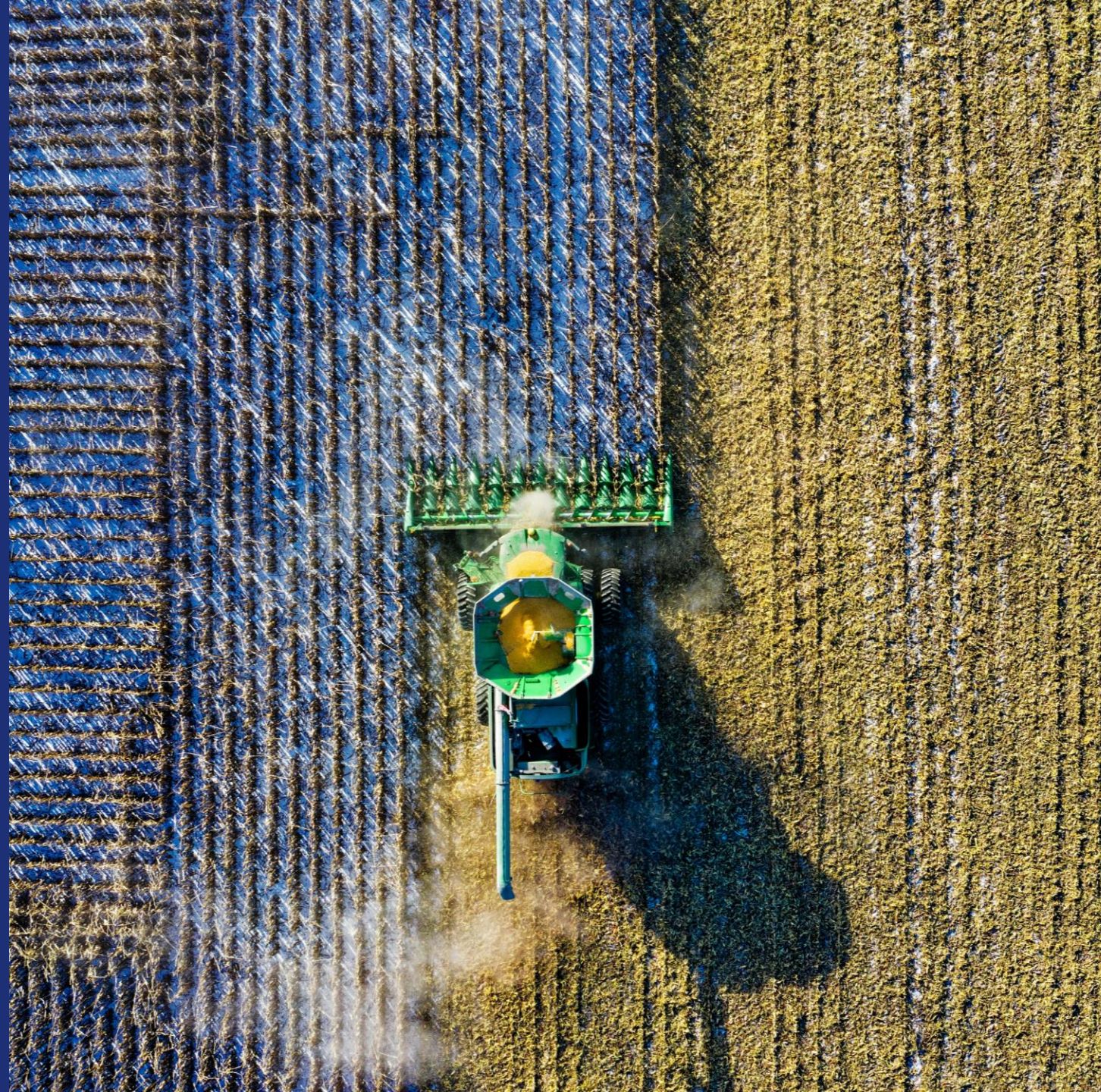
Farm to Fork: Sustainable Food Production in a Changing Environment

A short online course



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Context

- Food production is responsible for up to 30% of global greenhouse gas emissions, contributing significantly to climate change.
- This has caused a serious impact on the environment, including rising sea levels, extreme weather patterns and loss of biodiversity.
- As the global population continues to grow, there is increasing pressure to produce more food while using fewer resources and minimizing environmental harm.
- Current food production practices are often unsustainable, leading to further environmental degradation and exacerbating the impacts of climate change.
- There's an urgent need for sustainable food production practices that addresses to mitigate the effects of climate change while ensuring food security for future generations.

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Solution

- To address these challenges and equip the participants with the necessary skills and knowledge, EIT Food has developed this short online course where they will explore the issues surrounding food production, including producing soil health, animal welfare, and biosecurity measures.
- The course title is “Farm to Fork: Sustainable Food Production in a Changing Environment”. It is composed of 12 hours of learning broken down in 4 modules.
- On this course, learners will look at:
  - the interconnected one health approach to food production from fark to fork
  - the ethical and bioethical constraints of the food chain
  - the current and emerging risks to food safety
  - careers in research, industry or entrepreneurship related to the food industry sector

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Ambition

- Our mission is to equip participants with the knowledge and skills to contribute towards building a sustainable food industry by exploring the complexities of the global food supply chain and the threats to food security.
- We aim to inspire and prepare students to contribute to a more sustainable, resilient and ethical food system that ensures the health and well-being of people, animals, and the planet.

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High level contributors

- This course has been designed for people that are looking for an introduction to food supply chains and the future of agriculture, and it's ideal for students and young people looking to learn more about careers in the food industry and has been created by Queen's University Belfast and University of Turin, with content provided by the Royal DSM, the Analytics Engines and the Italian Breeders Association

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A modern approach to learning

- Fully online, short learning opportunity
- Course available 24/7 to fit with busy lifestyle
- Content accessible on any connected device
- Short lesson in a variety of formats: video, text, quizzes, etc
- Conversational learning: Learners are encourage to reflect and join discussions
- Additional content added to each steps to further explore the topic

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Course Syllabus

Week 1: Water, Soil and Plant Health

Welcome to the course
Soil Health
Water Health
Plant Health
Summary

Week 2: Animal Health and Welfare

Welcome to Week 2
Animal Feed
Prevention and Biosecurity
Animal Welfare
Summary

Week 3: Food Safety and Human Health

Welcome to Week 3
Control of Contaminants and Drug Residues in Food
Ensuring Pathogen Free Food
Monitoring
Summary

Week 4: Climate Change and Food Security

Welcome to Week 4
Climate Change
Climate Change and Soil Health
Climate Change and Water Health
Climate Change and Planet Health
Climate Change and Animal Health
Summary

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Week 1: Water, Soil and Plant Health

Welcome to the Course

Welcome to the course 'Farm to Fork: Sustainable Food Production in a Changing Environment'. Here you will meet the team who you will learn with. This includes staff from the University of Turin, and Queen's University, Belfast.

1.1 **Welcome to the course** VIDEO (01:49)

1.2 **Meet the team** ARTICLE

1.3 **Course Participation** ARTICLE

1.4 **Introduction to Week 1** VIDEO (01:05)

Soil Health

The main soil pollutants that affect animal production are explored here - including metals, microbes, parasites and drug residues.

1.5 **Soil Health** VIDEO (06:08)

1.6 **Case Study: Natural Toxins in Soil - Tropane Alkaloids** ARTICLE

1.7 **Case Study: A Review of Heavy Metal Contamination in the Soil** ARTICLE

1.8 **Soil Health** DISCUSSION

Case Study: Water Quality and Microplastics

6 comments

In this case study we will explore microplastics as an emerging concern to water quality, particularly due to the presence of endocrine disrupting chemicals. This issue was recently reviewed by Gallo et al. (2018) and will form the basis of this case study.

What are Microplastics?

Plastic marine litter is a mixture of polymers and chemicals in the marine environment. Items are very diverse, ranging from fishing gear, bottles, bags, straws, food packaging and cosmetic microbeads. This plastic has become a global problem as a result of the vast quantity of discarded plastic waste that is accumulating in our marine environments and its durability which allows it to persist once it enters. Over time this plastic breaks up and pieces of a diameter less than 5mm are known as microplastics. This small size is particularly concerning as it allows these plastics to be taken up by the marine biota and enter the food chain.

View transcript

Download video: standard or HD

Animal Welfare

0 comments

Animal welfare has become an important feature in animal production, since the onset of intensive breeding farms. Besides rising humanitarian concern, research has developed important tools to monitor animal health and welfare and have identified many issues in the breeding system that can be fixed.

Sheep eating at a trough

© Pexels

Practices in reducing the use of drugs in animal production

1 comment

The rapid development of antimicrobial resistance (AMR) in

- Course available on demand
- Link: https://www.futurelearn.com/courses/sustainable-agriculture-in-a-changing-environment

Learner reviews

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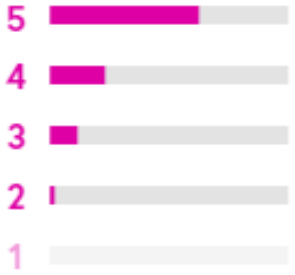
4.5

51 Reviews



L

Leonard D. Verified learner

09/04/22

★★★★★

Excellent introduction and insights

I've gained some great fundamental insights and knowledge about the food production system in terms of food safety and relevant regulations in Europe, which made it very practical for me. If you want to start gaining some basic understanding on the challenges confronting food security, I can recommend this course.

R

Rosemary O. Verified learner

13/11/21

★★★★★

Insightful Course

This course was insightful I gained knowledge in various aspect of food safety, food security and climate.

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Thank you!