Introduction

FS elements	**Production**: Farmer grows the food **Distribution/Aggregation**: truck drivers pick up from farm Processing: cleaning, inspecting, packaging shipping Marketing: marketing to restaurants, universities, grocery stores, etc. Purchasing: people buy the food Prep/Consumption: cooking… kinda speaks for itself lol Resource/Waste Recovery: Landfills, Recycling systems, Trash systems

Local Food Definitions

USDA	400 miles
NCDA	within state boundaries
Personal	food that is accessible, culturally appropriate from practices to values, and provides regional significance
Food Security	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.

Local Food Definitions (cont)

Food Sovereignty	the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems.
FS VS FS	Food security is a goal while food sovereignty describes how to get there. Food security does not distinguish where food comes from, or the conditions under which it is produced and distributed. Food sovereignty emphasizes ecologically appropriate production, distribution and consumption, social-economic justice and local food systems as ways to tackle hunger and poverty and guarantee sustainable food security for all peoples.
Change-agents	Change agents undertakes the task of initiating or managing change in an organization (innovators → positive outcome)

Local Food Definitions (cont)

Food councils	#1 role: community outreach, planning, and food access (1)Assess food systems, (2)Connect stakeholders (3)Educate leaders and community, recommend policy + program changes
Policy	regulated by government and other institutions (ex: Farm Bill)
policy	defined by cultural practices and norms

RBA

Population > Results > Experience/Story > Indicators + Baselines > Story behind the baselines > Partners >What works > Criteria > Strategy and Action Plan (Goes back to Indicators)

Ask population accountability questions

“What would it take to succeed?”

Indicator: a measure that helps quantify the achievement of a result

- Ex: Median income of American Indian(AI) and Alaska Native(AN) households

RBA (cont)

- Baseline: The median household income for AI/AN households was $35,000 compared to $50,000 for the national average.

Objective: Measuring the health of consumers in an area

Indicator: Number of people that buy produce at the grocery store in that area.

Assessment: a tool for deepening a community's understanding of its food system. It is a systematic way of collecting baseline data and stories that define a community's food system with the goal of identifying ways to enhance or strengthen the food system.

Secondary data: Pros: Abundant (all levels), provides quick insight, often comparable standard formats

Cons: Might not be available, could be old, overall less control

Issues + Impacts

issues

Access to market - (Food deserts, obesity and other diet related illnesses)

Environment Impact - (soil degradation, depletion/deterioration of groundwater aquifers)

Issues + Impacts (cont)

Food waste - (increases methane and other greenhouse gases in the atmosphere)
Why it is hard to do research on local food systems:
1. The definition of “local food” is a gray area. No single definition.
2. There is little data on local supply chains. (ex: farmers selling to supermarkets)
3. Complex, sensitive issues to talk about (economic & health impacts)
Health: Individual weight loss, lower rates of diabetes, lower BMI
Economic: Money spent on local food tends to get respent within local economy. People who shop at farmers markets often shop at other nearby local businesses. Can help support entrepreneurship and new business development.
Community: Working collectively (ex: community garden) creates stronger social ties. More civic engagement.

Climate Change

C Seques-tration	The capacity for agricultural lands and forests to remove CO2 from the atmosphere.
Adaptive capacity (resil-iency)	The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opport-unities, or to cope with consequences.
Ex of AC	diversify crops, CC, marketing

Climate Change (cont)

Direct impacts on ag	1. Inconsistent weather patterns & increased severity of storms destroys yields 2. Rising temperatures is decreasing crop yields (greenhouse effect) 3. New pest, pathogen, and weeds problems. a. Due to changing climate, an insect or weed that couldn’t thrive north of Texas in decades past may find Iowa a perfect fit going forward.
Climig-ration	climate refugees are forced to migrate to survive. ○ Types of Climate Related Migration: involuntary, planned relocation, and general migration.

Climate Change (cont)

Food supply chain, health, and water supply impacts	temperatures rise so does water use for people, crops, animals, and industry. - Increased temp= lack of running water to get clean, and more disease being spread. - Air pollution. - Food and supply insecurity from the effects of COVID-19. Supply chain is running behind.
Biochar	Partly burn materials such as logging slash or crop waste to make carbon-rich, slow-to-decompose substances. It can then be buried or spread on farmland
Cover Crops	adding biomass, reduces pesiticides
Agroforestry, Intercropping	
No till	prevent soil erosion and compaction

Climate Change (cont)

Diet changes	Contrary to popular opinion, food choices have a larger impact on GHG emissions than transportation ("food miles") which contributes 11% of GHG emissions. Production level is responsible for 83% of GHG, and diets can affect the level of production and how it is produced. Red meat is one of the top GHG agricultural products and it is 130 more GHG intensive than chicken or fish. Dietary shifts like consuming red meat once a week to more vegetables, dairy or eggs could be more beneficial than eating solely local food.

Climate Change (cont)

C credits	financial instruments generated by projects to offset GHGS (trees, cc, grazing). Pros: could be profitable, excludes farmers because VC cost 75%

Climate Change (cont)

C tax	Carbon Tax: A government fee imposed on companies that burn coal, oil, or gas. Its goal is to reduce greenhouse gases that cause global warming. - Pros: Makes polluters pay the external cost of carbon emissions. It enables greater social efficiency, as we pay full social cost. Raises revenue which can be spent on mitigating climate change/effects of pollution. - Cons: Firms may shift production to countries without a carbon tax. Administration costs (a new cost) for measuring pollution and collecting the tax itself.
Health impacts	air pollution, disease

Climate Change (cont)

Water	GW decrease, heavy precip., 69% used in ag
FS chain	surplus + deficits, arable land

1. Warmer temp lengthen growing season = higher yeields
2. Decreased soil moisture increases need for irrigation
3. Northern migraton of weeds & weeds responds better to CO2
4. Increase disease pressure --> early springs/winter

RE

Equity: recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome.

3 expressons

- Institutional: not being able to take out a loan at the bank even though you are qualified to do so.
- Cultural: "A seed remembers where it is from", story
- Personal: spending millions of dollars instead of donating individual resources to black farmers.

-**Dismantling white supremacy culture in the workplace**

RE (cont)

- Black/white thinking, perfectionism, defensiveness sense of urgency, quantity over quality, identify explicit goals, transparency, accountability, multracial teams

Robert Livingston: 5 step plan

- (1) Problem awareness, (2) Root-cause analysis, (3) Empathy, or level of concern about the problem and the people it afflicts, (4) Strategies for addressing the problem, and (5) Sacrifice, or willingness to invest the time, energy, and resources necessary for strategy implementation.

Supply Chain

Market channels: the people, organizations, and activities necessary to transfer the ownership of goods from the point of production to the point of consumption

Supply chain: A food supply chain is defined as the set of trading partner relationships and transactions that deliver a food product from producers to consumers.

Supply Chain (cont)

Value chains: strategic alliances between farms or ranches and other supply-chain partners that deal in significant volumes of high-quality, differentiated food products and distribute rewards equitably across the chain.

Values:Accountability, long term commitment, communication, and transparency.

Community development: ENGAGEMENT of community members to pro-actively understand and enhance economic, social, political, environmental, cultural, physical, and educational aspects of
a community through visioning, goals, objectives, and implementation."

Relation to Ag: Shaping community food systems, implementing community gardens, etc.

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Hunger

Biological determinants- hunger, appetite, and taste.
Economic determinants- cost, income level, availability.
Physical determinants- access to food/markets, education, skills (e.g. cooking) & time.
Social determinants- culture, family, and peers
#1: Poverty
Others root causes include: job instability, food shortages and food waste, nutritional quality, discrimination, unstable markets, climate change, war and conflict, etc.

COVID

- Unemployment rose from 3.8%
- Food banks operated by Feeding America saw a 60% increase in need for food assistance across the country
- Changes in demand of consumers, closure of food production facilities, restricted food trade policies, financial pressures in food supply chain, etc.

COVID (cont)

Bottleneck effect in farm labor, processing, transport and logistics, as well as momentous shifts in demand. Most of these disruptions are a result of policies adopted to contain the spread of the virus. (Outbreaks in factory = policy requires shutdown = impact trickles down food supply chain)

Emergency Food Systems: Absence of rights: People relying on food banks have no legal rights if their requests are turned down.
- Fragility & Dependency: Emergency food is dependent on volunteers, donations, and goodwill.
- Leftovers: Food pantries may receive damaged, mislabeled, or almost expired foods.
- Fragmentation: Food pantries may not be spread out evenly in needy areas (ex: one distribution center)

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Food recovery hiearchy

1. Source reduction
2. Feed hungry people
3. Feed animals.
4. Industrial uses
5. Composting
5. Landfill/incineration

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Food Waste

- “Ugly” produce trend: Misfits Market
- Upcycling: products that weren’t completely used in one stage of production getting used in another stage for a new product. (i.e. granola bars made from beer grains, coffee flour)
- Donation (churches, food banks, Society of St. Andrew in eastern NC)

Approximately 40 to 50 percent of food WASTE happens at the consumption level.
- (at home, restaurants, retail businesses, institutions, etc.)

Yet most food LOSS at the production level.
- 20 billion pounds of produce is lost on farms every year.
- Food loss occurs on farms for a variety of reasons.

Food Waste (cont)

- To hedge against pests and weather, farmers often plant more than consumers demand.
- Food may not be harvested because of damage by weather, pests and disease. Market conditions off the farm can lead farmers to throw out edible food. If the price of produce on the market is lower than the cost of transportation and labor, sometimes farmers will leave their crops unharvested.

Different compost methods:
- Putting a container in the freezer and putting scraps in the freezer
- A specific store bought vermic-ompost kit
- Any air tight tupperware that you have at home will work (must be airtight to maintain anaerobic conditions)

Biotech

- Genetic engineering: the deliberate modification of the characteristics of an organism by manipulating its genetic material.

Biotech (cont)

- Agricultural biotechnology: a range of tools, including traditional breeding techniques, that alter living organisms, or parts of organisms, to make or modify products; improve plants/animals; or develop microorganisms for specific agricultural uses.
- Genetically modified organisms: are animals, plants or microorganisms that have been modified using modern biotechnology techniques.

Traits:

- Engineering crops to be more resistant to damages (pest, weather, etc)
- Reduce allergens in crops
- Create plants that detoxify pollutants in soil
- Advancements outside crops (Animal vaccines, improving antibiotic production

-Currently GM foods do not have to be labeled .
-They are highly regulated and undergo testing.
-Different agencies regulate them.
-Beginning in 2022 GMOs will be required to be labeled as “bioengineered”.

Biotech (cont)

-Biotechnology is mostly used in grain crops which are fed to livestock → climate change.
-Some people question if it is safe (human health).
-50% of people surveyed are wary about GM foods.
-40% of people weren’t concerned.
-10% claimed they didn’t understand it enough to know.
-Agronomic health: Weeds have become more resistant to herbicides and insects
-Human Health: No clear evidence of negative effects on human health
-Socioeconomic: positive benefit in reducing crop losses to farmers (more money for them