Stakeholder Reports on Food Goals and Regenerative Agriculture

Introduction

The following two reports were generated from stakeholder conversations and previous efforts to address local food as an entrepreneurship and community resiliency opportunity. These reports include:

1. **Growing a Vibrant Local Food System for Alachua County**
   Spring 2018 Evaluation and Appraisal Report White Paper
   By Anna Prizzia, UF Field and Fork and Working Food
2. **Regenerative Agriculture**
   By Nancy Darren

These issues will be discussed with food and agriculture stakeholders through the 2018 Comprehensive Plan Update process to further refine and narrow the narratives to improve on the next Comprehensive Plan adopted by the Board of County Commissioners.

All writing is in draft, unedited form.

Food Goals and Regenerative Agriculture

Growing a Vibrant Local Food System for Alachua County

Spring 2018 Evaluation and Appraisal Report White Paper

Anna Prizzia, UF Field and Fork and Working Food

Few places do food better than Florida. Our farms are considered the vegetable basket of the US. And, yet, less than 10% of this food is staying in our state. We have vibrant urban areas within a tractor ride of farms growing delicious, healthy produce, but the vegetables and fruits are being shipped out across the world, and with it a lot of economic opportunity and natural resources. The challenges and negative results of this are numerous - reduced resiliency, food security, and health as a nation. Here in Alachua County, we could have a different story.

We could invest in our farms, whose survival is increasingly at risk due to development pressure, regulatory challenges, and fewer growers getting into farming.

Suggested Goals:

***Goal**: Ensure we are providing support for existing farmers and expanding our farms to ensure food security. Increase acreage of food production per year in Alachua County ___ percent per year for the next 10 years. Increase the number of new and beginning farmers working in food production in Alachua County by ____ new farmers per year.*

To achieve these, we would need to protect and reserve farmland for food production, make it easily and affordably available to farmers. We would need to invest in recruiting, training, and technical assistance for existing and new farmers, and focus on developing and supporting agriculture and food

education in K-12 schools and colleges through school gardens, culinary education programs, and other such initiatives.

Some of the biggest expenses for farmers include land, labor, supplies/maintenance, property taxes, and fuel. Also, new federal food safety rules may prove difficult and expensive for farms. Given this, technical assistance would need to focus on helping farmers extend seasonality and productivity, as well as business skills, such as marketing and new market identification. Additionally, we would need to provide access to efficient and affordable irrigation water, and identify ways to organically and locally provide access to soil amendments and nutrients, as soil quality is a critical impediment to farming in Florida. Another important effort is to explore possible changes to land use regulations and opportunities and incentives that will protect existing farm land, and that will support implementing community gardens and urban agriculture initiatives. Finally, identifying and targeting funding for climate resilient farming systems will be critical as we face increasing climate variability.

We could provide more, affordable access to healthy, local food for our community and ensure that our low-income residents have resources to address health disparities such as higher rates of obesity and diabetes.

Goal: Ensure there is healthy, local food easily available and affordable for all. Seek to eliminate of food insecurity in Alachua County by 2050, and in the next 5 years reduce food insecurity from _____ to _____%.

The primary way that Alachua County can address issues of food insecurity is to convene partners to address poverty, transportation, social justice, and other upstream forces that lead to inequitable access to healthy, affordable food. By working with these partners to engage and build capacity in communities to continue to learn and address barriers to increasing fruit and vegetable consumption and food security we can move the needle while empowering our own citizens. In addition to this, increasing policies, practices, and incentives in local jurisdictions that promote access to healthy eating among priority populations needs to be a key target. Some low hanging fruit that would address the address issues could include increasing the amount of fruits, vegetables, and other healthy food options available in food banks and emergency meal programs. Longer term, the focus should be on providing economic opportunities through business and job creation within the food industry, and implementing policies to ensure an improved access to healthy, affordable food, including SNAP at farmer's markets, working with hospitals and health systems to provide healthy food prescriptions, and creating cooperatively-supported CSA drop off sites, mobile marketplaces and increased grocery and corner store options on the east side and in rural areas for healthy food purchasing. Also, creating incentives and support to increase the number of farms, community and school gardens and other garden and farming opportunities available in priority communities, such as housing authorities, low-income housing communities, and schools.

We could invest in local food infrastructure in order to keep our food and natural resources here, reduce waste, and provide jobs and more food security.

Goal 1: Double demand for locally produced, healthy food in 10 years.

As a county with a number of large institutions, a primary driver of this goal would be to increase the number of healthy, local food procurement policies in Alachua County institutions (schools, child care,

hospitals, and universities) and in large gathering places (community centers, worksites, recreational/cultural settings). To assist this being successful, there would need to be an increase in technical assistance for sourcing locally - farmers/ producers would get help with retail-readiness and market connections and marketing assistance would be provided for institutions, restaurants, and retailers. Another important aspect of this goal would be to improve the local food processing, aggregation, distribution, and marketing infrastructure in Alachua County. This infrastructure is critical as consumers and retailers consistently identify basic food processing such as wash-and-pack and bulk quantities as their top needs when sourcing locally. This infrastructure will also support local business development in food-related industries. Another area that could be explored to assist in achieving this goal would be researching and supporting emerging markets for selling locally- produced food. This could be things like partnering with other community priority program development efforts, like public transportation or waste reduction to increase distribution and access to local food. Last, but not least, educational efforts will be crucial to engage citizens, and could include identifying and implementing strategies with the retail sector to promote and incentivize fruit and vegetable purchases, including an awareness campaign to educate consumers about Alachua County-produced food via marketing and programming.

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Regenerative Agriculture

By Nancy Darren

The myriad of issues resulting from our current conventional food system are well known.

40% of the world's farmland is considered seriously degraded. Erosion carries off soil organic matter as well as nutrients. Soil carbon loss contributes 30% of greenhouse gasses

70% of water use globally is for agriculture

in the US, an estimated 90% of historic fruits and vegetable varieties have disappeared

90% of American food dollars are spent on processed food

40% of food produced is wasted

Food that is produced but not eaten adds 3.3 billion tons of greenhouses gases to the atmosphere every year. Up to ½ household waste could be composted The food production and supply chain accounts for about 30% of total global energy consumption. (UNESCO, 2012)

Here locally, the Howard T. Odum Florida Springs Institute has completed the first phase of the "Blue Water Audit. The audit estimates that about 22,000 tons of nitrate-nitrogen reach the aquifer each year in Florida's 15 million-acre springs region.

The Healthy Food Environment Index just released by the County Health Roadmaps and Rankings, shows Alachua County #34 in Florida's overall health ranking

The United Way report found that nearly 46% of households in Alachua County don't earn enough to cover basic living expenses.

How do we begin to address such a myriad of deep seated problems?

We can have a different **vision**, one that starts with building a robust local food system.

A food system framework continually reminds us that food access, healthy diets, and sustainable farming are all part of one interdependent system that promotes greater health and quality of life for all.

It is a vision of local, sustainable food production from farms and ranches that are managed for land health, biodiversity and human well-being. It is a vision of new agrarians working to sequester carbon in

soils, improve water quality and quantity, restoring native plant and animal populations, fixing creeks, developing local energy sources, and replenishing the land for people and nature alike. It is a vision of coexistence, resilience, and stewardship – a place for people in nature, not outside it. (2 Quivira Coalition)

It all starts with the soil, and our current food fossil fuel based production system and management practices that destroy the relationships between soil and plants, farmers and the land, growers and eaters and between the soil and human microbiome, impacting the health of both.

Prior to the Industrial Revolution, around 97% of the nitrogen supporting life on earth was fixed biologically

The application of high rates of inorganic nitrogen in agricultural systems has had many unintended negative consequences for soil function and environmental health. Data from North America's longest running field experiment on the impacts of farm production methods on soil quality have revealed that high nitrogen inputs deplete soil carbon, impair soil water-holding capacity - and ironically, also deplete soil N (Khan et al. 2007, Larson 2007).

Globally, over $100 billion of nitrogen fertilizers are applied to crops and pastures every

year. Between 10 and 40% of the applied N is taken up by plants. The other 60-90% is leached into water, volatilized into the air or immobilized in soil. Cost-effective nitrogen management is the key to profitable and productive farming. It is also the key to building soil carbon. Stable forms of soil carbon (such as humus) cannot form in the presence of high levels of inorganic nitrogen, due to the inhibition of the microbes essential to sequestration. (1Dr Christine Jones)

Every 1% increase in organic matter results in as much as 25,000 gallons of available soil water per acre (USDA)

Plants and soil store nearly 1/3 of excess CO2

Where regenerative farming and ranching practices build more fertile, nutrient dense soils using management practices that reduce chemical and fossil fuel inputs and build healthy, nutrient dense soil through practices such as: utilizing cocktail mix cover cropping, organic composting, holistic planned grazing, multi species diversified plants and animals

Where fruits and vegetables are no longer considered "specialty crops", but are part of a mosaic of nutrient dense staples, grown, processed, eaten locally and recycled into compost that feeds the soil,

We can develop a comprehensive wasted food recovery and use set of policies

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Local processing centers around the county increase farmer income by turning culls, seconds and unsold produce into value added products and cut and frozen fruits and vegetable

Local composting businesses take food scraps and organic waste and turn them into soil amendments that reduce use of chemical fertilizers, reducing artificial nitrogen pollution of water and soil and restoring soil capability to build organic matter store water and sequester carbon

Restaurants and institutions recycle all food scraps to the composting

Restaurants and institutions have local and sustainable purchasing policies that provide stable and large enough demand and markets for local farmers/ranchers to voluntarily begin to adopt regenerative/ agro ecological management practices that earn a livelihood, decrease use of fossil fuel based inputs, reduce nitrogen pollution of our water, improve biodiversity and build healthier soil that leads to more nutrient dense food leading to improved health, lower rates of food caused illness such as diabetes and obesity .

Youth are engaged in learning through food and gardening that can lead to careers with high schools and Santa Fe college offering certificates and training in the broad array of food related businesses. They learn the importance of environmental stewardship and reconnection to nature

We have entrepreneurship programs that teach and mentor start up food system and ecology businesses

New agrarians are supported in land access with business TA and land access programs and local investment

Cooperatives, and associations that support the whole group should be supported. Bulk buying, equipment " library" where check out equipment and pay a membership fee for maintenance, repairs and upkeep

We protect our water quality and quantity by encouraging regenerative agriculture principles that work with Nature; understanding our interconnectedness to the ecosystem we live and farm in, by using agro ecological methods that increase biodiversity, improve health and nutrient density of food produced, and reduce or eliminate chemical and fossil fuel inputs and ground water irrigation by focusing on building healthier soils.

Even with our poor, sandy soils, we can compost, use multi species holistic planned grazing, cocktail mixes of cover crops, silvo pasture, and more heritage and locally adapted varieties of plants.

Healthy soils are key to landscape regeneration, water filtration and ability to act as a sponge to hold and release water.

We have a sustainable food system that seamlessly connects urban to rural, from community gardens to clustered bio intensive greenbelt to a mix of small, mid and large scale farms and ranches connecting to wildlife corridors and wild spaces, and all contributing to a diverse ecosystem that is in relationship with the land and people. We identify and maximize circulation of our local assets at each level, and create an

interdependent web of circulating resources where the waste of one becomes the feedstock of another. Instead of a linear, compartmentalized extractive system that demands increasing inputs of scarce money and resources, increasing degradation of land air and water, our food system is modeled on Nature's system of interconnected cycles that don't waste precious resources, but work to maximize diversity and well being of all.

Our policies and practices support and educate adoption of the various components that begin to build this sustainable system that fosters ecological health and well being and economic vitality and equity.

Our food policy council has identified our unique local assets and micro climate, and matched them with unmet needs , mapped how our food system is connected, identified the array of players, where we are "leaking" resources and money and develops strategic plans and public education

We define healthy food from an ecological viewpoint, and our institutions support our local agriculture and food based businesses. We have adopted Healthcare withou Harm' Healthy food cannot be defined by nutritional quality alone. It is the end result of a food system that conserves and renews natural resources, advances social justice and animal welfare, builds community wealth, and fulfills the food and nutrition needs of all eaters now and into the future.

Developing a food policy council that connects the diverse aspects of an interconnected food system and develops strategic plans that together see our foodshed as an interconnected system that fosters environmental, economic and equitable well-being for all participants. Soil, plants, wildlife and farm animals, and people can thrive

Policies educate the public, encourage practices

Addressing wasted food by developing local processing, distribution and food based businesses that give farmers a way to increase their income by having a place for culls, seconds and produce that would have been discarded and wasted.

After feeding people, food recycling from households, restaurants, institutions to keep organic matter out of the landfill and develop compost businesses located across the county. These businesses then sell the compost to urban residents, urban gardens, farmers and ranchers to reduce and replace use of chemical nitrogen fertilizers.

http://www.ipes-food.org/agroecology REPORT: 'From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems'

Industrial agriculture is a key contributor to the most urgent problems in food systems. To date, food systems contribute around 30% of global greenhouse gas emissions; around 20% of land on earth is

degraded; more than 50% of human plant-derived foods now depend on three crops (rice, maize and wheat); 20% of livestock breeds are at risk of extinction; the extinction of wild species and the application of insecticides threaten the 35% of global crops dependent on pollination; around 2 billion people suffer from micronutrient deficiencies.

Chemical Nitrogen Fertilizer is a core problem because it destroys soil function and the soil microbiome: Prior to the Industrial Revolution, around 97% of the nitrogen supporting life on earth was fixed biologically

The application of high rates of inorganic nitrogen in agricultural systems has had many unintended negative consequences for soil function and environmental health. Data from North America's longest running field experiment on the impacts of farm production methods on soil quality have revealed that high nitrogen inputs deplete soil carbon, impair soil water-holding capacity - and ironically, also deplete soil N (Khan et al. 2007, Larson 2007).

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year. Between 10 and 40% of the applied N is taken up by plants. The other 60-90% is leached into water, volatilized into the air or immobilized in soil. Cost-effective nitrogen management is the key to profitable and productive farming. It is also the key to building soil carbon. Stable forms of soil carbon (such as humus) cannot form in the presence of high levels of inorganic nitrogen, due to the inhibition of the microbes essential to sequestration. (1Dr Christine Jones)
http://www.amazingcarbon.com/PDF/JONES%20%27Nitrogen%27%20(21July14).pdf

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What is Regenerative Agriculture:

It is a vision of local, sustainable food production from farms and ranches that are managed for land health, biodiversity and human well-being.

It is a vision of new agrarians working to sequester carbon in soils, improve water quality and quantity, restoring native plant and animal populations, fixing creeks, developing local energy sources, and replenishing the land for people and nature alike. It is a vision of coexistence, resilience, and stewardship – a place for people in nature, not outside it. (2 Quivira Coalition)

It refers to models of agriculture based on diversifying farms and farming landscapes, replacing chemical inputs, optimizing biodiversity and stimulating interactions between different species, as part of holistic

strategies to build long-term fertility, healthy agro-ecosystems and secure livelihoods. While organic agriculture often reflects these principles, organic certification does not guarantee a holistic diversified approach.

Biological diversity includes native species and the ecosystem processes they provide. Many plants won't be pollinated without pollinators. Natural pest control won't happen without natural enemy insects, beneficial birds and mammals present. We won't have clean water without plants naturally filtering farm runoff. And we won't have carbon storage in soils and woody biomass without plants supporting this process.

Regenerative Agriculture' describes farming and grazing practices that work in harmony with Nature, by focusing on restoring the soil microbiome, reversing climate change by rebuilding soil organic matter and restoring degraded soil biodiversity – resulting in both carbon drawdown and improving the water cycle.

Regenerative agriculture involves practices that:

- Increase biodiversity
- Enrich the soil
- Improve water quality
- Enhance ecosystem services
- Reverse climate change

Key practices of regenerative farming include:

- No-till farming and pasture cropping
- Organic annual cropping
- **Compost** and compost tea
- Biochar and terra preta
- Holistically managed grazing
- Animal integration
- Ecological aquaculture
- Perennial crops
- Silvopasture/Agroforestry

The experts concluded that a fundamental shift towards diversified agroecological farming* can deliver simultaneous benefits for productivity, the environment and society.

A growing body of evidence shows that diversified agroecological systems deliver strong and stable yields by building healthy ecosystems where different plants and species interact in ways that improve soil fertility and water retention. They perform particularly well under environmental stress and deliver production increases in the places where additional food is most needed.

Diversified agroecological systems have also shown major potential to keep carbon in the ground, increase resource efficiency and restore degraded land, turning agriculture into one of the key solutions to climate change.

In addition to enabling the farming community to more effectively deal with warmer, drier conditions, the restoration of landscape function will result in the active drawdown of excess CO2 from the atmosphere via stable biosequestration in soils, restoring landscape function There is no mechanism for building topsoil other than the presence of green plants and the microbial populations they support. Over 95% of terrestrial diversity is in the soil. In order for this life to flourish, the soil ecosystem requires fuel in the form of carbon (from green plants) and 'habitat' in the form of high root biomass. Further, the soil surface requires year-round protection from erosion and temperature extremes (both highs and lows).

Diversifed agriculture also holds the key to increasing dietary diversity at the local level, as well as reducing the multiple health risks from industrial agriculture (e.g. pesticide exposure, antibiotic resistance).

Some of the key findings:

- Average organic yields equivalent to conventional agriculture, and 30% higher in drought years (30-year study);
- Total outputs in diversified grassland systems 15%-79% higher than in monocultures;
- 2-4x higher resource efficiency on small-scale agroecological farms;
- 30% more species and 50% higher abundance of biodiversity on organic farms;
- Around 50% more beneficial omega-3 fatty acids in organic meat and milk.
- The extinction of wild species and the application of insecticides threaten the 35% of global crops dependent on pollination;
- Around 2 billion people suffer from micronutrient deficiencies; current food systems produce an abundance of energy-rich, nutrient-poor crops.

https://www.cdfa.ca.gov/oefi/healthysoils/HSInitiative.html Health of agricultural soil relates to its ability to build and retain adequate soil organic matter via the activity of plants and soil organisms. Adequate soil organic matter ensures the soil's continued capacity to function as a vital living ecosystem with multiple benefits that sustains and produces food for plants, animals, and humans. These benefits include:

- **Improve plant health and yields – soil organic matter contains important nutrients that support plant growth, biodiversity and yields.**
- **Increase water infiltration and retention – healthy soil reduces runoff and has the ability to hold up to 20 times its weight in water; it assists flood management.**
- **Sequester and reduce greenhouse gases – carbon stored in soil has the potential to reduce overall greenhouse gas emissions from agriculture.**
- **Reduce sediment erosion and dust – healthy soil resists erosion and improves dust control.**

- **Improve water and air quality – practices to improve soil health can reduce emissions of criteria pollutants and affect the persistence and biodegradability of pesticides in soil and water.**
- **Improve biological diversity and wildlife habitat – at least a quarter of the world's biodiversity lives in the soil; activities to improve soil health on farms and ranches can also promote plant and animal biodiversity and provide wildlife habitat benefits.**

Holistic Planned Grazing – more effective than rotational or mob grazing

- Gold-standard practice
- Takes more factors into consideration compared to mob or rotational grazing
- Amount of time livestock spend on plants and recovery time needed for plants considered
- Is customized based on the social, economic and environmental factors and needs of each particular ranch
- Promotes biodiversity, so grazing plans account for nesting and breeding seasons of different animals and birds

Better pasture management isn't just better for plants and animals, either. It's also great news for more breathable air and a healthy atmosphere. Cows raised on pasture using best management practices produce roughly 22 percent fewer methane emissions—and healthy soils contain methanotrophs as part of the soil microbiome

http://www.soilsforlife.org.au/what-is-regenerative-landscape-management ADVANTAGES OF REGENERATIVE LANDSCAPE MANAGEMENT

Benefits that can be gained by applying regenerative landscape management, as identified through our case studies, include:

- Increasing soil health - structural, chemical and biological properties
- Supporting a diversity of vegetation to moderate temperatures, provide habitat and build resilience
- Sequestering greater amounts of carbon from the atmosphere
- Retaining more water in the soil for uptake by plants and animals - extending the growing season
- Supporting health and biodiversity in soil microbes
- Facilitating healthy nutrient cycling
- Producing more nutrient-rich vegetation and livestock
- Producing healthier, more nutritious food and livestock, and therefore healthier people
- Regenerating, rather than degrading the natural resource base
- Healing landscape degradation
- Building a landscape which is more resilient, especially to climate extremes (such as flood, drought and fire) and able to recover more quickly
- Reducing input costs

- Enabling sustainable production
- Smoothing out production and profit peaks and troughs
- Applying a technique that could sustainably feed growing global populations
- Obtaining a greater sense of personal wellbeing.

Restoring the soil microbiome, and healthy soil, can restore our own microbiome:

- Just as we have unwittingly destroyed vital microbes in the human gut through overuse of antibiotics and highly processed foods, we have recklessly devastated soil microbiota essential to plant health through overuse of certain chemical fertilizers, fungicides, herbicides, pesticides, failure to add sufficient organic matter (upon which they feed), and heavy tillage. These soil microorganisms -- particularly bacteria and fungi -- cycle nutrients and water to plants, to our crops, the source of our food, and ultimately our health. Soil bacteria and fungi serve as the "stomachs" of plants. They form symbiotic relationships with plant roots and "digest" nutrients, providing nitrogen, phosphorus, and many other nutrients in a form that plant cells can assimilate. Reintroducing the right bacteria and fungi to facilitate the dark fermentation process in depleted and sterile soils is analogous to eating yogurt (or taking those targeted probiotic "drugs of the future") to restore the right microbiota deep in your digestive tract.

Increasing focus is on declines in nutrient density of fresh foods, increased processed food and decreased fresh, healthy food consumption:

Unhealthy diet contributes to approximately **678,000 deaths** each year in the U.S., due to nutrition- and obesity-related diseases, such as heart disease, cancer, and type 2 diabetes.[1] In the last 30 years, obesity rates have **doubled** in adults, **tripled** in children, and **quadrupled** in adolescents.[2, 3]

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Resources

Economic

https://www.stlouisfed.org/community-development/publications/harvesting-opportunity 2017 St Louis Federal Reserve Harvesting Opportunity: The Power of Regional Food System Investments to Transform Communities

potential for regional food systems to promote economic opportunity / advance the economic and financial security of low and moderate income households and communities

http://pubs.iied.org/pdfs/14619IIED.pdf Virtuous Circles Values Systems and Sustainability 2011 changing from linear, extractive model of agriculture to circular replenishing model

https://theconversation.com/break-agricultures-chemical-monopolies-to-free-our-food-16497

A growing number of initiatives in Europe aim to re-connect producers with consumers, using short food chains that supply local food. According to a recent EU commissioned study, short food chains generate great social and economic benefits. They create a sense of community by building trust and social bonds. They also create jobs and strengthen local economies because producers keep a higher share of their food's value.

The environmental impact of short food chains can be mixed. Greenhouse gas emissions can be high if electricity and fuel have to be sourced from far away, for example. So a major challenge is to find new ways of re-integrating food, energy, water and waste systems in circular models.

The overall focus is on doing more with less: widespread recycling and reuse; bringing production and consumption back from a global food supply chain to a more local, decentralised food web. From house clusters, municipalities, and whole cities, to semi-urban areas beyond city hinterlands linked to nearby farms and countryside.

http://www.resilience.org/stories/2015-05-19/the-fifth-wave/ The Fifth Wave of Conservation: New Agrarianism biodiversity, relationships and young farmers pg 12-17

Policy

https://cefs.ncsu.edu/wp-content/uploads/NCGT_ELGL-Local-Food-Economies-Webinar_10.11.16.pdf?x47549 local governments and food economics

Who Makes Up a Food Council?

Councils should be intentionally cross-sector with representation from six sectors that make up the whole measures, or values, for a community-based food system: 1) Thriving local economies, 2) Vibrant

farms and gardens, 3) Justice and fairness, 4) Strong communities/supportive policy, 5) Resilient ecosystems, and 6) Healthy people.

Councils often include representation or organized communication with the following groups: County Commissioners, planning departments, public schools (ag teachers, nutrition directors, parents, students), Cooperative Extension, Soil and Water Conservation Districts, public health and/or hospital centers, local banks, food pantries, faith communities, community colleges or universities, economic development staff, local restaurants and business owners.

http://www.foodsolutionsne.org/new-england-food-vision

A New England Food Vision describes a future in which New England produces at least half

of the region's food—and no one goes hungry. It looks ahead to 2060 and sees farming and fishing as important regional economic forces; soils, forests, and waterways cared for sustainably; healthy diets as a norm; and access to food valued as a basic human right.

The report outlines three scenarios: our current agricultural footprint, a well-balanced and achievable Omnivore's Delight footprint, and an aggressive but possible Regional Reliance footprint. A New England Food Vision delves into detail for how each of these scenarios are calculated, achievable, and capable of long-term, positive social impact.

Regional food production, procurement, and access will be advanced embracing environmentally respective practices, economically just principles, and

socially responsible behaviors.

http://www.foodsolutionsne.org/get-involved/public-policy

http://www.foodsolutionsne.org/six-states-one-region/regional-alignment A growing number of organizations and networks recognize the value of thinking regionally about our food system. Below are just a few examples.

- The New England Food System Planners Community of Practice (COP) is working together to explore how each state can implement a highly effective food system network with a strong backbone function. The COP group is using the Food Solutions New England systems mapping and strategy development to integrate their state activities with the regional Vision and emerging action plan. Representatives from these groups are participating with the the COP: the

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Connecticut Food System Alliance, the Maine Food Strategy, the Massachusetts Food System Collaborative, The New Hampshire Food Alliance, the Rhode Island Food Policy Council, and the Vermont Farm to Plate Network.

https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/projects/index.html

https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/about/program_areas/FSPP/index.html The Center's Food System Policy program includes a diverse portfolio of projects and activities that aim to advance federal, state and local agriculture and food policies that protect the public's health and the environment by supporting a healthy, equitable, and sustainable food system.

In addition to implementing a range of projects initiated directly by the FSP program, program staff also work on food system policies initiated by other program areas. Within the Center this creates synergy on policy priorities and helps strengthen capacity for Center-wide policy engagement by providing direct support and in-house policy expertise for program priorities.

https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/projects/food_system_mapping/

http://peoplefoodandnature.org/

CONTEXT

The Need for Integrated Landscape Management. Globally, agricultural systems, ecosystem health, and rural resource-based livelihoods are in crisis. Over the next 50 years, agriculture will be forced to go through an extraordinary transition to meet production needs sustainably, in the context of climate change and growing populations. Biodiversity and ecosystem conservation efforts will need to shape new strategies in the face of agricultural growth. Rural populations and businesses will need to find new ways to manage their natural resource base to secure the full range of goods and services needed from their landscapes—to find the synergies and reduce the tradeoffs. Integrated management of agricultural landscapes will be an essential building block towards that transition.

City-regions food systems – Urban development is a major driver of land use change in rural areas, and faces its own challenges of managing land and water resources to meet the full set of needs of urban populations in a sustainable way. Conceiving of cityregions as landscapes for people, food and nature can help integrate different strands of action for sustainable cities, and across the rural-urban continuum.14 14 Forster, Thomas, and Arthur Getz Escudero. 2014. City Regions as Landscapes for

People, Food and Nature. Washington, DC: EcoAgriculture Partners on behalf of the Landscapes for People, Food, and Nature Initiative.

http://www.nvda.net/files/VT-Ag-Guide.pdf Facilitating Innovative Agricultural Enterprises Considerations and Example Language for Vermont Municipalities

http://www.ipes-food.org/ Since 2015, the International Panel of Experts on Sustainable Food Systems (IPES-Food) brings together expert voices from different disciplines and different types of knowledge to inform the policy debate on how to reform food systems across the world. The Panel will look at issues such as health and nutrition, rural livelihood insecurity, and environmental degradation through an integrated food systems lens, bringing to light the interconnections, power imbalances, political lock-ins and potential levers for change at the systems level.

https://legislature.vermont.gov/assets/Documents/2018/Docs/BILLS/S-0043/S-0043%20As%20Introduced.pdf

https://www.cdfa.ca.gov/oefi/healthysoils/HSInitiative.html

Climate Change and Weather Wilding

https://www.wunderground.com/cat6/weather-ground-how-biodiversity-can-help-shape-local-climate

https://www.4p1000.org/

https://thecarbonunderground.org/the-science/

Extensive scientific research from around the world has emerged in the past few years showing us the impact that soil health has on climate change. We are now learning how soil organic matter greatly affects the entire carbon cycle, and that how we manage farms, ranches, and natural wetlands and grasslands may provide the key to solving the greatest threat facing the planet.

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Carbon is one of our more ubiquitous elements and key to every living thing on earth. Like water, carbon has a cycle. It is stored in oil and coal and in living things and gets released when those things die or burn. And because nature is the perfect system, it gets recycled back to be used again, keeping carbon levels—and our atmosphere—in perfect balance.

Recently we have disrupted that cycle and thrown the carbon balance off, resulting in an increasingly destabilized climate. Scientists are now telling us that the way we grow our food may be the single greatest contributor to that disruption, and the greatest opportunity to restore both the carbon balance and the climate.

Industrial techniques like deep tilling, mono-cropping, and overuse of chemical fertilizers and pesticides is now diminishing soil's natural ability to draw carbon back down, trapping it in our atmosphere. Changing current techniques can restore the soil, reboot lost photosynthetic activity, and help enable nature to again re-balance carbon levels currently out of balance due to human activity.

The Carbon Underground maintains a curated collection of significant research papers, educational resources, news articles, and advocacy media available free to all users. We provide strategic market and science-based programs and consulting services focused on reversing climate change by improving how we grow and produce food, and by the restoration and maintenance of soil health.

https://bio4climate.org/wp-content/uploads/Compendium-Release-Vol-1-No-2-March-2018.pdf

https://americancarbonregistry.org/carbon-accounting/standards-methodologies/methodology-for-greenhouse-gas-emission-reductions-from-compost-additions-to-grazed-grasslands The methodology provides a quantification framework for emissions reductions from a number of activities including avoiding anaerobic decomposition of organic material used in compost production, directly increasing soil organic carbon (SOC) content by applying compost to grazed fields, and indirectly increasing SOC sequestration through enhanced plant growth in amended fields. Apart from the economic benefit of increased forage production, applying compost to grazed grasslands also has many environmental co-benefits such as improved soil quality, decreased risk of water and wind erosion by increasing soil aggregation, and increased nutrient and water availability for vegetation

https://www.marincounty.org/~/media/files/departments/cd/planning/sustainability/climate-and-adaptation/chpt6marincapupdate_final_20150731.pdf?la=en Marin county climate plan ch 6 on agriculture

Agriculture is discussed separately from other community and municipal emission reductions strategies because the agricultural economy is different from other emission sectors, such as residential, commercial, industrial and municipal development, and transportation. More important, the opportunities for long-term GHG reductions for the agricultural sector are fundamentally different from those in other sectors in that they are primarily focused not on reducing GHG emissions per se but in increasing sequestration of carbon from the atmosphere through farming practices and other practices on working range lands to improve the fertility and long-term ecological health of the county's agricultural lands. These "carbon farming" practices have the potential, in time, to contribute to large

reductions in net GHG emissions in Marin County and, if scaled up, larger landscapes across California and elsewhere.

Emissions from agriculture that were quantified as part of this Climate Action Plan are primarily from manure management and enteric fermentation of livestock but also include fugitive emissions of nitrous oxide from fertilizer application

A one-time application of 0.5 inch of compost on Marin's rangeland can produce an additional carbon sequestration rate of 1 MTCO2e per hectare per year, or 0.3 MTC02e per acre per year (Ryals and Silver 2013).

https://www.marincarbonproject.org/science/papers

http://www.amazingcarbon.com/ To the pressing worldwide challenge of restoring soil carbon and rebuilding topsoil, the Australian soil ecologist Dr. Christine Jones offers an accessible, revolutionary perspective for improving landscape health and farm productivity. For several decades Jones has helped innovative farmers and ranchers implement regenerative agricultural systems that provide remarkable benefits for biodiversity, carbon sequestration, nutrient cycling, water management and productivity.

Biodiversity

http://www.resilience.org/stories/2017-11-03/texas-ranches-manage-cattle-improve-habitat-watershed-health/

https://holisticmanagement.org/soil/

http://www.audubon.org/news/protocols-bird-friendly-habitat-management-certification

http://www.audubon.org/sites/default/files/conservation_ranching_protocols_sep2017.pdf

https://www.wildfarmalliance.org/

Regenerative Agriculture

https://holisticmanagement.org/soil/

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https://holisticmanagement.org/holistic-management/success-stories/

https://holisticmanagement.org/video-profiles/

http://www.ipes-food.org/how-to-leave-industrial-agriculture-behind-food-systems-experts-urge-global-shift-towards-agroecology

http://www.ipes-food.org/agroecology REPORT: 'From Uniformity to Diversity: A paradigm shift from industrial agriculture to diversified agroecological systems'

Industrial agriculture is a key contributor to the most urgent problems in food systems. To date, food systems contribute around 30% of global greenhouse gas emissions; around 20% of land on earth is degraded; more than 50% of human plant-derived foods now depend on three crops (rice, maize and wheat); 20% of livestock breeds are at risk of extinction; the extinction of wild species and the application of insecticides threaten the 35% of global crops dependent on pollination; around 2 billion people suffer from micronutrient deficiencies.

A growing body of evidence shows that diversified agroecological systems deliver strong and stable yields by building healthy ecosystems where different plants and species interact in ways that improve soil fertility and water retention. They perform particularly well under environmental stress and deliver production increases in the places where additional food is most needed.

Diversified agroecological systems have also shown major potential to keep carbon in the ground, increase resource efficiency and restore degraded land, turning agriculture into one of the key solutions to climate change.

Diversified agriculture also holds the key to increasing dietary diversity at the local level, as well as reducing the multiple health risks from industrial agriculture (e.g. pesticide exposure, antibiotic resistance).

*Diversified agroecological farming refers to models of agriculture based on diversifying farms and farming landscapes, replacing chemical inputs, optimizing biodiversity and stimulating interactions between different species, as part of holistic strategies to build long-term fertility, healthy agro-ecosystems and secure livelihoods. While organic agriculture often reflects these principles, organic certification does not guarantee a holistic diversified approach.

http://www.regenerationinternational.org/

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http://www.carboncycle.org/

https://bio4climate.org/resources/compendium/

Indeed, agriculture is a linchpin issue for humanity. Our survival as a civilization depends on viable agriculture systems. However, input-intensive agriculture has given us false hopes about technology-aided yield potential, while at the same time diminishing the soil's inherent ability to provide for plant health and nutrition in an era of increasingly harsh climatic conditions for crop and livestock production. Yet agricultural land, which covers some 40% of Earth's land surface [Foley 2005], could be a source of planetary regeneration. Indeed, it appears to be ONLY through regenerative agriculture that we will be able to feed ourselves in the future, since high-input agriculture is ultimately a far more fragile system. Industrial agriculture is more vulnerable to weather extremes, pest invasions, and highly reliant on increasingly scarce and expensive external inputs. The purpose of this Compend

Understanding the planet as a complex system, encompassing myriad living and non-living subsystems, opens up our awareness to the interdependence among seemingly unrelated processes, and to the possibility of indirect and cascading effects and abrupt changes. I

https://vimeo.com/207934762 Will Harris 100,000 Beating Hearts Blufton GA from industrial to regenerative polyculture farm increasing soil organic matter from under ½ inch to over 5 inches in 15 years while rebuilding local economy

https://www.slideshare.net/bio4climate/richard-teague-grazing-down-the-carbon-the-scientific-case-for-grassland-restoration-42538237

We can't have healthy farms in a degraded landscape. Biodiversity is necessary to produce the clean water, air and living carbon rich soils that organic farms depend upon and can only be restored at an ecosystem level (Fred Kirschenmann)

Naturally occurring plant communities, whether forests, prairies, deserts, savannahs, or tundra, are almost universally dominated by diverse perennial species.

Plant diversity is important because it helps to keep populations of plant-loving insects and diseases in check. Diversity also tends to enhance productivity because resources such as sunlight, water, and nutrients are used more efficiently when species with different resource requirements grow together.

In a 30- year study, organic yields were equivalent to conventional yields, and 30% higher in drought years. Resource efficiency has proven to be 2-4x higher on small-scale agroecological farms, while organic systems have been found to host 30% more species and 50% greater abundance of biodiversity

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Agroecological farming can double food production within 10 years while mitigating climate change and alleviating poverty

Instead of using more and more land and resources as monocultures require, start layering multiple uses together– create synergistic ecosystems with biodiversity

Manage working lands for pollinators and wildlife

Use leader follower grazing cycle to reduce pests and disease and increase soil health cows—pigs—turkeys-sheep-chickens-geese – goats

Agroforesty – combine trees and shrubs with crops and livestock

Polyculture stystem for urban areas

As it turns out, plants also have remarkably adaptive immune systems that are responsive to their growing environments. Plants even "communicate" with each other and send out "pest alerts" so that other nearby plants immediately rev up the amount of pest-fighting chemicals in their cells. Plants also share information and nutrition via extensive underground fungal networks (it's like a biological internet).

Organic feeds the soil and the plant – microorganisms, plant nutrients organic matter soil nutrients

http://www.amazingcarbon.com/PDF/JONES%20%27Nitrogen%27%20(21July14).pdf Dr Christine Jones

Nitrogen is a component of protein and DNA and as such, is essential to all living things.

Prior to the Industrial Revolution, around 97% of the nitrogen supporting life on earth was fixed biologically. Over the last century, intensification of farming, coupled with a lack of understanding of soil microbial communities, has resulted in reduced biological activity and an increased application of industrially produced forms of nitrogen to agricultural land.

In 2013, Australian grain-growers expended close to $3 billion on inorganic nitrogen (Marino 2014). Globally, over $100 billion of nitrogen fertilisers are applied to crops and pastures every year. Between 10 and 40% of the applied N is taken up by plants. The other 60-90% is leached into water, volatilised into the air or immobilised in soil.

Cost-effective nitrogen management is the key to profitable and productive farming. It is also the key to building soil carbon. Stable forms of soil carbon (such as humus) cannot form in the presence of high levels of inorganic nitrogen, due to the inhibition of the microbes essential to sequestration.

http://www.soilsforlife.org.au/soil.html

Healthy soils are essential for healthy plant growth, human nutrition, drinking water filtration and a landscape that is more resilient to the impacts of drought or flood. Healthy soil helps to regulate the Earth's climate and stores more carbon than all of the world's forests combined. Maintaining soil health is critical for biodiversity - a handful of fertile soil contains more microorganisms than human beings that have ever lived. Two-thirds of Earth's species live beneath its surface.

http://www.soilsforlife.org.au/regenerative-agriculture-case-studies

https://certifiedhumane.org/

Health and Nutrition

https://noharm.org/

Health Care Without Harm *works to transform health care worldwide so that it reduces its environmental footprint, becomes a community anchor for sustainability and a leader in the global movement for environmental health and justice.*

https://noharm-uscanada.org/menuofchange2017

https://noharm-uscanada.org/sites/default/files/documents-files/2819/Environmental_Nutrition_HCWH_September_2014.pdf **Environmental Nutrition** Healthy food cannot be defined by nutritional quality alone. It is the end result of a food system that conserves and renews natural resources, advances social justice and animal welfare, builds community wealth, and fulfills the food and nutrition needs of all eaters now and into the future.

Using an Environmental Nutrition Approach to Define Healthy Food

The health care sector increasingly recognizes that nutrition plays a significant role in health maintenance and disease prevention. Yet, analysis of nutrition-related issues continues to focus on a reductionist approach to health. Under the traditional nutrition model, "healthy food" is defined by measurable food components such as calories, vitamins, and fats, and health interventions are typically aimed at individuals.1, 2

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This paper argues for a much broader consideration of nutrition and how it intersects with the health of individuals, communities, and the ecosystems that sustain us. Considering

nutrition as the ability to nourish ourselves and to promote health, we argue that how food is produced, processed, and distributed also matters in our assessment of what counts as

healthy food. We begin from the assertion that healthy food is not only defined by the quantity and quality of the food we eat, but that it must come from a food system that conserves and renews natural resources, advances social justice and animal welfare, builds community wealth, and fulfills the food and nutrition needs of all eaters now and into the future.i

https://cspinet.org/eating-healthy/why-good-nutrition-important

http://bionutrient.org/site/mission

https://www.ncbi.nlm.nih.gov/pubmed/15637215 Changes in nutrient density

https://www.frontiersin.org/articles/10.3389/fevo.2017.00071/full The importance of the gut and the soil microbiomes as determinants of human and ecosystem health, respectively, is gaining rapid acceptation in the medical and ecological literatures.

http://www.fao.org/3/a-i4729e.pdf 2014 FAO Agroecology for Food Security and Nutrition

https://certifiedhumane.org/

https://www.theatlantic.com/health/archive/2013/06/healthy-soil-microbes-healthy-people/276710/ healthy soil and healthy human microbiome connections

https://www.ecowatch.com/glyphosate-wine-beer-testing-2553632957.html?utm_source=EcoWatch+List&utm_campaign=1ee8f5b4eb-EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_49c7d43dc9-1ee8f5b4eb-85956717

https://www.theguardian.com/society/2018/mar/29/eating-out-increases-levels-of-phthalates-in-the-body-study-finds

Food security and resilience disaster planning

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https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/resilience/resilience-2-pager.pdf

A disaster can dramatically worsen food insecurity for those already challenged with accessing healthy food, and can create such challenges where they did not exist previously. traditional disaster preparedness planning has not included the food system

Wasted Food and composting

https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/projects/wasted-food/governmental-plans-to-address-waste-of-food.pdf

Tackling the problem of wasted food has the potential to pay off in economic, environmental, and health gains, and the number of governmental plans addressing wasted food has dramatically increased since 2000

https://www.chlpi.org//wp-content/uploads/2013/12/Opportunities-to-Reduce-Food-Waste-in-the-2018-Farm-Bill_May-2017.pdf The United States produces an abundance of food each year, but approximately 40% of it never makes it to people's plates. Each year, 62.5 million tons of food winds up in landfills, costing the U.S. about $218 billion each year to grow, process, transport and dispose of food that is never eaten. This waste carries with it enormous economic, environmental and social costs, but also represents great opportunity. It is estimated that recovering just 30% of the food that goes to waste in the U.S. could feed all the food insecure Americans their total diet. ReFED, a collaboration of business, nonprofit, foundation and government leaders committed to reducing food waste, analyzed 27 food waste solutions and found that their implementation has the potential to generate 15,000 new jobs and $1.9 billion in annual business profit potential, to double the amount of food donations to nonprofits, and to save 1.6 trillion gallons of water and avoid 18 million tons of greenhouse gas emissions annually.

http://www.drawdown.org/solutions/food/reduced-food-waste #3 by 2050

70.53 gigatons reduced CO2

A third of the food raised or prepared does not make it from farm or factory to fork. Producing uneaten food squanders a whole host of resources—seeds, water, energy, land, fertilizer, hours of labor, financial capital—and generates greenhouse gases at every stage—including methane when organic matter lands in the global rubbish bin. The food we waste is responsible for roughly 8 percent of global emissions.

IMPACT: *After taking into account the adoption of plant-rich diets, if 50 percent of food waste is reduced by 2050, avoided emissions could be equal to 26.2 gigatons of carbon dioxide. Reducing waste also avoids the deforestation for additional farmland, preventing 44.4 gigatons of additional emissions. We*

used forecasts of regional waste estimated from farm to household. This data shows that up to 35 percent of food in high-income economies is thrown out by consumers; in low-income economies, however, relatively little is wasted at the household level.

http://dec.vermont.gov/waste-management/solid/universal-recycling

When food scraps end up in landfills, they release powerful methane gas that contribute to climate change. What's the use of landfilling uneaten food when we can feed our neighbors, feed animals to produce local eggs and meat, or create rich soil and renewable energy products instead?

http://dec.vermont.gov/waste-management/solid/materials-mgmt/organic-materials

> *Composting:*
>
> Another way to "re-use" separated organic materials is to use them to build the soil. A carefully managed composting process harnesses the power of millions of bacteria and fungi to turn your pineapple peelings and corn cobs into a valuable soil amendment. The benefits of compost don't stop there, compost has many uses beyond the vegetable garden too, it can be used in soil building/erosion stabilization applications and can even be used as a stormwater filtration system to clarify rainwater run-off.

Food scraps make up nearly 1/3 of the total waste a typical Vermont family generates at home. At businesses or institutions that serve food---like local restaurants or school cafeterias---food scraps often comprise more than half of total waste produced. Food scraps and leaf and yard wastes represent valuable resources that can be re-used in many products such as; compost, garden mulch and animal bedding.

Phased-In Food Scrap Ban: Businesses and institutions that produce large amounts of food waste--such as supermarkets, college campuses, and restaurants--are required to comply with the landfill ban on food scraps earlier than residents, if they are located within 20 road miles of a composting facility that willingly accepts food scraps. This phased-in approach is designed to create demand for food scrap collection, and support investments in new food scrap collection infrastructure.

https://www.greenmountaincompost.com/how-its-made/

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Urban Connections and Community land Trusts for Agriculture

https://www.lincolninst.edu/publications/articles/city-farms-clts

Despite the growing popularity of urban agriculture, many city farms continue to face the challenge of insecure land tenure and overly restrictive public policies. Some researchers and policy makers have identified the need for an updated framework for the movement that would support urban farmers as they navigate land use, zoning, and property tax regulations. Community land trusts (CLTs) are contributing to this structure, providing a locally controlled approach to land use that fosters community activism and engagement while responding to evolving market conditions and neighborhood needs.

http://cltnetwork.org/wp-content/uploads/2013/12/Beyond-Housing-webinar_slides_4.19.13-FOR-WEBSITE.pdf

Beyond Housing Urban Agriculture and Community Land Trusts

http://www.centerforneweconomics.org/content/community-land-trusts

A New Land Tenure System

Since its founding the Schumacher Center for a New Economics has been committed to developing a new tenure system for the Natural Commons -- Earth, Air, Fire (the minerals), and Water. Our premise is that these Nature-given assets are our Common Wealth, needed by all. To keep them in private ownership gives an unfair advantage to the titleholder who can charge "rent" for their use – an "unearned increment," to use the phrase of Henry George. This economic advantage is one of the key reasons for inordinate disparities in wealth accumulation.

At the same time a regulation of use is necessary and a means for collecting income from that use is key to ensuring common benefit. Our approach has been to develop non-profit community land trusts to hold and manage the Natural Commons on behalf of the inhabitants of a particular place.

The Earth is in crisis due to an economic system that treats our Natural Commons as commodities to exploit rather than as “a community to which we belong,” (Leopold 1949). The reform of our property-tenure system is urgent– at stake are the future health of our ecosystem and a fair economy for all.

Fiber and Clothing

http://www.fibershed.com/

http://www.regenerationinternational.org/care-what-you-wear/

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http://www.fibershed.com/programs/textile-economy/mill-inventory/

Through decades of so-called free trade deals and an expanding market of underpaid labor, the American textile industry has downsized and dwindled. Though less than 2% of garments worn by Americans are currently made in the USA, we know that many mills have remained on the landscape. As we approach the idea of regionalizing textiles and supporting circular systems that invest in the local economy, we know that our milling partners are key,

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Alachua County Comprehensive Plan Food and Agriculture Objectives

OBJECTIVE 1.1 – GENERAL

Encourage development of residential land in a manner which promotes social and economic diversity, provides for phased and orderly growth consistent with available public facilities, and provides for access to existing or planned public services such as schools, parks, and cultural facilities.

Policy 1.1.6 Consistent with Energy Element Objective 2.2 and Future Land Use Element Objectives 6.1 and 6.2, Alachua County shall encourage the location and development of energy conservation, alternative energy, reuse/recycling based industry and sustainable food production and processing businesses and industry clusters in order to achieve a higher level of sustainable economic development.

Policy 1.1.6 (b) Consistent with Future Land Use Element Policy 6.1.4, industries and business sectors that create a market for local agricultural products shall be encouraged to locate or expand existing local business in Alachua County.

Policy 1.1.6 (c) Highlight local specialty foods and farmers markets as part of the County's tourism marketing efforts.

OBJECTIVE 1.2

Develop and maintain ongoing County programs and infrastructure designed to support sustainable community health.

Policy 1.2.4 Increase access to health-promoting foods and beverages in the community. Form partnerships with organizations or worksites, such as health care facilities and schools, to encourage healthy foods and beverages.

Policy 1.2.11 Alachua County recognizes the value of industries related to the development of energy conservation, alternative energy, reuse/recycling based products and sustainable food production and processing and encourages the location of these businesses and industry clusters consistent with Energy Element Objective 2.1. These industries shall be given high priority.

OBJECTIVE 1.3

Promote a healthy community by providing for obesity prevention and prevention of other chronic illnesses.

Policy 1.3.1 Alachua County shall promote access to healthful, affordable and nutritious food.

Policy 1.3.1.1 Promote food security and public health by encouraging locally-based food production, distribution, and choice in accordance with the Future Land Use Element.

Policy 1.3.1.2 Alachua County shall consider programs to encourage property owners to make use of vacant properties as community gardens.

Policy 1.3.1.3 Continue to offer support for home and community gardening through programs offered by USDA Farm to School Programs and the Alachua County Extension Office and target low-income and populations at high-risk for health disparity for programs promoting gardening, healthy food access and nutrition improvement.

Policy 1.3.2 Alachua County shall partner with local organizations and develop standards to promote community food systems.

Policy 1.3.2.2 As provided in the Future Land Use and Energy Elements, Alachua County shall promote and develop standards for uses, including produce stands, farmers markets and food cooperatives, to facilitate location

OBJECTIVE 5.1

Adopt and implement practices within Alachua County Government that contribute to the energy conservation goals of the Comprehensive Plan.

Policy 5.1.6 Promote the location and expansion of energy conservation, alternative energy, waste reuse/recycling-based and sustainable food production and processing industries as part of the County's economic development efforts.

OBJECTIVE 6.1 - GENERAL

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Rural and agricultural areas shall be protected in a manner consistent with the retention of agriculture, open space, and rural character, and the preservation of environmentally sensitive areas, and efficient use of public services and facilities.

Policy 6.1.1 Partner with community groups and other local governments in the region to delineate and promote a local foodshed for the development of a sustainable local food system.

Policy 6.1.4 Increase support for farmers' markets through partnerships with local governments, institutions and community groups.

Policy 6.1.4 The County shall support the development of markets and programs that promote the sale of locally produced agricultural goods, including but not limited to farmers markets, community gardens, farm to institution programs, and agritourism opportunities. The County shall partner with local community groups and organizations and other local governments to pursue funding sources for the development of a sustainable local food system.

Policy 6.1.5 Agricultural pursuits shall be allowed in all land use classifications, provided that the health, safety and welfare of the general public and the protection of the natural environment are assured. The land development regulations shall include standards for agricultural pursuits and related uses in the Urban Cluster, including but not limited to farmers markets, community gardens, laying hens, and other small scale agricultural uses as allowable uses in appropriate areas.

Policy 6.1.5.1 In order to provide access to fresh, nutritious local foods in the Urban Cluster, farmers markets shall be allowed in the Cluster within mixed-use and non-residential areas as permitted uses subject to the standards provided in the land development regulations and site plan approval by the Development Review Committee.

OBJECTIVE 6.2

Increase the use of locally grown and/or processed foods in County facilities where food is provided and encourage other local government facilities to do the same.

Policy 6.2.1 Work with the Alachua County Jail to develop a plan for an agricultural program to grow food onsite and teach sustainable farming methods.

Policy 6.2.2 Alachua County shall work to facilitate partnerships between local farmers and local government organizations such as the Alachua County School Board to implement the 2009 Alachua County Hunger Abatement Plan and provide healthy, fresh foods in local schools and other institutions.

OBJECTIVE 6.3 - RURAL EMPLOYMENT CENTERS

Rural Employment Centers are recognized as areas outside the urban cluster that can support light industrial and limited commercial uses not otherwise associated with surrounding rural/agricultural land uses.

Policy 6.3.3 The following uses may be permitted within a rural employment center provided that the appropriate policies and standards within the Comprehensive Plan are met.

(a) Within the Hague Rural Employment Center Only: Business and professional services, retail sales and services, food service, personal services, entertainment and recreation activities and the processing, packaging, warehousing and distribution of agricultural products. Retail sales and services uses shall not exceed 10% of the existing gross square footage within the rural employment center.

OBJECTIVE 6.4

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Support and encourage local agricultural operations in the use of sustainable agricultural practices including organic farming.

OBJECTIVE 9.1

Provide educational information to the public to promote and encourage energy conservation, energy-efficiency and renewable energy use.

Policy 9.1.3 Partner with IFAS, local farmers, and community groups to develop and implement educational strategies on the benefits of purchasing locally grown and/or processed foods.