flour is essentially free of soy flour, or does not contain any soy flour. [0012] In some cases, the one or more gums are selected from xanthan gum and acacia gum. In some particular cases, the composition comprises both xanthan gum and acacia gum. In more particular cases, the composition comprises roughly equal amounts of xanthan gum and acacia gum. In some particular cases, the xanthan gum and acacia gum each comprise about 1-3% of the dry weight of the composition.

[0013] In some particular cases, the one or more gums is xanthan gum only. In yet more particular cases, the xanthan gum comprises about 1-7.5% of the dry weight of the composition. In other particular cases, the one or more gums is acacia gum only.

[0014] In some cases, the composition comprising one or more gums additionally comprises one or more starches. In other cases, the one or more starches is arrowroot starch. In some particular cases, the gum comprises about 4-9% of the dry weight of the composition, and the arrowroot starch comprises about 2-5% of the dry weight of the composition.

[0015] In one aspect, a composition is disclosed comprising (i) yellow pea flour, and (ii) modified starch; wherein the composition is essentially egg- free, and wherein the yellow pea flour and modified starch are in a weight ratio ranging from 7:3 to 3:7, and wherein the composition provides binding, moisturizing, leavening, and/or emulsifying properties similar to an egg. In various embodiments, the flour and starch are in a weight ratio of 6:4 to 4:6, such as in a weight ratio of about 1 : 1. In various embodiments, the composition further comprises one or more components selected from the group consisting of guar gum, xanthan gum, carboxy- methylcellulose, and mixtures thereof. For example, the composition may include the additional components in a combined amount weight ratio ranging from 1 :8 to 1 : 12 compared to the amount by weight of the combined yellow pea flour and modified starch. In various embodiments, the composition is an eggless mayonnaise.

[0016] In some embodiments, the compositions of the invention can be used as a substitute for egg yolks, egg whites, or whole eggs in the preparation of an equivalent product prepared using an equivalent amount of eggs.

31. The composition of claim 30, wherein said xanthan gum and said acacia gum each comprise about 1-3% of the dry weight of the composition.

32. The composition of claim 28, wherein said one or more gums is xanthan gum.

33. The composition of claim 32, wherein said xanthan gum comprises 1-7.5% of the dry weight of the composition.

34. The composition of claim 28, wherein said one or more gums is acacia gum.

35. The composition of claim 28, further comprising one or more starches.

36. The composition of claim 35, wherein said one or more starches is arrowroot starch.

37. The composition of claim 36, wherein said gum comprises about 4-9% of the dry weight of the composition, and said arrowroot starch comprises about 2-5% of the dry weight of the composition.

38. A composition comprising

(i) yellow pea flour, and

(ii) modified starch;

wherein said composition is essentially egg- free, and wherein said yellow pea flour and said modified starch are in a weight ratio ranging from 7:3 to 3:7, and wherein said composition provides binding, moisturizing, leavening, and/or emulsifying properties similar to an egg.

39. The composition of claim 38, wherein said flour and said starch are in a weight ratio of 6:4 to 4:6.

40. The composition of claim 38, wherein said flour and said starch are in a weight ratio of about 1: 1.

41. The composition of claim 38, wherein said composition further comprises one or more components selected from the group consisting of guar gum, xanthan gum,

carboxymethylcellulose, and mixtures thereof.

42. The composition of claim 38, wherein said composition further comprises guar gum, xanthan gum, and carboxymethylcellulose, wherein said guar gum, xanthan gum, and carboxymethylcellulose are present in a combined amount weight ratio ranging from 1 :8 to 1 : 12 compared to the amount by weight of the combined yellow pea flour and modified starch.

43. The composition according to claim 38, wherein said composition is an eggless mayonnaise.

44. A method of using the composition of any of the above claims as a substitute for egg yolks, egg whites, or whole eggs in the preparation of an equivalent product prepared using an equivalent weight of eggs.

45. The method of claim 44, wherein said method comprises use of the composition as a binding agent.

46. The method of claim 44, wherein said method comprises use of the composition as a moisturizing agent.

47. The method of claim 44, wherein said method comprises use of the composition as a leavening agent.

48. The method of claim 44, wherein said method comprises use of the composition as an emulsifying agent.

[0017] In some cases, the compositions are used as a binding agent. In some cases, the compositions are used as a moisturizing agent. In some cases, the compositions are used as an emulsifying agent. In some cases, the compositions are used as a leavening agent.

[0018] In some aspects, the invention provides a food product prepared using the compositions described herein, wherein the food product is indistinguishable from an equivalent product prepared using eggs. In some cases, the food product is a baked food product. In some cases, the food product is a sauce, dressing, or custard. In some cases, the food product is a scramble, omelet, or quiche indistinguishable from a scramble, omelet, or quiche prepared using eggs. In some cases, the food product is an ice cream, pasta, meatloaf, or burger patty. In some embodiments the food product is an emulsion, mayonnaise or dressings.

[0019] In some aspects, the invention provides a method of baking, using as a 1 : 1 replacement per egg an egg substitute, wherein the egg substitute comprises 10.3-13.0 grams garbanzo flour, 1.2-1.5 grams micronized corn bran, and 0.4-0.6 grams xanthan gum. In other aspects, the invention provides a method of baking, using as a 1 : 1 replacement per egg an egg substitute, wherein the egg substitute comprises 9.8-12.3 grams garbanzo flour, 1.7-2.2 grams fava bean flour, 0.2-0.3 grams xanthan gum, and 0.2-0.3 grams acacia gum. In yet other aspects, the invention provides a method of baking, using as a 1 : 1 replacement per egg an egg substitute, wherein the egg substitute comprises, 6.1-7.8 grams garbanzo flour, 4.6-5.9 grams fava bean flour, 0.8-1.1 grams acacia gum, and 0.4-0.6 grams arrowroot starch. In some aspects, a method is disclosed for preparing an edible emulsion, comprising using as a 1 : 1 replacement per egg, 44- 47% by weight yellow pea flour, 44-47% by weight modified starch, 3-5% by weight mixture of guar gum and xanthan gum, and 3-5% by weight carboxymethylcellulose.

[0020] In some aspects, the invention provides a method of making an emulsion such as mayonnaise, using as a 1 : 1 replacement per egg an egg substitute, wherein the egg substitute comprises 10.3-13.0 grams garbanzo flour, 1.2-1.5 grams micronized corn bran, and 0.4-0.6 grams xanthan gum. In other aspects, the invention provides a method of making an emulsion such as mayonnaise, using as a 1 : 1 replacement per egg an egg substitute, wherein the egg substitute comprises 9.8-12.3 grams garbanzo flour, 1.7-2.2 grams fava bean flour, 0.2-0.3 grams xanthan gum, and 0.2-0.3 grams acacia gum. In yet other aspects, the invention provides a method of making an emulsion such as mayonnaise, using as a 1 : 1 replacement per egg an egg substitute, wherein the egg substitute comprises, 6.1-7.8 grams garbanzo flour, 4.6-5.9 grams fava bean flour, 0.8-1.1 grams acacia gum, and 0.4-0.6 grams arrowroot starch.

BRIEF DESCRIPTION OF THE FIGURES

[0021] Figure 1 provides a comparison of commercially available egg replacers versus eggs when measured for cake height.

[0022] Figure 2 provides a comparison of commercially available egg replacers versus eggs when measured for cake height/weight ratio.

[0023] Figure 3 provides a comparison of commercially available egg replacers versus eggs when measured for cake hardness.

[0024] Figure 4 provides a comparison of commercially available egg replacers versus eggs when measured for cake springiness. [0025] Figure 5 provides a comparison of commercially available egg replacers versus eggs when measured for cake cohesiveness.

[0026] Figure 6 provides a comparison of commercially available egg replacers versus eggs when measured for cake gumminess.

[0027] Figure 7 provides a comparison of a comparitive composition versus eggs when measured for muffin hardness.

[0028] Figure 8 provides a comparison of a comparitive composition versus eggs when measured for muffin height.

[0029] Figure 9 provides a comparison of a comparitive composition versus eggs when measured for muffin cohesiveness.

49. A food product prepared using the composition of any of claims 1-43 as an egg substitute, wherein said food product achieves a score within 20% of a score from an equivalent product prepared using eggs, wherein said score is based on an evaluation of one or more of texture, color, flavor, density, and roughness.

50. The food product of claim 49, wherein said food product is a baked food product.

51. The food product of claim 49, wherein said food product is a sauce, dressing,

mayonnaise, or custard.

52. The food product of claim 49, wherein said food product is a scramble, omelet, or quiche wherein said food product achieves a score within 20% of a score from a scramble, omelet, or quiche prepared using eggs, wherein said score is based on an evaluation of one or more of texture, color, flavor, density, and roughness.

53. The food product of claim 49, wherein said food product is an ice cream, pasta, meatloaf, or burger patty.

54. A method of baking, comprising using as a 1 : 1 replacement per egg, 10.3-13.0 grams garbanzo flour, 1.2-1.5 grams micronized corn bran, and 0.4-0.6 grams xanthan gum.

55. A method of baking, comprising using as a 1 : 1 replacement per egg, 9.8-12.4 grams garbanzo flour, 1.7-2.2 grams fava bean flour, 0.2-0.3 grams xanthan gum, and 0.2-0.3 grams acacia gum.

56. A method of baking, comprising using as a 1 : 1 replacement per egg, 6.1-7.8 grams garbanzo flour, 4.6-5.9 grams fava bean flour, 0.8-1.1 grams acacia gum, and 0.4-0.6 grams arrowroot starch.

57. A method of preparing an edible emulsion, comprising using as a 1 : 1 replacement per egg, a composition comprising 44-47% by weight yellow pea flour, 44-47% by weight modified starch, 3-5% by weight mixture of guar gum and xanthan gum, and 3-5% by weight carboxymethylcellulose.

[0030] Figure 10 provides a comparison of a comparitive composition versus eggs when measured for muffin springiness.

[0031] Figure 11 provides data from a Bostwick consistometer for the effect of prehydration time on consistency.

[0032] Figure 12 provides data on emulsion formation and emulsion stability. Starch was added to pea protein and the mixture was tested for its capacity to form a stable emulsion.

[0033] Figure 13 provides data on consistency on mayonnaise as measured with a Bostwick consistometer.

[0034] Figure 14 provides comparison of eggless mayo in particle size distribution.

[0035] Figure 15 provides a comparison of cold- and hot-milled flours with egg on

height/leavening in muffins.

[0036] Figure 16 provides a comparison of cold- and hot-milled flours with egg on cohesiveness in muffins.

[0037] Figure 17 provides a comparison of cold- and hot-milled flours with egg on springiness in muffins.

INCORPORATION BY REFERENCE

[0038] All publications, patents, and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication, patent, or patent application was specifically and individually indicated to be incorporated by reference.

DETAILED DESCRIPTION OF THE INVENTION

[0039] Several aspects of the invention are described below with reference to example applications for illustration. It should be understood that numerous specific details, relationships, and methods are set forth to provide a full understanding of the invention. One having ordinary skill in the relevant art, however, will readily recognize that the invention can be practiced without one or more of the specific details or with other methods.

[0040] The terminology and description used herein is for the purpose of describing particular embodiments only and is not intended to limit the invention. As used herein, the singular forms "a", "an" and "the" can be intended to include the plural forms as well, unless the context clearly indicates otherwise. The terms "including", "includes", "having", "has", "with", or variants thereof are intended to be inclusive in a manner similar to the term "comprising".

[0041] The term "about", "approximately", or "similar to" means within an acceptable error range for the particular value as determined by one of ordinary skill in the art, which can depend in part on how the value is measured or determined, or on the limitations of the measurement system. It should be understood that all ranges and quantities described below are

approximations and are not intended to limit the invention. Where ranges and numbers are used these can be approximate to include statistical ranges or measurement errors or variation. In some embodiments, for instance, measurements could be plus or minus 10%.

[0042] The phrase "essentially free of is used to indicate the indicated component, if present, is present in an amount that does not contribute, or contributes only in a de minimus fashion, to the properties of the composition. In various embodiments, where a composition is essentially free of a particular component, the component is present in less than a functional amount. In various embodiments, the component may be present in trace amounts. Particular limits will vary depending on the nature of the component, but may be, for example, selected from less than 10% by weight, less than 9% by weight, less than 8% by weight, less than 7% by weight, less than 6% by weight, less than 5% by weight, less than 4% by weight, less than 3% by weight, less than 2% by weight, less than 1% by weight, or less than 0.5% by weight.

[0043] By "indistinguishable" is meant that a comparison of two samples provides essentially the same outcome. Alternatively, by "indistinguishable" is meant that a comparison provides results that are within the error bars of the particular form of measurement. For example, if measured by consumer acceptance, two products would be indistinguishable if when compared by consumers, the products were approximately equally acceptable to a group of consumers.

[0044] Functional Properties of the Compositions

[0045] Natural eggs have a number of useful properties that make them a useful component in a wide variety of food and non-food products. In some embodiments, the egg substitute will fulfill one or more qualities of natural eggs. In some embodiments, the compositions described herein will fulfill more than one quality of natural eggs. In more particular embodiments, the compositions disclosed herein will fulfill more than two, or more than three, or substantially most or all of the qualities of natural eggs. In various embodiments, binding, moisturizing, leavening, and/or emulsifying properties are determined to be similar to an egg if measured at between about 90-110% of the binding, moisturizing, leavening, and/or emulsifying properties of an egg.

[0046] Viscosity

[0047] Natural eggs can provide a desired viscosity to batter or dough for the preparation of baked goods. Viscosity can be qualitatively assessed by the rate or ease of flow, the ease of movement during handling, or may be quantitatively assessed by viscometers or rheometers. In some embodiments, the compositions can provide a desired viscosity to the batter or dough similar to batter or dough prepared using natural eggs. In some embodiments, the compositions provide about 1-30%, about 20-50%, about 30-70%, about 40-90%, about 60-100% of the desired viscosity of a natural egg. In some embodiments, the compositions provide more than about 1%), about 2%, about 3%, about 4%, about 5%, about 10%, about 15%, about 20%, about 30%, about 40%, about 50%, about 60%, about 70%, about 80%, about 90%, about 100% of the desired viscosity of a natural egg. In some embodiments the viscosity is in a raw product. In some embodiments the viscosity is in a cooked product. In some embodiments the viscosity is in a chemically crosslinked product. In some particular embodiments, the compositions provide more than about 50% of the desired viscosity of a natural egg. In some other particular embodiments, the compositions provide more than about 75% of the desired viscosity of a natural egg. In yet other particular embodiments, the compositions provide more than about 90% of the desired viscosity of a natural egg. In some embodiments, the compositions may not provide desired viscosity.

[0048] pH

[0049] Natural eggs can have a pH range of about 6-8, although the pH of eggs can vary widely with freshness or other environmental factors. In some embodiments, the pH of the compositions provided herein can be similar to that of natural eggs. In some embodiments, the pH of the reconstituted compositions can be about 5.5-8.5, about 6-8, about 6.5-7.5, or about 7. In some embodiments, the pH of the compositions provided herein is different than natural eggs, e.g. more acidic or more basic than a natural egg composition. For example a composition provided herein can have, in some embodiments, a pH of less than 5.5, 5, 4.5, or less than 4. In other embodiments a composition provided herein can have a pH of greater than 6.5, 7, 7.5, or greater than 8. [0050] Binding Properties

[0051] Natural eggs provide binding properties that are useful in many cooking and non-cooking applications. Binding properties can refer to the properties of natural eggs that provide structural integrity to egg- containing or egg- substitute containing products, e.g., baked goods. Structural integrity of an egg- containing or egg-substitute containing product may be compared and/or indicated by, for example, whether the product falls apart during or after preparation, or by the quantity of fragments or crumbs that are generated when the product is handled. In some embodiments, the compositions provide binding properties of natural eggs. In some

embodiments, the compositions provide about 1-30%, about 20-50%, about 30-70%, about 40- 90%), about 60-100%) of the binding properties of a natural egg. In some embodiments, the compositions provide more than about 1%>, about 2%, about 3%, about 4%, about 5%, about 10%, about 15%, about 20%, about 30%, about 40%, about 50%, about 60%, about 70%, about 80%), about 90%), about 100% of the binding properties of a natural egg. In some particular embodiments, the compositions provide more than about 50% of the binding properties of a natural egg. In some other particular embodiments, the compositions provide more than about 75%) of the binding properties of a natural egg. In yet other particular embodiments, the compositions provide more than about 90% of the binding properties of a natural egg. In some embodiments, the compositions may not provide binding properties.

[0052] Thickening agents

[0053] Eggs are commonly used as thickening agents for a number of food products, for example, sauces, custards, fillings, etc. Thickening can be caused by the physical interference of water molecules in the food product with molecules from the thickening product. Thickening properties of an egg-substitute product may be indicated by the ability to thicken the egg- substitute containing product to the desired amount in a smooth, consistent manner, while minimizing the formation of lumps. In some embodiments, the compositions can provide thickening properties. In some embodiments, the compositions can provide about 1-30%, about 20-50%, about 30-70%, about 40-90%, about 60-100% of the thickening properties of a natural egg. In some embodiments, the compositions provide more than about 1%, about 2%, about 3%, about 4%, about 5%, about 10%, about 15%, about 20%, about 30%, about 40%, about 50%, about 60%), about 70%, about 80%, about 90%, about 100% of the thickening properties of a natural egg. In some embodiments, the compositions provide more than about 50% of the thickening properties of a natural egg. In particular embodiments, the compositions provide more than about 75% of the thickening properties of a natural egg. In yet more particular embodiments, the compositions provide more than about 90% of the thickening properties of a natural egg. In some embodiments, the compositions may not provide thickening properties.

[0054] Leavening agents

[0055] Eggs provide leavening properties that are useful in a number of cooking and non- cooking applications. A leavening agent can have foaming action that introduces air bubbles into the product, and can be used to provide height, lightening, and fluffiness of the finished product. For example, eggs are commonly used in cake, bread, muffin, souffle, and other recipes to impart a fluffy texture to the final product. Leavening properties of an egg or egg- substitute may be indicated by the height and texture of the final product. For example, a light, airy texture indicates superior leavening compared to a heavy, gummy texture. In some embodiments, the compositions can provide leavening properties similar to that of natural eggs. In some embodiments, the compositions provide about 1-30%, about 20-50%, about 30-70%, about

40- 90%), about 60-100%) of the leavening properties of a natural egg. In some embodiments, the compositions provide more than about 1%, about 2%, about 3%, about 4%, about 5%, about 10%, about 15%, about 20%, about 30%, about 40%, about 50%, about 60%, about 70%, about 80%), about 90%), about 100% of the leavening properties of a natural egg. In some

embodiments, the compositions provide more than about 50% of the leavening properties of a natural egg. In particular embodiments, the compositions provide more than about 75% of the leavening properties of a natural egg. In yet more particular embodiments, the compositions provide more than about 90% of the leavening properties of a natural egg. In some

embodiments, the compositions do not provide leavening properties.

[0056] Emulsifying properties

[0057] The emulsifying properties of natural eggs are useful in the preparation of food products which require the mixing and integration of substances that are immiscible, such as oil and water. Many products for human consumption are oil- in-water emulsions, including but not limited to hollandaise sauces and mayonnaise. In oil-in-water emulsions, oil droplets are dispersed evenly throughout an aqueous phase. However, oil droplets will tend to coalesce over time. An emulsifying agent can prevent the coalescence of the oil droplets, resulting in a smooth, creamy mixture. The emulsifying properties of the present compositions may be determined by the texture, consistency, and stability of the finished product, e.g., a sauce. For example, a sauce that remains smooth indicates a superior emulsion compared to a sauce that has undergone partial or complete separation over time. In some embodiments, the compositions can provide emulsifying properties. In some embodiments, the compositions provide about 1-30%, about 20-50%, about 30-70%), about 40-90%, about 60-100%) of the emulsifying properties of a natural egg. In some embodiments, the compositions provide more than about 1% >, about 2%, about 3%, about 4%, about 5%, about 10%, about 15%, about 20%, about 30%, about 40%, about 50%, about 60%, about 70%), about 80%>, about 90%>, about 100% of the emulsifying properties of a natural egg. In some embodiments, the compositions provide more than about 50% of the emulsifying properties of a natural egg. In particular embodiments, the compositions provide more than about 75%) of the emulsifying properties of a natural egg. In yet more particular embodiments, the compositions provide more than about 90% of the emulsifying properties of a natural egg. In some embodiments, the compositions do not provide emulsifying properties.

[0058] Texture

[0059] Eggs are commonly used to provide moisture and fat to a product recipe, resulting in a non-dry texture. The ability of an egg or egg substitute to provide the desired moisture and fat to a product recipe (such as, for example, cake or bread recipes) may be indicated by the texture of the finished product, e.g., whether the product produces a moist or dry crumb. In some embodiments, the compositions provide a moisture imparting quality. In some embodiments, the compositions provide about 1-30%, about 20-50%, about 30-70%, about 40-90%, about 60-100% of the desired moisture and fat of a natural egg. In some embodiments, the compositions provide more than about 1%>, about 2%, about 3%, about 4%, about 5%, about 10%, about 15%, about 20%, about 30%, about 40%, about 50%, about 60%, about 70%, about 80%, about 90%, about 100%) of the desired moisture and fat of a natural egg. In some embodiments, the compositions provide more than about 50% of the desired moisture and fat of a natural egg. In particular embodiments, the compositions provide more than about 75% of the desired moisture and fat of a natural egg. In yet more particular embodiments, the compositions provide more than about 90% of the desired moisture and fat of a natural egg. In some embodiments, the compositions do not provide moisture and fat.

[0060] Color

[0061] Eggs can sometimes be used to provide a certain color to the food or non-food product. In some embodiments, the compositions can provide the same or similar color to the product. In other embodiments, the compositions do not provide similar color to that of natural eggs. In some embodiments, the compositions can be color neutral and may not affect the color of the product. [0062] Flavor

[0063] Eggs can be sometimes used to provide a certain eggy taste to the food product. Taste may be qualitatively assessed by blind taste test of the product prepared using the compositions compared to the product prepared using an equivalent amount of eggs. In some embodiments, the compositions can provide the same or a similar eggy taste to the product. In other embodiments, the compositions do not provide an eggy taste to the product. In some

embodiments, the compositions can be taste-neutral.

[0064] Egg Replacement

[0065] In some embodiments, the compositions can be used as a replacement for whole eggs, egg yolks, or egg whites in food products. In some embodiments, the food products can be baked goods such as but not limited to muffins, cakes, cupcakes, brownies, cookies, biscotti, pancakes, breads, waffles, pastries, pies, tarts, scones, pretzels, crackers. In some embodiments, the compositions can be used as a replacement for eggs or egg parts in other products such as but not limited to pasta, noodles, meatloaf, burgers, custards, sauces, ice cream, mayonnaise, and/or salad dressings.

[0066] In some embodiments, the compositions can be used as a replacement for whole eggs, egg yolks, or egg whites in non-food products, such as but not limited to shampoos, facial washes or masks, creams, films, encapsulates. In other embodiments, the compositions can be used for functions other than as an egg substitute.

[0067] Subjective Properties of the Compositions

[0068] Mouthfeel is a concept used in the testing and description of food products. Products made using the compositions of the invention can be assessed for mouthfeel. In some embodiments products, e.g baked goods, made using compositions of the invention have mouthfeel that is similar to products made with natural eggs. In some embodiments the mouthfeel of the compositions of the invention is superior to the mouthfeel of previously known or attempted egg substitutes, e.g bananas, modified way proteins, or Egg BeatersTM.

[0069] Examples of properties which may be included in a measure of mouthfeel include:

Cohesiveness: Degree to which the sample deforms before rupturing when biting with molars; Density: Compactness of cross section of the sample after biting completely through with the molars; Dryness: Degree to which the sample feels dry in the mouth; Fracturability: Force with which the sample crumbles, cracks or shatters. Fracturability encompasses crumbliness, crispiness, crunchiness and brittleness; Graininess: Degree to which a sample contains small grainy particles, may be seen as the opposite of smoothness; Gumminess: Energy required to disintegrate a semi- solid food to a state ready for swallowing; Hardness: Force required to deform the product to given distance, i.e., force to compress between molars, bite through with incisors, compress between tongue and palate; Heaviness: Weight of product perceived when first placed on tongue; Moisture absorption: Amount of saliva absorbed by product; Moisture release: Amount of wetness/juiciness released from sample; Mouthcoating: Type and degree of coating in the mouth after mastication (for example, fat/oil); Roughness: Degree of abrasiveness of product's surface perceived by the tongue; Slipperiness: Degree to which the product slides over the tongue; Smoothness: Absence of any particles, lumps, bumps, etc., in the product; Uniformity: Degree to which the sample is even throughout; homogeneity;

Uniformity of Bite: Evenness of force through bite; Uniformity of Chew: Degree to which the chewing characteristics of the product are even throughout mastication; Viscosity: Force required to draw a liquid from a spoon over the tongue; and Wetness: Amount of moisture perceived on product's surface.

[0070] Compositions

[0071] Protein

[0072] Natural eggs typically comprise about 5-15% protein content by weight. The high protein content of natural eggs play a central role in providing the desired binding properties of the eggs. In some embodiments, the compositions provided herein comprise proteins, polypeptides, and/or peptides, referred to collectively as "protein". In some embodiments, the compositions can comprise about 1%, about 2%, about 3%, about 4%, about 5%, about 7.5%, about 10%, about 15%), about 20%), about 25%, about 30% protein by dry weight or total weight. In some embodiments, the compositions can comprise about 1-5%, about 2-10%, about 5-20%, or about 10-30%) protein by dry weight or total weight. In particular embodiments, the compositions can comprise about 10-15% protein by dry weight or total weight.

[0073] In some embodiments, the proteins in the composition can comprise one or more plant- based proteins. In some embodiments, the one or more plant-based proteins may include, but are not limited to: pea proteins, isolates, and/or concentrates; garbanzo (chickpea) proteins, isolates, and/or concentrates; fava bean proteins, isolates, and/or concentrates; soy proteins, isolates, and/or concentrates; rice proteins, isolates, and/or concentrate; potato proteins, isolates, and/or concentrates; hemp proteins, isolates, and/or concentrates; or any combinations thereof. Plant- based proteins may include, for example, soy protein (e.g., all forms including concentrate and isolate), pea protein (e.g., all forms including concentrate and isolate), canola protein (e.g., all forms including concentrate and isolate), other plant proteins that commercially are wheat and fractionated wheat proteins, corn and it fractions including zein, rice, oat, potato, peanut, green pea powder, green bean powder, and any proteins derived from beans, lentils, and pulses. In other embodiments, the pea proteins can be derived from green peas or yellow peas. In particular embodiments, the pea proteins can be derived from yellow peas, such as Canadian yellow peas.

[0074] In some embodiments, proteins in the composition can comprise undenatured proteins. In other embodiments, proteins in the composition can comprise denatured proteins. In some embodiments essentially no animal proteins are used in the compositions.

[0075] Enzymes

[0076] Natural eggs contain a number of enzymes that are used in human products. For example, lysozyme, which may be extracted from egg whites, can be used in eye drop

formulations or as a cheese preservative. In some embodiments, the compositions comprise an enzyme profile similar to that of eggs. In some embodiments, the compositions comprise an enzyme profile dissimilar to that of natural eggs. In some embodiments, the compositions comprise lysozyme. In some embodiments, the compositions do not comprise

lysozyme. In some embodiments the compositions provided herein contain enzymes that replicate the function of the natural egg enzymes. For example a natural egg enzyme may catalyze a particular known chemical reaction. Compounds of the invention can contain enzymes that catalyze the same or a similar reaction.

[0077] Oil/Fat

[0078] Natural chicken eggs typically comprise about 1 1% oil/fat content by weight. The fat content of natural eggs provides some of the desired moisture and texture to the egg- containing product, thus improving texture of the product. In some embodiments, the compositions can provide a similar fat profile to that of natural eggs. In other embodiments, the compositions can provide a lower fat profile to that of natural eggs while still imparting a desired moisture and texture to the product similar to an equivalent product prepared using natural eggs. In some embodiments, the compositions can comprise about 0.1%>, about 0.2%, about 0.5%>, about 1%, about 2%o, about 3%, about 4%, about 5%, about 7.5%, about 10%, about 15%, about 20%, about 25%), about 30%) fat by dry weight or total weight. In some embodiments, the compositions can comprise about 0.1-10%, about 0.5-15%, about 1-20%, or about 5-30% fat by total weight. In particular embodiments, the compositions can comprise about 1-10% fat by total weight. Natural eggs comprise about 3.1% saturated fats. The high saturated fat content of eggs may deter significant numbers of consumers from enjoying eggs or egg- containing products. In some embodiments, the compositions can comprise less than 3%, less than 2%, less than 1%, less than 0.5%), less than 0.1%>, or essentially no saturated fat. In some embodiments, the fat content of the compositions can comprise plant-based oils. In some embodiments, the plant-based oils can comprise canola oil, sunflower oil, safflower oil, coconut oil, corn oil, olive oil, peanut oil, or palm oil. In some embodiments, the plant-based oils can comprise oils from beans (e.g garbanzo beans or fava beans).

[0079] In some embodiments, the compositions are esssentially free of fat and/or oil, such as animal fats or animal oils. In some embodiments, the compositions do not comprise fat. In some embodiments, the compositions do not comprise oil. In some embodiments the compositions do not comprise any animal oils or fats. In some embodiments the compositions comprise less than 3%), less than 2%, less than 1%>, less than 0.5%>, or less than 0.1%> plant fats or oils. In some embodiments the compositions comprise less than comprise less than 3%, less than 2%, less than 1%), less than 0.5%>, or less than 0.1%> animal fats or oils.

[0080] Nutrients

[0081] Eggs are also highly valued for their vitamin and nutrient content. In particular, eggs are a natural source of vitamins A, E, D, and other vitamins and nutrients, providing about 540 IU vitamin A, 1.050 mg vitamin E, and 47 IU vitamin D per 100 g total weight. In some embodiments, the compositions provide a vitamin profile similar to that of eggs by equivalent weight. In some embodiments, the compositions can be fortified with vitamins to provide a high nutritional value per unit weight compared to natural eggs. In some embodiments, the compositions do not provide a vitamin profile similar to eggs. In some embodiments the nutritional profile of the compositions of the invention is superior to natural eggs.

[0082] In addition, eggs are a source of choline, a nutrient that supports healthy brain

development. In some embodiments, the compositions provide similar amounts of choline as compared to an equivalent weight of eggs. In some embodiments, the compositions may be fortified with choline to provide a higher nutritional value per unit weight compared to natural eggs. In some embodiments, the compositions do not provide similar amounts of choline as an equivalent weight of natural eggs.

[0083] Nucleic Acids [0084] Eggs will contain nucleic acids from the species that laid the egg. So a bird egg will contain DNA from a bird and a reptile egg will contain DNA from a reptile. As the compositions of the invention are not derived from these species the compositions of the invention will not normally contain DNA normally associated with an egg. Therefore in some embodiments the compositions of the invention contain no nucleic acids from a bird, a reptile, an amphibian, or a fish. It is possible that for a variety of reasons one would wish to add the egg related nucleic acids to the compositions described herein. This would result in a product that contained an artificially added nucleic acid. In some embodiments the compositions of the invention contain no artificially added nucleic acids typically associated with an egg.

[0085] Flours

[0086] In some embodiments, the composition can comprise one or more flours. In some cases, flour is a powder ground from grains, seeds, roots, or other sources. Most flours have a high starch content which imparts thickening and binding properties, and may provide moisture content. In some embodiments, the one or more flours are selected from all-purpose flour, unbleached flour, bleached flour, bread flour, self-rising flour, wheat flour, cake flour, acorn flour, almond flour, amaranth flour, atta flour, rice flour, buckwheat flour, cassava flour, chestnut flour, chuno flour, coconut flour, corn (maize) flour, hemp flour, maida flour, mesquite flour, nut flour, peanut flour, potato flour, rice flour, rye flour, tapioca flour, t'eff flour, soy flour, peanut flour, arrowroot flour, taro flour, acorn flour, bean flours such as, e.g., soy flour, garbanzo flour, fava bean flour, pea flour; or other flour. In some embodiments, the one or more flours are selected from Sorghum, White sorghum, Soy bean, Millet, Vallarta, Stueben, Green fagelot, Black beluga, Black calypso, Chana daL Amaranth, Lentil, Red lentil, Black lentiL Golden lentiL Do pung- style lentiL Sprouted green lentil, Sweet brown rice, Navy bean, Red bean, Pink bean, Canellini bean, Giant white lima bean, Christmas lime bean, Baby lima bean, Mung bean, Peeled fava bean,

Good mother stellard bean, Cranberry chorlottis bean,Santa maria pinguinto bean, Brown tepary bean, Black turtle bean, Yellow slit pea, Canadian yellow pea, Black turtle beans, Brown teff flour,Rye flour, Quinoa flour, Potato flour, White rice flour, Brown rice flour, Oat flour, Buckwheat flour, Whole grain corn flour, Stone ground cornmeaL Pre-cooked split pea, Pre-cooked garbanzo flour, Arrowroot powder, and Potato starch. In some embodiments, the composition can comprise about 10%, about 20%, about 30%, about 40%, about 50%, about 60%, about 70%, about 80%, about 85% about 90%, about 95%, about 100% flour. In some embodiments, the composition can comprise about 1-30%, about 10-40%, about 30-70%, about 50-99%, about 60-95%, about 70-90% total flour by dry weight. In some embodiments, the flour is cold-milled.

[0087] Flours can differ widely in their protein content, containing as low as 5% to as high as 30%) protein. Natural chicken eggs typically comprise about 10-15% protein content by weight. The high protein content of natural eggs play a central role in providing the desired binding properties of the eggs. Furthermore, flours can differ widely in their fat content, containing as low as 0.1%) to as high as 15% fat content. The fat content of natural eggs provides some of the desired moisture and fat to the egg-containing product, thus improving texture of the product. However, the high saturated fat content of eggs may deter significant numbers of consumers from enjoying the product.

[0088] Therefore, in some embodiments, the one or more flours are selected from flours with high protein content and a fat content similar to that of natural eggs, wherein the fat content is provided essentially by unsaturated fats. In some embodiments, the one or more flours may comprise garbanzo/chickpea flour, fava bean flour, soy flour, nut flours. A significant number of potential consumers may have nut allergies, therefore, in particular embodiments, the one or more flours comprise garbanzo and/or fava bean flours. In some embodiments, the composition may comprise about 10%>, about 20%>, about 30%>, about 40%>, about 50%>, about 60%>, about 70%, about 80%, about 85% about 90%, about 95%, about 100% garbanzo flour. In some embodiments, the composition may comprise about 20-40%>, about 40-60%>, about 45-55%> garbanzo flour. In other embodiments, the compositions may comprise about 50-100%), about 60-95%), about 70-90%>, about 80-85%> garbanzo flour. In a particular embodiment, the composition can contain about 86.46%> garbanzo flour. In another particular embodiment, the composition can contain about 82% garbanzo flour. In yet another particular embodiment, the composition can contain 50.85%) garbanzo flour.

[0089] In some embodiments, the composition can comprise fava bean flour. In some embodiments, the composition may comprise about 10%>, about 20%>, about 30%>, about 40%>, about 50%, about 60%, about 70%, about 80%, about 85% about 90%, about 95%, about 100% fava bean flour. In some embodiments, the composition may comprise about 1-30%, about 10- 40%, or about 40-60% fava bean flour.

[0090] In some embodiments, the composition comprising garbanzo flour can also comprise fava bean flour. In some embodiments, the composition comprising garbanzo flour can also comprise about 0.5-60%), about 5-50%, about 10-45% fava bean flour. In a particular embodiment, the composition comprising garbanzo flour can also comprise about 14.46% fava bean flour. In yet another particular embodiment, the composition comprising garbanzo flour can also comprise about 38.98% fava bean flour.

[0091] In some embodiments, the garbanzo and fava bean flours together can comprise about 50- 99.5%) of the weight of the composition. In some embodiments, the garbanzo and fava bean flours together can comprise about 70-99%, or about 80-99%> of the weight of the composition. In a particular embodiment, the garbanzo and fava bean flours together can comprise about 96.46%) of the weight of the composition. In another embodiment, the garbanzo flour can comprises about 82% of the weight of the composition, and the fava bean flour can comprise 14.46%) of the weight of the composition. In yet another embodiment, the garbanzo and fava bean flours together can comprise 89.83%> of the weight of the composition. In yet another particular embodiment, the garbanzo flour can comprises 50.85%> of the weight of the

composition, and the fava bean flour can comprise 38.98%> of the weight of the composition.

[0092] Gums

[0093] In some embodiments, the composition may also comprise one or more gums, such as, e.g., xanthan gum, acacia gum, gellan gum, guar gum, locust bean gum, tragacanth gum, carrageenan gum, or a combination thereof, for example. "Gums" refers to materials that act as gelling agents, often comprising polysaccharides and/or glycoproteins. Gums, such as xanthan gum, can be used in small amounts to provide significant thickening and viscosity, and can also be used to replace fat and emulsifiers. In some embodiments, the one or more gums comprise about 0.5%, 1%, 2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%, 12.5%, 15%, or 20% of the dry weight or total weight of the composition. In some embodiments, gums can comprise about 0.5- 20%), about 1-15%), or about 2-10%> of the dry weight or total weight of the composition. In particular embodiments, gums can comprise about 1-5% of the dry weight or total weight of the composition. In some embodiments, the composition can comprise xanthan gum, acacia gum, or a combination of the two. In some embodiments, gums can comprise about 0.5-20%> of the total weight of the composition.

[0094] In some particular embodiments, the composition can comprise a single gum only. In some embodiments, the single gum can be xanthan gum. In particular embodiments, the composition can comprise about 1-10% of the single gum xanthan gum. In another particular embodiment, the composition can comprise 3.54% xanthan gum.

[0095] In other embodiments, the single gum can be acacia gum. In some embodiments, the composition can comprise about 1-10% of the single gum acacia gum. In a particular

embodiment, the composition can comprise 6.78% acacia gum. [0096] In other embodiments, the composition can comprise both xanthan gum and acacia gum. In some embodiments, the composition can comprise about 1-4% xanthan gum and about 1-4% acacia gum. In yet another embodiment, the composition can comprise 1.77% xanthan gum and 1.77 acacia gum.

[0097] In some embodiments, the composition can comprise one or more starches, such as, for example, arrowroot starch, cornstarch, tapioca starch, mung bean starch, potato starch, sweet potato starch, rice starch, sago starch, wheat starch. The term "starch" refers to polysaccharide materials, often produced by plants to act as energy stores. Starches can be used to impart thickening and stabilizing properties. In some embodiments, the one or more starches can comprise about 0.5%, 1%, 2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%, 12.5%, 15%, or 20% of the dry weight or total weight of the composition. In some embodiments, the one or more starches can comprise about 0.5-20%, about 1-15%, or about 2-10% of the dry weight or total weight of the composition. In some embodiments, the composition can comprise a combination of gums and starches. In some embodiments, the composition can comprise both acacia gum and arrowroot starch. In some particular embodiments, the acacia gum and arrowroot starch together can comprise about 2-20% of the total weight of the composition. In other embodiments, the acacia gum and arrowroot starch together can comprise about 5-15% of the total weight of the composition. In yet another embodiment, the acacia gum and arrowroot starch together can comprise about 10% of the total weight of the composition. In a particular embodiment, the composition can comprise 6.78% acacia gum and 3.39% arrowroot starch.

[0098] In various embodiments, the starch may be modified starch. Suitable starches include, but are not limited to, pregelatinized starch (e.g., corn, wheat, tapioca), pregelatinized high amylose content starch, pregelatinized hydrolyzed starches (e.g., maltodextrins, corn syrup solids), chemically modified starches such as pregelatinized substituted starches (e.g., octenyl succinate modified starches), as well as mixtures of these starches. In various embodiments, the modified starch is a cold-water soluble modified starch derived from waxy maize. In various embodiments, the starch is sodium octenylsuccinate starch. Modified starches may be available commercially.

[0099] Mixes of guar gum and xanthan gum may be obtained in a commercial product, for example as Pre-Hydrated Stabilizer XC-8444, available from TIC Gums. Carboxy- methylcellulose may be obtained as a commercial product, for example, Pre-Hydrated®

Ticalose® CMC 2500 Powder available from TIC gums.

[00100] High-Fiber Content [00101] In some embodiments, the composition can also comprise a material with high- fiber content. In some embodiments, fiber in the composition can provide a high water-holding capacity that contributes to the overall texture of the final food product. In some embodiments, the high fiber material can be bran, e.g., a wheat bran, oat bran, corn bran, rice bran, or other bran. In some embodiments, the bran can be micronized into a fine powder. In some

embodiments, micronizing the bran prevents the introduction of a grainy texture to the final food product. In some embodiments, the micronized bran can be micronized corn bran. In some embodiments, the high fiber material can comprise about 0.5%, 1%, 2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%, 12.5%, 15%, 20%, 30%, 40%, 50% of the dry weight or total weight of the composition. In some embodiments, the high fiber material can comprise about 0.5-50%, about 1-30%), or about 2-20% of the dry weight or total weight of the composition. In other

embodiments, the composition does not comprise a high fiber material.

[00102] Lecithin

[00103] In some embodiments, the compositions can comprise lecithin. Lecithins are yellow brownish fatty substances that are present in animal and plant tissues, as well as egg yolk. Lecithin serves as an emulsifier, and has a similar fat profile to that of eggs. Lecithins are also non-allergenic. In some embodiments, the lecithins can comprise plant-based lecithins. In some embodiments, the lecithins can comprise garbanzo lecithin, fava bean lecithin, soy lecithin, sunflower lecithin, canola lecithin, or a combination thereof. In some embodiments, the compositions can comprise about 0.01%-25%, about 0.1%-20%, about 1-25%, about 0.01%- 10%), or about 4% of lecithin by dry weight or total weight of the composition. In some embodiments, the composition may not comprise lecithins.

[00104] Gypsum

[00105] In some embodiments, the compositions can comprise gypsum (calcium sulfate). Gypsum can advantageously provide coagulation and can have thickening properties as well. In some cases, the gypsum can be Terra Alba (calcium sulfate dihydrate). In some embodiments, the compositions can include, for example, between about 0.5%>-20%), between about 1%> - 15%, between about 0.5% -12%, or between about 0.5% - 2% by dry weight or total weight of gypsum. In some embodiments, the compositions may not comprise gypsum.

[00106] Magnesium Chloride and Papain [00107] In some embodiments, the compositions can comprise magnesium chloride

(Nigari) and/or papain (Papaya enzyme). In some embodiments, the composition can comprise, for example, between about 0.5% and about 20%, between about 1% and about 15%, or between about 0.5%) and about 12% by dry weight or total weight of magnesium chloride and/or papain. In some embodiments, the composition does not comprise magnesium chloride or papain.

[00108] Bases and Acids

[00109] In some embodiments, the composition can comprise one or more bases, e.g., potassium carbonate or calcium carbonate. In some embodiments, the composition can comprise one or more acids, e.g., citric acid. The one or more acids and/or bases can be utilized to modify the pH of the composition. The composition can comprise between about 0.5% and about 30%, between about 0.5% and about 15%, or between about 0.5% and about 5% by total weight by dry weight or total weight of acids and/or bases. In some cases, the composition does not comprise acids or bases.

[00110] In some embodiments, the compositions can comprise sodium bicarbonate (baking soda), baking powder, calcium lactate (including a calcium lactate not derived from dairy), calcium carbonate, or Versawhip 6000 (enzyme- altered soy protein, can replace a part or all of the percentage of the protein). In some embodiments, these agents may be utilized as additional leavening agents in the composition. In some embodiments, the compositions can comprise about 1%) -20%), or about 2- 12% by dry weight or by total weight of the above leaveners. In some embodiments, the compositions do not comprise sodium bicarbonate, baking powder, calcium lactate, calcium carbonate, or Versawhip 6000.

[00111] Coloring Agents

[00112] In some embodiments, the compositions can comprise one or more coloring agents. Various natural or artificial coloring agents are known to those skilled in the art, and can include, for example, caretonoids such as beta- carotene, turmeric, annatto, mango yellow, or palm-based oils. In some embodiments, the compositions can comprise about 0.1%- 20%, or between about 0.5%- 15% by dry weight or by total weight of a coloring agent. In some embodiments, the compositions may not comprise a coloring agent.

[00113] Flavoring Agents

[00114] In some embodiments, the compositions can comprise one or more flavoring agents. Various natural or artificial flavoring agents are known to those skilled in the art, and can include, for example, salt, spices, sugar, sweeteners, monosodium glutamate, sulfuric flavoring agents such as black salt, or other flavoring agents.

[00115] Methods of Making and Storing the Compositions

[00116] In some embodiments, the compositions can be prepared by dry blending. In some embodiments, the compositions can be processed using an inline high-shear mixer, cell disruption, liquid chromatography, including HPLC, sonication, and/or rotor-stator mixing technology. In some embodiments, the mixer can have a pump capability of at least about 500 gallons/minute, with a throughput of 50 gallons/minute. In some embodiments, the sonicator can have a throughput of at or above 5 gallons/minute. In other embodiments, the compositions can be prepared using standard home kitchen materials, e.g., a kitchen scale, mixing bowL utensils, blender, or food processor. In some embodiments, the compositions can be stored as a dry material.

[00117] Storage and shelf life

[00118] Eggs and products made from eggs have a limited shelf-life. Raw eggs in the shells should only be stored with refrigeration for up to 5 weeks. When the yolk or the white are removed from the shell the storage life with refrigeration drops to only a maximum of 4 days. Commercially available non- sterile liquid egg substitutes also have a limited shelf life of up to about 7 days in the refrigerator. Similarly foods cooked with eggs have a limited storage life. A pie or a quiche cooked with eggs should only be stored for less than a week with refrigeration. Compositions of the invention can provide significant gains in shelf- life, for both the egg substitute and for products produced using the egg substitute.

[00119] Compositions of the invention can, in some embodiments, be stable in storage at room temperature for up to 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 weeks. In some embodiments compositions of the invention are stable for storage at room temperature for months, e.g. greater than 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13 months. In some embodiments compositions of the invention are stable for refrigerated or freezer storage for months, e.g. greater than 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13 months. In some embodiments compositions of the invention are stable for refrigerated or freezer storage for years, e.g. greater than 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13 years. In some embodiments products produced using compositions of the invention are stable for storage at room temperature for months, e.g. greater than 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13 months. In some embodiments products produced using compositions of the invention are stable for storage at room temperature for years, e.g. greater than 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, or 13 years.

[00120] In some embodiments, storage as a dry material can increase the shelf-life of the composition. In some embodiments the compositions are stored as a dry material for later reconstitution with a liquid, e.g. water.

[00121] Reconstituting from a Dry Composition

[00122] In some embodiments the compositions in the invention are reconstituted with a liquid, e.g. water, milk, or other liquid suitable for human consumption. In one example 36-45 grams of liquid can be added to 12-15 grams dry weight of the composition to produce a substitute for 1 whole egg. The amount of liquid can be varied to suit a particular purpose for the reconstituted composition.

[00123] In some embodiments, the compositions, prior to the addition of water, could be first subjected to a sonicator, and the water content then added via a higher throughput method such as the inline high- shear mixer or rotor- stator mixer. Ability to apply intense shear and shorten mixing cycles can be desirable in creating desirable emulsions, or agglomerated powders — to be dispersed into a liquid medium. In some embodiments, the inline mixer is positioned in a flowing stream, the mixing process can be more tightly controlled than in a batch configuration, ensuring that the number of passes through the high-shear zone can be monitored with greater confidence. In some embodiments, solid and liquid additions can also be injected into the flow and dispersed with reproducible results.

[00124] Pre-hydrating the protein (e.g. incubating the flour with water for 24 hours) can in some embodiments improve the properties of the composition. Accordingly, in some

embodiments a dry composition is prehydrated for several hours or days, e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12 hours or 1,2, or 3 days. In one embodiment prehydrating the composition gives a thicker and stronger emulsion when the composition is used in food preparation.

[00125] Heating

[00126] Heat can be used to prepare the compositions of the invention. Heat can aid in reconstituting the compositions in a liquid. Heat can also serve to denature proteins of the compositions. However, in some embodiments heat is not necessary for preparing the compositions. Therefore in some embodiment the compositions of the invention are prepared by heating one or more components of the composition to a temperature of at least 60, 70, 80, 90, or 100 degrees Celsius. In some embodiments the components of the composition are heated to a temperature range of about between 60 and 80 or 85 degrees Celsius. In some embodiments the range is about between 59 and 81 or 86 degrees Celsius. In some embodiments the components of the composition are heated to less than 60 degrees Celsius or to more than 85 degrees Celsius. In some embodiments the heated composition is held at the elevated temperature for 1 - 10 minutes for 10 - 20 minutes. In some embodiments the heated compositions are held at the elevated temperature for less than 1 minute. In some embodiments the components of the composition are not heated for preparation of the composition.

[00127] Food Products

[00128] In some aspects, the invention provides a food product prepared using the compositions described herein, wherein the food product is indistinguishable from an equivalent product prepared using eggs. In some cases, the food product is a baked food product. Such baked food products include cookies, brownies, cake, and the like. In some cases, the food product is a sauce, dressing, or custard. In some cases, the food product is a scramble, omelet, or quiche indistinguishable from a scramble, omelet, or quiche prepared using eggs. In some cases, the food product is an ice cream, pasta, meatloaf, or burger patty. In some embodiments the food product is an emulsion, such as mayonnaise or dressings.

EXAMPLES

[00129] Example 1

[00130] One non-limiting composition is described below (by weight percentage).

Garbanzo Flour	86.5%
Micronized corn bran	10%
Xanthan gum	3.5%

[00131] Example 2

[00132] Another non-limiting composition is described below (by weight percentage).

Garbanzo Flour	82%
Fava bean flour	14.5%
Acacia gum	1.8%
Xanthan gum	1.8%

[00133] Example 3 [00134] Comparative composition is described below (by weight percentage):

Garbanzo Flour	51%
Fava bean flour	39%
Acacia gum	6.8%
Arrowroot starch	3.4%

[00135] Example 4

[00136] The compositions of Examples 1-2 and other compositions disclosed herein are used to replace eggs in traditional recipes, e.g. in baked goods, such as cakes, muffins, pastries, or cookies. The resulting foods, in this case baked goods, have superior qualities as compared to products baked with other egg substitutes. For example the mouthfeel of a yellow cake baked using the compositions of Examples 1-2 is more similar to yellow cake baked with eggs than yellow cake baked using previously attempted egg substitutes.

[00137] Mouthfeel ratings will demonstrate these similarities.

Product	Mouthfeel rating
Yellow cake baked with eggs	+++++
Yellow cake baked with Example 1 composition	+++++
Yellow cake baked with Example 2 composition	+++++
Yellow cake baked using Egg Beaters TM	+
Yellow cake baked with Ener-GTM	++
Yellow cake baked with banana as egg substitute	+
Yellow cake baked with Bob's Red MillTM	++
Yellow cake baked with Organ egg powderTM	++
Yellow cake baked with Silken TofuTM	+
Yellow cake baked with flax seed meal	+
Yellow cake baked with applesauce as egg substitute	+
Yellow cake baked with vinegar and baking soda as egg substitute	+
Yellow cake baked with buttermilk and yogurt as egg substitute	+

[00138] Example 5 [00139] In another example the taste of a cookie baked using the compositions of Examples 1-2 and further compositions described herein will be more similar a cookie baked using eggs than previously attempted egg substitutes.

[00140] Taste ratings will demonstrate these similarities.

Product	Taste rating
Cookie baked with eggs	+++++
Cookie baked with Example 1 composition	+++++
Cookie baked with Example 2 composition	+++++
Cookie baked using Egg BeatersTM	+
Cookie baked with Ener-GTM	+
Cookie baked with banana as egg substitute	++
Cookie baked with Bob's Red MillTM	+
Cookie baked with Organ egg powderTM	+
Cookie baked with Silken TofuTM	+
Cookie baked with flax seed meal	++
Cookie baked with applesauce as egg substitute	++
Cookie baked with vinegar and baking soda as egg substitute	+
Cookie baked with buttermilk and yogurt as egg substitute	+

[00141] Example 6

[00142] Foods prepared using the compositions provided herein will be shown to have substantially identical properties as foods prepared using natural eggs. A composition provided herein will allow the preparation of egg- free foods with substantially identical viscosity, binding properties, thickening properties, leavening properties, emulsifying properties, texture, color, and/or flavor.

[00143] Human assessments will demonstrate the substantially identical properties

Product	Viscosity	Binding properties	Thickening properties	Leavening properties	Emulsifying properties	texture	color	flavor
Food prepared with eggs	baseline	baseline	baseline	baseline	baseline	baseline	baseline	baseline
Food prepared with Example	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

1 composition

Food prepared Pass Pass Pass Pass Pass Pass Pass Pass with Example

2 composition

Food prepared Fail on one or more measures

using Egg

BeatersTM

Food prepared Fail on one or more measures

with Ener- GTM

Food prepared Fail on one or more measures

with banana as

egg substitute

Food prepared Fail on one or more measures

with Bob's Red

MillTM

Food prepared Fail on one or more measures

with Organ egg

powderTM

Food prepared Fail on one or more measures

with Silken

TofuTM

Food prepared Fail on one or more measures

with flax seed

meal

Food prepared Fail on one or more measures

with

applesauce as

egg substitute

Food prepared Fail on one or more measures

with vinegar

and baking

soda as egg

substitute

Food prepared Pass Pass Pass Pass Pass Pass Pass Pass with additional

compositions

disclosed

herein

Food prepared Fail on one or more measures

with buttermilk

and yogurt as

egg substitute

[00144] Example 6B [00145] Commercial egg-replacers tested in cake against an egg

[00146] As seen in the following table and Figure 1 through Figure 6, commercially available products achieved ratings similar to the blank (no egg, just water) in most quality parameters.

Ingredients (g)	Egg	Water	EnerG	PenTech	Scotsman Mill
Egg	208				
Water		131.92	73	71.52	78
EnerG			15.2		
Pan Tech				12	
Scotsman Mill					26
All purpose Flour	225	225	112.5	112.5	112.5
Cake flour	225	225	112.5	112.5	112.5
oil	200	200	100	100	100
baking powder	15	15	7.5	7.5	7.5
Salt	5	5	2.5	2.5	2.5
Sugar	225	225	112.5	112.5	112.5
milk	282.5	282.5	141.25	141.25	141.25
Total	1385.5	1309.42	676.95	672.27	692.75
% Water	0.316	0.316	0.316	0.316	0.316

[00147] Example 7

[00148] Replacing eggs in mayonnaise

[00149] Eggs in standard full-fat mayonnaises (e.g a 78% full- fat mayonnaise) can be replaced by a blend of 50%> pea protein isolate and 50%> modified starch. The pea protein contains 80%> protein, a maximum of 10%> carbohydrate, a maximum of 3% fat, and maximum of 1%) fiber. The modified starch is a cold-water soluble modified starch derived from waxy maize. See Figure 12.

[00150] Example 8

[00151] Replacing eggs in mayonnaise

[00152] Eggs in standard full-fat mayonnaises (e.g a 78% full- fat mayonnaise) can be replaced by a blend of 59% pea protein isolate and 41%> modified starch. The pea protein contains 80%> protein, a maximum of 10%> carbohydrate, a maximum of 3% fat, and maximum of 1%) fiber. The modified starch is a cold-water soluble modified starch derived from waxy maize. See Figure 12.

[00153] Example 9

[00154] Food products equivalent to full- fat mayonnaise [00155] Compositions of the inventions are useful for the production of food products that are substantially identical to food products produced with real eggs. For example the

compositions disclosed in Example 7 and 8 produce a product which is substantially similar to standard 78% full- fat mayonnaises. This will result in a product containing no egg or egg byproducts that when rated by a human is substantially the same as a standard full- fat mayonnaise.

[00156] In this example, pre-hydrating the protein (incubating the flour with water for 24 hours) gives a much thicker and stronger emulsion.

[00157] Example 10

[00158] Extraction of pea protein from an off-the-shelf pea protein product results in better results compared to use of the off-the-shelf pea protein product.

[00159] Example 11

[00160] A few dozen iterations of making mayonnaise with pea protein and starch (as above) in combination with a wide range of commercial gums and starches resulted in different product structures. Emulsion stability was highest using the pea protein/starch combination of Example 7 and Example 8.

[00161] These gums and starches include: guar gum, xanthan gum,

carboxymethylcelluloses and other maize starches in varying concentrations.

[00162] Example 12

[00163] Addition of gums and cellulose makes the structure of the egg substitute more creamy and smooth, but the stability of the emulsion may be less than without.

[00164] A typical formulation for a creamy egg substitute for an emulsion is:

46% pea protein isolate

46%) modified starch

4%) mix of guar gum and xanthan gum

4%) carboxymethylcellulose

[00165] Example 13

[00166] Replacing eggs in bakery products: cookies

[00167] An egg-replacer for cookies is:

74%) cold milled sorghum flour

17%) baking soda 8.3% micronized corn bran

0.6 % xanthan gum

[00168] A second egg-re lacer formulation in a range of cookies (chocolate chip, oatmeal raisin, peanut butter and snickerdoodle):

86% garbanzo(chickpea) flour

10%) micronized corn bran

3.2%) baking powder

0.8%) xanthan gum

[00169] Example 14

[00170] Cold milling methodology

[00171] Seeds milled in the presence of liquid nitrogen preserve protein conformation allowing them to remain more functional in the application. A typical formulation is cold milling of seeds to form flour that is used as a replacement for flour from seeds milled at ambient or elevated temperatures in any of the above uses or recipes.

[00172] Example 15

[00173] Replacing eggs in bakery products: cakes and muffins

[00174] Both cold- and ambient-milled extracts from the following seeds are tested for leavening, cohesiveness and springiness in muffins: Sorghum, White sorghum, Soy bean, Millet, Vallarta, Stueben, Green fagelot, Black beluga, Black calypso, Chana daL Amaranth, Lentil, Red lentiL Black lentiL Golden lentil, Do pung-style lentil, Sprouted green lentil, Sweet brown rice, Navy bean, Red bean, Pink bean, Canellini bean, Giant white lima bean, Christmas lime bean, Baby lima bean, Mung bean, Peeled fava bean, Good mother stellard bean, Cranberry chorlottis bean,Santa maria pinguinto bean, Brown tepary bean, Black turtle bean, Yellow split pea, Black turtle beans, Brown teff flour, Rye flour, Quinoa flour, Potato flour, White rice flour, Brown rice flour, Oat flour, Buckwheat flour, Whole grain corn flour, Stone ground cornmeal, Pre-cooked split pea, Pre-cooked garbanzo flour, Arrowroot powder, and Potato starch.

[00175] Example 16

[00176] Muffins

[00177] Following a standard recipe for muffins, 11 different types of muffins were made. Each batter was made at half recipe. The equivalent of a whole egg was mixed for each substitute, but only half the formulation was used in the recipe consistent with the half recipe batter volume.

	Change in Recipe	Result
1	Water control- (15 grams of water)	Bland/bready
2	Egg control- (1/2 an egg mixed)	airier, sweeter, more flavor
3	Garbanzo flour and Fava Bean Protein	crumbly
4	Pea Protein and Fava Bean Protein	good mouthfeel
5	Precooked Split Red Lentil Powder and Fava Bean Protein	Mostly sweet
6	Precooked Split Yellow Pea Powder and Fava Bean Protein	Egg taste
7	Pea Protein (no fava bean protein)	good mouthfeel
8	Precooked Split Red Lentil Powder (no fava bean protein)	Rich flavor
9	Precooked Split Yellow Pea Powder (no fava bean protein)	Sweet
10	Precooked Split Red Lentil Powder (no fava bean protein) with 0.1 gram of egg powder flavor	Egg flavoring not noticeable
11	Garbanzo flour and Fava Bean Protein with 0.1 gram of egg powder flavor	Egg flavoring not noticeable

[00178] Example 17

[00179] Muffins

[00180] Following a standard recipe for muffins, 6 different types of muffins were made. Each batter was made at half recipe. The equivalent of a whole egg was mixed for each substitute, but only half the formulation was used in the recipe consistent with the half recipe batter volume.

Ingredient (grams)	Egg	Water	1	2	3	4
Egg	25	0	0	0	0	0
Water	0	12.5	12.5	12.5	12.5	12.5
Example 3	0	0	1.5	3	5.5	9

Flour 125 125 125 125 125 125

Sugar 98.5 98.5 98.5 98.5 98.5 98.5

Salt 1.5 1.5 1.5 1.5 1.5 1.5

Baking 6 6 6 6 6 6 Powder

Milk 150 150 150 150 150 150

Vegetable Oil 49 49 49 49 49 49

[00181] Results are shown in Figure 7 through Figure 10.

[00182] Example 18

Cryo-milled and ambient-milled extracts from the same type of grain or legume are showing different functional effects when used in baking standard recipe muffins. These functional effects comprise important parameters in baked goods such as cohesiveness, springiness, leavening, airiness.

[00183] Example 19

[00184] Extraction methodology

[00185] Flours are incubated with water to extract the soluble fraction, which is separated from the pellet by centrifugation after which the supernatant is used in the application.

[00186] Example 20

[00187] Pre-hydrating the protein

[00188] Incubating flour with water gave a thicker and stronger emulsion when the composition is used in food preparation. Egg-rep lacer was incubated with water for 1, 3 or 5 hours before using it to prepare an egg-less mayonnaise. The resulting mayonnaise was tested in a Bostwick consistometer. The thickness of the mayonnaise as reflected in a smaller distance travelled increased with hydration time. Results are shown in Figure 11.

[00189] Example 20

[00190] Fractionating protein

[00191] Fractionating protein and adding the light fraction of flours to baked goods results in a better texture compared to adding the corresponding whole flours. Especially the

cohesiveness of the baked goods is stronger when prepared with the light fraction. The light fraction can be obtained by methods like centrifuging or air classification. [00192] Example 21

[00193] Mayonnaise

[00194] Mayonnaises made with eggs or with a pea protein- starch composition were made and compared at room temperature with a commercial egg-mayonnaise after dilution with 20 vol% water in a Bostwick consistometer. Fresh-made egg mayonnaise and commercial egg mayonnaise have similar consistencies, which is a validation of the mayonnaise production process. The eggless mayonnaise had a thicker consistency than both the commercial and fresh-made egg mayonnaise. See Figure 13.

[00195] Example 22

[00196] Egg-less mayonnaise

[00197] Particle size distribution of a control egg-mayonnaise (Con/dark line) and an eggless mayonnaise (Test/light line) made with pea protein and starch. Both mayonnaises were tested in a Malvern Mastersizer 3000 light- scattering device. The oil droplet size distribution of the eggless mayonnaise is similar to that of the control mayonnaise, demonstrating that using the egg-rep lacer resulted in a mayonnaise with the same oil droplet distribution as a control egg- mayonnaise. See Figure 14.

[00198] Example 23

[00199] Muffins

[00200] Muffins were prepared to test height, cohesiveness, and springiness.

[00201] For cryo-milling, beans/grains were placed in liquid nitrogen until thermal equilibrium was reached. Cryogenized beans/grains were milled in a heavy duty blender until the flour temperature reached a temperature of 20°C.

[00202] For ambient milling, beans/grains were processed in a heavy duty blender until the flour temperature reached a temperature 90°C after which they were kept at that temperature for 5 min.

[00203] Flours were collected from the blender and were tested in a standard recipe muffin. Cohesiveness and springiness were measured using a Brookfield Texture Analyzer. Height of the muffin was measured using a digital caliper. WL represents giant white lima beans. GM represents good mother stallard beans. BL represents black lentils. OB represents baby lima beans. See Figure 15 through Figure 17. [00204] While particular embodiments of the present invention have been shown and described herein, it will be obvious to those skilled in the art that such embodiments are provided by way of example only. Numerous variations, changes, and substitutions will now occur to those skilled in the art without departing from the invention. It should be understood that various alternatives to the embodiments of the invention described herein may be employed in practicing the invention. It is intended that the following claims define the scope of the invention and that methods and structures within the scope of these claims and their equivalents be covered thereby.

PATENT CITATIONS

Cited Patent	Filing date	Publication date	Applicant	Title
WO1986005362A2 *	Mar 13, 1986	Sep 25, 1986	Bio Isolates Ltd	Egg substitutes
US4120986 *	Jun 28, 1977	Oct 17, 1978	Stauffer Chemical Company	Whole egg replacer
US4777045 *	Jul 26, 1985	Oct 11, 1988	Nabisco Brands, Inc.	High bran snack
US6878394 *	Dec 17, 2003	Apr 12, 2005	Conopco, Inc.	Egg replacer concentrate and liquid egg replacer
US20080181990 *	Jan 24, 2008	Jul 31, 2008	Ledbetter Kati R	Compositions comprising wheat protein isolate and related methods
US20090041901 *	Aug 7, 2008	Feb 12, 2009	Archer-Daniels-Midland Company	Egg replacement and emulsifier system and related methods
US20110008522 *	Sep 9, 2010	Jan 13, 2011	The Nisshin Oillio Group, Ltd.	Full-Fat Soybean Flour-Containing Composition, and Egg Substitute Composition

* Cited by examiner

CLASSIFICATIONS

International Classification	A23L1/20, A23L1/10
Cooperative Classification	A23L1/24, A23L1/1016, A23L1/053, A23L1/035, A23L1/0522, A23L1/0526, A23L1/0534, A23L1/0541, A23L1/2005, A23L1/3216, A21D2/186, A21D2/183, A21D10/002, A21D2/165, A21D2/266

LEGAL EVENTS

Date	Code	Event	Description
Jun 26, 2013	121		**Country of ref document:** EP **Kind code of ref document:** A1 **Ref document number:** 12845681

Lutton, Sara - AMS

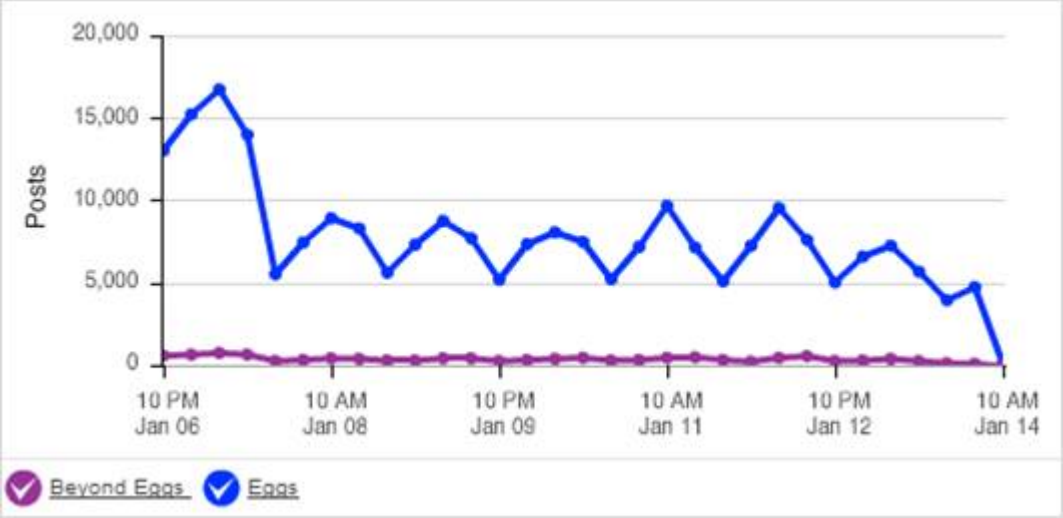
From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Tuesday, January 14, 2014 11:39 AM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena
Subject: Beyond Eggs Coverage Update 1.14

Hi all,

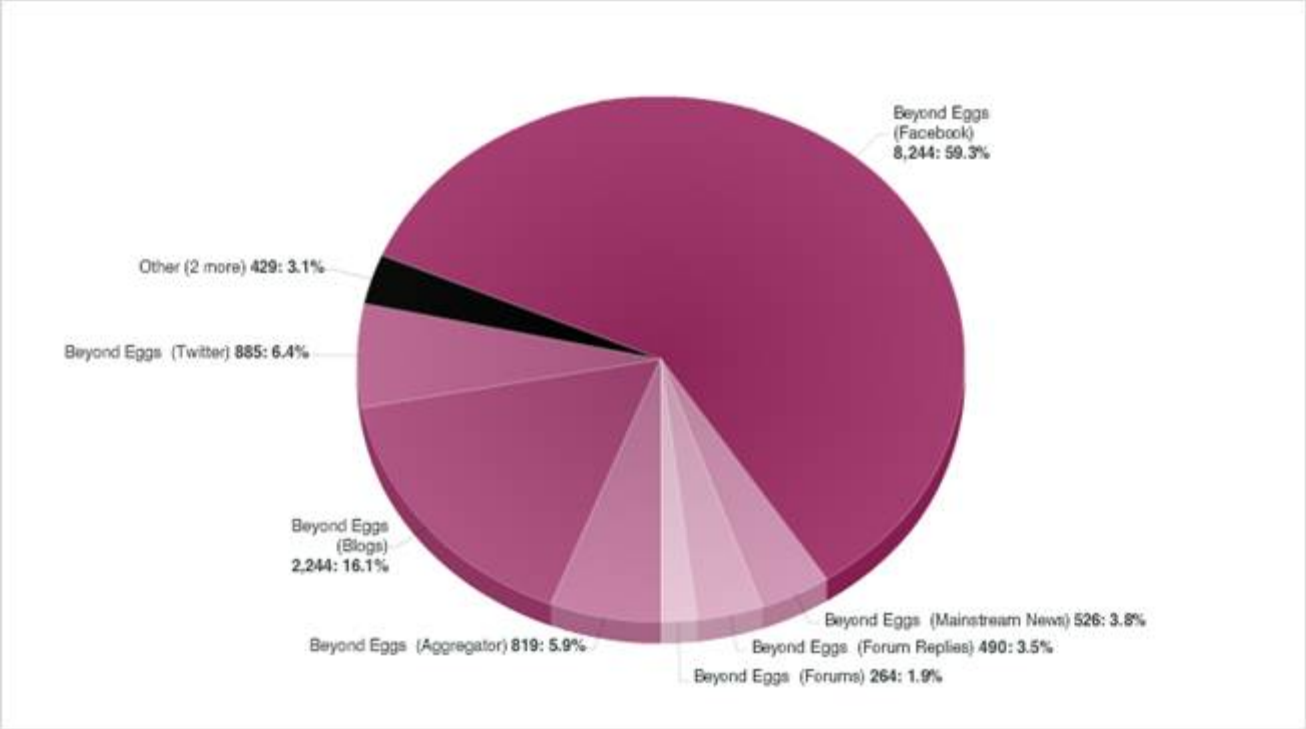
There isn't any new Beyond Eggs coverage to report since our last update yesterday afternoon. We also want to flag that total Beyond Eggs coverage volume from mainstream and social media has decreased by 43 percent since last week.

Please find a few graphs displaying comprehensive coverage from the last week below. As you can see, general eggs coverage remains strong, garnering 94 percent more coverage than Beyond Eggs in mainstream media and social. Please note, the majority of Beyond Eggs coverage to date is stemming from social media as a result of people mentioning that they'd be interested in trying Hampton Creek products. Please see graphs below for more detail.

(1/7 – 1/14) - Beyond Egg vs. Egg Coverage Volume
(*Please note, this includes mainstream media coverage and social media conversation totals)*



Beyond Eggs Coverage Segmentation by Media Type:



We will continue to keep an eye on coverage – both online and on social media, and will plan to provide another update in the morning tomorrow. Please don't hesitate to reach out with any questions in the meantime.

Best,
Jenny

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From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Wednesday, January 15, 2014 10:55 AM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena
Subject: Beyond Eggs Coverage Update 1.15

Hi all,

There is no new coverage to report since yesterday's update on Beyond Eggs. We have, however, started to see syndication of the December Scientific American article about Hampton Creek, stating that the start-up is aiming to replace eggs with more sustainable vegetable proteins. The personal blog, Many Years Young (1,000 UVM), republished the story in full today. We will continue to watch out for additional syndication and will provide another update on coverage tomorrow morning. Please let us know if you have any questions in the meantime.

Best,
Jenny

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From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Thursday, January 16, 2014 3:18 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena
Subject: Beyond Eggs Coverage Update 1.16

Hi all,

Beyond Eggs coverage has remained minimal since our last update yesterday morning, with new coverage hitting on a local Colorado television station and the online paper, Colorado News Leader. Both the broadcast and article give a preview of Beyond Eggs and the tests that have been done to compare the product to the taste and texture of real eggs, with the broadcast segment including a live interview from Josh Tetrick.

As promised, we listened in on the The FoodNavigator-USA Business Leaders Round Table Debate yesterday and wanted to provide a brief recap of Josh Tetrick's contribution. Josh started the session by identifying what he felt to be the drivers for Hampton Creek's product production, including the large quantity of eggs that are produced daily in places that he feels American consumers wouldn't be proud of, creating a clear necessity for the Hampton Creek products. To create awareness of the necessity of their product, Hampton Creek focuses on telling their story as often as possible using the following three strategies:

- Look for every opportunity possible to tell the radical open story of Hampton Creek Foods' mission
- Leverage social media and tap social experts, including members of President Obama's re-election team, to reach the right audience
- Create brand ambassadors by getting product into stores and developing relationships with team members to advocate on behalf of the brand

Josh shared that the support of Whole Foods has been instrumental to the success of all Hampton Creek products, and he noted they will have two larger, unnamed players joining in support of the products this April. To date, Josh shared that they have put $20K into getting the Just Mayo product on shelves nationwide. He didn't give a lot of detail about the development of the Beyond Eggs product, but did mention that they still have some obstacles to surpass to nail down the texture and taste for scrambled eggs.

We will continue to keep a close eye on Hampton Creek foods and additional conversation surrounding the yesterday's Round Table Debate and will provide another coverage update tomorrow. Please let us know if you have any questions in the meantime.

Best,
Jenny

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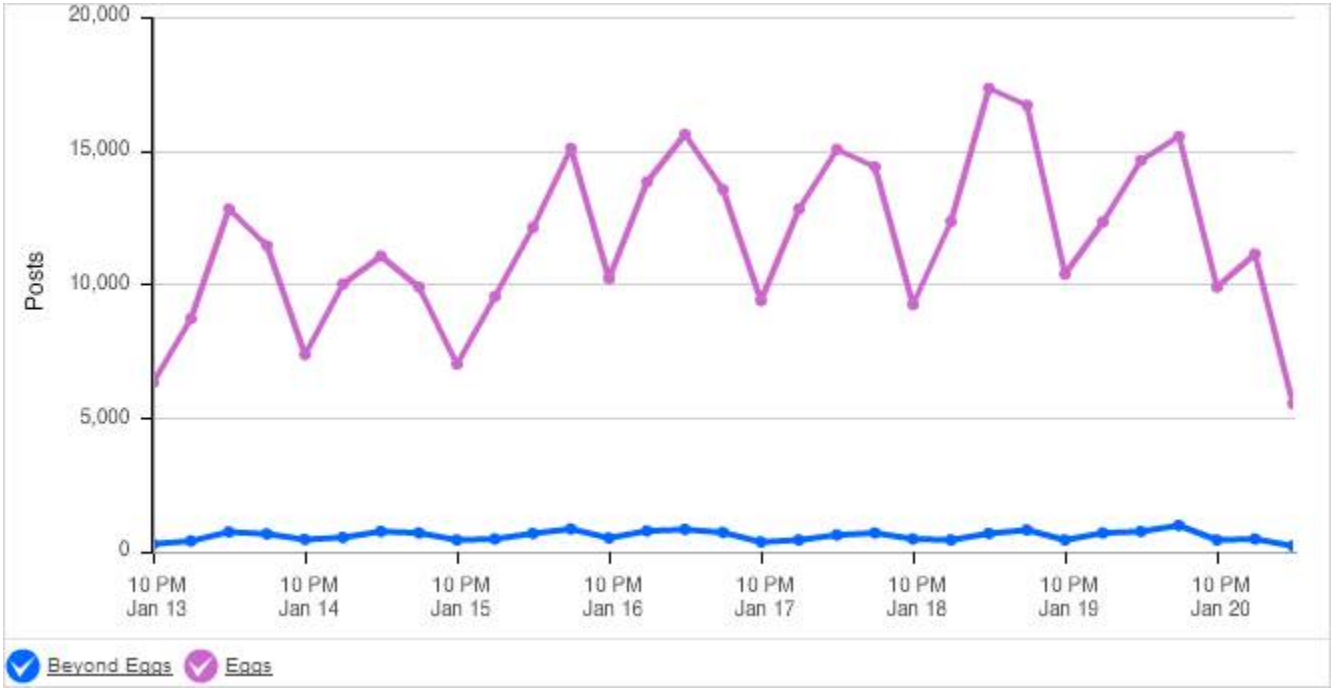
Lutton, Sara - AMS

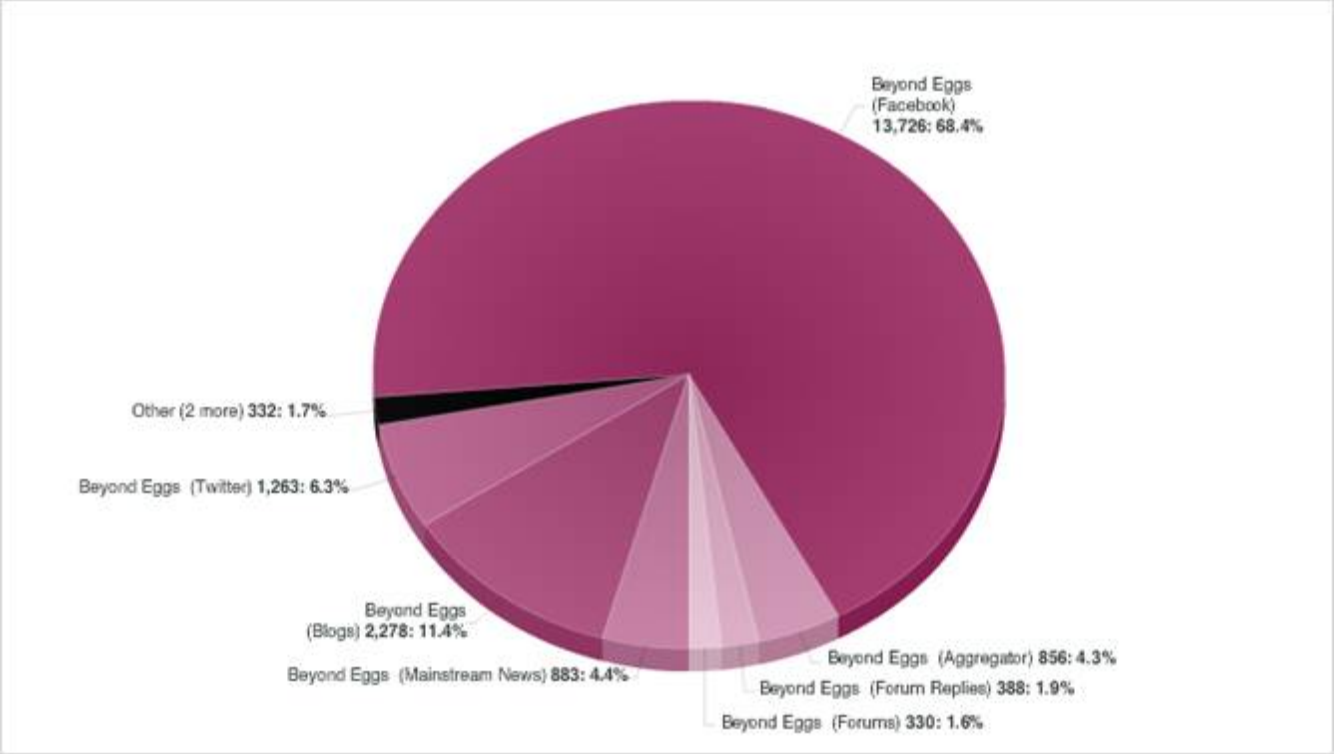
From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Tuesday, January 21, 2014 2:33 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena
Subject: Beyond Eggs Coverage Update 1.21

Hi all,

There is no new Beyond Eggs coverage to share since our last update on Friday afternoon. Please find a few graphs displaying comprehensive coverage from the last week below. As you can see, general eggs coverage continues to remain strong, garnering 94 percent more coverage than Beyond Eggs in mainstream media and social. Please note, the majority of Beyond Eggs coverage to date is stemming from social media as a result of people mentioning that they'd be interested in trying Hampton Creek products. Please see graphs below for more detail. We will continue to monitor and send another update tomorrow.

(1/14 – 1/21) - Beyond Egg vs. Egg Coverage Volume
(*Please note, this includes mainstream media coverage and social media conversation totals)*





Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Thursday, December 12, 2013 9:32 AM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: Beyond Eggs Coverage Update 12.12 - AM

Hi all -

There has been one new Beyond Eggs article since our last report yesterday evening, in the food newsletter, Food Dive. Hampton Creek Foods is listed as one of the food startup companies that could shake things up in 2014. All Hampton Creek Foods products are mentioned in this article briefly, and sentiment is very neutral. We will send another report later this afternoon.

Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Thursday, December 12, 2013 6:11 PM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: Beyond Eggs Coverage Update 12.12 - PM

Hi all,

Since our last update on Beyond Eggs coverage this morning, we have seen one new article from Food Navigator, naming Josh Tetrick and Hampton Creek Foods as a food industry innovator to watch in the New Year. Josh will be serving on the inaugural live FoodNavigator-USA Business Leaders Round Table Debate on January 15, 2014 along with other CEOs of innovative food and beverage companies to discuss and answer questions about new food trends. The event will be free to attend and listen in to. Listeners will also be able to submit questions to our speakers while the debate is in progress and during the Q&A session at the end.

Our team will plan to register and listen in to the debate and report back. We are viewing this as a great opportunity to get more insight into the company and Josh personally. Please let us know if you have any questions.

Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Friday, December 13, 2013 5:55 PM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: Beyond Eggs Coverage Update 12.13 - PM

Hi all,

We have seen some new stories since our update on Beyond Eggs coverage this morning. Interestingly, *People* magazine published TV personality and chef Andrew Zimmern's 2013 top food trends, and number three on the list are foods topped with real fried eggs. Beyond Eggs also made the list at number 10, with a short, neutral blurb on the Beyond Egg product. Please see below for a recap of coverage.

Media Coverage:

- People Magazine - It's a Wrap: Andrew Zimmern's Top 10 Food Trends of 2013
- Examiner - Hampton Creek: San Francisco startup brings plant-based protein to your plate
- Chicago Now - 8 Classic Holiday Recipes With Guide To Vegan Substitutions
- Bangstyle - Future Food: The Plant-based Egg Substitute

We will pick up with coverage reports again Monday morning. Please don't hesitate to reach out with questions, and have a good weekend.

Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Monday, December 16, 2013 10:24 AM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate
Subject: Beyond Eggs Coverage Update 12.16 - AM

Hi all,

Since our last Beyond Eggs Coverage update on Friday evening, the volume of new coverage has remained small. Two small tech-focused outlets syndicated the AP story from a week ago, while two other outlets have come to the defense of real eggs, advising readers to stay away from the fake egg product. Crystal Kids Radio heavily criticizes Beyond Eggs, calling the product a "synthetic nightmare," encouraging readers to go to their doctors for advice on the nutritional value of the product. The Farmer's Daughter blogger questions why anyone would eat fake eggs or chicken when they could have the real thing, reinforcing the hard work that America's farmers out into what they do.

Media Coverage

- Sci-Tech Today - Food-Tech Startups Aim to Replace Eggs and Chicken
- Newsfactor Business Report - Food-Tech Startups Aim to Replace Eggs and Chicken
- Crystal Kids Radio - Bill Gates GMO Zombie Eggs
- The Farmer's Daughter - A World Without Real Eggs & Chickens?

We will continue to monitor for coverage throughout the day and will send another report this evening. Please don't hesitate to reach out with questions in the meantime.

Best,
Jenny

Lutton, Sara - AMS

From: Jensen, Elizabeth (Schreiber) <elizabeth.jensen@edelman.com>
Sent: Wednesday, December 18, 2013 7:36 PM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Cummins, Sally; Byers, Kate; Englert, Jenny
Subject: Beyond Eggs Coverage Update 12.18 - PM

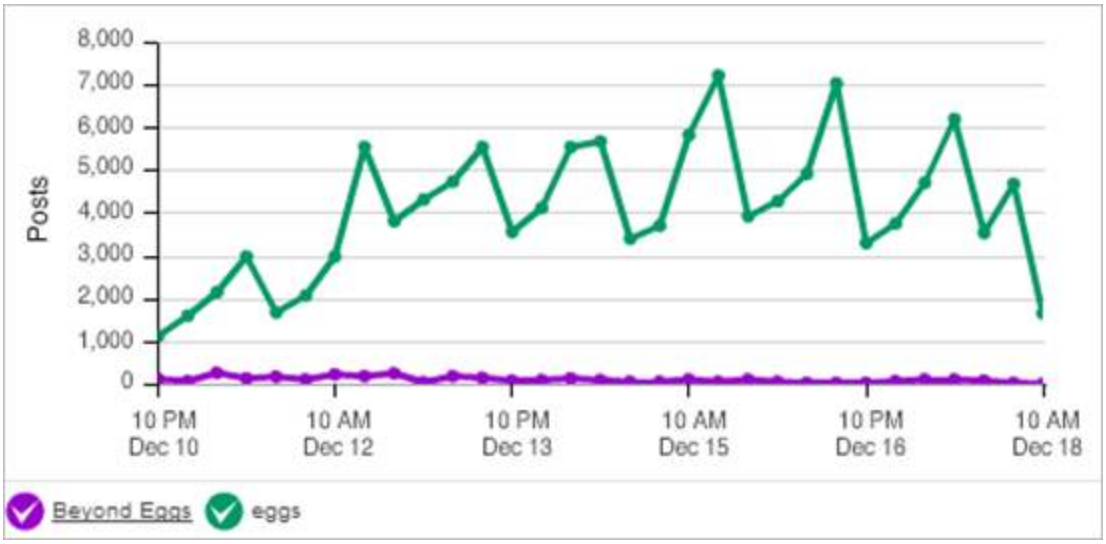
Hi all –

Overall coverage volume has remained minimal since our this morning's report on Beyond Eggs. However, we want to flag that the anticipated BuzzFeed story that we provided a statement for this morning is now online, claiming that "the egg industry is declaring a war on eggless eggs." According to the story, Tetrick himself took screen shots of AEB's search ads and sent them to the reporter who then did some research on AEB's position. She also referenced an article from several years ago that gives nod to the fact that paid search has been a part of AEB's strategy for two years. Thus far, the article has three comments and 76 social media shares, with the majority coming from Twitter (72 Twitter, 2 LinkedIn). Eight reporters have shared the link including reporters from The Verge, Business Insider, Politico while the rest were other Buzzfeed reporters. We do not recommend any action/response at this time but we will continue to keep a close eye on the activity and will keep you posted. Of course, we are happy to hop on the phone to connect as well.

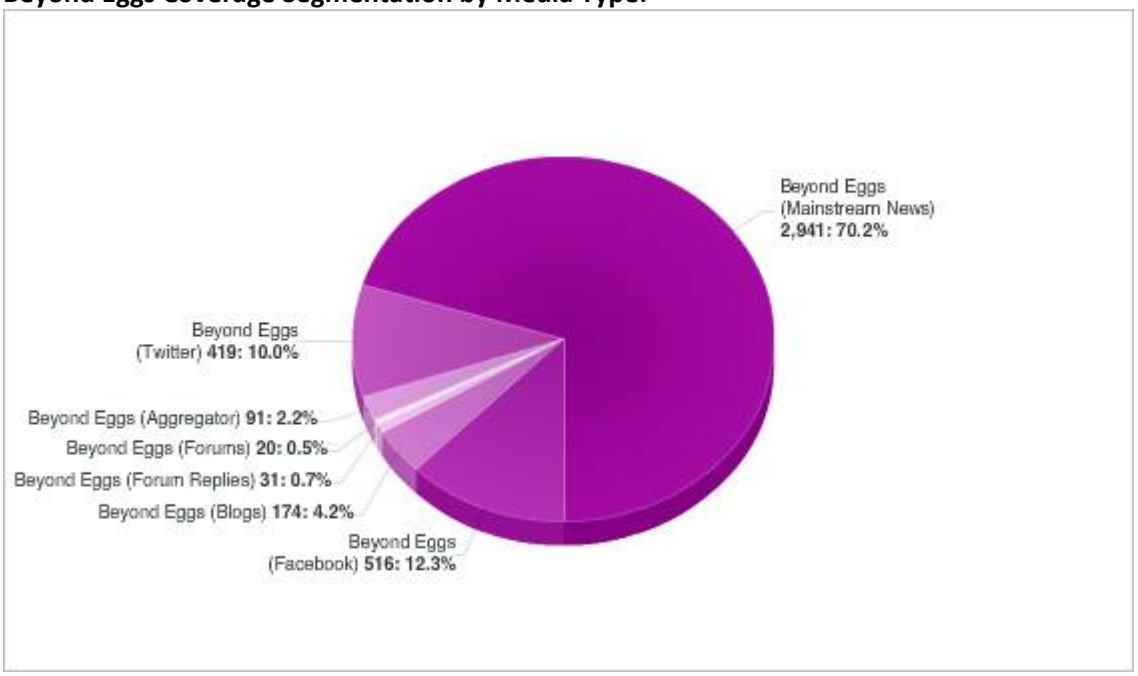
As the discussion continues to evolve, we feel it would be a good idea for Jacinta to reach out to the state folks to arm them with AEB's key messages on the topic and gauge if they are getting questions from media on the local level regarding Beyond Eggs. We should also work with the states to ensure the content on their social properties is appropriate and measured regarding the topic. We are happy to help coordinate with Jacinta.

Since this morning's update, the only other coverage we've seen was on the small blog, Next Nature, briefly covering Beyond Eggs, introducing Hampton Creek and its mission to readers. Similar to last week, we also wanted to include a brief retrospective of coverage volume from mainstream and social media for the past week, and have shared below a few graphs to give you a better idea of coverage to date and segmentation of coverage by media type. As you can see, general coverage of eggs remains strong and continues to position shell eggs at the forefront of overall conversations in comparison to Beyond Eggs. Please note, the majority of coverage continues to stem from mainstream news due to syndication and inclusion in end of year/beginning of year round-up stories. Please see the graphs below for more detail.

(12/11 – 12/18) - Beyond Egg vs. Egg Coverage Volume
(*Please note, this includes mainstream media coverage and social media conversation totals)*



Beyond Eggs Coverage Segmentation by Media Type:



We will continue to keep an eye on coverage – both online and on social media, and will plan to provide another update in the morning tomorrow. Please don't hesitate to reach out with any questions.

Best,
Elizabeth

Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Monday, December 23, 2013 9:40 AM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie
Subject: Beyond Eggs Coverage Update 12.23

Hi all,

Overall coverage volume has remained minimal since our last update on Beyond Eggs Friday evening. We have, however seen two top-tier media placements hit online over the weekend. Andrew Zimmern, the host of the Travel Channel's "Bizzare Foods," posted a feature about Hampton Creek Foods on his personal website, acknowledging Beyond Eggs as the product of the future and stating that the company's goal is to inevitably replace real eggs. Due to his visibility on TV, Zimmern has a large following, both online and off. To date, he has chimed in with his opinion on Beyond Eggs in print and on social media. Our team will be working to develop a response and plan for next steps to respond to Zimmern today and will send something over later this afternoon.

HLN, a national television headline news network, and spin-off of CNN, published a new round-up story about Beyond Eggs, calling it a food revolution that could save millions of animals and the planet. The story also says that Beyond Eggs is also more nutritional than real eggs, with zero cholesterol. In addition, two small blogs wrote round-up stories about Hampton Creek Foods and the fake egg product. A story was also included in the monthly industry newsletter, Ag Web. Please see full coverage below.

Media Coverage:

- Andrew Zimmern – Hampton Creek Foods
- Fatted Goose - THESE FAKE EGGS WILL HAVE CHICKENS CHIRPING
- Male Alert - BILL GATES IS INVESTING IN "CHICKEN LESS EGGS"
- Ag Web - December 2013 Archive for Grazing the Net
- HLN – The eggs of the future!

Best,
Jenny

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Lutton, Sara - AMS

From: Torvik, Erika <Erika.Torvik@edelman.com>
Sent: Thursday, December 26, 2013 4:50 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Englert, Jenny
Subject: Beyond Eggs Coverage Update 12.26

Hi all,

Coverage volume has been minimal since our last update on Beyond Eggs and we have not seen additional chatter of the Bizarre Foods episode. CBS This Morning featured an interview with Josh Tetrick at Hampton Creek Foods' research and development facility, discussing the lengthy process to develop and test Just Mayo. Tetrick mentions he believes eggs are "inefficient" because 70 percent of an egg's cost comes from the quantity of feed it takes to sustain a hen. The segment was picked up on a few other sites, including Health Medicine Network, Daily Motion, Meta Cafe and Yahoo! Movies.

In addition to the CBS segment, the The Star Phoenix picked up the Associated Press story and Nation Swell ran a small blurb from the USA Today story. We will continue to monitor for coverage and provide an update tomorrow afternoon. In the meantime, please let us know if you have any questions.

Best,
Erika

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Monday, December 30, 2013 5:34 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena
Subject: Beyond Eggs Coverage Update 12.30

Hi all,

Coverage volume has remained minimal since our last update on Friday, December 27, with only two new stories hitting online. The animal-rights organization, Compassion Over Killing, briefly mentioned Beyond Eggs and Beyond Meat in a blog post highlighting their top posts of 2013. The blog has a small audience of 15K+ unique monthly visitors. The *San Francisco Business Times* (10K UVM) also published a new story, providing an overview of Beyond Eggs and Hampton Creek's business mission.

Last week's Bizarre Foods episode featuring Beyond Eggs will be re-aired on the Travel Channel tonight at 8pm EST, which may spark some additional conversation on social media. We will continue to keep a close eye on conversations and Hampton Creek's social media properties and will send another update tomorrow afternoon. Please note, there will not be a coverage update on Wednesday, January 1.

Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Tuesday, December 31, 2013 3:14 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Torvik, Erika; Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena
Subject: Beyond Eggs Coverage Update 12.31

Hi all,

Beyond Eggs coverage has remained minimal since our last update yesterday afternoon, with one new story from U-T San Diego (609K+ UVM). The article gives a general; overview of Hampton Creek Food's products but also includes a quote from Mitch Kanter saying, "Our customers have said they're not interested in egg substitutes. They want real, natural eggs with their familiar ingredients. The industry has reduced its water use and greenhouse gas emissions, and hens are living longer due to better health and nutrition."

We will pick up reporting on Thursday, January 2, but please let us know if you have any questions in the meantime. We hope you have a great New Year's Eve.

Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Thursday, December 05, 2013 6:15 PM
To: Joanne Ivy; Kevin Burkum; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Schaffner, Serena; Torvik, Erika; Jaffe, Brad; Liuzzi, Andrew; Singer, Jamie
Subject: Beyond Eggs Coverage Update 12.5 - PM

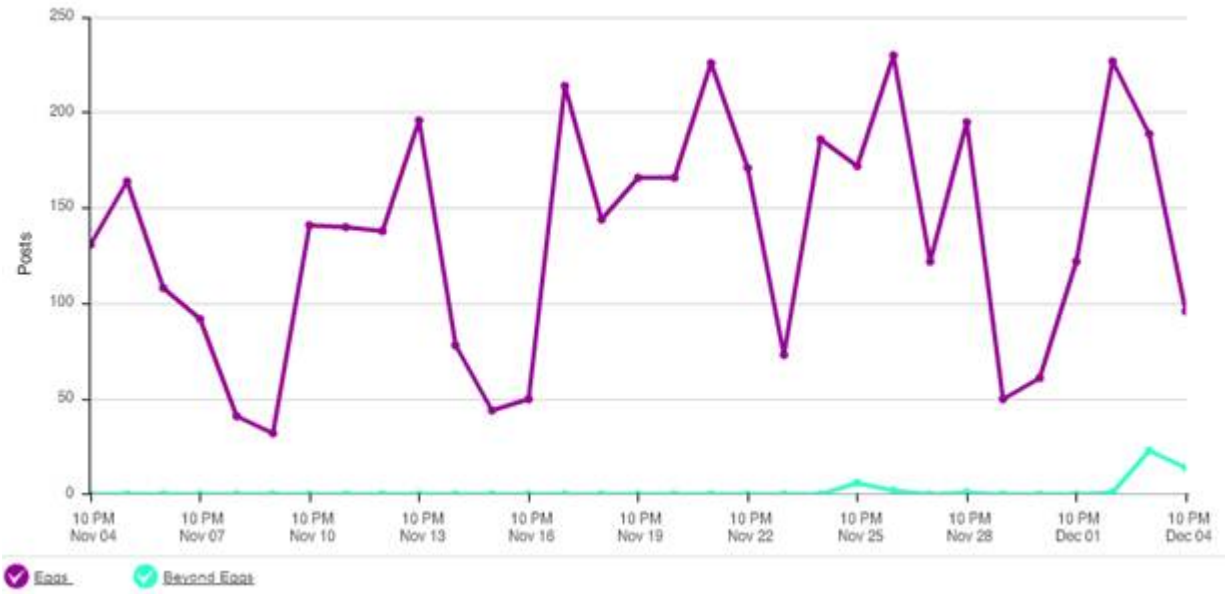
Hi all –

Since our last report this morning, we have continued to see a few syndicated articles from the original Slate and Mother Jones Beyond Eggs pieces. There has only been one new unique story on the topic that came from the small blog, Motherboard. This new post highlights how realistic the Beyond Eggs product appears to be, saying it is better than real eggs.

Media Coverage:

- New Coverage:
  - Motherboard – Silicon Valley's Fake Eggs Are Better Than the Real Thing
- Mother Jones syndication:
  - Medium – Can Silicon Valley Make Fake Meat and Eggs That Don't Suck?
  - Mary's Ramblin's – Vegans and Carnivores Unite
- Slate syndication:
  - The Chicago Tribune – The silicon egg
  - Muskogee Phoenix – Are fake eggs the future?
  - Journal Express - Are fake eggs the future?

Similar to this morning, we wanted to provide a brief graph showing the volume of coverage in the last 30 days, this time showing the comparison of general egg news versus coverage of Beyond Eggs. As you'll see below, egg coverage remains strong and is significantly greater in volume than any coverage Beyond Eggs is receiving. We will plan to send another coverage report tomorrow morning – please don't hesitate to reach out with questions in the meantime.



Best,
Jenny

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Lutton, Sara - AMS

From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Wednesday, February 12, 2014 3:29 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena; Burch, Kellie
Subject: Beyond Eggs Coverage Update 2.12
Attachments: Das Zauber-Ei.pdf

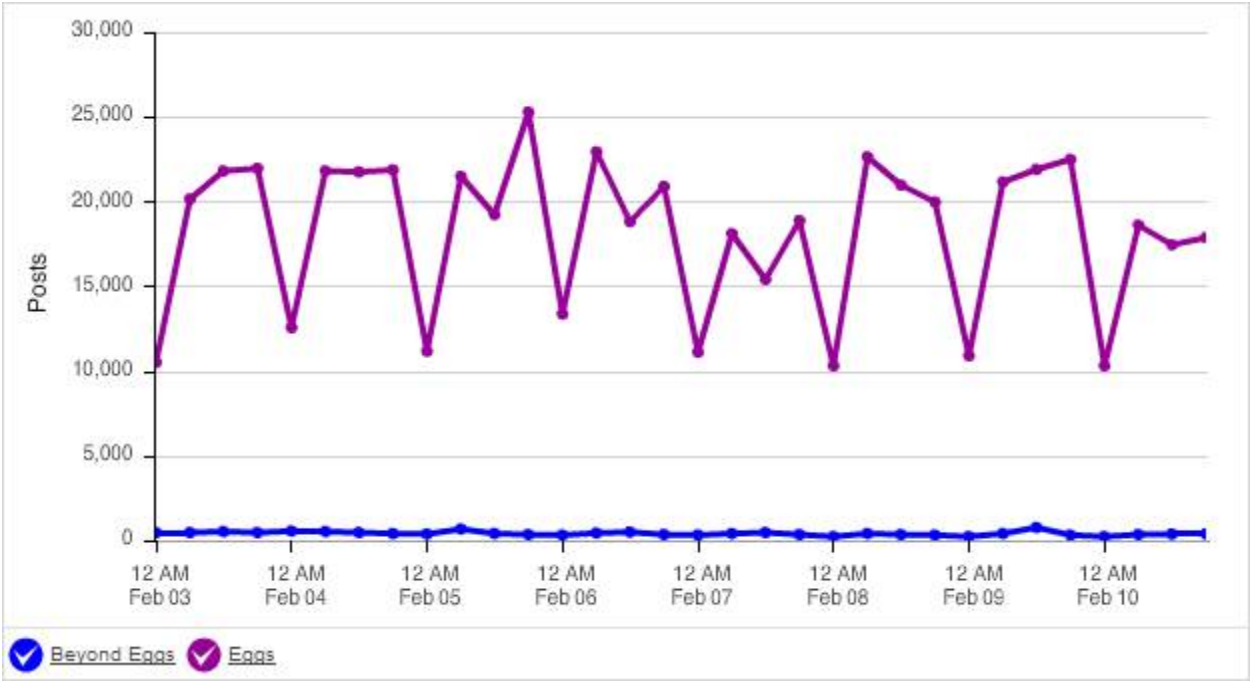
Hi all,

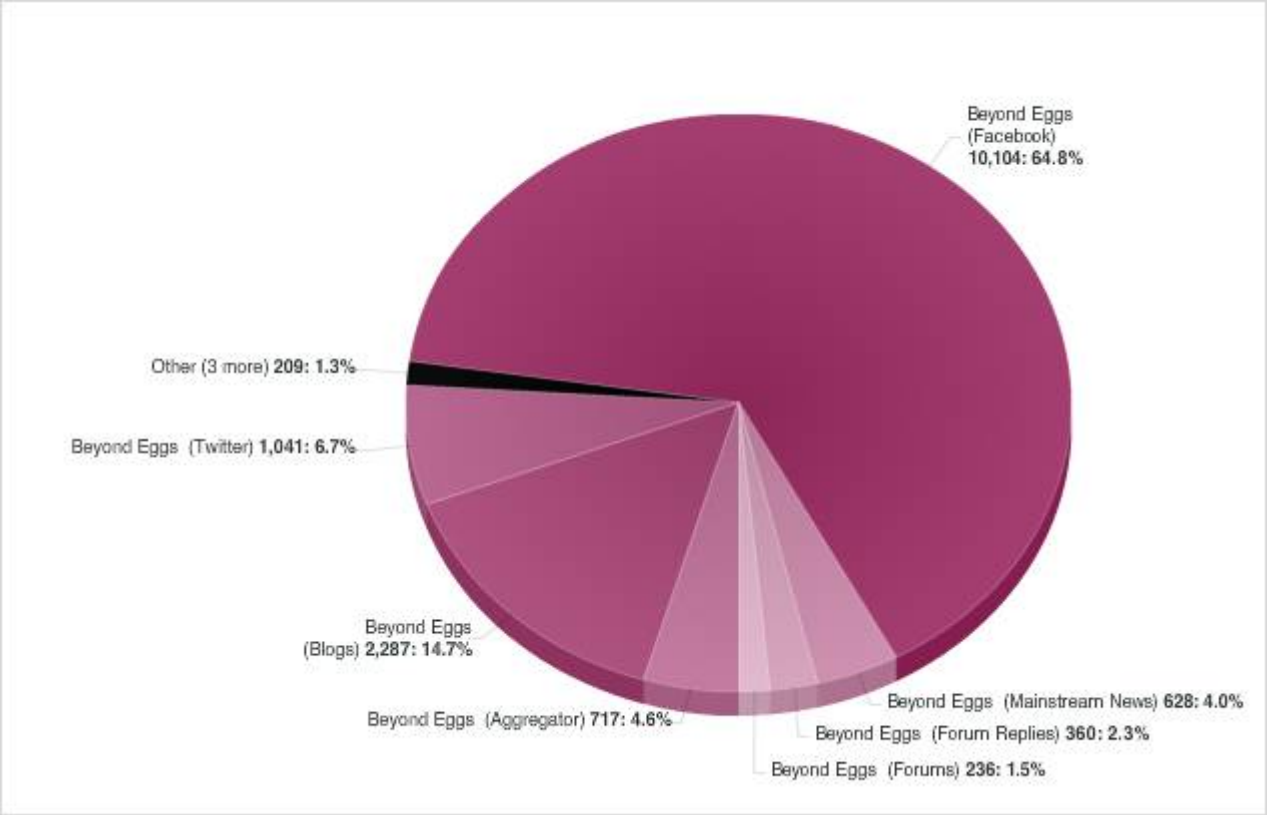
We've seen a slight uptick in Beyond Eggs coverage since our previous update last week due to Hampton Creek Foods being featured on the Katie Couric show for their creation of chicken-less eggs and vegan products that are also cholesterol-free. The green-living organization, One Green Planet, has provided a recap of the Katie Couric segment on their blog (152K+ UVM), stating that this is further proof of 2014 being the "Year of the Vegan."

We've also seen Hampton Creek and Beyond Eggs getting some international press, having been recently featured in the German newspaper, Sueddeutsche Zeitung (hard copy attached for reference). The article provides background information about the fake egg product, stating that it tastes almost as good as the real thing.

Lastly, as Mia shared, Hampton Creek was also featured in Fast Company, recognized for their investment and growth in the food technology space.

Below are graphs displaying comprehensive egg coverage from the last week. Despite the small uptick in conversation this week, general egg coverage continues to remain strong, both in mainstream and social media. The majority of Beyond Eggs coverage continues to stem from social media as a result of people sharing their testimonies of trying Hampton Creek's products or expressing that they'd be interested in the products once they are available. We will continue to monitor and send another update next Tuesday.





Best,
Jenny

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Lutton, Sara - AMS

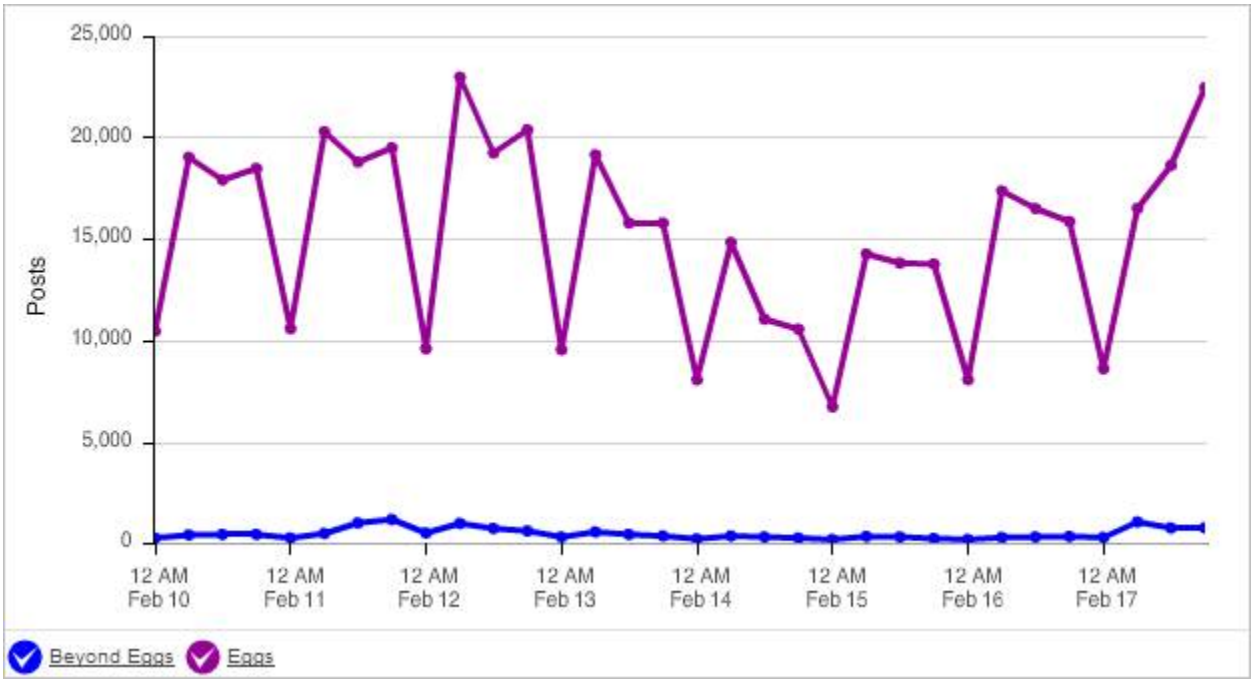
From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Wednesday, February 19, 2014 12:25 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena; Burch, Kellie
Subject: Beyond Eggs Coverage Update 2.19

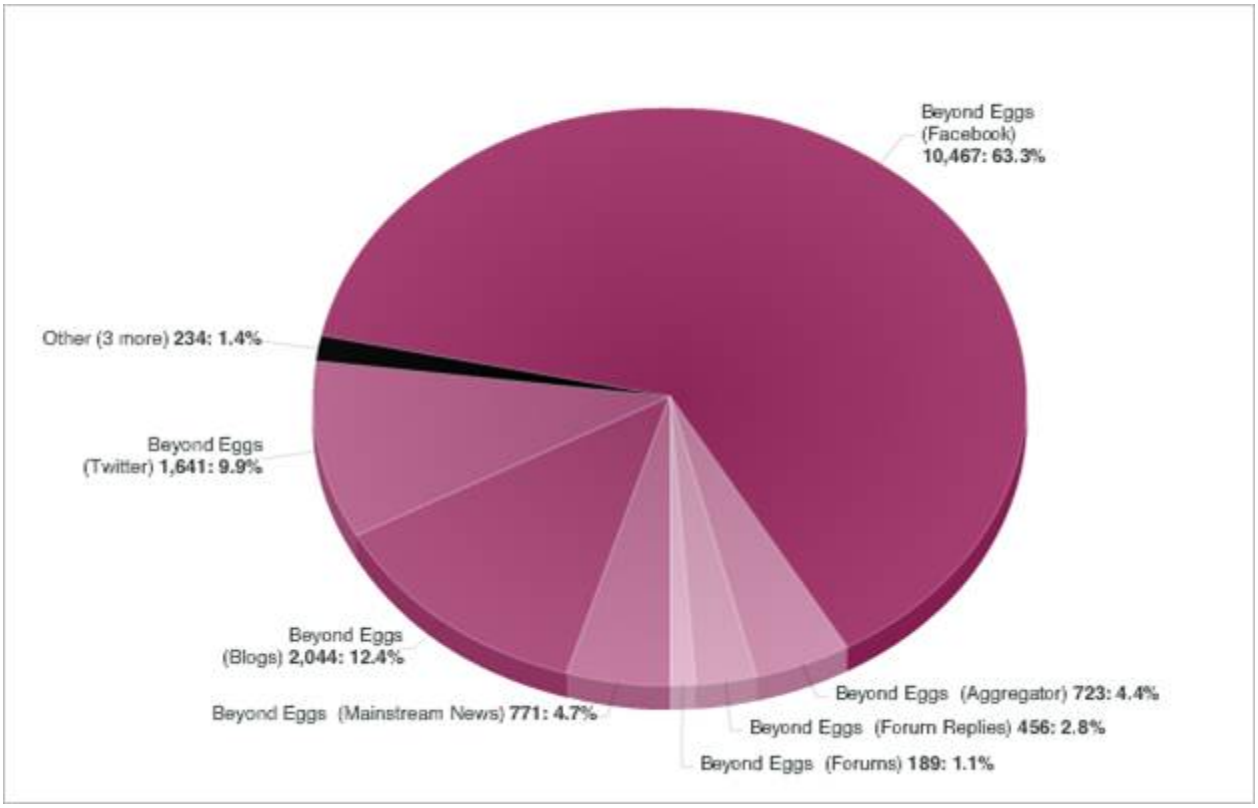
Hi all,

We've seen a slight uptick in Beyond Eggs coverage this week as a result of Hampton Creek's announcement of a $23 million round of funding led by Asia's richest man and Yahoo cofounder, Jerry Yang. Yang's private technology investment firm, Horizons Ventures, will contribute $15.5 million this financial round, bringing the food technology startup's total baking to just under $30 million. This financial story has garnered Hampton Creek placements in nearly every top-tier outlet covering financial and technology-related stories, including publications such as Forbes, Bloomberg Businessweek, Food World News, Tech Crunch and Business Insider. The story has also captured the attention of several top Asian outlets including South China Morning Post and The Hong Kong Standard.

Hampton Creek was also covered in a Guardian round up story about Silicon Valley hacking its way into the food industry this week. Tetrick explains in the article that Hampton Creek's goal is to replace all factory-farmed eggs in the U.S. market – more than 80 billion eggs, valued at $213.7 billion.

Below are graphs displaying comprehensive egg coverage from the last week. Despite the uptick in conversation surrounding Hampton Creek's financial announcement on Monday, general egg coverage continues to remain strong, both in mainstream and social media. The majority of Beyond Eggs coverage continues to stem from social media as a result of social sharing of the financial stories. We will continue to keep a close eye on additional coverage and will send another update next week.





Best,
Jenny

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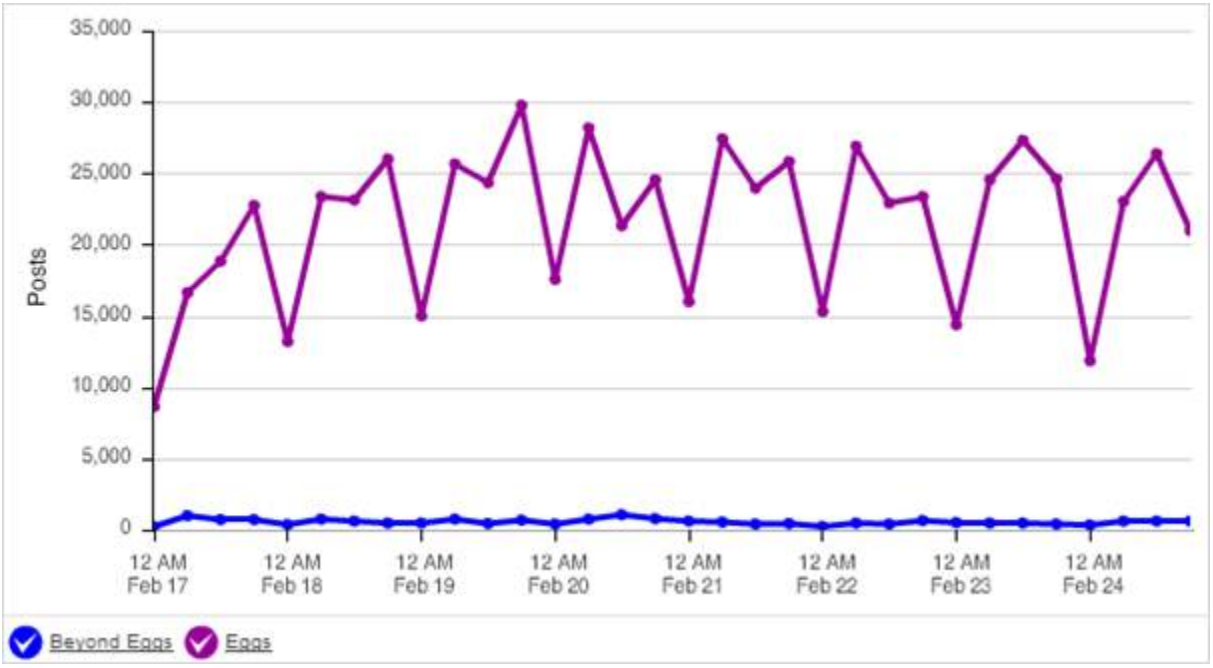
Lutton, Sara - AMS

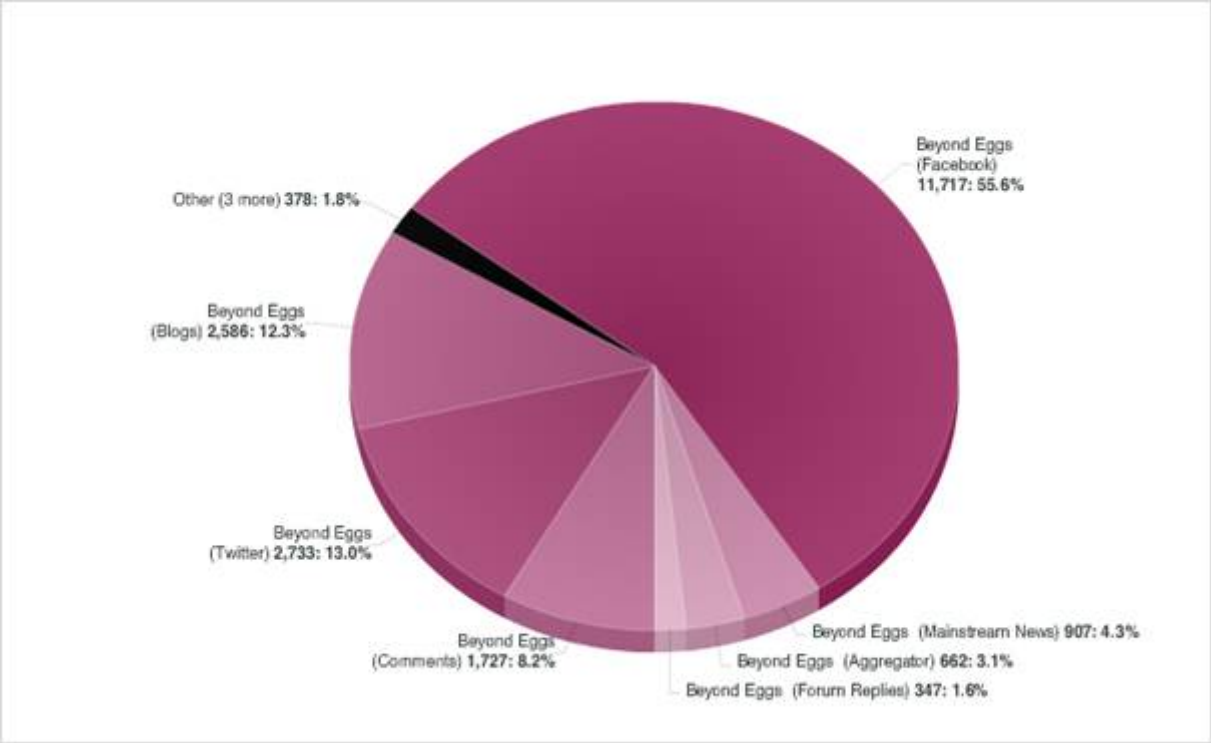
From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Wednesday, February 26, 2014 1:14 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena; Burch, Kellie
Subject: Beyond Eggs Coverage Update 2.26

Hi all,

Beyond Eggs coverage volume has tapered off since Hampton Creek announced they are receiving financial backing from Asia's richest man and Yahoo cofounder, Jerry Yang, last week. Despite seeing some residual coverage in outlets such as Jewish Business News, Food Navigator-USA and Upstart Business Journal, overall coverage volume has decreased by 36% since last week.

Below are graphs displaying comprehensive egg coverage from the last week. General egg coverage continues to remain strong, both in mainstream and social media, with the majority of conversation stemming from people discussing their favorite egg recipes and sharing images and comments about how they prepared their eggs for breakfast. The majority of Beyond Eggs coverage continues to stem from social media, with more than half the conversation taking place on Facebook as a result of users sharing links to last's week's stories announcing the financial partnership. We will continue to keep a close eye on additional coverage and will send another update next week.





Thanks,
Jenny

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jenny.englert@edelman.com | www.edelman.com

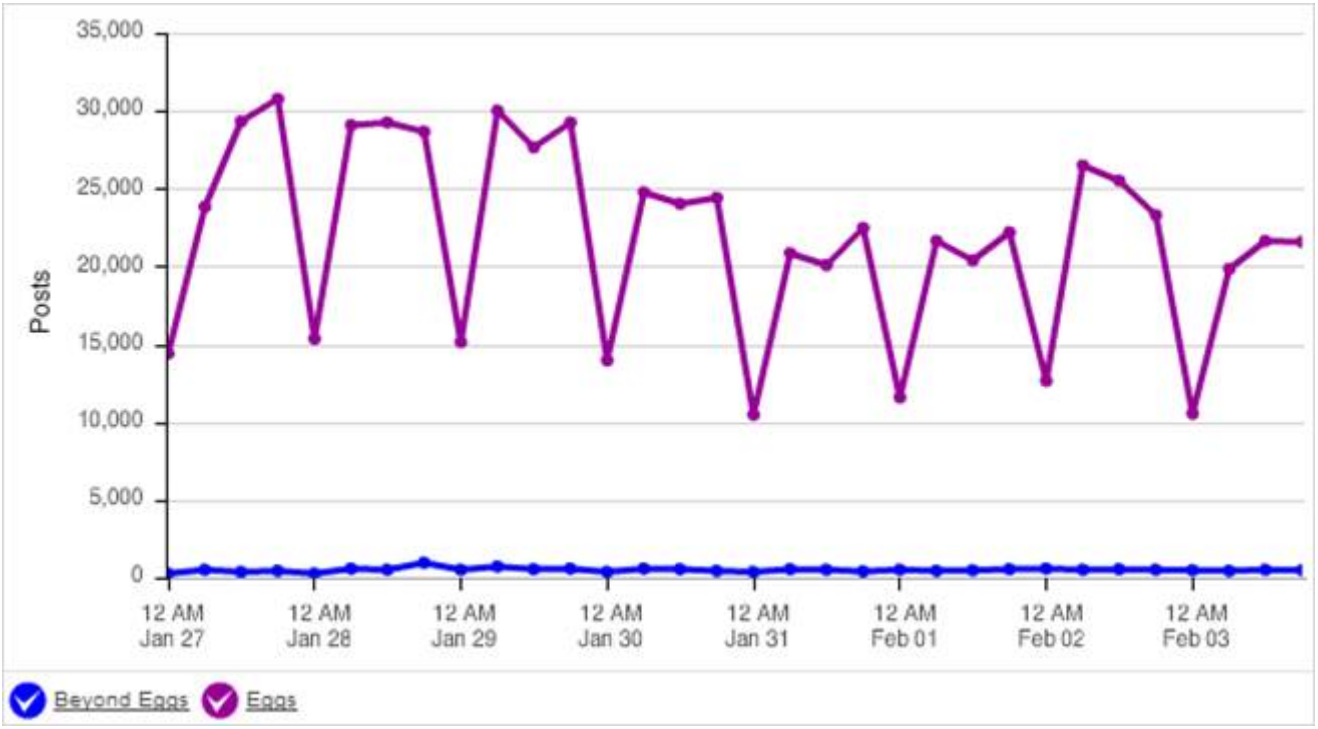
Lutton, Sara - AMS

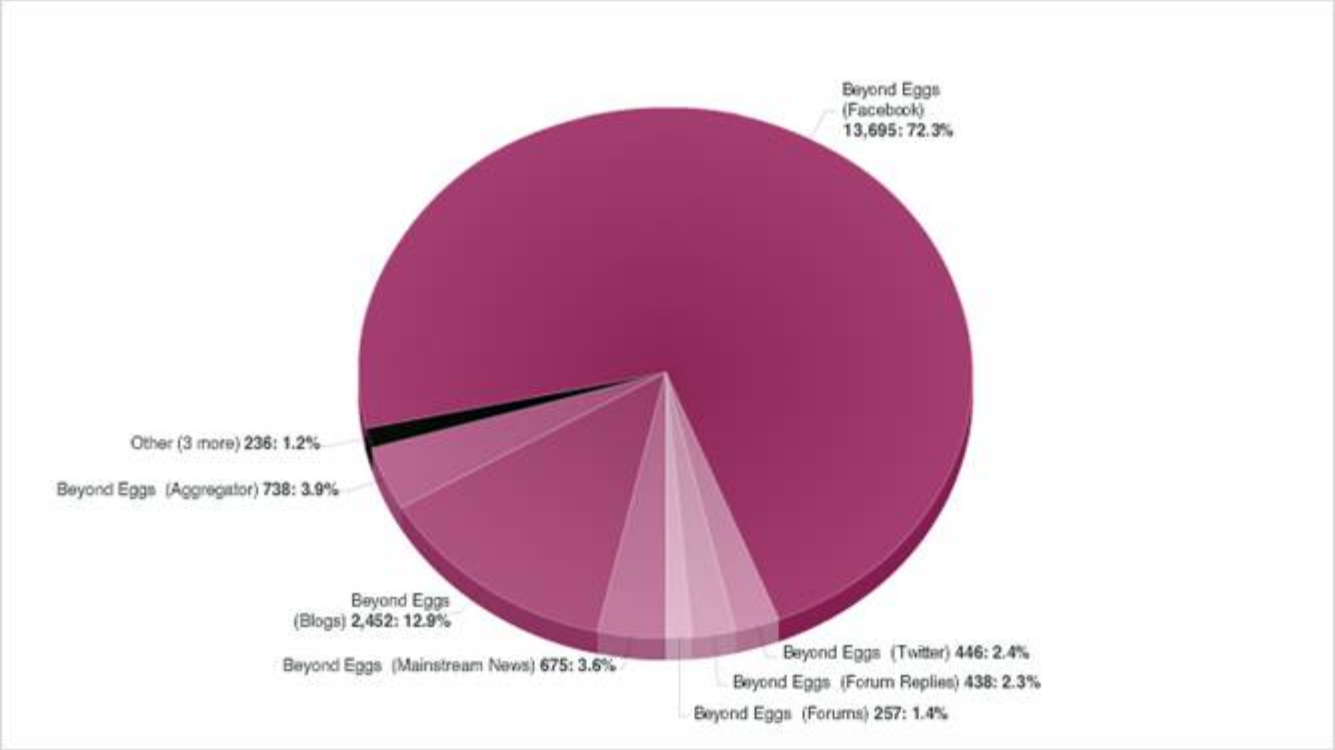
From: Englert, Jenny <Jenny.Englert@edelman.com>
Sent: Tuesday, February 04, 2014 2:05 PM
To: Kevin Burkum; Joanne Ivy; John Howeth; Mia Roberts; Kristin Livermore; Mitch Kanter
Cc: Jensen, Elizabeth (Schreiber); Maher, Missy; Grosshandler, Jennifer; Liuzzi, Andrew; Singer, Jamie; Schaffner, Serena; Burch, Kellie
Subject: Beyond Eggs Coverage Update 2.4

Hi all,

Beyond Eggs coverage has remained minimal since our previous update on coverage last week, with one new article appearing online in New York Magazine, reaching an audience of 1.7MM+ unique readers each month. The article provides an overview of Hampton Creek Food's product line, focusing primarily on Beyond Eggs. The article also features several quotes from Josh Tetrick who shares his thoughts on the inhumane conditions on egg farms.

Below are graphs that display comprehensive egg coverage from the last week. Similar to what we've seen in the past few months, general eggs coverage continues to remain strong in mainstream media and social, while Beyond Eggs continues to flat-line. The majority of Beyond Eggs coverage to date continues to stem from social media as a result of people mentioning that they've tried or would be interested in trying Hampton Creek products. We will continue to monitor and send another update next Tuesday.





Best,
Jenny

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Lutton, Sara - AMS

From: Mia Roberts
Sent: Thursday, December 19, 2013 5:25 PM
To: Kevin Burkum
Subject: FW: State Follow up to Beyond Eggs
Attachments: Beyond Eggs Key Messages.docx; Statement For States.docx

FYI only – this is the note we composed this morning to the state folks, along with Elizabeth's recommendations for key messages and do/s and don'ts…

From: Jensen, Elizabeth (Schreiber) [mailto:elizabeth.jensen@edelman.com]
Sent: Thursday, December 19, 2013 12:07 PM
To: Mia Roberts
Cc: Liuzzi, Andrew; Grosshandler, Jennifer; Torvik, Erika; Englert, Jenny
Subject: RE: State Follow up to Beyond Eggs

Hi there!

Thank you again for sending this to the state folks. We've attached the key messages along with a statement the states can use as/if necessary. In addition, we've also provided some do's/don'ts below when it comes to addressing the topic of Beyond Eggs – whether it's in a media interview, online, a presentation or meeting or just talking to someone they run into at church. Please let us know if you have any questions!

Do's/Don'ts of Addressing the Situation:

- Above all, be courteous and respectful.
- If asked questions that fall outside of approved talking points, politely communicate that you are not the appropriate individual to provide information about or background on this subject, but that you will be happy to put them in touch with the right person. In the event this happens, please notify Jacinta LeDonne.
- Refrain from providing any personal comment on situation.
- Always consider yourself "on the record" – even if off camera or making informal comments to media or other stakeholders
- Remember, what is posted on social media – regardless of privacy settings – is never truly private.
- Refrain from referencing the actual product names (Beyond Eggs, Hampton Creek Foods, Just Mayo) in media interviews or on social channels.

From: Mia Roberts [mailto:MRoberts@aeb.org]
Sent: Thursday, December 19, 2013 10:52 AM
To: Jensen, Elizabeth (Schreiber)
Subject: FW: State Follow up to Beyond Eggs

Hi Elizabeth – at your recommendation we sent a quick note to the States this morning, it follows below.

Also, do we already have a set of approved key messages re: Beyond Eggs? I don't seem to have anything in my email, so wondering if I've somehow missed this. Can you please advise? ☺

Thanks!

Mia

From: Mia Roberts
Sent: Thursday, December 19, 2013 10:18 AM
To: 'Bette Blinde'; Brenda Stoeke; 'Brennan, Linda K.'; Brent Booker ; Carmen Ligato Jr. (b) (6) @yahoo.com); 'Ceil Glembocki'; 'Connie Cahill'; 'Connie Smith'; 'Danny Hughes (dhughes@alpc.ar.gov)'; David Collie; Deanna Baldwin ; 'Debbie Blackwell'; 'Debbie Murdock'; 'Decker, Kim'; 'Diane Hurd'; Dr. David Zeman; 'Eleanore Provencal'; Eleanore Provencal; Eleanore Provencal (b) (6) @yahoo.com); enelson@minnesotaturkey.com; enelson@mnchicken.org; 'Gary Proctor'; 'Gene Robertson'; Hal Kreher (hal@krehereggs.net); 'JAMES CHAKERES'; 'James Grimm'; Jamie Guffey (jguffey@kypoultry.org); 'Jan Kelly (egglady@ncegg.org)'; 'Jerry Wilkins'; 'Jesse Laflamme'; 'Jewell Hutto (b) (6) @bellsouth.net)'; 'Jo Manhart'; Joanne Ivy; 'Joe Berry'; 'Johhy Adams'; 'Joy Fassio'; 'Karen Fraase'; Kerr, Tami; Kevin Vinchattle (kevin@iowaegg.org); (b) (6) @aol.com; Lara Durbin; Lois White (lois@iowaegg.org); 'Lou Arrington'; Mary Puglisi (b) (6) @gmail.com); 'Mary Rapaport'; Maryanne Crandell; Melissa Sankey (msankey@pennag.com); 'Nancy Stephens'; Noelle Anderson; 'Paul Brennan'; 'Robert Babin'; 'Roger Deffner'; Sharman Hickman; Steve (solson@minnesotaturkey.com); Steve Solomon; 'Susan S Joy'; Teresa Lynch (tlynch@mnchicken.org); Val Vail-Shirey; 'Wanda Linker'
Cc: Jacinta LeDonne; Joanne Ivy
Subject: State Follow up to Beyond Eggs

Dear State Representatives,

As a follow up to Joanne Ivy's President's Update (below), we wanted to encourage all state representatives to contact AEB if you are seeing any additional pick up on social media or receive any requests for comments or key messages regarding Beyond Eggs, or any egg replacement products in general.

As this discussion continues to evolve into the new year, we felt we should reach out to the state folks to provide you with AEB's key messages on the topic and gauge if you are receiving any questions from media on the local level regarding Beyond Eggs.

Overall coverage volume of this subject has remained minimal over the last few days, but AEB is happy to assist you regarding the topic of Beyond Eggs so that state responses are consistent with AEB's, and are appropriate and measured as a response to this issue.

At this point, we assume that you are not receiving a lot of inquiries related to this product, but we wanted to address it with you. In the event you are seeing increased activity around Beyond Eggs, you can contact me here at AEB on 224 563 3714 until Jacinta returns from her vacation on Monday.

Regards,
Mia Roberts

Mia Roberts | *Vice President of Strategic Operations*
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