

Overview of Classical Discourse on Food and the Environment

Final Exam Prompts for Geography 130: Food and the Environment
(Prompts Highlighted with Original Answers by Nan Farley)

Roughly three-quarters of the billion or so hungry people in the world are rural agricultural producers or recent migrants from rural areas. Why? Why do so many of the people who work in the US food system- on farms, in processing and distribution, and in restaurants- experience chronic food insecurity? What kinds of measures could be taken to address this? Use at least four readings or movies from the course to substantiate and/or illustrate your answer.

Hunger Breakdown:

- Rural agricultural producers (peasants and their communities) 75% of starving farmers
- Recent migrants 25% of starving farmers

Why are these people hungry?

Unequally productive agricultures (Mazoyer Roudart- 1st reading assigned)

This is the notion that very small number of farmers are able to practice high-yield agriculture; there is a widening gap between the most productive farms and least

Smaller farms can't keep up with **costly large-scale motorization and mechanization**
“fewer than 10% of farms have succeeded in going through every stage of this revolution [mechanization and motorization]”

Brown/Getz define **food security** by FDA definition: having access at all times to enough food for an active, healthy life for all members

Food insecurity: (Holt-Gimenez) lack of access to a sufficient amount of affordable food

People who experience chronic food insecurity:
Labor lecture/readings (April 14)

Saru Jayaraman *Shelved* analysis of CA- even if industry is thriving, wages and conditions for workers abysmal with high instances of poverty/hunger
More specifically about grocery retailers, but analyzes importance of being in a union –which is not an option for many illegal immigrants and this is another contributing factor to their exploitation and hunger thereafter

*****Sandy Brown/ Christy Getz *Farmworker food insecurity and the production of hunger in CA***

Vulnerability of farmworkers systematically constructed

Devaluation of agrarian labor (reader 2 pg 862)

Comment made that not trying to help the laborer reproduce but simply be replaced by new ones

Denied citizenship, workers' rights, contracts

Invisible class to be exploited

Agricultural workers' pay one of the lowest

FFPSA found that income, documentation, and food stamp related to food security all of which immigrants cannot obtain

What is the relative contribution of food production to global greenhouse gas emissions? Which gases from agriculture are the most important contributors, and which parts of the food system produce them?

What are the projected effects of global warming on agricultural productivity over the coming 50--85 years? How and to what extent are these changes expected to affect the prevalence of hunger worldwide?

IPCC says in *2013 Assessment Report* relative contribution: Food production has a great amount of emissions 1/5 of all emissions (22%)

Carbon dioxide CO₂: farm house

Methane CH₄: animal waste "livestock"

Nitrous Oxide N₂O: fertilizer, animal waste "livestock", cultivation

Effects of global warming on agricultural productivity:

Temperature rising: affect crops (10% in CA in 100 yr)

Precipitation: more precip expected in currently dry places vice versa

Fisheries: fish can't regulate what happens to their bodies

Livestock: hotter temps reduce animal feeding/growth

Agriculture: closer to equator will be harder to grow food but higher/lower have positive projected affects

4 major crops: **corn, rice, soybeans, wheat**

Agricultural changes → hunger

Agricultural disparities will exacerbate the current state of hunger worldwide

Africa and Asia not in good position because agricultural conditions will worsen whereas northern

European countries will prosper with more fertile land

IPCC: "very likely" to have **increased food prices** by 2050

IPCC: Increased number of undernourished children by 5 million

Limitations

these agricultural changes will have less of an effect than **income inequality** does on hunger

agricultural changes do not account for new technology and soil changes

Discuss the property relations surrounding germplasm. Why has it historically been difficult to commodify the seeds used by farmers? In what ways have these difficulties been overcome? In which contexts have improved seeds been considered public property, and in which contexts have they been private property? What role has scientific research played in distinguishing private from public germplasm, and how has the line between the two shifted over the past century or so? What are some of the effects of these changes on farmers today?

Kloppenburg *First the Seed*

Difficulties to commodify seeds/ how they were overcome:

Biological barrier to commodification- seeds are **self-reproducing** so must interrupt natural self-reproduction

Overcome:

Hybrid seeds combat this because you cannot economically save and replant their progeny, thus they only have use and exchange value as a grain (Kloppenburg reader 1 pg 413)

Social barrier - make seed varieties private property such that replanting them is illegal

Overcome: state regulations/interference to ensure capitalist enterprise

Plant Patent Act of 1930 ensured protection to breeder of novel varieties of asexually reproducing plants (reader 413)

Plant Variety Protection Act also did this in 1970

Seeds as **public** property:

Seeds are a “common heritage of mankind”

Free good apart from costs of collection

Largely developed research within the public sector (US Patent Office etc) who created strands with high quality against which private sector seed developers would be compared against

State played role in combatting seed market concentration

Seeds as **private** property:

Part of **primitive accumulation** (Marx/ Kloppenburg reader pg 419)

Idea that seeds now commodified for exchange value not just use value

Patent law: Scientific research and development makes germplasms private

Became lucrative to sell seeds

How has line between public/private shifted?

“The history of plant breeding since 1935 is a reversal of the previous pattern of institutional development [public sector seed research]. It is a chronicle of the loss of public leadership and the ascendancy of private industry” (**Kloppenburg** reader pg 414)

Also a blurry line

Ex: of transnational **transgenes** with Mexican maize and transgene maize becoming mixed is **hard to quantify** (**Wainwright**)

Effects on farmers:

Growing **dependence on banked germplasm**

Technological treadmill: more and more competitive farms where farmers have to keep up with technological and genetic advances to meet cost of production and have profitability

Become **distanced** from their own seed production (Marx) because they cannot own the seeds themselves

FoodInc- Monsanto essentially a bully, especially difficult to run a seed sorting business

The increasing prevalence of obesity in the last three or four decades is frequently described as an “epidemic.” What are some of the patterns in the distribution of obese and overweight people over time and across different age groups, genders, races, and classes? Describe and compare the theories that have been offered to explain these patterns. What are the strengths and weaknesses of each theory, and what kinds of solutions does each theory suggest? In your opinion, is it accurate or helpful to call obesity an epidemic? Why or why not?

Trend: overweight people disproportionately lower socio-economic status

Patel Stuffed and Starved Theory to explain how “global hunger and obesity are symptoms of the same problem” is the **system of food production**

Patel: “it’s now possible for people who can’t afford enough to eat to be obese.”

Theory: **Food insecurity (Holt-Gimenez) lack of access to a sufficient amount of affordable healthy food**

Solutions:

Holt-Gimenez solution to food insecurity mainstreaming niche markets, land reform

Weakness: Difficult b/c food system only focused on corporate profitability

Trend: women/ babies!

Guthman *Weighin In* notes increased obesity in

African American women

Hispanic women
Differences in obesity for different socioeconomic white women
(no significant differences among men)
More obese **babies**

Theory: **Guthman**- food production creating obesity

Guthman

caloric intake is the same across groups, difference is energy balance (reader 2 pg 713)

Epigenetics: environmental effects on gene expression

Obesogenic environment: chemicals interrupt hormonal activity, chemicals may stimulate growth of fat cells,

Weakness: data over long period of time on this is difficult

Solution: NOT have lower caloric intake, moreover need policies to protect people against toxins related to obesity

Trend: Americans

Moss *Extraordinary Science of Addictive Junk Food:*

¼ American adults obese

12 million American kids obese

Theory: carefully engineered sugary, salty, fatty foods and people are vulnerable to their products

Solution: change how we process food

Epidemic?

Epidemic: a widespread occurrence of an infectious disease in a community at a particular time

Think back to the video (made by Berkeley students) we watched about all of the health related concerns that come with obesity (diabetes, heart disease, early death)

Explain why California farmland is so expensive. What effect do these high land values have on the prospects for organic or alternative agriculture? How do highland values relate to food insecurity among farm laborers? What is the “great paradox” of California agriculture as defined by Walker, and how has it been maintained?

This prompt address the relationship between cheap labor, intensive production, and high land values as they all are products of and continue to produce one another.

CA farmland expensive:

Guthman reader 675

CA = #1 agricultural stat in US for 50+ years

Farmland in CA has history of elite landowners with monopolistic control after the goldrush

Specialty crops grown in CA: nuts, fruit, vegetables

Technology embedded in land

Effect of expensive farmland on organic alternatives:

-To afford land organic growers must grow higher-value crops intensely

“In a state where past agrarian transformations have forced high agricultural land values, growers are moving to even higher-value production schemes, such as organic production, in order to survive” **Guthman reader 683**

Organic production **bound by/contributing** to intensification and valorization of CA agriculture

Valorization: innovation and reorganization that leads to higher-value crops

Intensification: sped up production of more common place crops, regional land values capitalized on these innovations

-long-term investment needed for organic certification

Currently the improvements that land must undergo to be certified as organic are the key **barrier to entry** and, this, the legal basis of any economic rents received in the market. These market rents can be capitalized into higher land values when landowners of a scarce resource exert power to take cut of premium prices (**Guthman reader 682**)

High land values → food insecurity among farm laborers:

Saru Jayaraman *Shelved* analysis of CA- even if industry is thriving, wages and conditions for workers abysmal with high instances of poverty/hunger

More specifically about grocery retailers, but analyzes importance of being in a union –which is not an option for many illegal immigrants and this is another contributing factor to their exploitation and hunger thereafter

Marx- organic composition of capital (OCC)

constant capital versus **variable** capital

In order to try to keep making profits when farmland is becoming more expensive, must cut costs among farm laborers

Farm laborers thus become one of the poorest, hungriest classes

Guthman- “price premium masks exploitation of land and labor”

Walker “great paradox”: “it remains fundamentally a cheap labor regime despite the immense growth of farm revenues and productivity”

Maintained: through immigrant workers

Government policy: **bracero program** where immigrants come in and work for the season; **Guthman reader 682** even calls it a “subsidized labor force”

Loopholes

Union-busting

Marx notion that less bargaining power as become more **disposable workforce**

Immigrants can't get legitimate claims to wages, rights, economic justice

Define the demographic transition and the demographic multiplier. On what empirical basis did demographers come up with these ideas? How did these ideas influence the Green Revolution? What were the main components of the Green Revolution, and what were its effects in different parts of the developing world? Who benefited from it, and who did not, and why? What other kinds of policies might have been more effective in helping societies to complete the demographic transition?

Livi-Bacci

Demographic transition: **social transformation** with many innovations from the Industrial Revolution

Includes changes in many factors ex of European population:

multiplied

life expectancy increased

avg # of children per woman decreased

birth and death rates declined

factors that affect this are birth control, medical attention, and other innovations

Demographic **multiplier**: population after transition/population before transition

Useful tool to see how industrialization affects populations

countries have different multipliers when gross increase in population is different

developing worlds have larger demographic multipliers

Empirical basis:

Studies have shown that the number of children per woman has decreased over time with an increase in life expectancy over time

This shows demographic trends of transition to higher mortality and fewer births

Thus the demographic multipliers of countries that have undergone significant demographic transitions with have larger populations after transition/

Influence on the Green Revolution:

More people □ less land space in North and South America □ need to be more productive on land □ Green Revolution

Connelly *Fatal Misconceptions Birth of the Third World* confirms theory that green rev can combat population increase

Green Revolution main points: Lecture 15

Mazoyer green revolution was the period of agricultural trends in mid-1800's emphasizing improved productivity on food production (especially rice, wheat, maize)

High-yield emphasized

Combat fear of growing population

Promote modernization

Effect on developing world:

Huge increases in crop production in Latin America, Asia, Africa, Middle East

More emphasis on cultivation

Ecological impact where more production occurring □ for food to export. Thus developing world does not even get to eat the food and has depreciated land.

Who benefited? Lecture 15

Consumers: lower food prices

NOT really farmers overall because barriers to entry and rising productivity demands

Those farmers whose yields went up more than prices went down for their crops (small percentage which economies of scale)

Farmers who subsist on their own crops

What is the "metabolic rift"? When and where did it first emerge, according to Foster and Magdoff? What are its three dimensions, according to McClintock? How did the Haber--Bosch method of synthesizing fertilizer, and the rise of confined animal feeding operations (CAFOs) each exacerbate the rift? Describe the evidence that the metabolic rift has achieved a global scale in today's world, using specific examples of crops and patterns of global trade.

Metabolic rift: **Marx-** capitalist production disturbs metabolic interaction between man and the earth; capitalist agriculture robs the soil

When/where: Europe at the time of the industrial revolution 1860's wherein cities were being built up and people were migrating to concentrated areas

3 dimensions of metabolic rift: reader pg 926

Ecological- nutrient cycling, rescaling of production that follows

Depletes rather than regenerates

Social- commodification of land, labor and food

Rise of **wage** labor, "production of food is often a subsistence activity"

Individual- alienation from nature and products of labor

HaberBosch synthetic fertilizer/ CAFO's exacerbate the rift:

Fertilizer allows for the rift to continue to occur; the rift would naturally lead to an end in soil productivity but because fertilizers work in the way natural processes work sewage treatment and pollution remain a problem

CAFO's are also extremely detrimental; they do the same thing, aerial pictures of "lagoons"

Metabolic rift has achieved global scale:

Ex of crops: Green Revolution crops: **rice, wheat, maize**

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Ex of global trade: **Gollin**

"increased food production has contributed to lower food prices globally"

Average caloric intake has risen as a result of lower food prices

Large amount of crops exported

In 2005, the Millennium Ecosystem Assessment used ecosystem services as a framework to address global environmental degradation. a) What is meant by an ecosystem service? What are several major types? How do they relate to "natural capital"? b) Why has modern economics typically overlooked ecosystem services? c) Why do some economists believe that assigning prices to ecosystem services would help achieve conservation? d) What kinds of problems arise in trying to measure the value of ecosystem services and assign prices to them? Finally, e) how might ideas of primitive accumulation and commodification argue against this proposed solution?

Ecosystem services: nature's contribution to human well-being (anything that nature does to improve our lives)

*don't produce ourselves

*humans need

*don't normally pay for

*gives value to certain kinds of landscapes

*filter for pollution

Ecosystem services important because they draw attention to our dependence on functioning ecosystems

→ then assign prices that give quantitative measure of value of services

Types:

Food

Water

Disease management: pollution sinks, medicines

Climate regulation: temperature, storms, atmospheric chemistry, winds, currents

Spiritual fulfillment

Aesthetic enjoyment

“Natural capital”: **Costanza** trees, minerals, ecosystems, atmosphere, water, etc.

Castanza et. al- **value of natural capital**, calculated extremely high figures for the value of ecosystem services; somewhat of a plea to policy-makers that our entire global economy depends on ecosystem services

Costs of environmental degradation are experienced by the people who benefit **LEAST** from commodifying the environment

exploitation, degradation

potential pitfall: if you say that carbon is not worth as much as the wood from cutting down a forest then you essentially commodify the carbon and give license to cutting down the forest if lumber pays more

Modern economics overlooking ecosystem services: **Gomez-Baggethun**

Smith viewed nature's benefits as only **use values**

Neoclassical economics restricted analysis to **exchange values**

But need to account for exchange value of degradation of environment now...

Hence,

Assigning prices to ecosystem services **help** conserve:

-Essentially **priceless**, thus assigning prices would put the environmental cost versus the market cost of the good being extracted from the environment into **perspective**

-Notion that “**nonmarketed**” ecosystem services are **threatened or lost**

-Value → price

Allows for replacement of loss of natural processes etc.

Problems with assigning value:

Essentially saying that if the good extracted from the environment has a market price and so does the environment then if the good is worth more it is acceptable to use the ecosystem

Doesn't currently exist

Natural capital doesn't actually become capital until it isn't working anymore

Primitive accumulation/ commodification argue against assigning value to environment:

primitive (or original) appropriation: conversion of means of production into private property such that only some people own the land/means of production (**enclosure**) thus some people must sell their labor for wages; precondition for commodification of labor

Smith: labor is a commodity in so far as it has a price on the market and that price is the cost of producing

Kloppenbug: primitive accumulation is an ongoing process- it expands/intensifies

ex: commodifying seeds/germplasm

Kloppenbug looks at ag production in 1860's: finds that many farms were self-sufficient by using seeds from previous years, animals would have offspring, manure replenished soil fertility, make their own clothing, etc.

what has changed over time- selling crops and buying what they need

but need to buy even more of the inputs- seeds, tractors, animals, even pest control

now farmer has to purchase things that they used to be self-sufficient for

this is a process of commodifying nutrients and substituting industrial processes

Foster and Magdoff: commodification of nature

*** Marketization of ecosystem services may require that they are privatized

More incentive

No tragedy of the commons

Harmful things could be profitable

Describe the extent of corporate concentration in the food system today. What are the causes of concentration, and what are its consequences for farmers (both industrial and alternative), consumers, and the environment?

Causes of corporate concentration:

Marx would say capitalist system

Hauter: Foodopoly

10 companies produce 50% of all fast food

4 companies control 50% of all grocery sales

Corporations able to become giants through mergers

Cut costs by shifting them to suppliers, environment, and workers

Exacerbate large-scale production

Green revolution

Enclosure

Government policy

Supporting immigrant workers

Private property

Consequences of corporate concentration:

Industrial farmers-

Treadmill

Go organic

Alternative farmers-

Can't compete

Consumers-

Less autonomy over what they eat/ how it is produced

Hauter says not necessarily lower costs for consumers, but higher profits for merged chains

Environment-

Private property, people exploit the land

Large-scale effects

Mansfield big fishing

What is agrarian romanticism? Explain its origins as a response to agricultural enclosures in England. How did these ideas shift when applied in the American context? In what ways is agrarian romanticism consistent with ideas of food justice and food sovereignty? In what ways is it inconsistent with them? Use Wendell Berry and *The Garden* to discuss the relevance of agrarian romanticism for ideas of property and labor in the US today.

Danbom

2 types

Rational agrarianism: tangible contributions of agriculture and rural people to a nation's economic and political well-being

Romantic agrarianism: **moral, emotional, and spiritual benefits agriculture and rural life** convey to the individual

British Enclosures:

Open field farming destroyed, traditional use rights to the commons abolished

Publicly used land became private property of large landowners

State enabled
Agricultural “improvements”

→□Created tension and flat-out desertion such as in Scottish Highlands

American context: found a **middle ground of yeoman farmers**

Able to reconcile **private property**, individual liberty, and comfort with working the land as small owners

But also difficult because **neither wealthy elite nor masses**

Mostly old white men

Agrarian romanticism reactionary against modern, urban, and industrial

Holt-Gimenez

Food justice: right to food

Current system many go hungry

Ex: Food Deserts

Ex: those who work in food industry are the hungriest

Food sovereignty: right to means of production- exactly what agrarian ideal is

Ex: Back-to-the-land movement in 1920's with agrarian romanticism as main driver but embodied early notions of food sovereignty

Inconsistencies: **Guthman**

CA organic agriculture somewhat of an attempt at agrarian romanticism

Addresses GMO's, and other environmental concerns

Labor off the agenda?

Redistributing land to smaller agrarian farmers necessarily asks who they will be

Wendell Berry reader 651

Embodies notions of agrarian romanticism and returning to the land away from capitalism

Property: we all have to make demands

Labor: **specialization** of occupation alienates people from their own productivity, thus themselves/world; also makes us incapable of making our own food

Consumer is dependent on the manufacturer and system at large

The Garden

Property: somewhat reminiscent of enclosure where people claiming rights to certain land

Example of how even when people try to embody the agrarian ideal they meet other challenges

Labor:

What is primitive accumulation, according to Marx? How does Kloppenburg expand on Marx's idea? How might these ideas be used to explain or interpret (a) fisheries depletion, (b) urban food deserts and urban agriculture, and (c) food insecurity among the Karuk tribe and other rural populations? Use at least six readings or movies from the course to illustrate your answer.

Marx *Capital*- primitive accumulation: “nothing less than the historical process of divorcing the producer from the means of production” (reader pg 419)

precondition for commodification of labor

Process wherein the laborer must thus sell their labor for a wage and are systematically kept from owning the means of the very things they produce

Also related to idea that food is now commodified for exchange value not just use value

Kloppenburg: applies this to the **privatization of germplasms**

Idea that seeds now commodified for exchange value not just use value

Patent law: Scientific research and development makes germplasms private

Became lucrative to sell seeds

This then affects farmers who become **distanced** from the product

Food Inc: Monsanto

Fisheries depletion-

Mansfield *“Modern” industrial fisheries and the crisis of overfishing*

Large-scale

Profit-maximizing

This process of commodification for exchange value emphasizes overproduction and economies of scale.

This is seen in this text such that large boats are able to make more money and thus contribute to notion of “modern economic development”

Darwin’s Nightmare

Example of extreme extent to which some people become distanced from the product and how it is facilitated by a capitalist system. Paradox wherein Africans in Tanzania are most closely related to the fish production yet are some of the most malnourished populations

Urban Food Deserts-

McClintock *on demarcated devaluation in the flatlands of Oakland*

Urban food deserts problem of **food security** with limited access to affordable nutritious food

No local agriculture

Food Insecurity for Karuk Tribe/ rural populations- **Lecture 20**

Karuk- **Noraag** *Institutional racism, hunger, and nutritional justice on the Klamath*

Distanced from the process of their own food

Literally displaced from their previous system of food production

Karuk tribe denied land, hunting rights and couldn’t secure own food. This led to massive food insecurity, mainly due to the fact that they were accustomed to eating extremely healthy salmon, and now must rely on food stamps and other processed foods to take over their diets.

Rural populations aka starving farmers: those who work the most with food are the most abstracted from it

Unequally productive agricultures (Mazoyer Roudart)

This is the notion that very small number of farmers are able to practice high-yield agriculture; there is a widening gap between the most productive farms and least

Smaller farms can’t keep up with **costly large-scale motorization and mechanization**

“fewer than 10% of farms have succeeded in going through every stage of this revolution [mechanization and motorization]”

*****Sandy Brown/ Christy Getz** *Farmworker food insecurity and the production of hunger in CA*

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Devaluation of agrarian labor(reader 2 pg 862)

Comment made that not trying to help the laborer reproduce but simply be replaced by new ones

Explain how railroads, the telegraph, and the Chicago Board of Trade contributed to the famines that occurred in India between 1870 and 1900. Then describe how Adam Smith’s and Malthus’s ideas about the causes and solutions to hunger also contributed to the famines.

Cronon *Pricing the Future: Grain* (reader 1 pg 380)

Railroads

- More grain: by joining with railroads the grain elevators “liberate western farmers from the constraints of water and winter vastly increasing the amount of grain that could move to market”
 - travel efficiently
 - mass-production
- 1854 no place was more important than Chicago for grain shipment

Telegraph

- speed: “increased the efficiency of regional markets by giving graders speedier access to the same news”
- globalization: “brought prices in different places closer together” (reader, 392)
- Local prices now discounted
- Concentrated sources of information into big cities

Chicago Board of Trade: made future markets possible □ paper receipts of grain and economies of scale
→ international markets □→ globalized food system
Commodified food

Davis *Late Victorian Holocausts* (reader 2 beginning)

Railroads

- Supposedly created in India to safeguard against famines instead used for merchants to ship grain inventories from “outlying drought-stricken districts to central depots for hoarding and protection from rioters” (reader 2 pg 518)
- Taxes to finance railroads crushed riots

Telegraph

“the telegraph ensured that price hikes were coordinated in a thousand towns at once, regardless of local supply trends”

Lytton, a former minister in Lisbon who asserted England’s control of India used the argument that the population in India was greater than the amount of food to “**legitimize Indian famine policy**” and the drastic death toll.

Lytton said that the Indian population “has a tendency to increase more rapidly than the food it raises from the soil”

However this was clearly not the case as they were exporting large amounts of grain

This draws from **Malthus’** notions on the causes of hunger: “the power of population is indefinitely greater than the power in the earth to produce subsistence for man,” soil fertility is essentially static and moreover that larger populations will only result in a decline in soil fertility that can’t support them

solution:

- checks on population (birth control)
 - misery and vice □ part of population dies □ plenty of food again
- Lytton channeled the notion where the “**redundant population**” die out

Smith: “famine has never arisen from any other cause but the violence of government attempting, by improper means, to remedy the inconvenience of dearth” (reader 2 pg. 523)
gov regulation is the cause of why prices don’t naturally work themselves out

Essentially **state regulating grain during famine is bad**

Lytton extended this to say that stimulating imports in India and limiting consumption the economy would find balance through omnipotent markets –but people just starved more with no expense to England

Lytton said it would **bankrupt** India

Grain exports preferred to export record 6.4 mill cwt. Of wheat to Europe in 1877-1878 rather than relieve starvation in India (reader 2 pg 524)