MARS
Global Food
Safety Center

The landscape

Each year **1 in 10 people** fall ill after eating contaminated food, and **420k people die** as a result, according to statistics from the U.N. Food and Agricultural Organization.

Illness linked to unsafe food overloads health care systems and damages economies, trade and tourism. The World Health Organization (WHO) estimates that unsafe food costs low- and middle-income economies around **$95 billion** in lost productivity each year.

Food safety is not just a problem for developing countries. Even in the world's richest economies the problem persists. The WHO reports that every year **1 in 6** Americans suffer from a foodborne illness, costing the U.S. economy an estimated $60.9 billion to $90.2 billion.

Safe food for all

If it's not safe, it's not food

At Mars, we believe everyone has the right to safe food. As a global food manufacturer, we believe we have a clear responsibility to lead in food safety. However, we also believe no one entity can do this alone. That is why we are taking a truly collaborative approach to food safety, one rooted in fostering mutual sharing and collaboration. It is also why, in 2015, we opened the Mars Global Food Safety Center. Today, the facility is committed to sharing research, innovating and improving food safety capabilities and methodologies. That's because in the world we want tomorrow, everyone is thriving, and there is safe food for all. This report shares more about our mission, purpose and progress to date.

We focus on three key long-term food safety challenges:

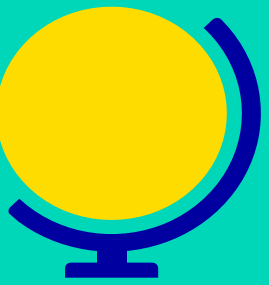
Mycotoxin risk management

Microbial risk management

Food integrity
(including areas such as food fraud)

The Mars Global Food Safety Center 2021 Scorecard

Our scientists use cutting-edge technologies in our world-class laboratories to address the most significant food safety challenges facing people and the planet today. In collaboration with our global partnership network, our team of experts uncover scientific breakthroughs to raise the bar in food safety.



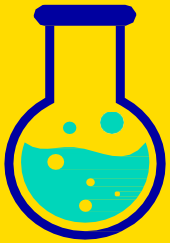
1700+
international visitors from non-governmental organizations (NGOs), academia, industry and government in the last five years

300+
people trained from NGOs, academia, industry and government in the last five years

80+
peer-reviewed research publications, conference posters, and presentations shared internationally since 2015

30+
dedicated Mars Associates are based at the center

25+
global partnerships and collaborations



600 m² of analytical laboratory

700 m² of microbiology laboratory

45+
industry speaking opportunities and conferences attended since 2015

Our research

Our global team conducts original, collaborative research using cutting-edge approaches. We share our studies openly through scientific publications and forums to raise the bar in food safety. Our progress in the last six years includes:

40+ peer-reviewed publications

40+ research posters, panels, and presentations

2 patents

500+ citations

Mycotoxin risk management

We're developing strategies to mitigate and ultimately eradicate mycotoxins from the global food supply chain. Our work starts with aflatoxins because of the serious health threat they pose to human and animal health. We are currently assessing the global cost of aflatoxins.

Microbial risk management

We are investigating innovative new technologies and methodologies that have the potential to transform the management of microbial risk from reactive to predictive, and ultimately preventative. Next generation sequencing (NGS), whole genome sequencing (WGS), and metagenomics have the potential to revolutionize how we respond to and prevent microbial food contamination.

Food integrity

We investigate cutting-edge tools, methods, and capabilities to help mitigate food integrity challenges across the global food supply chain, helping to protect raw food materials and finished products. For example, we are currently working with partners to develop a multi-dimensional analytical toolbox to assess rice authenticity.

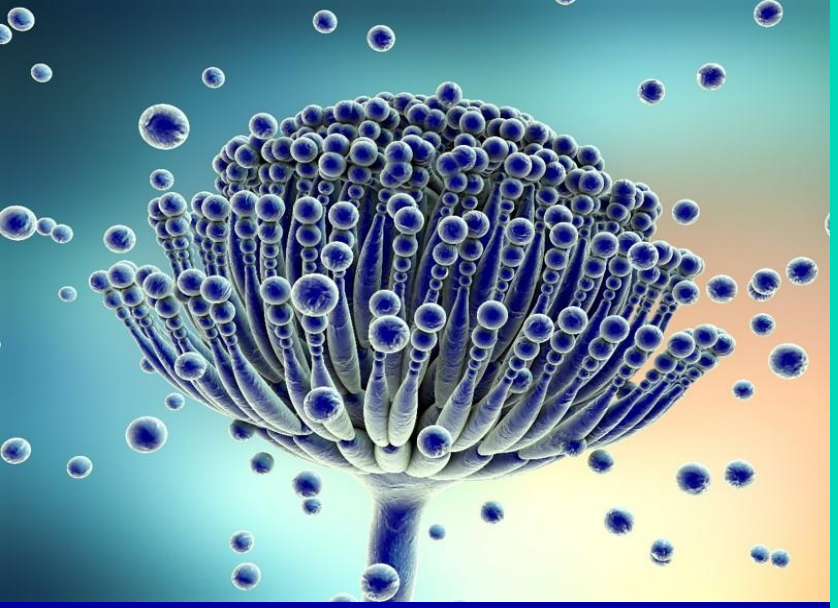
Spotlight:

A Global and Collaborative Partnership to Detect the True Origins of Rice

More than 3.5 billion people depend on rice for as much as one fifth of their daily calories, with Asia accounting for 90% of global rice consumption. It is important, therefore, to develop robust methods to ensure rice authenticity, helping to protect the food supply chain while also underscoring our commitment to ensuring safe food for all. In rice adulteration, it is common for the authentic rice to be mixed with low-grade, low-quality rice for economic gain. Detecting questionable rice is imperative from an authenticity perspective to reassure suppliers and consumers. This is why we are part of a global alliance called the Rice Authenticity Consortium.

The Mars GFSC investigated the differentiation of geographical indication (GI) of popular rice varieties around China. Rice samples were collected directly from suppliers and analyzed using Inductively Coupled Plasma Mass Spectrometry (ICP-MS). This is a powerful analytical tool which can quantitatively determine concentrations of metal and non-metal elements.

We know we cannot tackle the global problem of rice adulteration alone. The rice authenticity consortium demonstrated the value of global collaboration, and the need to work together to tackle these issues. Through this consortium, we have collectively created a set of analytical solutions that can be tailored for different regions and raw materials. Learn more about this project in our recent Food Safety In-depth Focus article in New Food Magazine.



Spotlight:

Food Safety Coalition Kicks-off, Starting with Focus on Aflatoxins

On May 14, with key public and private organizations, we came together to discuss actionable solutions in food safety, starting with the critical area of data and knowledge sharing on aflatoxins.

This series of meetings provide an opportunity for business leaders to engage and contribute ideas that could transform food systems, with the target of achieving the United Nations Sustainable Development Goals by 2030. One of the priority areas identified in the consultations is food safety as a fundamental component of food security and building resilient food systems. Within that, the aim of the food safety coalition is to identify specific food safety actions to be taken to progress a long-term, transformational food safety agenda.

As a global food manufacturer, we believe we have a clear responsibility to lead in food safety. However, we also believe no single entity can do this alone. That's why we're taking a truly collaborative approach to food safety, one rooted in fostering mutual sharing and collaboration. We're honored to take part in the coalition to help address this critical food safety challenge.

Our partnerships & collaborations

The Mars GFSC works with partner organizations and academic institutions across North and South America, Asia, Europe and Africa to share knowledge, generate new insights and help improve the resilience of supply chains in vulnerable countries around the world.

1700+

visitors

25+

strategic partnerships and active research collaborations

Our Impact

Leveraging key collaborations and partnerships, alongside breakthroughs in science and technology, we are helping to address the most significant food safety challenges.

Sustainable in a Generation Plan MARS

The Mars Sustainable in a Generation Plan addresses key areas of the U.N.'s Sustainable Development Goals and features ambitious targets informed by science and rooted in The Five Principles – Quality, Responsibility, Mutuality, Efficiency and Freedom. Our plan focuses on three key areas: Healthy Planet, Thriving People and Nourishing Wellbeing.

The Mars GFSC contributes to our targets through research, training and operations.

Healthy Planet

The Mars GFSC was designed with reduced greenhouse gas emissions in mind. Since 2015 we have saved

6500+ TONS

The equivalent of

1.3M+ trees

through our energy-saving operations.

Nourishing Wellbeing

New threats are emerging in developing nations as the population increases, but the bottom line is:

If it's not safe, it's not food.

The Mars GFSC raises food safety awareness through education, training and knowledge sharing.

300+ people trained and 20+ training events hosted in the last five years

Spotlight:

Scientists of the future: how the women of Mars are inspiring the next generation of researchers

At Mars, in the world we want tomorrow, society is inclusive, and women are reaching their Full Potential. Mars is an associate-led company, and we strive to ensure that everyone's voice is heard. That's why Mars China and the Mars GFSC partnered with the American Chamber of Commerce (AmCham) China Women's Advisory Council to invite 25 young women from schools in Beijing to hear personal insights from some of our leading female scientists, specialists, and communicators as they progress their careers in science and research.

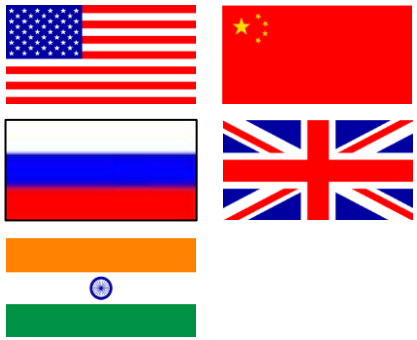
The OneMars China STEM half day event was hosted at the Mars GFSC. Su Cheng Harris Simpson, Former Board of Governor of AmCham China and Min Qin, VP Public Affairs of Mars China delivered opening remarks. Mars Associates Tracy Zhang (OneMars China communications director), Dr. Georgina Cuckston (Science Communications Manager), and Dr. Silin Tang (Senior Scientist at the Mars GFSC), talked about Mars' deep roots in STEM, the Mars Research & Development (R&D) talent program, and Mars' focus on inclusion & diversity. They also shared their personal stories of unlocking their full potential and answered a wide range of questions from an inquisitive and enthusiastic audience.

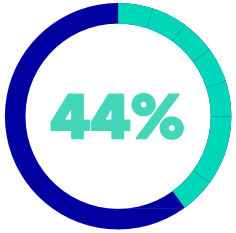
After the sharing session, we took the women around the center to show them the labs and tell them a little more about our focus on pre-competitive science and the emphasis we place on the importance of collaboration.

Our team

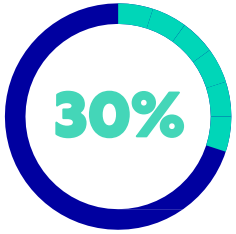
The diversity of our team and the way we work together with our partners enables us to take a truly multidisciplinary approach to addressing complex food safety challenges.

We have a truly global team





of our Mars GFSC Associates hold a Ph.D.



of our Mars GFSC Associates hold M.Sc. degrees, all from world-renowned institutions

6 awards

Our Associates and work have been recognized over the last six years

10 scientific advisory board seats held by Mars GFSC Associates

Partner Spotlight: Danone

About Danone

Danone is a leading global food and beverage company which aims to inspire healthier and more sustainable eating and drinking practices, using the 'One Planet. One Health' frame of action which considers the health of people and the planet as intimately interconnected.

Partners since 2015

Mars and Danone have worked together to raise the bar in food safety since 2015 through open cooperation, knowledge sharing and collaboration in food safety research, innovation and implementation.

Driven by the Mars GFSC mission of safe food for all and Danone's purpose of bringing health through food to as many people as possible, our goal is to help address some of the most significant food safety challenges impacting the global food supply chain.