



## Module 1 – Foundations of Sustainable Agri-Food Systems & Circular Economy

### References / Resources

#### Youtube Video Links:

Lesson B

- [The Story of The Big Food Redesign](#)
-  Regenerative agriculture in action: Wood Farm, Wiltshire

Lesson C

-  The Story of The Big Food Redesign

#### General Module References

1. USDA – Food Loss & Waste Resources for Schools  
➤ <https://www.usda.gov/foodlossandwaste/schools>  
Data tables and lesson ideas that fit the cafeteria-audit lab
2. Ellen MacArthur Foundation – Circular Design for Food  
➤ [A guide to using circular design for food to build business resilience](#)  
Practical guide and video on closing nutrient loops
3. Bokashi Process Page  
➤ [LabtoFarm](#)  
Step-by-step recipe, EM bran calculator, and greenhouse trial results.
4. Biochar in Agriculture  
➤ [LabtoFarm](#)  
Tin-can kiln tutorial, porosity images, and citrus seedling data.
5. FAO–Save Food Global Initiative site and the Infographics  
➤ [Infographic - Make#NotWasting a way of life](#)  
Global overview onto food waste, and food processing
6. Cornell Waste Management Institute  
➤ [Health and Safety Guidance for Small Scale Composting](#)  
Brief guide on small-scale composting safety
7. Brewers' Association  
➤ [Cultivation of gourmet mushrooms using brewer's spent grain](#)  
SARE – Spent-Grain-to-Mushroom factsheet (PDF)
8. NIOSH School Chemistry Laboratory Safety Guide (secondary edition)  
➤ [School Chemistry Laboratory Safety Guide](#)  
Comprehensive safety guide for high-school chemistry labs outlining teacher responsibilities
9. Systems Thinking by Santhosh Gandhi  
➤ [How does Systems Thinking help Design Thinking? | by Santhosh Gandhi | Bootcamp | Medium](#)
10. Beyond Burger vs Beef Burger  
➤ [Digital Art Month | October 2020](#)
11. Upcycled Food Association  
➤ [The circular food system and upcycled food](#)
12. Circular Economy Models in Agro-Food Systems: A Review  
➤ [Circular Economy Models in Agro-Food Systems: A Review](#)

#### Lesson A – Why Food Systems Matter: Planetary Boundaries & SDGs

1. Sustainable Food Systems  
➤ [Promoting sustainable food and food citizenship through an adult education leisure experience](#)  
Covers definitions and startup needs.

2. The 3 Principles of Sustainable Food Systems
  - [Future Implications for Animal Production: A Perspective on Sustainable Livestock Intensification](#)  
Discussing the three principles of sustainable food systems and examples
3. Planetary Boundaries: Earth's Safe Space
  - [Responding to the greatest challenges? Value creation in ecological startups](#)  
How mission-driven ventures create value by tackling environmental challenges.
4. Food Systems = Massive Footprint
  - [Planetary boundaries](#)  
Explains the nine Earth-system limits and current status.
5. Burger supply-chain footprint (teaching example)
  - [Supply Chain 101: What Happens When Our Food Supply Is Disrupted by a Pandemic?](#)  
Links food choices to multiple UN SDGs via a “one plate, many goals” framing
6. Sustainable [food] Development Goals (SDGs)
  - [Food and the circular economy – deep dive](#)  
Landmark report on closing nutrient and material loops in urban food systems
7. Planetary Health Check 2025
  - [Planetary Health Check 2025](#)
8. Sustainable Development Goals
  - [Sustainable Development Goals \(SDGs\)](#)

## Lesson B – From Linear to Circular: Rethinking Food Production

1. Circular Economy
  - [Measurement and reporting for the circular economy](#)  
Towards circular economy outcomes is a key driver in the transition to the circular economy
2. Rethinking Farming with Nature
  - [Regenerative agriculture—agroecology without politics?](#)  
Covers definitions of agroecology and regenerative agriculture
3. Valorization of Food Waste as Animal Feed
  - [Valorization of Food Waste as Animal Feed: A Step towards Sustainable Food Waste Management and Circular Bioeconomy](#)  
Real world examples of Sicily's Citrus Super-Loop
4. Case Study: Applications of citrus peels valorisation in circular bioeconomy
  - [Applications of citrus peels valorisation in circular bioeconomy](#)  
Real world examples of citrus peels from an environmental liability to an economic input
5. Case Study: Spent Grain to “Bourbon Shrooms”
  - [Distilleries finding “bourbon shrooms” profitable for spent grains](#)  
Real world examples of mushrooms and distilleries being profitable for spent grains
6. Circular Economy for food
  - [City food systems are demonstrating the benefits of a circular economy](#)  
Advancing the circular economy transition within their food system
7. Compost in a Bottle
  - [https://www.westlothian.gov.uk/media/27089/Compost-in-a-Bottle-Activity/pdf/Compost\\_in\\_a\\_Bottle\\_Activity.pdf#:~:text=Follow%20the%20diagram%20to%20build,Ask%20an%20adult%20to](https://www.westlothian.gov.uk/media/27089/Compost-in-a-Bottle-Activity/pdf/Compost_in_a_Bottle_Activity.pdf#:~:text=Follow%20the%20diagram%20to%20build,Ask%20an%20adult%20to)  
[o](#)
8. The Complete Guide to Home Composting
  - [The Complete Guide to Home Composting](#)

## Lesson C – Pathways to Action: Diet, Innovation & Policy

1. Circular Economy for food
  - [City food systems are demonstrating the benefits of a circular economy](#)  
Advancing the circular economy transition within their food
2. Dietary Shifts: Beef vs. Beans
  - [Sustainable Diets: What You Need to Know in 12 Charts](#)  
Showcasing diet shifts between red meat and plant based foods
3. Plant Based Burger vs. Beef Burger
  - [Life Cycle Assessment of Plant-Based vs. Beef Burgers: A Case Study in the UK](#)  
Reducing the environmental effects caused by our carbon footprint
4. The Burger Swap
  - [The State of School Lunch in California](#)  
Looking at differences in change can be made for school lunches
5. Innovation: “Redesign” (Entrepreneurial Action)
  - [Beyond Burger vs Beef Burger](#)  
Alternative proteins to plant based foods, and regular foods
6. Collective Action (Systems Change)
  - [CITIES AND CIRCULAR ECONOMY FOR FOOD](#)  
Incentives for sustainable practices
7. Systems Thinking & Nature as the Ultimate Circular Model
  - [How does Systems Thinking help Design Thinking?](#)  
By revealing interdependencies, root causes, and better problem framing
8. Our World in Data
  - [Environmental Impacts of Food Production - Our World in Data](#)
9. Menus of Change
  - [Principles of Healthy, Sustainable Menus](#)
10. Meat Eaters Guide
  - [Meat Eaters Guide: Report 2011](#)
11. The Poultry Site
  - [How Much Water Does it Take to Produce Meat? | The Poultry Site](#)
12. Business Insider
  - [The Top 10 Foods With the Biggest Environmental Footprint - Business Insider](#)

### **Recommended Websites for Case Studies:**

1. Circle Economy – Circular Food Systems
  - [Circle Economy](#)  
Features the largest online library of circular economy case studies, including many focusing on urban food systems and regenerative practices. Great for exploring real-world innovations and policies
2. WRAP – Food System Case Studies
  - [Food System Case Study](#)  
Offers global examples of circular economy in action, such as the Horizon 2020 AgroCycle project, which uses agri-waste to create biodegradable packaging.
3. Sustainable Food System Innovation Platform (SmartChain-Platform)
  - [Sustainable Food System Innovation](#)  
Includes searchable databases of case studies, initiatives, innovations, practice abstracts, and publications. A versatile hub for diverse agri-food sustainability examples.
4. Ontario Agri-Food Innovation Alliance – Case Studies
  - [Ontario Agri-Food Innovation Alliance](#)  
Showcases real-world impact stories—like animal health labs, dairy innovation, and veterinary capacity programs—in agri-food research and delivery.
5. IFAMR Case Study Library

- [INTERNATIONAL FOOD AND AGRIBUSINESS MANAGEMENT ASSOCIATION](#)  
A curated academic repository of agri-food case studies covering topics such as cluster development, supply chain innovations, and e-commerce adoption. Especially useful for policy-centered examples.
- 6. Valorization of Food Waste as Animal Feed
  - [Valorization of Food Waste as Animal Feed: A Step towards Sustainable Food Waste Management and Circular Bioeconomy - PMC](#)
- 7. Upcycled Animal Feed
  - [\(PDF\) Upcycled Animal Feed: Sustainable Solution to Orange Peels Waste](#)

### Teaching Slide References Links

1. Warner, 2013
  - [About Sustainable Food Systems](#)
2. Riley J.P. et al., 2015
  - [\(PDF\) Future implications for animal production: a perspective on sustainable livestock intensification.](#)
3. Kuckertz et al., 2019
  - [Responding to the greatest challenges? Value creation in ecological startups](#)
4. Richardson et al 2023
  - [Planetary boundaries - Stockholm Resilience Centre](#)
5. Penthes, 2018
  - <https://www.internal-displacement.org/news/call-for-abstracts-displacement-conference/>
6. Singh, 2023
  - [UNO UNESCO SDGs with Cymatics and Proposed New R&D Courses for Sustainable Education, R&D, Welfare, Empowerment and Common Future of World with WIPO IP Day 2024 and Hague Systems](#)
7. Kiger, 2025
  - [Supply Chain 101: What Happens When Our Food Supply Is Disrupted by a Pandemic? | HowStuffWorks](#)
8. Gausa, 2024
  - [Food Second-Life as Innovative Research | SpringerLink](#)
9. Ranganathan, 2018
  - [Big Data: How to sustainably feed 10 billion people by 2050. in 21 charts](#)
10. Adelaide, 2025
  - [South Australia learns and leads during the 19th Century by creating wheat styles suited to Australia | Adelaide AZ](#)
11. Barimah, 2021
  - <https://medium.com/completerfarmer/other-ways-to-contribute-to-food-security-other-than-farming-f068fd4f9604>
12. Munjur et al., 2018
  - [\(PDF\) CONSTRUCTING A GREEN CIRCULAR SOCIETY](#)
13. Tiftonell et al. 2022
  - [Regenerative agriculture—agroecology without politics?](#)
14. Ellen MacArthur, 2019
  - [Food and the circular economy | Ellen MacArthur Foundation](#)
15. Kumar et al. 2025
  - [Applications of citrus peels valorisation in circular bioeconomy - ScienceDirect](#)
16. Strickler, 2022
  - [Distilleries finding “bourbon shrooms” profitable for spent grains | College News](#)
17. Ellen MacArthur, 2019
  - [Food and the circular economy | Ellen MacArthur Foundation](#)

18. Ranganathan et al 2016

➤ [Sustainable Diets: What You Need to Know in 12 Charts | World Resources Institute](#)

19. Tang et al. 2024

➤ [Life Cycle Assessment of Plant-Based vs. Beef Burgers: A Case Study in the UK](#)

20. Ellen Mcarther et al. 2019

➤ [Cities-and-Circular-Economy-for-Food.pdf](#)