Teaching Climate Change through Food

A food systems and climate change curriculum

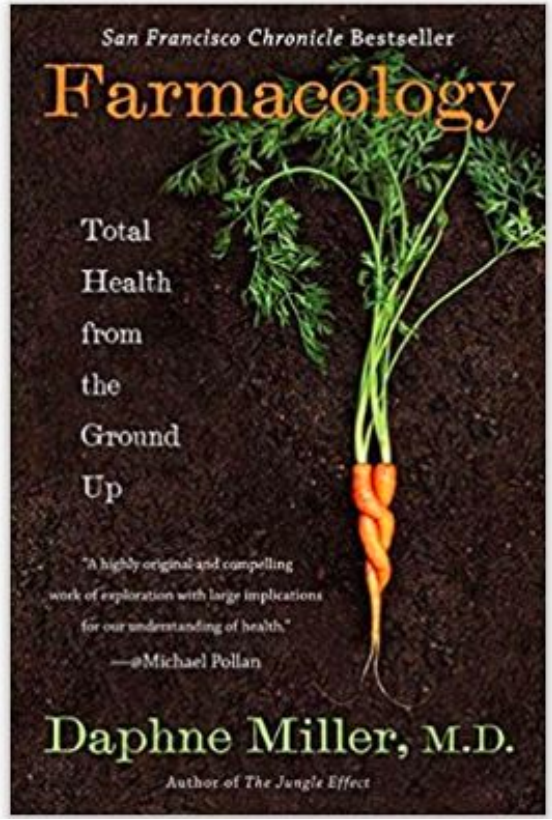
Laney Siegner, UC Berkeley Energy and Resources Group, Ph.D. candidate
asiegner@berkeley.edu

Photo credit:
https://blogs.psychcentral.com/mindful-living/2011/03/eating-earth-becoming-earth/

Why food and climate?

- Agriculture accounts for between 14-25% of greenhouse emissions (IPCC 2014; Smith et al. 2014)
- Farming activities are a large source of emissions, but also have large sink capacity via soil carbon sequestration and improved N-fertilizer management (Lal 2011, 2012; Paustian et al. 2016)
- Land management and agroecology strategies for climate change mitigation are high potential, low cost solutions with multiple benefits
- 8 of the top 20 most impactful solutions to climate change according to Project Drawdown are food-related; over half of the top 20 relate to either food or land use
- Food systems solutions are win-win for human and planetary health

Rank	Solution	Sector	TOTAL ATMOSPHERIC CO2-EQ REDUCTION (GT)	NET COST (BILLIONS US $)	SAVINGS (BILLIONS US $)
1	Refrigerant Management	Materials	89.74	N/A	$-902.77
2	Wind Turbines (Onshore)	Electricity Generation	84.60	$1,225.37	$7,425.00
3	Reduced Food Waste	Food	70.53	N/A	N/A
4	Plant-Rich Diet	Food	66.11	N/A	N/A
5	Tropical Forests	Land Use	61.23	N/A	N/A
6	Educating Girls	Women and Girls	51.48	N/A	N/A
7	Family Planning	Women and Girls	51.48	N/A	N/A
8	Solar Farms	Electricity Generation	36.90	$-80.60	$5,023.84
9	Silvopasture	Food	31.19	$41.59	$699.37
10	Rooftop Solar	Electricity Generation	24.60	$453.14	$3,457.63
11	Regenerative Agriculture	Food	23.15	$57.22	$1,928.10
12	Temperate Forests	Land Use	22.61	N/A	N/A
13	Peatlands	Land Use	21.57	N/A	N/A
14	Tropical Staple Trees	Food	20.19	$120.07	$626.97
15	Afforestation	Land Use	18.06	$29.44	$392.33
16	Conservation Agriculture	Food	17.35	$37.53	$2,119.07
17	Tree Intercropping	Food	17.20	$146.99	$22.10
18	Geothermal	Electricity Generation	16.60	$-155.48	$1,024.34
19	Managed Grazing	Food	16.34	$50.48	$735.27
20	Nuclear	Electricity Generation	16.09	$0.88	$1,713.40



Project Drawdown Top 20 solutions and Daphne Miller's book *Farmacology*

There is growing interest among school garden teachers and farm-based educators in incorporating a climate education element into what they do with food/farming and students

For Farms

INTRODUCTION

LESSON 1

FOOD AND CLIMATE CURRICULUM FOR FARMS

For students in grades 6-12.

Website for food and climate curriculum: www.laneysiegner.com

Food and Climate Curriculum Overview

Learning Objective	Topic	Experiential Activity
1. What is climate change? How do food systems interact with climate systems?	Weather vs. climate	Climate storytelling exercise, weather data-logging in garden
2. What factors, including agriculture, have caused the rise in global temperatures?	Causes of climate change; Carbon cycle	Carbon Role-Playing Activity
3. What are the effects of climate change and what will that look like here?	Effects of climate change	Garden resilience plan
4. How can we monitor effects locally?	Farmer monitoring efforts	Guest speaker or tour of local farm
5. What are local solutions to climate change?	Climate action and solutions	Composting
6. Launch class food-climate action project(s)	Student determined, i.e. biochar	School garden improvement project

Implementing the curriculum

School Garden Classrooms

- Lopez Island Sustainable Practices class
- Edna Brewer Middle School, Oakland CA
- American Indian Model School, Oakland
- Oakland Charter Academy
- Breakthrough MN summer program

Farm-based education settings

- Shelburne Farms, VT
- Vermont Youth Conservation Corps
- Wolfe’s Neck Center for Agriculture and the Environment, ME

Questions?

Laney Siegner
asiegner@berkeley.edu