

Sustainable Agriculture at Warren Wilson College

Cultivating Leadership for Sustainable Food Systems



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What is Liberal Arts Agricultural Education?

- Key elements of an undergraduate agriculture education?
- How do you teach leadership?
- Qualities of a liberally educated person?
- Where does sustainability fit in?
- What are the opportunities and challenges of the Triad?



Qualities of a Liberally Educated Person

Liberal Arts “Habits of Mind”

- Listen and hear
- Read and understand
- Talk with anyone
- Write clearly, persuasively, movingly
- Good problem-solvers
- Respect rigor as way of seeking truth
- Understand that knowledge serves values
- Practice humility, tolerance and self-critique
- Understand how to get things done
- Nurture and empower community
- See connections that make sense of world and act within it in creative ways

William Cronin, Only Connect,
The American Scholar, Volume 67, 1998

Sustainability: The Ultimate Liberal Art

Sustainability “Habits of Mind”

- Understand social and ecological systems
- Appreciate the centrality of community
- Address real world challenges with transdisciplinary approach
- Engage as informed, ethical, and scholarly citizen
- Apply skills, attitudes and knowledge to issues of sustainability

Qualities of Change Leadership

- Make the case for change
- Translate vision into action
- Strengthen and transform assets for the long-term

Goleman and Lueneburger, The Change Leadership Sustainability Demands, MIT Sloan Management Review, 2010

Triad Education Model: Academics, Work, Service

- “Ideal is not knowledge, but power to realize vision.”
- Aim is to cultivate intellect through the exercise of observation, knowledge, and judgment in community to make a positive contribution to society
- Achieve through education built on life experience in community

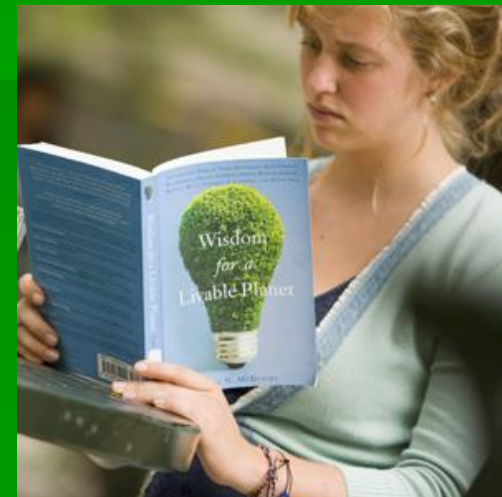
Qualities of a Liberal Arts Sustainable Agriculturalist?

- Understands the behavior of social and ecological systems
- Manages for sustainability
- Leads and collaborates for community-based change



The Triad: Academics ENS/Sustainable Agriculture

- Key Teaching Strategies
 - Address real-world challenges
 - Interdisciplinary approach
 - Systems thinking
 - Assess sustainability
 - Support effective group work
 - Facilitate scaffolding, course bridging and triad integration
- Key Integrative Skills
 - Life cycle analysis
 - Adaptive management
 - Group leadership and collaboration

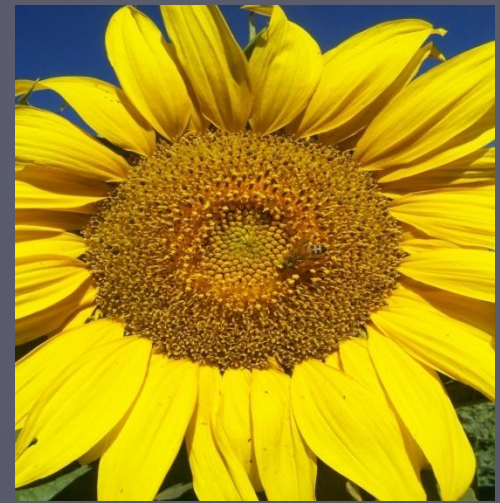


Key Skill:

Life Cycle Analysis

- “Cradle to grave” social, environmental and economic impacts analysis
- Promotes interdisciplinary and systems thinking
- Builds research and communication skills
- Supports sustainability assessment
- Well-suited to working group approach, course bridging and integration of triad

Life Cycle Analysis of the WWC Food System

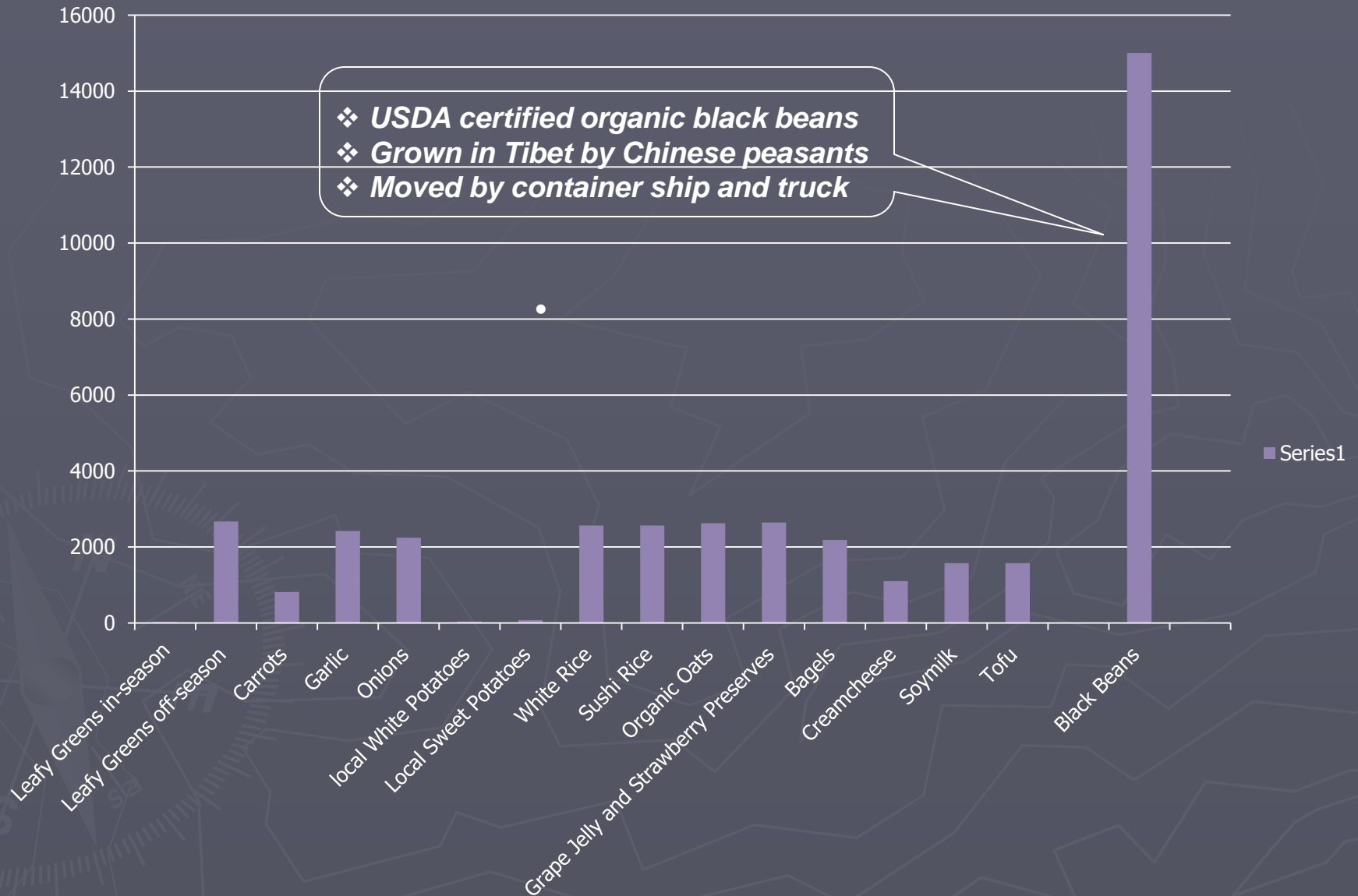


- ▶ Nine sustainability indicators chosen from literature
- ▶ Indicator values developed using class research, personal interviews and food system records

Indicators Analyzed

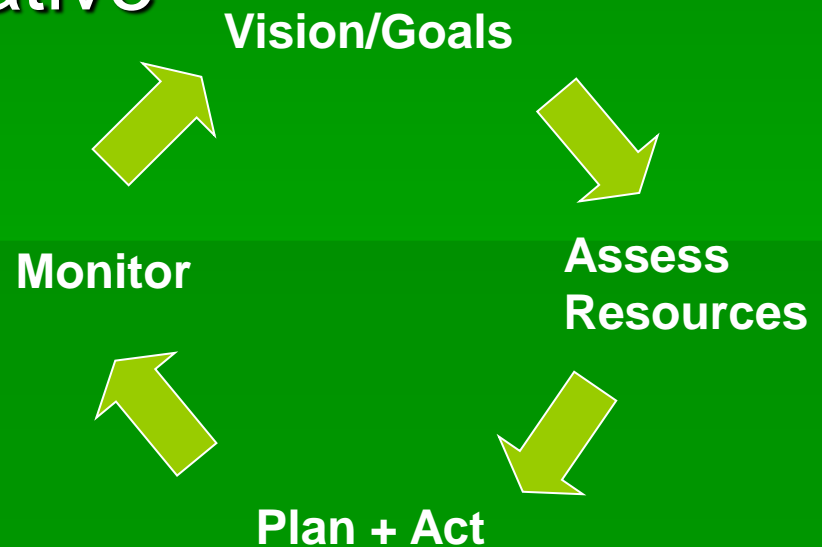
Indicator	Data Source
Geographic proximity to grower, processor, packager, retailer, and consumer	Ecology of Food course conducted LCA of top 10 foods consumed in campus dining halls in 2004 and 2007
Waste produced per unit of food	WWC Recycling Crew records
% of food lost due to spoilage	Interview with Food Service Manager
Ratio of local foods vs. nonlocal foods	Local foods crew invoices of sales
The campus food service budget	Interview with Food Service Manager
Productive capacity of WWC garden	Interview with Garden Manager
Students attitude towards seasonality, variety, and price	Environmental Economics course administered survey 2006

Indicator 1: Miles Traveled Top 10 Commodities



Key Skill: Adaptive Management

- Stepwise process
- Well-suited to academics
- Visioning is transformative
 - Holistic Goal
 - Reveals core values
 - Promotes leadership
 - Motivates action
 - Wide application



Adaptive Management: Applications at WWC

- Class Consulting
- Senior Project: Sustainable Farm Plan
- River Friendly Farm Plan
- Sustainable Dining Policy
- Energy Descent Action Plan

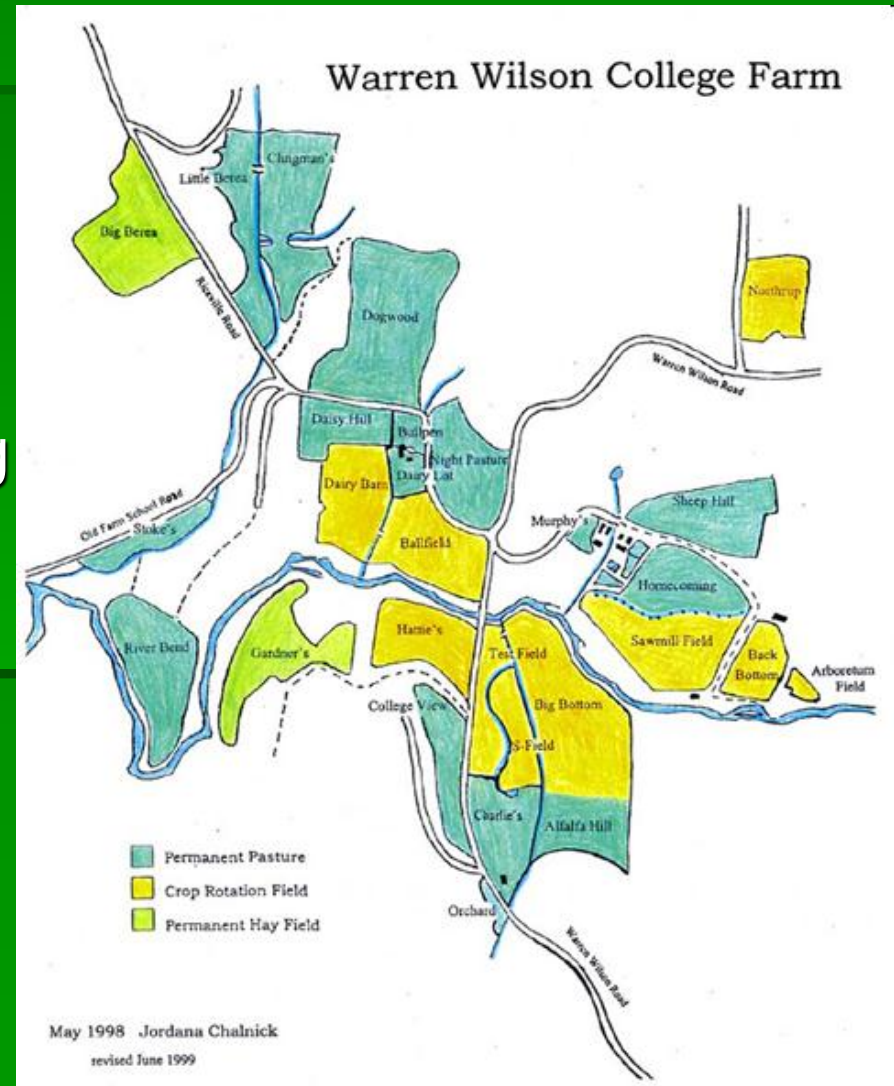


Class Consulting

- Gather questions from land managers each year
- Develop well-defined questions for course projects
- Consults motivate senior research capstone topics
 - Hay quality problem → baleage study
 - Germination problem → seed treatment study
 - Seed bank survey → weed guide, cover crop research
 - OP corn yields → OP variety trial
 - Soil compaction → product testing
 - Edible landscape options → permaculture garden
 - Rotation effect on soil quality → SQ survey, C modeling, active C
 - Food production capacity → food system assessment

Senior Project: Sustainable Farm Plan

- Whole Farm Plan
 - Holistic Goal
 - Resource Assessment
 - Systems and Profitability Analyses
 - Production and Marketing Plans
 - Monitoring Plan
- Farm Templates
 - WWC Working Lands
 - Non-Profit Farmland
 - Family Farm
 - Farmland on Market

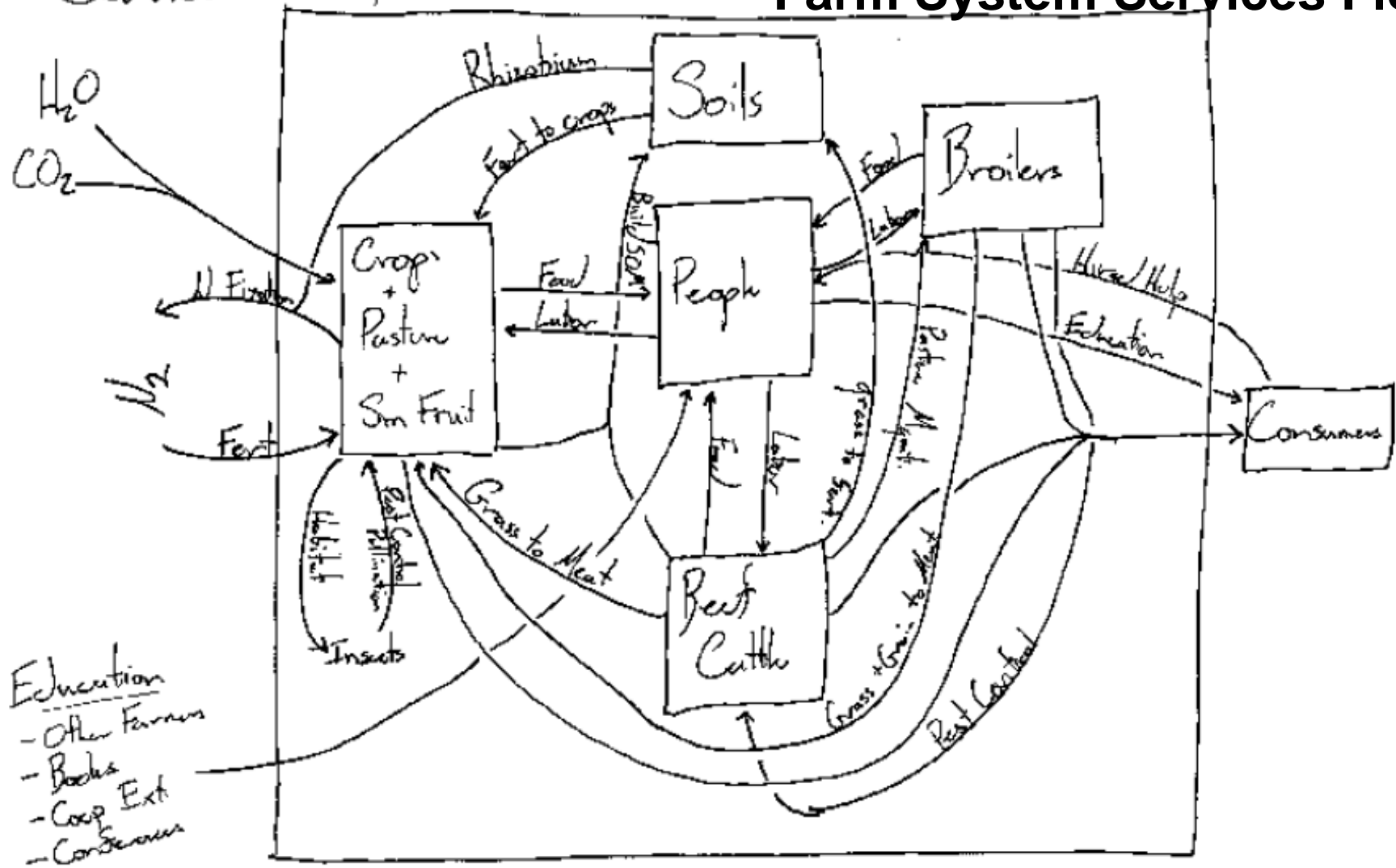


Goal Setting:

Green River Farm Holistic Goal

- ▶ Quality of Life
 - satisfying work outdoors
 - enough time for rest, play music, read, learning, travel, adventure
 - love and respect for each other, good team work/communication
- ▶ Forms of Production
 - Profit from grass-based livestock and forest
 - Free time and energy to rest, learn, travel and play
 - Good reputation, respect and support for farm in community
- ▶ Future Resource Base
 - We are happy, healthy and transition of farm to our children has begun
 - Farm is beautiful, peaceful, land is healthy and well-cared for, diverse plants and wildlife, clean water, land is green and soil covered year-round
 - Loyal happy customers celebrate and support the farm
 - Strong local community, with services nearby: farm equipment/materials, sustainable farm organizations, open markets, library, schools, medical, and entertainment (coffeehouse, music, theatre)

Services (Figure 2)



River Friendly Farm Plan: Resource Assessment SWOT

Internal	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Land base and infrastructure • Motivated work force • Committed management • Administrative support • Markets and customer base 	<ul style="list-style-type: none"> • Fuel consumption, lack of \$\$ for fuel efficient vehicles • Must handle much of our own repairs in machinery, plumbing, carpentry • website marketing • lack some farm equipment needed to move forward
External	
Opportunities	Threats
<ul style="list-style-type: none"> • fuel efficient vehicles • renewable energy for farm locations. • artisanal meat production (WWC Smokehouse) • Worldwide Ag focus trips • Improved farm management from capital investments creates real opportunities for students and for interaction with WNC community. • preserve our farmland with conservation easements. Could generate large dollars by selling development rights and develop farm trust fund. 	<ul style="list-style-type: none"> • pressure to develop farmland • farm is asked to do so much in the community may cause us to stray from our mission

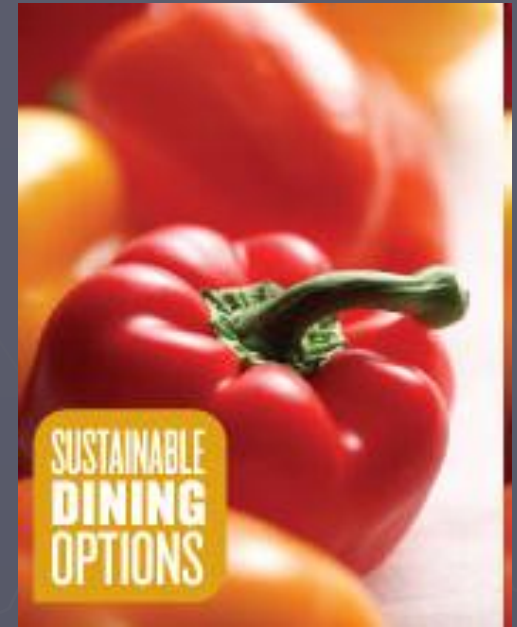
Goals and Monitoring: Sustainable Dining Policy

► Goals (by 2020)

- 50% sustainable food served
- Reduce food service energy use 25%
- Reduce food service waste by 70%

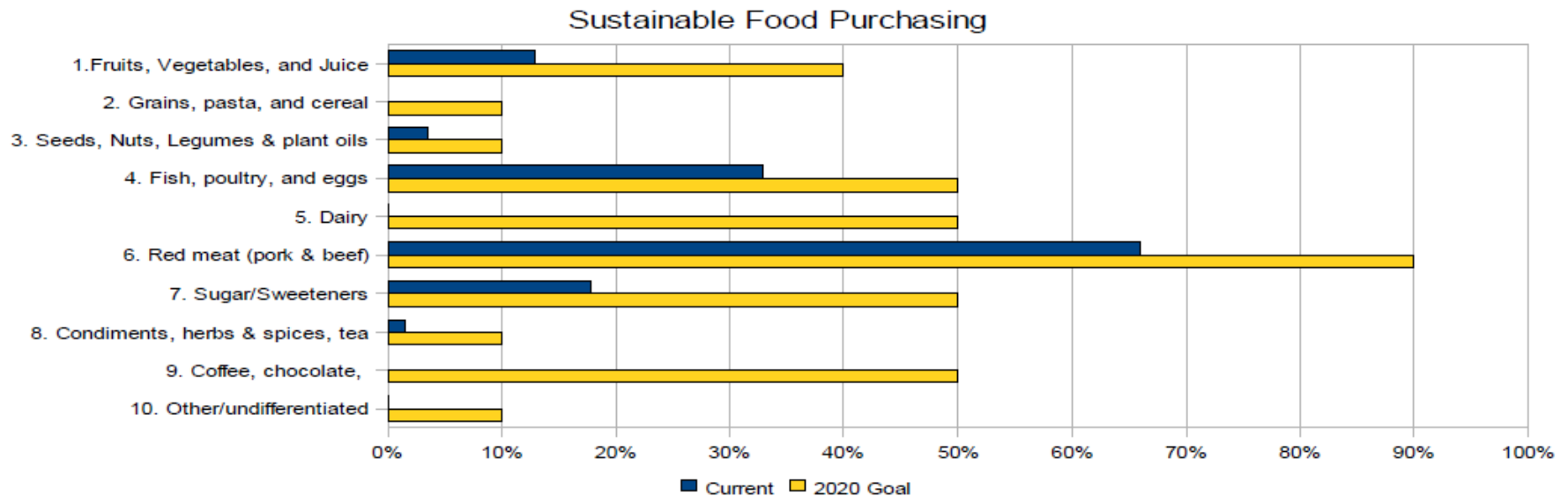
► Monitoring

- Food Sustainability Score
 - Production practices
 - Value to farmer
 - Proximity to campus
- Energy Use
- Waste



Resource Assessment: Motivation for Change

Figure D6. Current Purchasing Patterns (2007/8) and 2020 Sustainable Purchasing Goals in 2020*



* Purchases reported as percent of the total food purchasing budget in 2007/8 and 2020. This is a graphical representation of the data presented in Table D9.

How do we close the gap between our vision and the current reality?

Energy Descent Action Plan: Credible Steps to Resilience

- ▶ Transition Initiative tool
- ▶ Encourages community-based research of resilience
- ▶ Class researched 7 sectors of campus community in Fall 2009
- ▶ Food system recommendations:
 - Use human, solar, horse power
 - Use food produced on campus
 - Permaculture main campus
 - Celebrate the harvest, preparation and consumption of campus grown foods in season.



Key Skill:

Change Leadership

- Teach leadership and collaboration skills throughout triad curriculum
- Multiple opportunities to practice
- Regular reflection on personal and group strengths and weaknesses
- Bridge academics, work and service

The Triad: Work

- Production
 - Market Garden
 - Farm
 - Forest
 - Landscaping
- Purchasing
 - Local Food
- Processing
 - Garden
 - Cowpie



- Preparation/Dining
 - Cowpie
 - Sage
- Waste Management
 - Recycling
 - Market Garden
 - Farm
 - Landscaping

The Triad: Service

- Community Education
 - Black Mountain Community Garden
 - Growing Minds
 - Earthaven Learning Center
 - Buncombe Community School East
- Food Security
 - Manna Foodbank
 - Bountiful Cities
 - Society of Saint Andrews
- Local Production
 - Appalachian Sustainable Agriculture Project
- Local Processing
 - Blue Ridge Food Ventures



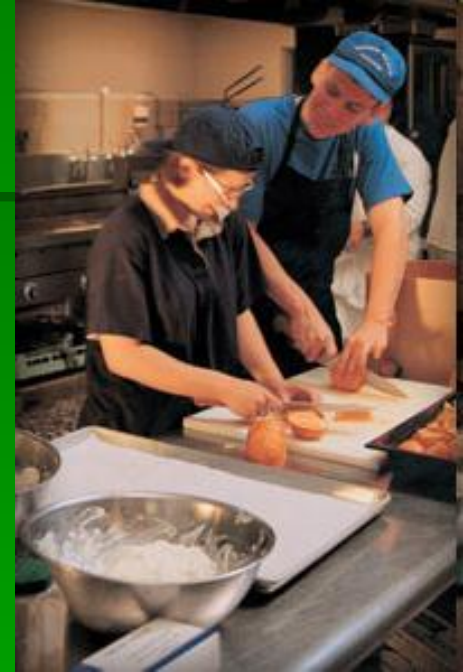
Shared Governance: WWC Food System

- Student Caucus
 - Campus Food Coops
 - Permaculture Garden
 - Cowpie Café
- Standing Committees
 - Land Use



Funding for Student Initiatives

- Work Program
- Lyceum
- Climate Action Fund
- Sustainability Fund
- Campus Greening Seed Grants



Innovative Leadership: Student Firsts

- Accredited program of study in sustainable agriculture in NC (2005)
- Southern Appalachian Youth on Food Symposium (2007)
- Campus Energy Descent Action Plan (2009)
- Finalist NC Emerging Issues: Youth Food Policy Council Proposal (2010)

Innovative Leadership: Graduate Firsts



- Landless CSA (OR)
- Grass-finished meat marketing cooperative (NC)
- Global sustainable agriculture information exchange written for and by farmers



Our Amazing Students!





Hickory Nut Gap NC



Delta Sol AR



Sunnyvale CA



Singer Hill Gardens OR



Freedom and Unity VT



Grassland Organics ME

And Fabulous Farming Graduates!