

Abramorama and Black Valley Films

In association with Boomdozer Inc.

Present

FOOD EVOLUTION

a Scott Hamilton Kennedy film

Narrated by Neil deGrasse Tyson



92 minutes

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FOOD EVOLUTION

The Filmmakers

Directed by SCOTT HAMILTON KENNEDY
Written and Produced by TRACE SHEEHAN and
SCOTT HAMILTON KENNEDY
Narrator & Script Consultant NEIL deGRASSE TYSON
Edited by ALEX BLATT
SCOTT D. HANSON
SCOTT HAMILTON KENNEDY
Assistant Editor NICOLE BELL
Additional Editing KEVIN JONES
Cinematography LARKIN DONLEY
Additional Cinematography SCOTT HAMILTON KENNEDY
KATE SZROM
TROY LAVALLEE
DOMINIK WALCZUK
JAMAN LLOYD
Original Music by WILLIAM KINGSWOOD
Production Manager MARIA CHIU
Researcher & Production Coordinators CARLO VELAYO
MOOKIE LOUGHRAN
Production Assistants STANI FRANKLIN
JARED ROSO
DOUGLAS SCOTT
DUSTIN BLANK
TONY BASANTI
ANGEL WEBER

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Featuring in order of appearance

Neil deGrasse Tyson (Narrator & Script Consultant)

Margaret Wille

Jeffrey Smith

Michael Shintaku, Ph.D.

Roseanne Barr

Charles Benbrook, Ph.D.

Stephanie Seneff, Ph.D.

Dennis Gonsalves, Ph.D.

Vandana Shiva, Ph.D.

Andrew Kimbrell

Alison Van Eenennaam, Ph. D.

Pamela Ronald, Ph.D.

Michael Pollan

Bill Nye “The Science Guy”

Marion Nestle, Ph.D., M.P.H

Nathanael Johnson

Emma Naluyima Mugerwa

Leena Tripathi, Ph.D.

Mark Lynas

Raoul Adamchak

Blake Hurst

Motlatsi Musi

Featuring in order of appearance (cont.)

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Robert T. Fraley, Ph.D.

Zen Honeycutt

Kavin Senapathy

Karl Haro Von Mogel, Ph.D.

Shelley McGuire, Ph.D.

Dr. John Swartzberg

Vani Hari “The Food Babe”

Tamar Haspel

Margaret Mellon, Ph.D.

Mary Rockefeller Morgan

David Ropeik

This film was commissioned and funded by The Institute of Food Technologists, a non-profit scientific society of more than 17,000 members from around the world.

The filmmakers had complete creative control and final cut of the film.

For more information, please visit foodevolutionmovie.com

FOOD EVOLUTION

Synopsis

Amidst a brutally polarized debate marked by passion, suspicion and confusion, **FOOD EVOLUTION**, by Academy Award®-nominated director **Scott Hamilton Kennedy** (*The Garden, Fame High, OT: Our Town*), explores the controversy surrounding GMOs and food. Traveling from Hawaiian papaya groves, to banana farms in Uganda to the cornfields of Iowa, the film, narrated by esteemed science communicator **Neil deGrasse Tyson**, wrestles with the emotions and the science driving one of the most heated arguments of our time.

In the GMO debate, both pro and anti camps claim science is on their side. Who's right? **FOOD EVOLUTION** shows how easily misinformation, confusion and fear can overwhelm objective analysis. How do we ensure that our food supply is safe, and that everyone has enough to eat? How do we feed the world while also protecting the planet? Has genetic engineering increased or decreased pesticide use? Are GMO foods bad for your health? And, most importantly, what data, evidence and sources are we using to approach these important questions?

While the passionate advocates in the film are all concerned with the stewardship of safe, nutritious food for the planet, their differing views over what constitutes the truth have pit them against each other, rendering the very subject of food itself into an ideological battleground.

Enlisting experts such as **Mark Lynas, Michael Pollan, Alison Van Eenennaam, Jeffrey Smith, Andrew Kimbrell, Vandana Shiva, Robert Fraley, Marion Nestle** and **Bill Nye**, as well as farmers and scientists from around the world, this bold and necessary documentary separates the hype and emotion from the science and data to unravel the debate around food, and help audiences reach their own conclusions. In a debate in which all sides claim to be on the side of science, **FOOD EVOLUTION** brings a fresh perspective to one of the most critical issues facing global society today.

FOOD EVOLUTION (2016, USA, 92 min) Directed by Scott Hamilton Kennedy. Narrated by Neil deGrasse Tyson. Featuring Bill Nye, Mark Lynas, Michael Pollan and Jeffrey Smith. Produced and Written by Scott Hamilton Kennedy and Trace Sheehan. Edited by Alex Blatt. Cinematography by Larkin Donley.

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About the Interviewees

RAOUL ADAMCHAK

Raoul Adamchak teaches organic agriculture at University of California, Davis, and is a former president of the Board of California Certified Organic Farmers.

DR. DENNIS GONSALVES, Ph.D.

Dr. Dennis Gonsalves, a Hawaiian-born molecular biologist, developed the genetically engineered Rainbow Papaya as a solution for the papaya ringspot virus that affected the Hawaiian papaya industry in the 1990s.

MARK LYNAS

Mark Lynas is an environmental activist, journalist and author of several books on the environment, including High Tide, Six Degrees, and The God Species. His most recent publication, in July 2013, was the Kindle Single ebook Nuclear 2.0: Why a Green Future Needs Nuclear Power. Lynas led the early campaign against genetically engineered crops in Europe but in a speech given at the 2013 Oxford Farming Conference, he apologized for these actions, and explained how his opinion has changed over time.

DR. EMMA NALUYIMA MUGERWA

Dr. Emma Naluyima Mugerwa is a smallholder farmer in Uganda (Entebbe) and a private veterinarian focusing on clinical medicine and herd health. She has previously worked for the National Animal Genetic Resources Centre and Data Bank, and as an officer in Entebbe in charge of a Livestock Environmental Station. Dr. Naluyima has worked for the President of the Republic of Uganda, H.E. Yoweri Kaguta Museveni, on his personal dairy farm to improve the genetics of his herd through artificial insemination. She has also served as the Chairman of Red Cross Mbarara. She was the 2014 Special World Food Prize Honoree.

MARION NESTLE, Ph.D., M.P.H.

Marion Nestle is Paulette Goddard Professor in the Department of Nutrition, Food Studies, and Public Health (she chaired the department from 1988-2003) and Professor of Sociology at New York University. She is the author of Food Politics: How the Food Industry Influences Nutrition and Health (2002) and Safe Food: The Politics of Food Safety (2003). She writes a monthly Food Matters column for *The San Francisco Chronicle*, and blogs at *The Atlantic* at www.foodpolitics.com.

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PAMELA RONALD, Ph.D.

Pam Ronald has dedicated her life to improving genetically modified rice seeds designed to withstand being submerged in water for long periods of time.

JEFFREY SMITH

Jeffrey Smith is one of the most vocal, prolific and successful activists of the anti-GMO movement. He has self-published two books, and his book Genetic Roulette was produced as a film in 2012.

DR. LEENA TRIPATHI, Ph.D.

Dr. Leena Tripathi is a plant geneticist at The International Institute of Tropical Agriculture. Her primary research focuses on genetic improvements of banana, plantain, cassava and yam for disease and pest resistance. She leads the research program on control of banana Xanthomonas wilt disease and the project on nematode resistant plantains. She is also the principal investigator for the project on Cassava Brown Streak Disease resistance. She established a Genetic Transformation Platform for banana, plantain and cassava.

DR. ALISON L. VAN EENENNAAM, Ph.D.

Dr. Alison L. Van Eenennaam is an Animal Genomics and Biotechnology Cooperative Extension Specialist in the Department of Animal Science at the University of California, Davis. A former Calgene employee, Dr. Van Eenennaam holds a bachelor's degree in Agricultural Science from the University of Melbourne, Victoria, a master's degree in Animal Science from University of California, Davis, and a Ph.D. in Genetics from University of California, Davis.

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About the Filmmakers

SCOTT HAMILTON KENNEDY – Director, Producer, Writer, Editor & Camera

Academy Award® nominee Scott Hamilton Kennedy is a writer, director, producer, cameraman, and editor. He has worked on everything from documentary and scripted film with legends like Roger Corman, directed music videos like Jimmy Cliff's international hit "I Can See Clearly Now," to commercials, motion capture animation, scripted and reality television.

His documentary work includes Oscar Nominated [The Garden](#), which tells the story of the complicated struggle over the nation's largest community garden; Independent Spirit Award Nominee [OT: our town](#) – about the first play in 25 years at Dominguez High School in Compton, and the critically acclaimed [Fame High](#), which follows four students through a year at one of the most respected and competitive performing arts high schools in the country.

Scott recently launched [Time Capsule Movies](#), Personally curated documentaries that capture special moments in your life that can be shared for generations to come.

Set for theatrical release June 23, 2017 through Abramorama, Scott's latest documentary, narrated by Neil deGrasse Tyson, is [Food Evolution](#). Amidst the ideological war over how to safely and sustainably feed a global population that is expected to exceed 9 billion people by 2050, *Food Evolution* uses the controversial GMO debate and scientific inquiry as a lens to look at some of the most urgent questions facing our food system today.

Scott resides in the Silver Lake area of Los Angeles with his wife Catherine Borek, their two daughters Tessa and Eden, and their dog Pepper.

TRACE SHEEHAN – Producer & Writer

Based in Brooklyn, Trace Sheehan is the founder and CEO of Boomdozer, Inc., where he has several upcoming unscripted film and television projects in development.

On the feature side, he has most recently completed *Food Evolution*, a deep-dive into the contentious world of GMOs, narrated by Neil deGrasse Tyson, which he co-wrote and produced with Oscar-nominated filmmaker, Scott Hamilton Kennedy, slated to premiere this summer.

On the television side, he has recently partnered with Leftfield Pictures, Michael Bay and his company, Platinum Dunes, to produce the never-before-told true story behind the capture of Saddam Hussein for the upcoming 15th anniversary of that historic event. He also has co-productions in development with Campfire, Cowboy Bear Ninja and other production companies.

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Before launching Boomdozer, Sheehan co-founded the sales and production company, Preferred Content, responsible for critically acclaimed docs including *Jiro Dreams of Sushi* and *Grace & Mercy*.

Sheehan graduated from Duke University with a degree in international business, and has postgraduate degrees from the London School of Economics, the University of Cambridge and the American Academy of Dramatic Arts. He is a member of the PGA & NPA and is represented by the Kaplan Stahler Agency.

Neil deGrasse Tyson – Narrator & Script Consultant

Neil deGrasse Tyson was born and raised in New York City where he was educated in the public schools clear through his graduation from the Bronx High School of Science. Tyson went on to earn his BA in Physics from Harvard and his PhD in Astrophysics from Columbia.

Tyson's professional research interests are broad, but include star formation, exploding stars, dwarf galaxies, and the structure of our Milky Way.

In 2001, Tyson was appointed by President Bush to serve on a 12-member commission that studied the Future of the US Aerospace Industry. The final report was published in 2002 and contained recommendations (for Congress and for the major agencies of the government) that would promote a thriving future of transportation, space exploration, and national security.

In 2004, Tyson was once again appointed by President Bush to serve on a 9-member commission on the Implementation of the United States Space Exploration Policy, dubbed the Moon, Mars, and Beyond commission. This group navigated a path by which the new space vision can become a successful part of the American agenda. And in 2006, the head of NASA appointed Tyson to serve on its prestigious Advisory Council, which will help guide NASA through its perennial need to fit its ambitious vision into its restricted budget.

In addition to dozens of professional publications, Dr. Tyson has written, and continues to write for the public. From 1995 to 2005, Tyson was a monthly essayist for *Natural History* magazine under the title *Universe*. And among Tyson's thirteen books is his memoir *The Sky is Not the Limit: Adventures of an Urban Astrophysicist*; and *Origins: Fourteen Billion Years of Cosmic Evolution*, co-written with Donald Goldsmith. *Origins* is the companion book to the PBS-NOVA 4-part mini-series *Origins*, in which Tyson served as on-camera host.

Two of Tyson's recent books are the playful and informative *Death By Black Hole and Other Cosmic Quandaries*, which was a *New York Times* bestseller, and *The Pluto Files: The Rise and Fall of America's Favorite Planet*, chronicling his experience at the center of the controversy over Pluto's planetary status. The PBS/NOVA documentary *The Pluto Files*," based on the book, premiered in March 2010.

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In February 2012, Tyson released his tenth book, containing every thought he has ever had on the past, present, and future of space exploration: Space Chronicles: Facing the Ultimate Frontier.

For five seasons, beginning in the fall of 2006, Tyson appeared as the on-camera host of PBS-NOVA's spinoff program *NOVA ScienceNOW*, which is an accessible look at the frontier of all the science that shapes the understanding of our place in the universe.

During the summer of 2009 Tyson identified a stable of professional standup comedians to assist his effort in bringing science to commercial radio with the NSF-funded pilot program *StarTalk*. Now also a popular Podcast, and a limited-run Television Series on the National Geographic Channel, *StarTalk* combines celebrity guests with informative yet playful banter. The target audience is all those people who never thought they would, or could, like science.

In its first year on television it was nominated for a "Best Informational Programming" Emmy. Tyson is the recipient of twenty honorary doctorates and the NASA Distinguished Public Service Medal, the highest award given by NASA to a non-government citizen. His contributions to the public appreciation of the cosmos have been recognized by the International Astronomical Union in their official naming of asteroid 13123 Tyson. On the lighter side, Tyson was voted Sexiest Astrophysicist Alive by People Magazine in 2000.

Tyson's latest book, released in May 2017 is Astrophysics for People In A Hurry. This adorably readable book is an introduction to all that you've read, and heard about that's making news in the universe – consummated, in one place, succinctly presented, for people in a hurry.

Recently Tyson served as Executive Editor and on camera host and narrator for *Cosmos: A SpaceTime Odyssey*, the 21st century continuation of Carl Sagan's landmark television series. The show began in March 2014 and ran thirteen episodes in primetime on the FOX network, and appeared in 181 countries in 45 languages around the world on the National Geographic Channels. *Cosmos*, which is also available in DVD and BluRay, won four Emmy Awards, a Peabody Award, two Critics Choice awards, as well as a dozen other industry recognitions.

Tyson is the fifth head of the world-renowned Hayden Planetarium in New York City and the first occupant of its Frederick P. Rose Directorship. He is also a research associate of the Department of Astrophysics at the American Museum of Natural History.

Neil deGrasse Tyson lives in New York City with his wife, a former IT Manager with Bloomberg Financial Markets, and their two kids.

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Director's Statement

“Can I borrow some organic milk?”

On a random Tuesday morning, just a few months into researching for what would become **FOOD EVOLUTION**, I received a text message from my friend and fellow parent asking to borrow some organic milk. My response was, “You can borrow some milk, but I don’t have organic,” to which my friend responded, “I’m good.” She then got some organic milk from another neighbor.

It was with this seemingly innocent exchange between two well-educated and well-intentioned parents, each valuing nutritious milk for their children, that I started to think about how much our conversation around food might need to be reset. Was my purchase of conventional milk a sign that I am a father who doesn’t care about the safety of my children or the environment? Or am I a pretty well-informed parent who knew that the non-organic milk I buy from Trader Joe’s every week was just as nutritious and safe as the more expensive organic option?

I’ve been living with questions around food, agriculture, and sustainability since 2007 when I made a film called *The Garden*, which went on to be nominated for an Oscar®, about the 14-acre community garden in South Central LA. The Garden was created by people trying to heal, and feed their families, after the LA riots. After my brief but revelatory exchange about organic milk, I started thinking about the parents beyond my privileged Los Angeles neighborhood, and how they might be making decisions about their food choices. My wife Catherine has taught English and drama at Dominguez High in Compton for over twenty years. Many of her students have become close friends, and we attend each other’s barbecues, weddings, and birthday parties. What are low income families from places like Compton supposed to do when faced with the option of organic products? When they see people with privilege and money choosing organic, how do they come to terms with choosing otherwise? How do low income people in India and Uganda grapple with these choices? Are non-organic fruits and vegetables better or worse for their family than no fruits and vegetables at all?

What are low income families from places like Compton or food insecure places like India and Uganda supposed to do when faced with the option of organic products? In researching this film, I started to feel that confusing, un-scientific, fear-mongering messaging that privileges organic products over conventional as an inherently safer or healthier choice doesn’t serve any family seeking to make good choices about food.

“Is this milk safe for my child?” is a question every parent asks – but then cost has to come into consideration, too. Buying organic can mean spending up to 50% more on

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food, so becomes an unsustainable choice for some families. Should those families be told that they should buy organic milk? Are they putting their children at risk if they buy non-organic milk? To me, this has become an unnecessary and unethical situation.

Peer reviewed data from many studies tells me that milk that has been approved by the USDA is safe and nutritious whether it is produced using organic or non-organic farming practices. Put another way: which is more important, for your child, to get all the calcium and nutrients in any milk, or that the milk be organic? So then, why do many parents, especially college-educated parents, think they must buy organic milk? The multi-faceted answers to these questions are a big part of what inspired us to make **FOOD EVOLUTION**.

I can understand why people fear and hate GMOs. In comparison to the word organic, GMOs sounds horrible and scary. I get it. On top of that, GMOs are almost always connected to a single company that is exceptionally loathed. If you had the choice between “scary GMOs” and “pure and healthy organic,” the decision may seem obvious. But what if those valid instincts are unsubstantiated?

When I first told people I was making a movie that might reset the conversation on GMOs in a counterintuitive way, many friends and colleagues in my liberal filmmaker’s universe thought that I might have lost my way. I was asked countless times, “Are you really pro-GMO?” There have been many uncomfortable conversations and heated arguments around this topic since then. My response is, consistently, I am neither pro-GMO nor pro-organic: I am pro-science.

In a time of “alternative facts” that led *The New York Times* journalist David Brooks to write, “This is no longer a country in which everybody experiences the same reality,” we feel **FOOD EVOLUTION** has something important to add to the conversation. And when journalism and science – the very institutions that are supposed to help us determine fact from fiction and truth from spin – are under existential attack for being “fake news,” we hope **FOOD EVOLUTION** might help people to become better informed and prepare themselves to make the best choices they can.

Together with Trace Sheehan, my writing and producing partner on **FOOD EVOLUTION**, we conducted over 100 Skype interviews with experts in food, science, agriculture, activism to make this film. We talked to experts from around the world, from the U.S. to Europe, from the Philippines to Africa and beyond. We gained insights from food movement icons such as Marion Nestle and Michael Pollan to scientists such as Pam Ronald at UC Davis and Leena Tripathi in Uganda. We feel very honored to have been able to canvas the opinions of those affected by the GMO debate at the most basic, grassroots level: farmers, whether from the U.S., or those tilling the fields in Kenya,

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Uganda and South Africa. When we turned our focus to the devastating banana wilt problems that ravaged the Ugandan fruit industry, and the political struggle over a possible GMO solution, it was clear that the perspectives of that country's farmers and experts were very different from what we often hear in our privileged liberal enclaves of Los Angeles and New York. They offered the kind of valuable insight that the binary nature of the current debate seldom has room for.

In closing, I hope this film is about more than resetting the GMO debate. While there are no perfect decisions, for me, this film is about how important and difficult it is to decide how we feed ourselves – and the rest of the planet – safely, nutritiously, and sustainably.

In looking for those answers through the lens of scientific rigor, we hope the film might be able to relieve some of the anxiety that I see in the eyes of parents like my organic milk-borrowing neighbor.

— Scott Hamilton Kennedy