

No culture without agriculture: cross
cultural engagement through
agriculture in the High Atlas of Morocco

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MONTANA
STATE UNIVERSITY

Spring break study abroad



FACULTY LED STUDY ABROAD



Morocco

Agroecology &
Environmental
Science

Hands-on field experience in
rural region of Zawiya Ahans

3 CREDIT MSU COURSE
Spring Break Travel

Spring 2017: ENSC 491, 3 Credits

DATES ABROAD: March 10-24th

PROGRAM COST: \$1,910.00

FACULTY LEADER: Dr. Tim Seipel

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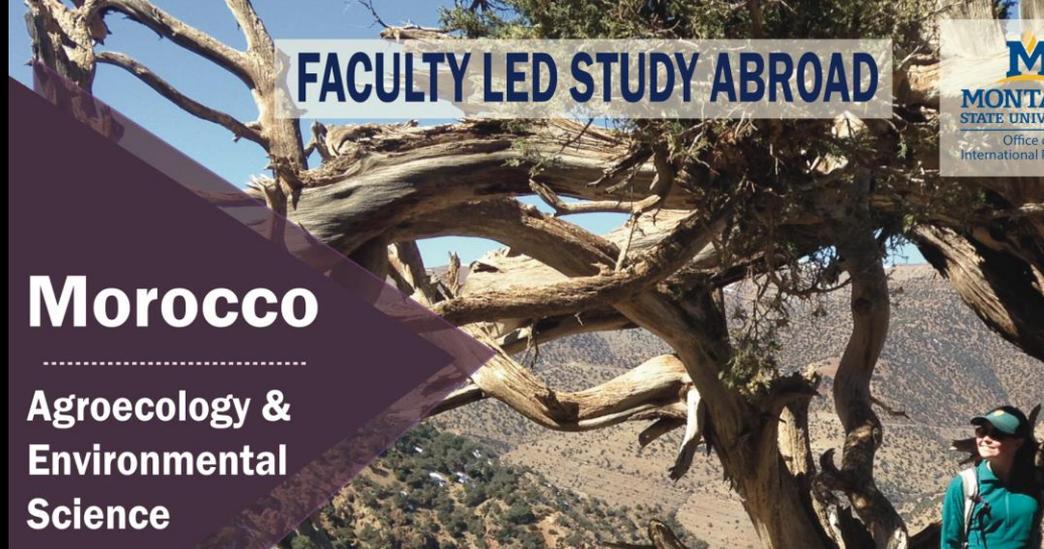
Spring break study abroad

FACULTY LED STUDY ABROAD



Morocco

Agroecology & Environmental Science



Program Fee

\$1,910.00

- Program fee includes international health insurance, in-country transportation, food and bottled/treated drinking water, lodging, guides and translators
- Program fee does not include international airfare

Refer to the following Financial Aid Faculty Led Study Abroad Budget Sheets to assist in your financial planning:

- [Financial Aid Budget_MoroccoAgroecology2017.pdf](#)



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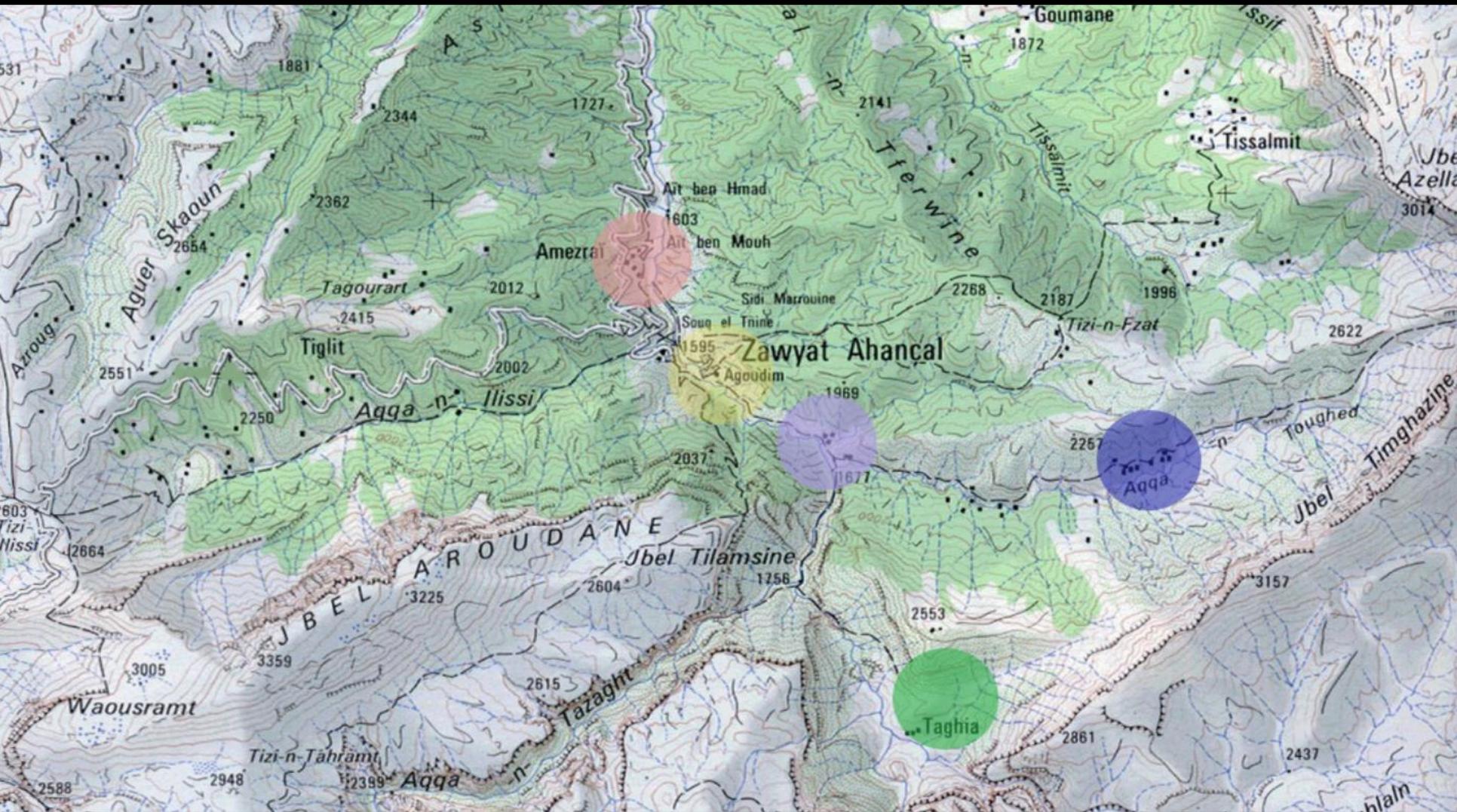
Morocco

- North African kingdom



Rural commune of Zawiya Ahansal







Background

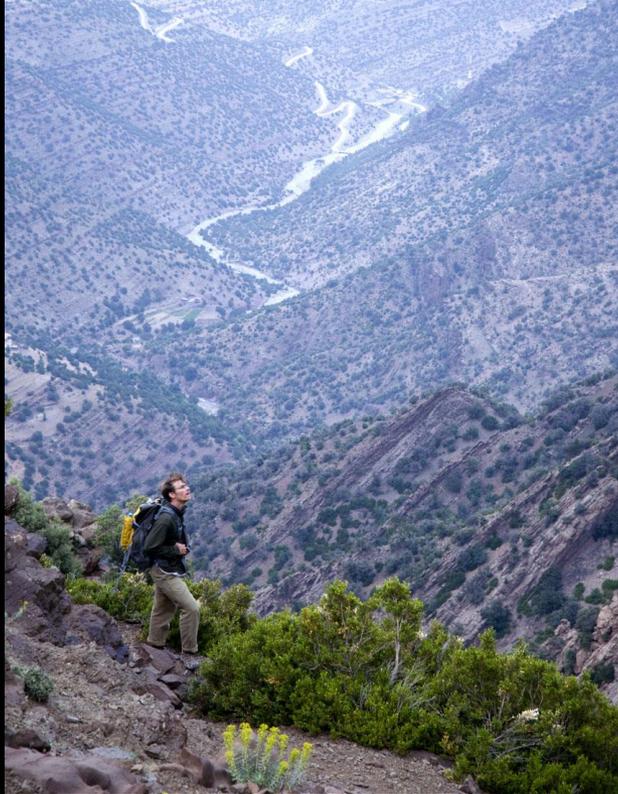
- Founded by Saint Sidi Ahansal in the 13th century
- One of the last strongholds of Morocco to fall to the French in 1933
- 10,000 people in province

Partner - Atlas Cultural Foundation

- Livingston based non-profit
- Cloe and Kris Erickson



2009



Ighram restoration



I was interested in the vegetation



Shared vegetation similarity



The genus *Artemisia*



Potential noxious
weeds



Questions about agriculture



Extension in Montana



Requires cross cultural communication

- Excellent opportunity for students to learn to communicate and problem solve
- Agriculture is necessary for every culture
- We can always talk about agriculture



Why did locals want to engage with us about agriculture?

- Women expressed concern about children's diets
- Pest management
- Fruit tree health
- Managing weeds



A Self-Learning Resource From MSU Extension

2016 MontGuide Index: AG

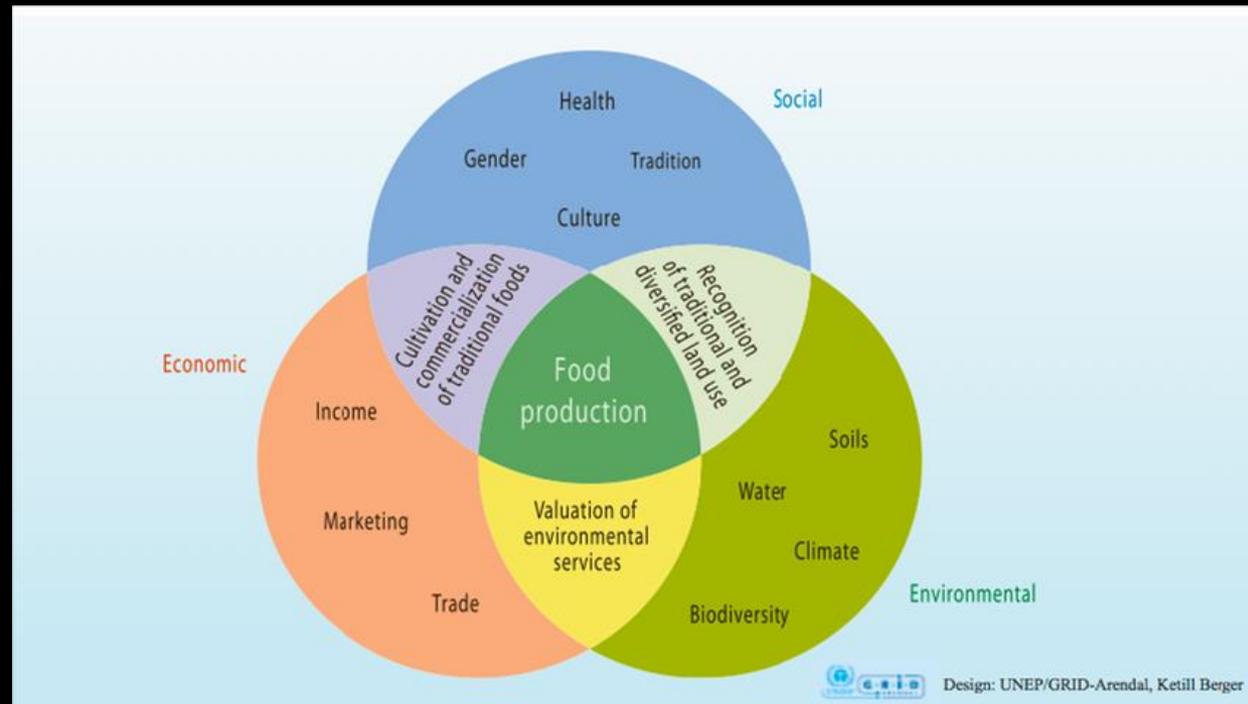
This Index lists MontGuides that are currently available in the Extension store to download or order. The MontGuide numbers are hyperlinked to the publication.

MT198300AG Revised 8/16

AGRICULTURE AND NATURAL RESOURCES	Fertilizer	Biology and Impact of Mosquitoes in Montana
Crops	Crop and Fertilizer Management Practices to Minimize Nitrate Leaching MT201103AG	Blister Beetles of Montana MT200209AG
Camelina Production in Montana MT200705AG	Developing Fertilizer Recommendations for Agriculture MT200703AG	Cereal Leaf Beetle MT201404AG
Establishing a Successful Alfalfa Crop MT200804AG	Manure Composting for Livestock & Poultry Production MT201206AG	Getting the Most from Soil-Applied Herbicides MT200406AG
From Conventional to Organic Cropping: What to Expect During the Transition Years MT200903AG	Nitrate Toxicity of Montana Forages MT200206AG	Ground Squirrel Control in Montana MT201406AG
Growing Chickpeas in the Northern Great Plains MT200204AG	Soil Sampling Strategies MT200803AG	Guide to Pocket Gopher Control in Montana MT200909AG
		Horn Flies on Cattle: Biology and Management MT200912AG
		Management of Lice on Livestock MT201204AG

First took students in 2014

- The interaction of agriculture, environment, ecology, and culture
- Sustainability



Students learn about the agricultural system

- Hands on



Plant and weed ecology





Agricultural System in Zawiya

- Fertile river terraces
 - *Wheat, alfalfa, corn, barley, and root vegetables*
- Dryland fields higher in valley
 - *Barley - mainly animal feed*
- Pastoral Agriculture
 - *Donkeys, mules*
 - *Sheep, goats, and cattle*





Crop and Vegetable Production

- Small Scale Production
 - Average plot size: $300m^2$
- Crops grown
 - Barley
 - Alfalfa
 - Corn
 - Root Vegetables







Agricultural Techniques

- Simple hand tools
- Flood irrigation
- Pesticides available





ACF tutoring: soils, climate, and plant biology

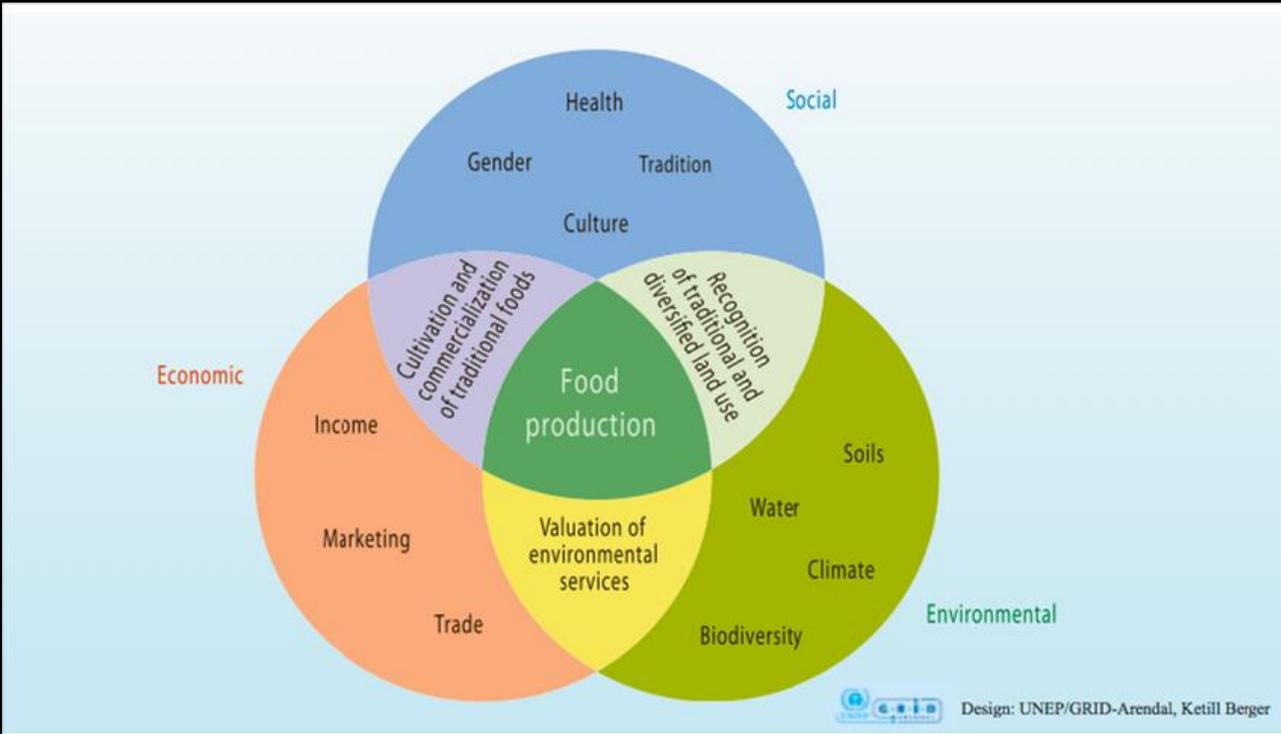


Most important:

- We reflect on our interactions with the community
- Understand the world from a different perspective



Sustainability



From their perspective



Perhaps the most significant realization at the beginning of the 21st century is the fact that the areas in the developing world, characterized by traditional/subsistence agriculture, remain poorly served by the top-down transfer-of-technology approach, due to its bias in favor of modern scientific knowledge and its neglect of local participation and traditional knowledge. For the most part, resource-poor farmers gained very little from the Green Revolution (Pearse,





ELSEVIER

Global Environmental Change 9 (1999) 45–58

GLOBAL
ENVIRONMENTAL
CHANGE

Climate change in mountain regions: some possible consequences in the Moroccan High Atlas

R. Parish^{a,*}, D.C. Funnell^b

Does sustainability have different meaning in Zawiya?

- People reliant on this system for:
 - *Supplemental income*
 - *Well being - Both humans and livestock*
- Resilience
 - *More exposure to system disturbances*
- Social

What is Sustainable?



- Low input of petrochemical fertilizers
– *Manure*
- Termination of crops by grazers
- Integrated Permaculture



What is Unsustainable?

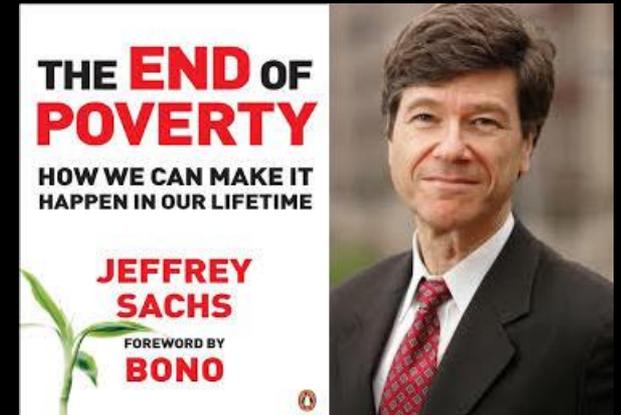
- Uniformed pesticide use
- Tillage of high elevation, erosion-prone slopes
- Severe overgrazing
- Flood Irrigation
 - *Nutrient leaching*

How does Zawiya secure a sustainable future?

- Community Education
 - *Science based*
- Agricultural system that is environmentally sound
 - *Producing nutritious highly utilized vegetables*
 - *Improve irrigation infrastructure*
- Economic Stability
 - *Stable local prices*

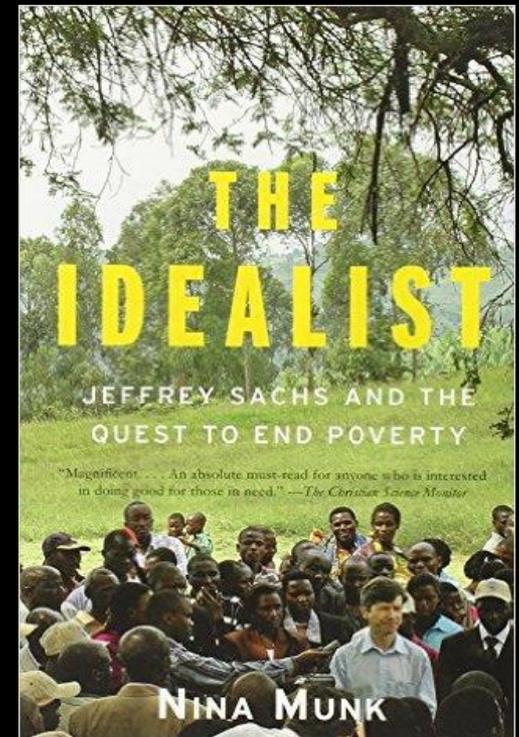
Failed Model of Community Development

- Jeffrey Sachs
 - *Celebrated Economist*
- Millennium Villages Project
 - *Model villages in sub-Saharan Africa*
 - *Plan to end Poverty in Africa*



Top-down Approach

- Too reliant on outsiders
 - *Staff-driven*
- Disregard of culture and values
 - *Models are not reality*
- High yield seeds and fertilizers
 - Incredible yields
 - Ugandans don't like corn - “prison food”
 - No storage or market
- Created a culture of dependency
 - *“A hand out instead of a hand up”*



Community Engagement

- Locals determine projects
 - *Utilize local labor and economy*
 - Similar to the extension model in Montana
 - *Farmers and producers come to agricultural experts with questions*
- “Care must be taken in all the reconstructive work to see that local initiative is relied upon to the fullest extent.”*
- Hyde Bailey*

A two way street

- The local community can benefit from our knowledge

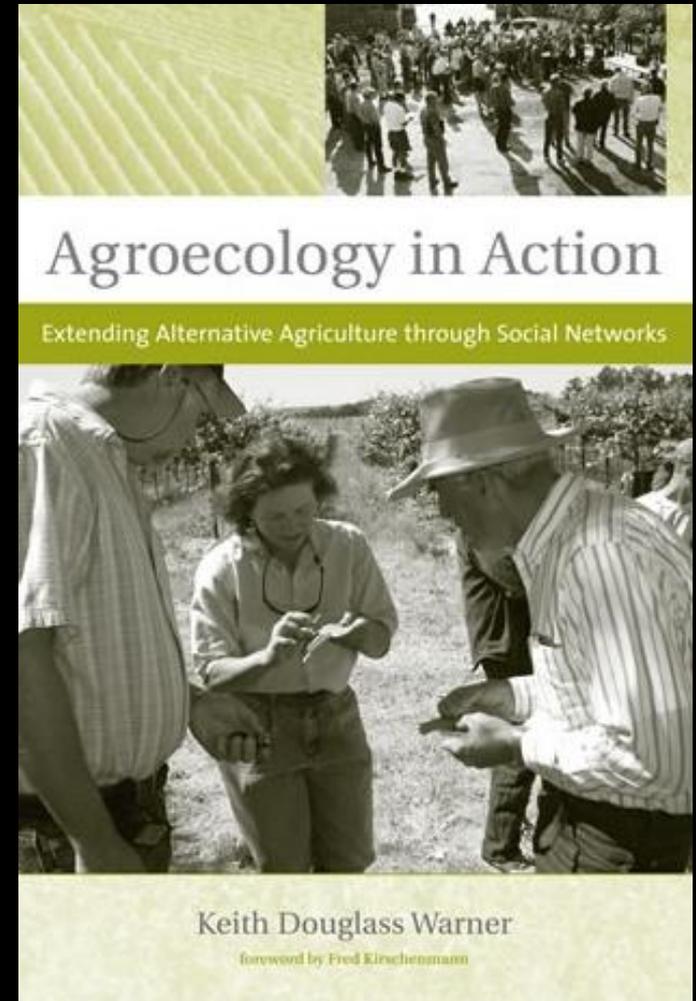


We learn more from them



Agroecology in Action

- Agroecology can be put into action effectively only when networks of farmers, scientists, and other stakeholders learn together.



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