Welcome to Module Three: Food Justice
Introduction

If we care about the Earth and its resources, we must care and understand how food arrives on our plates, as well as who makes it possible for us to be nourished, from farmworkers, meatpackers, and the sustainable methods for growing our food. There's a dark side we can't dismiss – it's vital to know how some agriculture methods and polluters are jeopardizing the health and endangering the lives of communities, as well as our air and water, for industrial scale agricultural production of meat, chicken, dairy, and commodities including soy grown to feed livestock. This module is intended to augment *What's on Your Fork*, ensuring an environmental justice perspective is seen, heard, and felt in connection to food justice.

Key Terms

- **Sustainable agriculture** - Good, sound stewardship of the natural systems and resources that farms rely on, including building and maintaining healthy soil, wise water management, minimal polluting of air, water and climate, promotion of biodiversity.

- **Concentrated Animal Feeding Operation** (CAFO) - An industrial-sized livestock operation where a multitude of animals from hundreds to millions are kept and raised in confined situations. Most often CAFOs are dairy cows, hogs, or chickens. CAFOs produce massive amounts of animal sewage and other pollutants.

- **Industrial agriculture** - A largely focused agricultural venture which generates animal feed, biofuels and industrial ingredients for processed food products versus food.

- **Animal feed** - Concentrates which are high in energy value, including fat, cereal grains and their by-products.

- **Food safety** - The handling, preparation, and storage of food in ways that prevent food-borne illness.

- **Food Justice** - Food justice seeks to ensure that the benefits and risks of where, what, and how food is grown, produced, transported, distributed, accessed and eaten are shared fairly.

- **Food security** - The means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life.

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3 “Why are CAFOs” bad?” SierraClub.org [https://www.sierraclub.org/michigan/why-are-cafos-bad#what-is](https://www.sierraclub.org/michigan/why-are-cafos-bad#what-is) Accessed 11 January 2021


• **Pesticide** - A chemical substance used to destroy or control pests. These include insecticides, herbicides, rodenticides, and fungicides. These chemical compounds are toxic. They contain active ingredients that break down into metabolites. When they come into contact with air, water, soil and other living things the chemical compound can become more toxic and hazardous.

• **Groundwater contamination** - Pollution of groundwater resources. Industrial discharges, urban activities, agriculture, groundwater pumpage, and disposal of waste all can affect groundwater quality.

• **Surface water contamination** - Pollution of aquatic systems that are above ground, such as streams, lakes and rivers. These waters become polluted when rainwater runoff carries pollutants into the water.

• **Commodity** - a useful or valuable thing, i.e., an agricultural product that can be bought or sold.

• **Air pollution (as it relates to factory farming)** - The release of ammonia, hydrogen sulfide, particulate matter, volatile organic compounds, pesticides and other airborne agriculture pollution due to a large number of animals in a small area of land.

• **Farmworkers (agricultural workers)** - Work performed can range from agricultural labourer, hired worker involved in agricultural production, harvesting.

### Learning Objectives

• Students will understand and define food justice in their own words.

• Students will learn how CAFOs impact low income and communities of color.

• Students will demonstrate a basic understanding of the health and environmental risks for how our food is produced and to those who feed us.

• Students will use concepts of food injustice and draw connections to themes between where their food comes from and the risks to those who feed them.

• Students will visualize and analyze how the climate crisis is accelerated by food injustices.

### Materials

Paper, pencil, laptop or personal desktop computer, internet access.

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Teacher Background

Please ensure footnotes are not removed from the case study. Given this is an expansive case study with deep field and academic references, it is a best practice to maintain documentation. To ensure sound educational materials and no legal ramifications, we've provided a reference list, though stress that the reference list does not replace the footnotes.

Case Story: CAFOs and Human Health Impacts

Since the 1970s most animal protein sold in supermarkets and consumed across the United States are produced in Concentrated Animal Feeding Operations (CAFOs), that are tied to poisoning the environment and have resulted in severe human health impacts. Aside from the terrible odor these factory farms emit, there are large amounts of gases including ammonia, methane, and other volatile organic compounds (VOCs). The gases not only irritate people's eyes, noses and throats, they also cause severe respiratory illness, with even minimal levels of exposure.16

CAFOs are known as industrial scale animal factories, where thousands of dairy cows, hogs or chickens are raised in confined spaces. These animals are confined for at least 45 days or more per year in an area without any vegetation. In 2019, the Public Health Association (APHA) released a public statement calling on federal policy makers to put an end to CAFOs. They want to halt all further expansion of new operations and they've provided scientific evidence that these operations cause widespread occupational and community health risks.17

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The scale of the waste generated and danger these mega operations create is not a secret. One CAFO operation can produce more waste than some U.S. cities. A CDC report cited that animal feeding operations with 800,000 pigs produce 1.6 million ton of waste annually.\(^\text{18}\) This amount is 150 percent more than the sanitary waste the city of Philadelphia produces in a year.\(^\text{19}\) The size of the lagoons where waste is disposed are as big as a football field.\(^\text{20}\) A CAFO operation can easily multiply into several football fields holding tons of animal feces. It doesn't stop here, the liquid waste that contains nitrogen gas is sprayed onto fields as the lagoons start to fill up. The concentrated levels of contaminants in the manure exceed the levels that healthy crops or soils are able to absorb. This results in runoff and leaching of nitrogen and other contaminants in the manure into groundwater, streams and rivers.\(^\text{21}\) The lagoon technique of waste management is one that has long plagued communities of color in North Carolina where mega hog operations jeopardize the lives of Black, Latino/a/x and Indigenous communities. The Environmental Protection Agency (EPA) has very limited oversight over CAFO operations as the agency does not regulate small or large operations for their sewage treatment from the handling to storing and disposing of waste.\(^\text{22}\)

**Who is impacted?**

CAFOs pose a great risk to human health. Hazardous waste from the acres of open sewage, pathogens that develop from the untreated waste to the pharmaceuticals and fertilizers that cause severe air pollution and contaminate watersheds. CAFOs pose a huge risk to the environment and to human health especially to the people that live near these facilities and the workers. The operations lend themselves to increased exposure for workers and communities that live near facilities. People are exposed to multiple chemicals from hydrogen sulfide, particulate matter, endotoxins, nitrogen compounds that are released into the air, water and soils.\(^\text{23}\) According to NRDC, the air pollutants alone can lead to asthma, lung disease and bronchitis.\(^\text{24}\) Studies have shown that as many as 30 percent of workers' of CAFOs experience occupational asthma and bronchitis.\(^\text{25}\)

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\(^{20}\) Ibid


\(^{22}\) Ibid


\(^{25}\) Ibid
The operations disproportionately affect low-income Black, Latino/a/x and Indigenous communities and have been an outstanding issue of environmental racism and injustice in the United States. According to author Wendee Nicole, the hog CAFOs of North Carolina have often been established in areas of former slave plantations.26

**CAFOs and where they operate**

North Carolina has been one of the landmark cases investigated by researchers to examine the air and water pollution and the health disparities of the massive growth of hog CAFOs in the state. Between 1980 to 1990s hog CAFOs placed the state as the second largest producer of pig production and the citing of these facilities became a battleground for environmental racism and injustice.27 A study by Duke University in 2018 confirmed that zip codes with hog CAFOs have a high number of Black and Indigenous residents, an environmental injustice. The study also found that these same communities that live near hog CAFOs are exposed to hog waste in their water and are at a greater risk to a shorter lifespan due to their proximity to these facilities.28

In 2016, Union of Concerned Scientists looked at water pollution of the two North Carolina counties that are home to a large cluster of hog CAFO operations, where one county was reported to have more pigs than humans.29 They also paid special attention to the increased risk of flooding from extreme weather events that have further exposed how unregulated the industry truly is. It also led to a series of class action lawsuits against companies responsible for ongoing damage. The University of North Carolina at Chapel Hill found that 54 percent of Black people are more likely to reside near a hog CAFO than whites followed by 39 percent Latinos.30

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27 Ibid


Who works at CAFOs?

What has become very clear is that Black, Indigenous and people of color living near CAFOs have experienced severe health impacts, poor housing conditions, and environmental contamination. These same communities continue to experience high rates of poverty. In terms of employment, CAFO operations rely on an immigrant workforce. According to Ramos, workers receive very little information on occupational health hazards and do not receive any information about personal protective equipment (PPE) that should be used on site. Workers become increasingly exploited as a result of their social, economic and legal vulnerability which as a consequence, increases their exposure to the hazards and risks to CAFOs.³¹ In many cases these communities do not have access to proper health care while they are exposed daily to the hazards of these factory farms.

Case studies by: Betsy López-Wagner and Diana Ruiz, López-Wagner Strategies

Let's Watch and Learn: Food and Justice

Countdown to Destruction with Alice Braga, Episode 1: Do you know where the food you eat comes from? https://www.youtube.com/watch?v=9TSpxd0y2YA

Video worksheet 1 for: Countdown to Destruction with Alice Braga, Episode 1: Do you know where the food you eat comes from? | Greenpeace International (2020)

Part 1: Before watching the video, take a look at the questions below. As you watch Countdown to Destruction with Alice Braga, Episode 1: Do you know where the food you eat comes from?, pay attention to the key terms you learned in Module Three: Food Justice and the themes Brazilian actress and activist Alice Braga presents in the video. These will be featured and included in this video worksheet.

Explain how the food we eat is connected to the climate crisis?

__________________________________________________________________________________________

__________________________________________________________________________________________

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What system is out of control, according to Alice Braga?

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

What kind of production accounts for 80 percent of deforestation around the globe?

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________
What is an **industrial farm**?

True or False: It takes more land to grow food to feed animals than to feed humans, according to the video?

What is the industrial food system?

Chicken, pigs and cows eat what kind of bean more than humans?

Describe two examples of how big businesses contribute to the climate crisis and food injustices?
Video worksheet for: Toxic Pollution Cancer Alley

Countdown to Destruction with Alice Braga, Episode 2, Can we fix our broken food system?:
https://youtu.be/o5dnnZxTNho

Video worksheet 2 for: Countdown to Destruction with Alice Braga, Episode 2, Can we fix our broken food system? (2020)

Part 1: Before watching the video, take a look at the questions below. As you watch Countdown to Destruction with Alice Braga, Episode 2, Can we fix our broken food system?, consider your learnings and key takeaways from Module Three: Food Justice and the themes Brazilian actress and activist Alice Braga presents in the video. These will be featured and included in this video worksheet.

Explain in your own words how some of the foods we eat impact the world’s forests?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

What is a commodity?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Name a minimum of three products that contain palm oil?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
In this video, Communications and Digital Strategies experts and artists created illustrations to show the problem pushing our planet to “the brink of collapse.” Draw an image or sketch a graphic to show one of the dangers people face because of the broken system, below.

*Educator note: Video episode one is available in the following languages Spanish, Dutch, Finnish, German. Please note that the speaker references the word “hell” twice at the 3:40 min. mark.*
Activity:
Food Production, Food Systems and Health

Part 1: After reading how Concentrated Animal Feeding Operations (CAFOs) impact human health (case study) and watching the animated food systems videos, students will break out into groups of four (A-D) to complete this activity. Each group will be responsible for providing data input, below, sharing their key points on the focal areas.

Alternatively this activity could be done individually. If this is the case, each student should provide their key takeaways to the following focal areas.

Educator note: This worksheet (Part 1) is adapted from Johns Hopkins Center for A Livable Future Food Span, Lessons 2: Animals: Field to Factory [See: Student Handouts].

A. Community impacts
1. 
2. 
3. 
4. 

B. Worker health, safety and justice
5. 
6. 
7. 
8. 

C. Waste management
9. 
10. 
11. 
12. 

D. Ecological and biodiversity impacts:
13. 
14. 
15. 
16.
Part 2: Let’s create a food diary to chart what we eat for lunch and understand how our food is sourced. Include the multiple pathways the food travels to reach our plates.

<table>
<thead>
<tr>
<th>NUMBER OF DAYS</th>
<th>MEAT OPTION: MEAT, POULTRY OR FISH ETC.</th>
<th>ALTERNATE MEAT OPTION: PEANUT BUTTER, EGGS, YOGURT, CHEESE, DRIED BEANS OR PEAS</th>
<th>VEGETABLE AND FRUIT OPTION</th>
<th>GRAINS: PASTA, RICE OR BREAD ETC.</th>
<th>MILK OPTION OR OTHER TYPE OF DRINK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY 1</strong></td>
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<td><strong>DAY 2</strong></td>
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<td><strong>DAY 3</strong></td>
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<td><strong>DAY 4</strong></td>
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</tbody>
</table>
Part 3: Writing exercise: This takes the form of a journal entry, “Food for Thought”.
Have students answer the following questions in a one-page journal entry. **Remind students to use caution not to contribute to food shaming. This is about better understanding our foods, not calling students out for their lack of or choice of specific foods.**

- What is your relationship with some of the foods you eat during lunch time?
- What stood out the most for you when looking at what you eat for lunch over the last three (3) to four (4) days?
- What type of food system did it reflect? Is it local, regional or global?
- How much animal protein was on your plate?
- How many fruits and veggies were on your plate?
- How much processed food was on your plate?
- What was your tastiest lunch and why?
- What’s one thing that impedes your ability to change your food?

After answering the questions above in your journal, your conclusion paragraph should do the following: Explain what food justice means to you?

Extensions to Lesson:
Draw a comparison and contrast between mega animal factories and how fruits and vegetables are grown in the United States. Students would view a one hour film “Right to Harm: A Public Health Crisis Too Big to Ignore” and in that same week they’d view “Hunger in Valley of the Plenty: Part 1 of 3” a seven minute video series. The main activity after viewing both films could be focused on a writing exercise on food justice and what it means in the context of animal production versus industrial agriculture of fruits and vegetables.

Instructors should include a thought leader for each film segment which adds another dimension to the lesson plan and introduces the role of advocates in this space.
Film: Right to Harm A Public Health Crisis Too Big to Ignore (1 hour 15 minutes)

Short Video: Professor Sacoby Wilson, Environmental Health Scientist speaks on “How Factory Farms Destroy Rural Communities” | https://youtu.be/A0V2NvWXsnU

Harvesting of fruits and vegetables:

Dolores Huerta, Activist and labor leader who has worked to improve social and economic conditions for farm workers and to fight discrimination. Huerta founded the National Farmworkers Association, which later became the United Farm Workers (UFW).32

Short video options:
Dolores Huerta, https://youtu.be/I3ZyUDAh4B0 | Good Morning America (9:37)

**Rubric**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>EXCEPTIONAL</th>
<th>ACCEPTABLE</th>
<th>ATTEMPTED / NEEDS MORE WORK</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and ability to communicate the relationships among concepts (Part 1 of Activity). If done in groups, another criteria could be added “collaboration” which would focus on working within a team, responsible for oneself, respectful...</td>
<td>Learner identifies all the important concepts and shows an understanding of the relationships among them.</td>
<td>Learner identifies some important concepts, not all and makes some incorrect connections.</td>
<td>Learner makes many mistakes or fails to use appropriate concepts and appropriate connections.</td>
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<tr>
<td>Personal data gathering on the types of foods consumed (Part 2 Food Diary). • Organization • Completeness • Synthesis • Visual • Ability to communicate through a concept table</td>
<td>Learner completes the table and organizes examples under appropriate categories, providing additional insights. Learners produce a food diary that is easy to interpret.</td>
<td>Table is complete and somewhat organized. Table lacks depth and does not provide additional insights. Learners produce a food diary that is easy to interpret.</td>
<td>Table is generally incomplete and difficult to follow and interpret.</td>
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<tr>
<td>Understanding of key concepts and communicates a clear opinion, ideas are organized, complete sentences, uses descriptive words, spelling, paragraph structure (Essay-Activity Part 3)</td>
<td>Learner completes the essay and communicates appropriate key concepts and formulates an opinion. Essay is well organized, accurate, and easy to interpret with flow, as a whole.</td>
<td>Learner completes the essay and communicates some appropriate key concepts and formulates an opinion. Essay is somewhat organized, accurate, and somewhat easy to interpret, and at times lacks flow as a whole.</td>
<td>Learner does not complete the essay, i.e. no conclusion, no appropriate concepts and no opinion. Essay is not organized, difficult to understand, not accurate, and has no flow.</td>
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<tr>
<td>Concepts and terminology (Video worksheets 1 &amp; 2)</td>
<td>Learner shows an understanding of the key concepts and principles communicated in each video. Learners use appropriate terminology and notations.</td>
<td>Learner makes some mistakes in terminology or shows a few (1 to 2) misunderstandings of concepts.</td>
<td>Learners make many mistakes in terminology and shows a lack of understanding of many concepts.</td>
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</tr>
</tbody>
</table>

**TOTAL**
Educational Resources


References

Case Story: CAFOs and Human Health Impacts


