



Southern Tier Agriculture: A Regional Economic Resource and a Landscape In Transition

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Southern Regional and a

- The purpose of this educational material is to help inform discussions of ag-based economic development opportunities/options at the regional level
- More consideration of development options at regional scale may help set the stage for evaluation of development strategies and assembly of necessary stakeholder input

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Introduction

Agriculture: An Economic Sector and a Land Use That Defines Our Rural Places

- **As an *economic* sector, agriculture faces:**
 - A stagnant state and regional economy
 - The downward price pressures of globalization
 - Possible unexploited opportunities to boost performance in agricultural sub-sectors and related industries
 - In forward linkage sectors, such as food processing and retail and wholesale sales sectors
 - In backward linkage sectors, such as financial, insurance and real estate as well as automotive sales, petroleum products and agricultural chemicals
 - In agricultural services
 - In consumer-oriented or “backyard” agriculture

Agriculture: An Economic Sector and a Land Use That Defines Our Rural Places

- *As a land use, agriculture faces:*
 - "Environmental" considerations
 - Community character, rural atmosphere are established by the working farms in the rural landscape
 - Working landscapes in residential rural areas are prized for their aesthetic appeal, but may not be maintained or paid for by those who may want to preserve them
 - More exacting environmental regulations which can generate different management of crop and livestock production
 - Development pressure that raises land values, assessments, and farm property taxes

Agriculture: An Economic Sector and a Land Use That Defines Our Rural Places

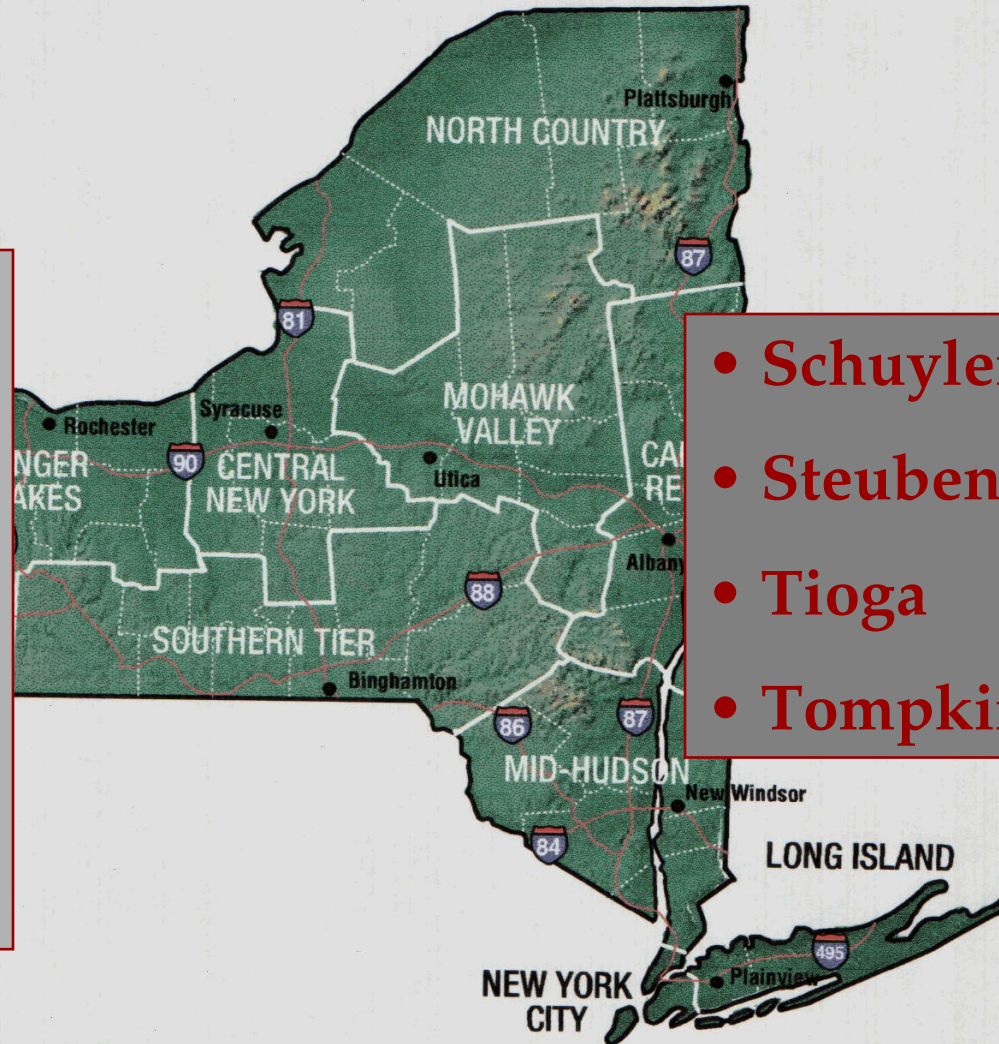
- Many agricultural development questions have a strong regional dimension, because entire rural regions are characterized (both in land use and in economic activity) by the types of farming that have been practiced there
 - Development issues for farm and food rarely follow county lines
 - Scale considerations often dictate regional economic development strategies
 - Community and economic development programs operate at both a county and regional level for rural areas
 - Pursuing transitional agricultural enterprises may be most successful where a critical mass of farm entrepreneurs work together to make changes

Our Definition of "Southern Tier" is Empire State Development's 9-County Region

Counties:

- Broome
- Chemung
- Chenango
- Delaware
- Otsego

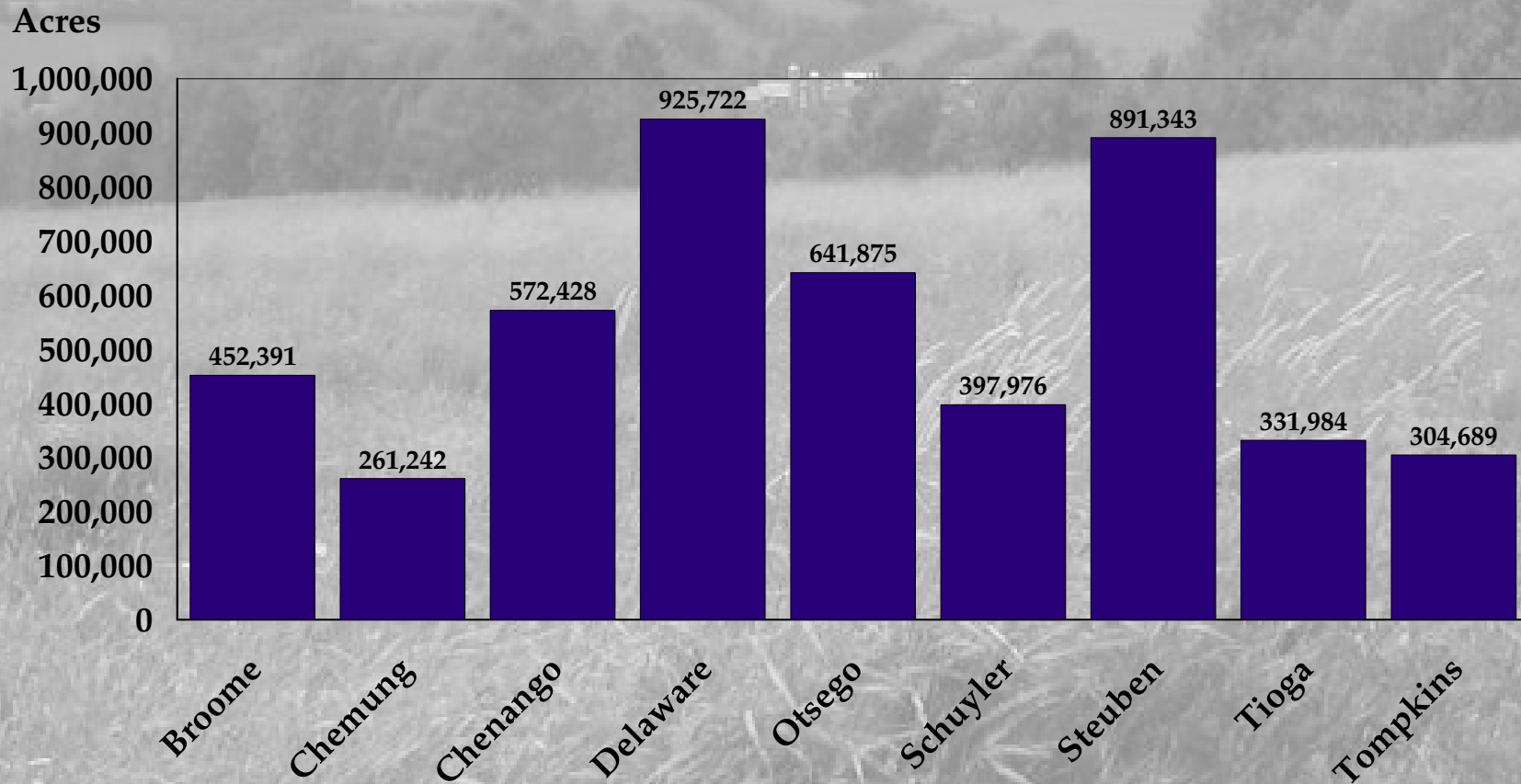
- Schuyler
- Steuben
- Tioga
- Tompkins





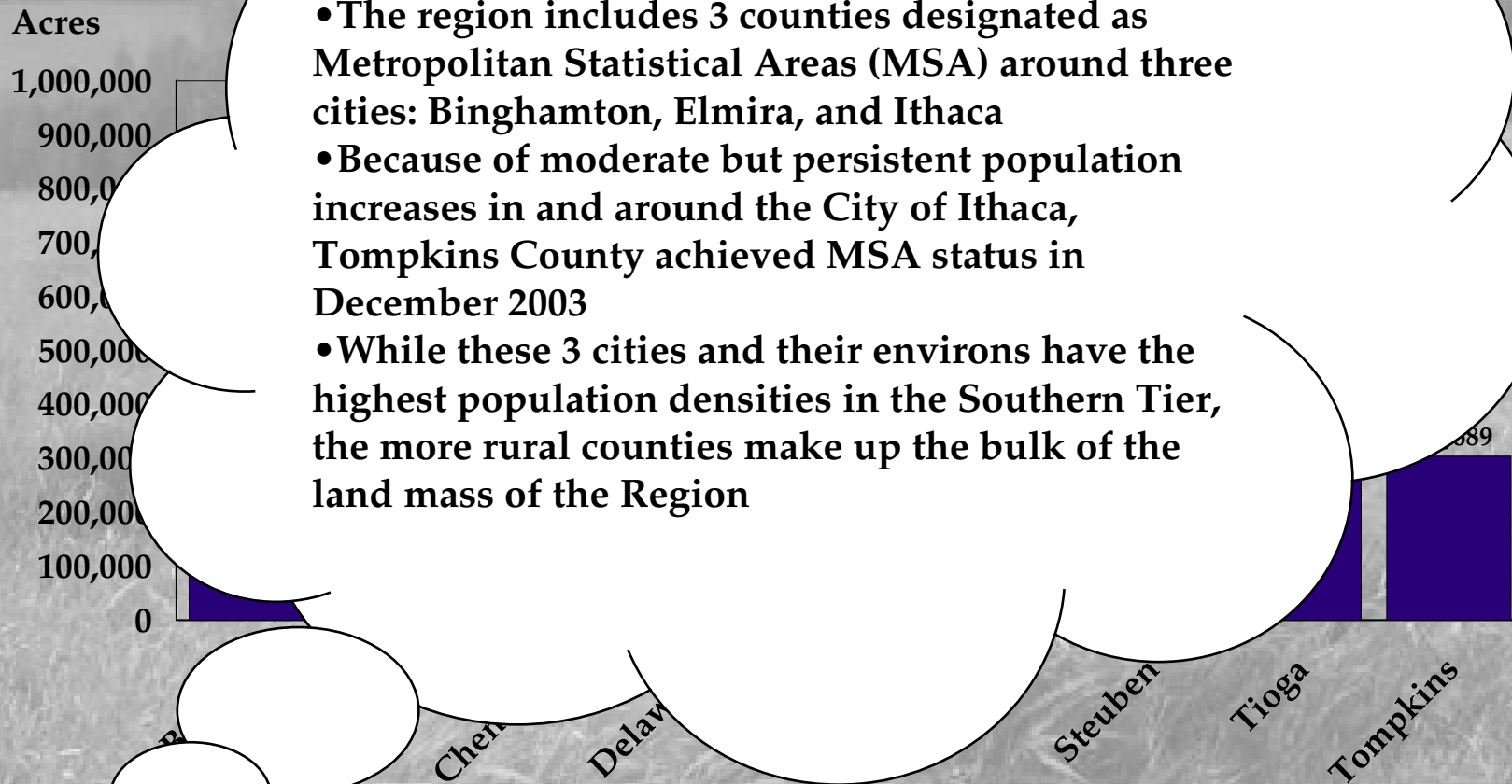
Socioeconomic Trends

Land area in the S. Tier: 4.8 million acres (7, 175 sq. miles) and about 16% of the New York State total



Source: 2002 Census of Agriculture

Land area in the S. Tier (sq. miles) and (sq. miles) and (sq. miles)

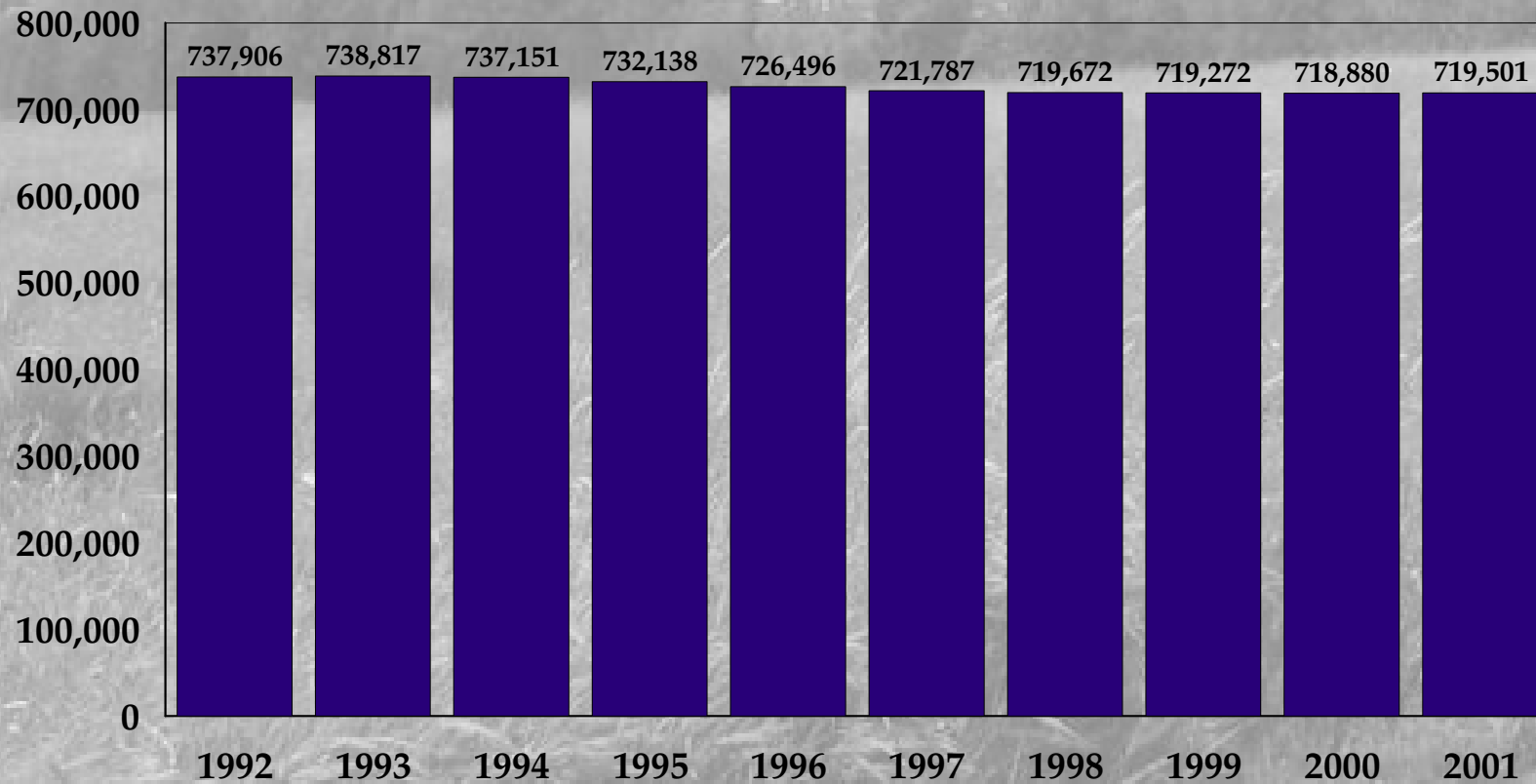


- The region includes 3 counties designated as Metropolitan Statistical Areas (MSA) around three cities: Binghamton, Elmira, and Ithaca
- Because of moderate but persistent population increases in and around the City of Ithaca, Tompkins County achieved MSA status in December 2003
- While these 3 cities and their environs have the highest population densities in the Southern Tier, the more rural counties make up the bulk of the land mass of the Region

Source: 2002 Census of Agriculture

Total population in the Southern Tier

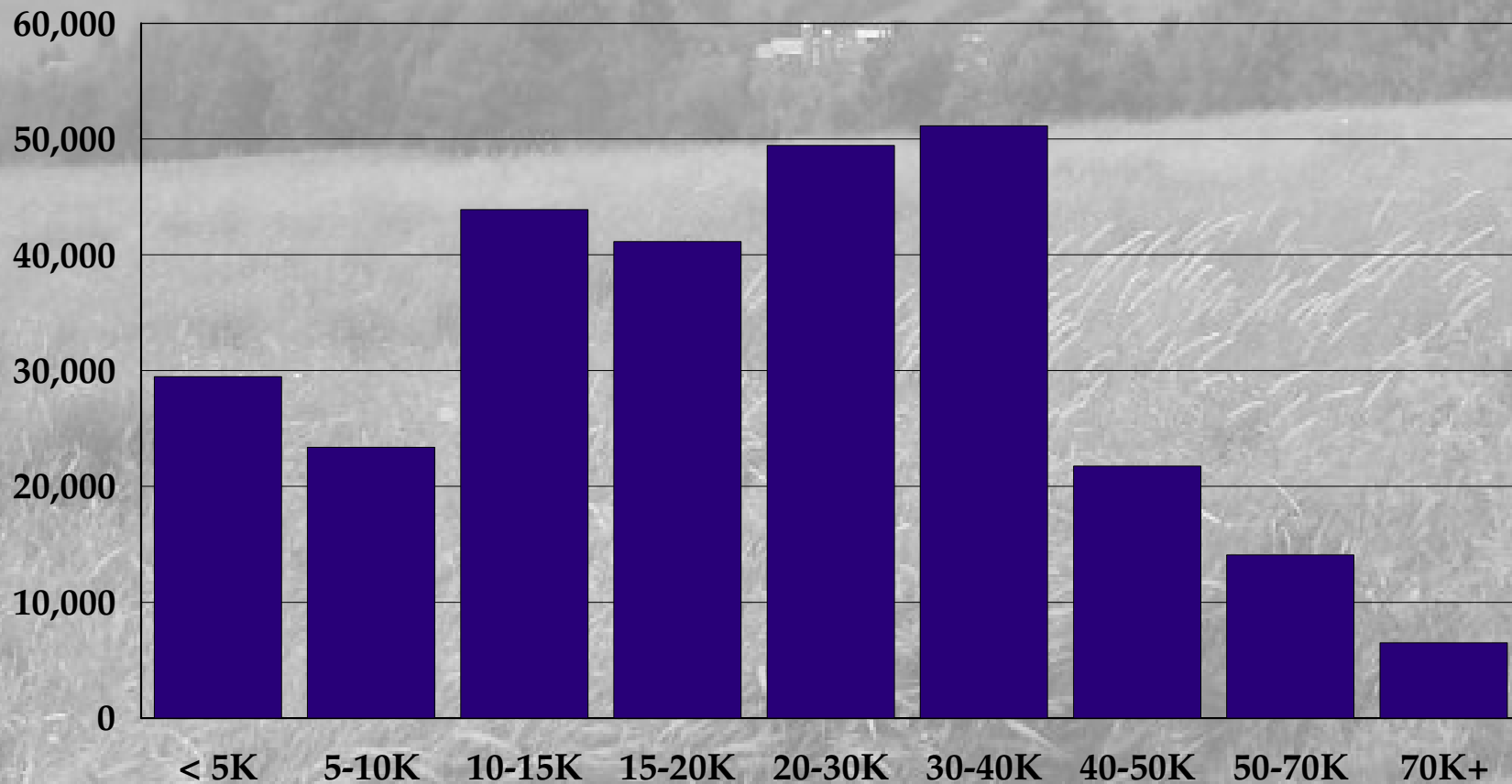
No. persons



Source: BEA-REIS

Household Income in the Southern Tier: Distributed Across a Wide Spectrum

No. S. Tier households



Source: IMPLAN

12

Southern Tier Demographics

- Fueled by out-migration, Upstate New York has grown much more slowly than Downstate over the last twenty years--3.5%, as compared to 10.9% for Downstate... the US population increased by more than 24% between the 1980 and 2000.
- The Southern Tier is geographically located in the center of a multi-state “Northeastern slow growth zone,” as defined by R. Pendall in “Upstate New York’s Population Plateau: The Third-Slowest Growing ‘State’” recently published by the Brookings Institution.



The Regional Farm and Food Economy

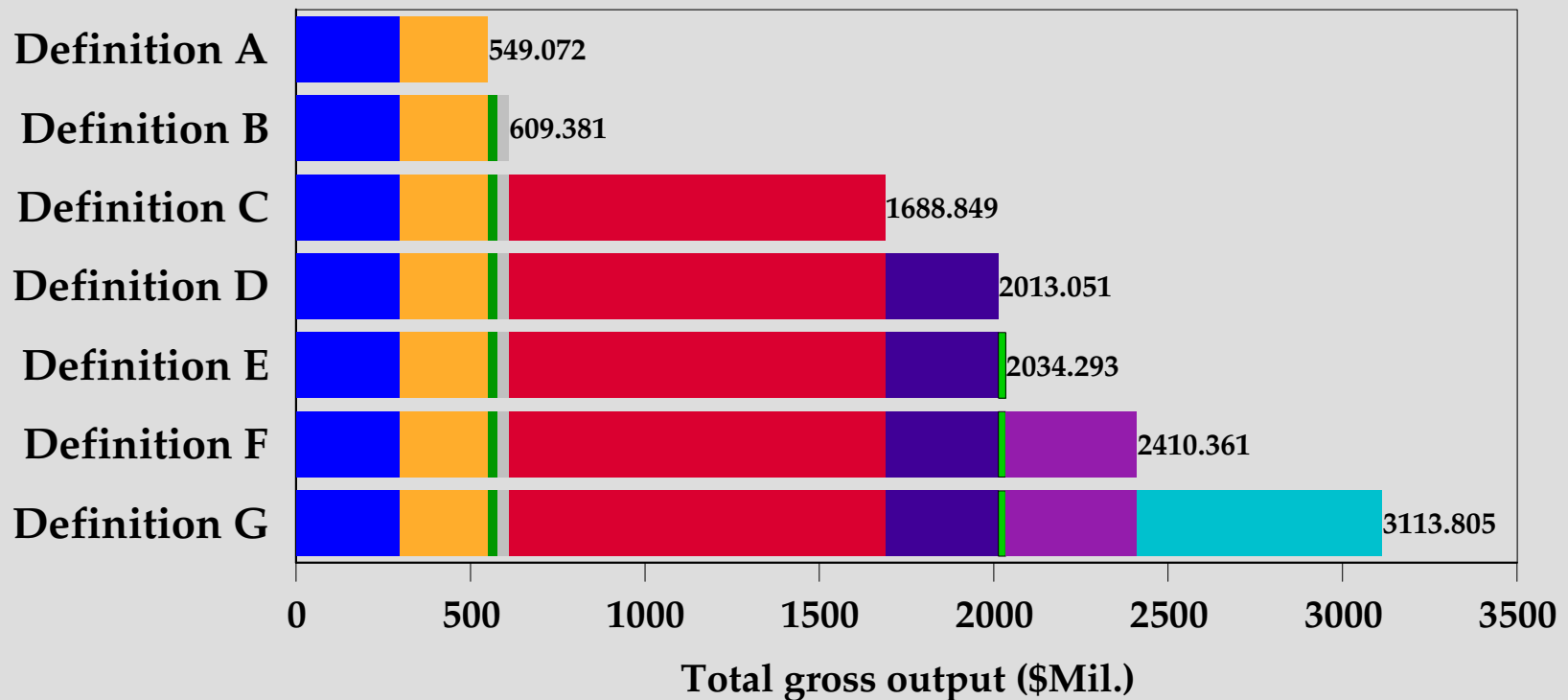
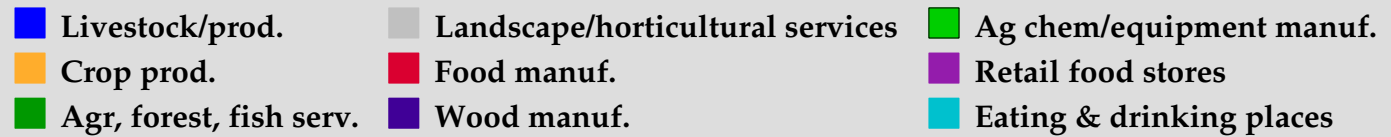
The Role of Farm and Food Production in the Region

- Farm and food production is a mainstay in the Southern Tier economy and a dominant feature of the rural landscape
- We seek to measure and document the economic contributions of those industries, and to highlight important trends, such as:
 - Number of farm businesses
 - Economic activity down the value chain, in agricultural services, food processing, wood manufacturing, wholesaling and retailing

Sizing the Southern Tier Farm and Food Sector(s)

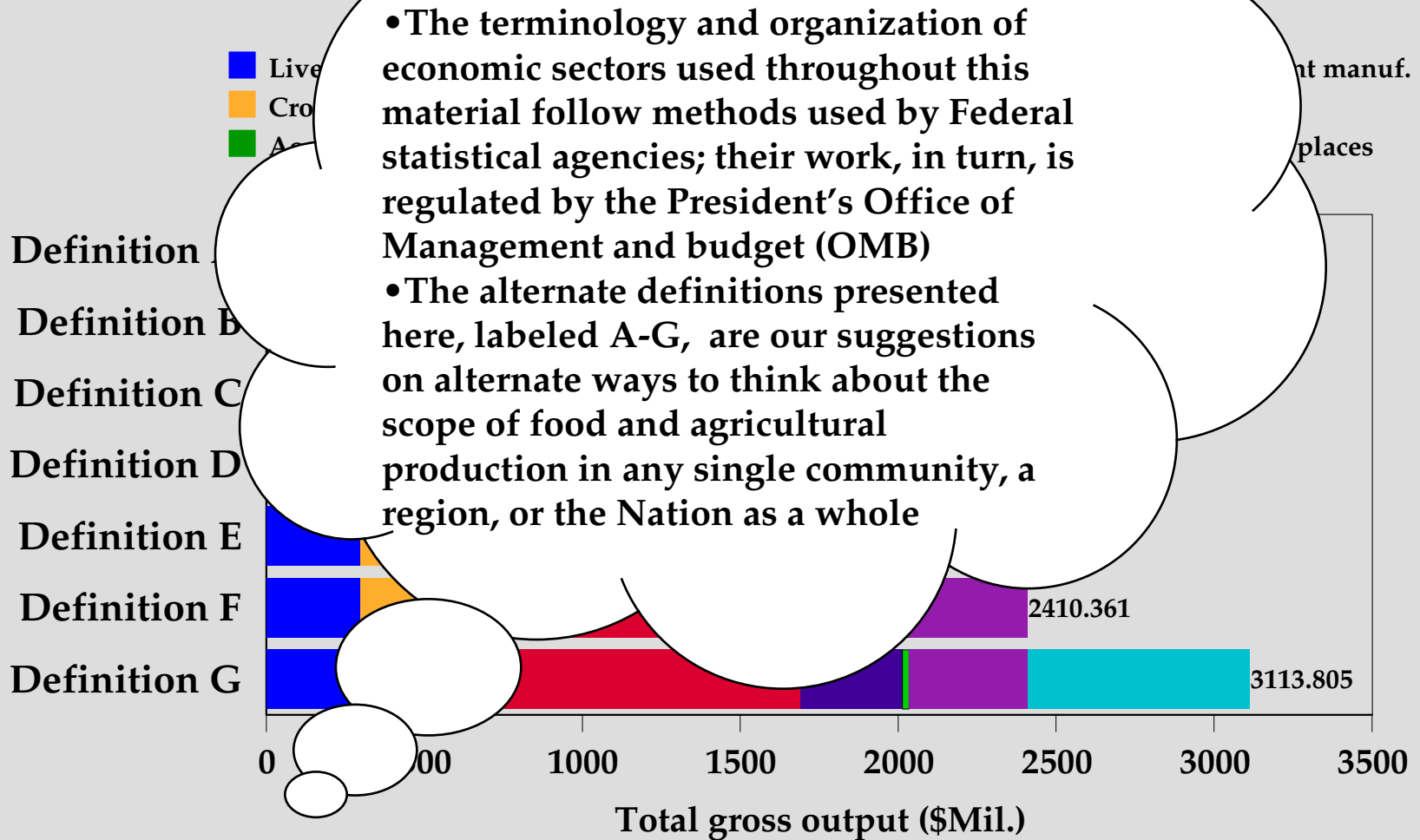
- There is no single unit of measure for farm and food economic output; four are commonly used by academics and practitioners alike:
 - Number of establishments-employers and non-employers
 - Gross output
 - Value added
 - Employment
- There is no single working definition of the farm and food system; our list includes:
 - Farms
 - Agricultural and Forestry Services
 - Food Manufacturing
 - Wood Manufacturing
 - Allied Farm and Food Manufacturing
 - Food wholesaling and retailing
 - Eating and drinking establishments

Defining Food and Agriculture: Value of Output by Industrial Sector, Southern Tier Counties, New York, 2000



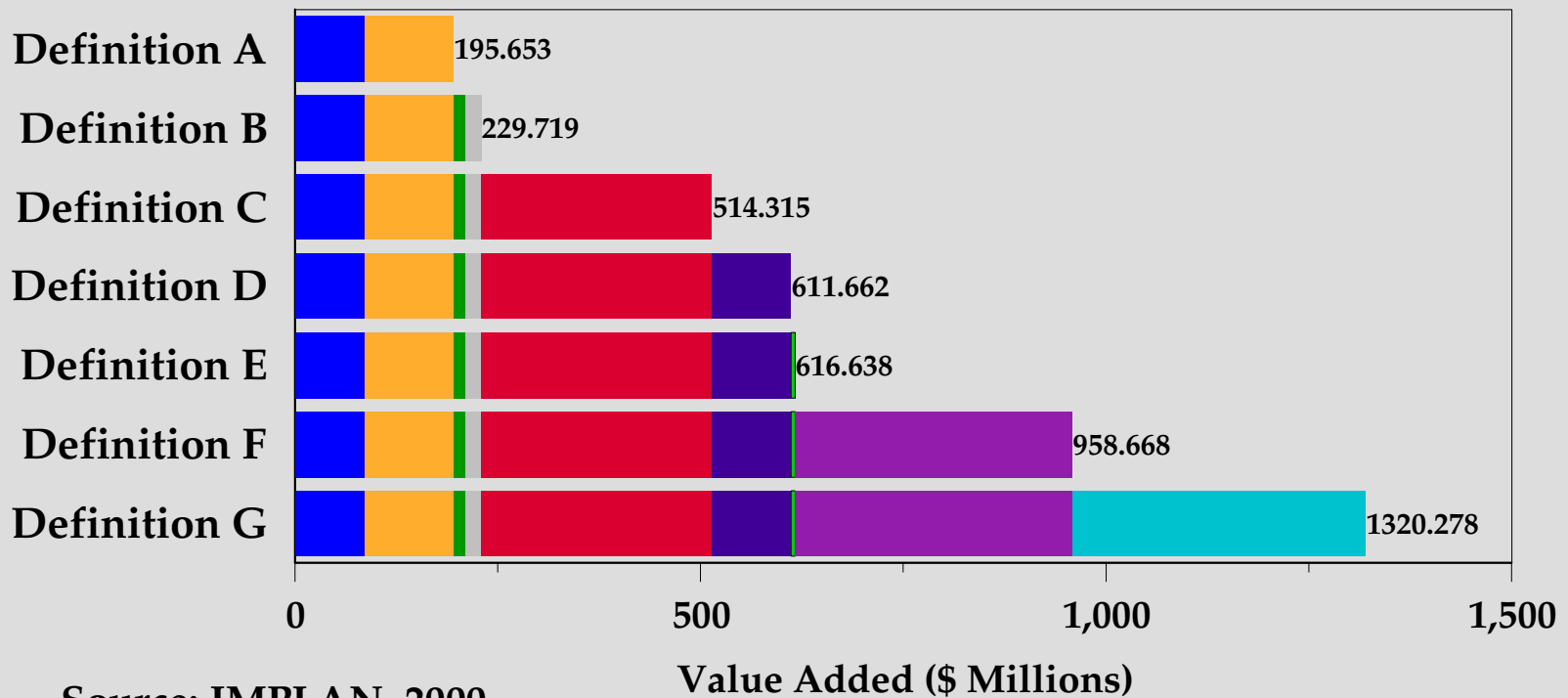
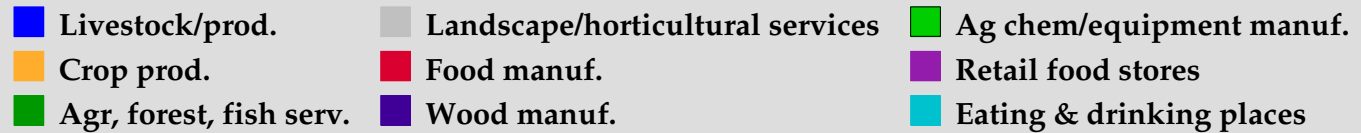
Source: IMPLAN, 2000

Defining Food and Agriculture: Value of Output by Industrial Sector, Southern Tier Counties, New York, 2000

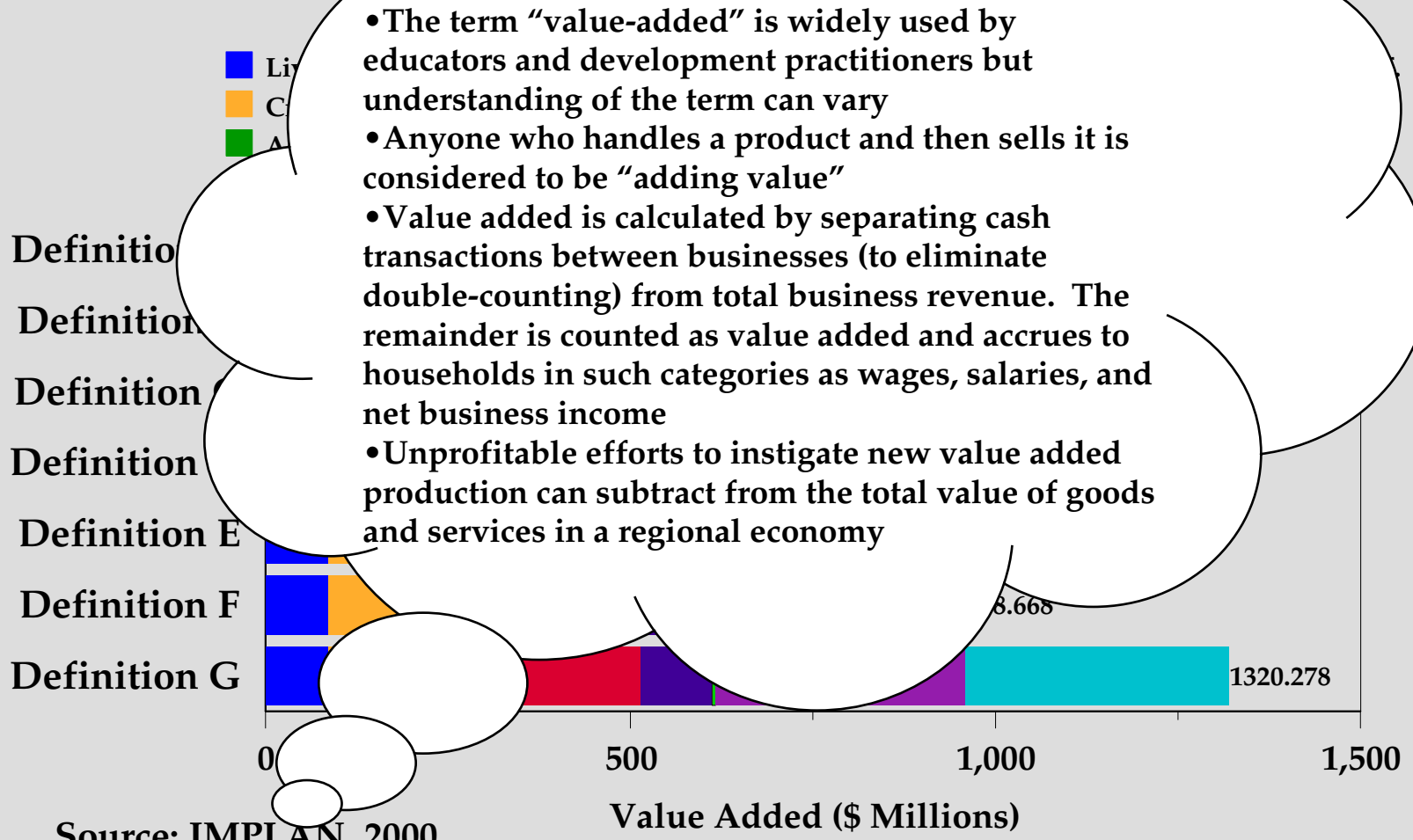


Source: IMPLAN, 2000

Defining Food and Agriculture: Value Added by Industrial Sector, Southern Tier Counties, New York, 2000



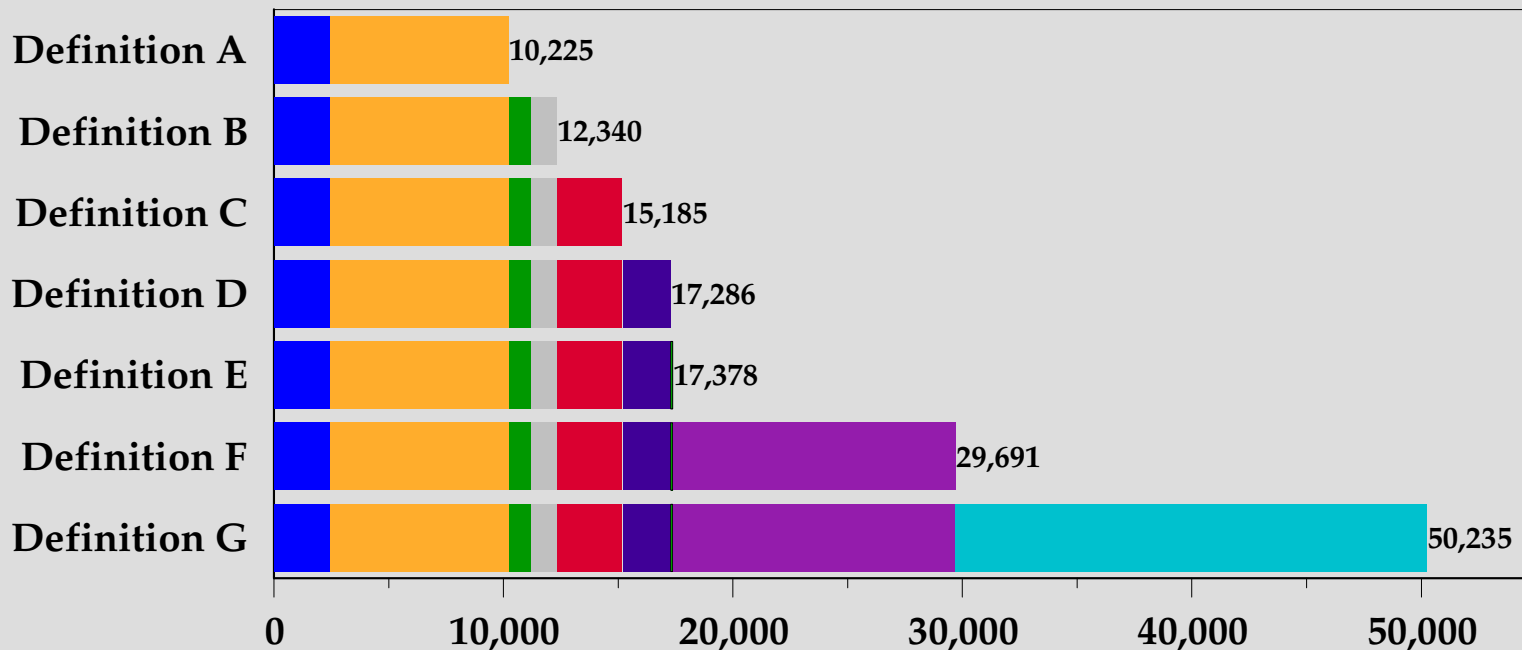
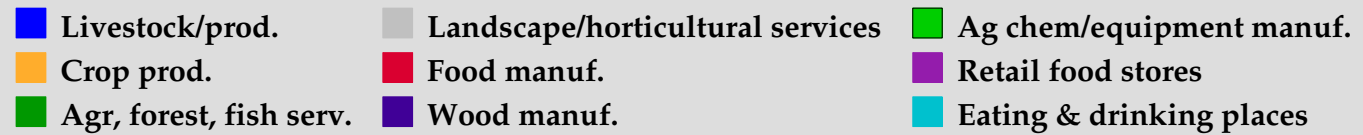
Defining Food and Agriculture: Value Added by Industrial Sector, Southern Tier Counties, New York, 2000



• The term “value-added” is widely used by educators and development practitioners but understanding of the term can vary
 • Anyone who handles a product and then sells it is considered to be “adding value”
 • Value added is calculated by separating cash transactions between businesses (to eliminate double-counting) from total business revenue. The remainder is counted as value added and accrues to households in such categories as wages, salaries, and net business income
 • Unprofitable efforts to instigate new value added production can subtract from the total value of goods and services in a regional economy

Source: IMPLAN, 2000

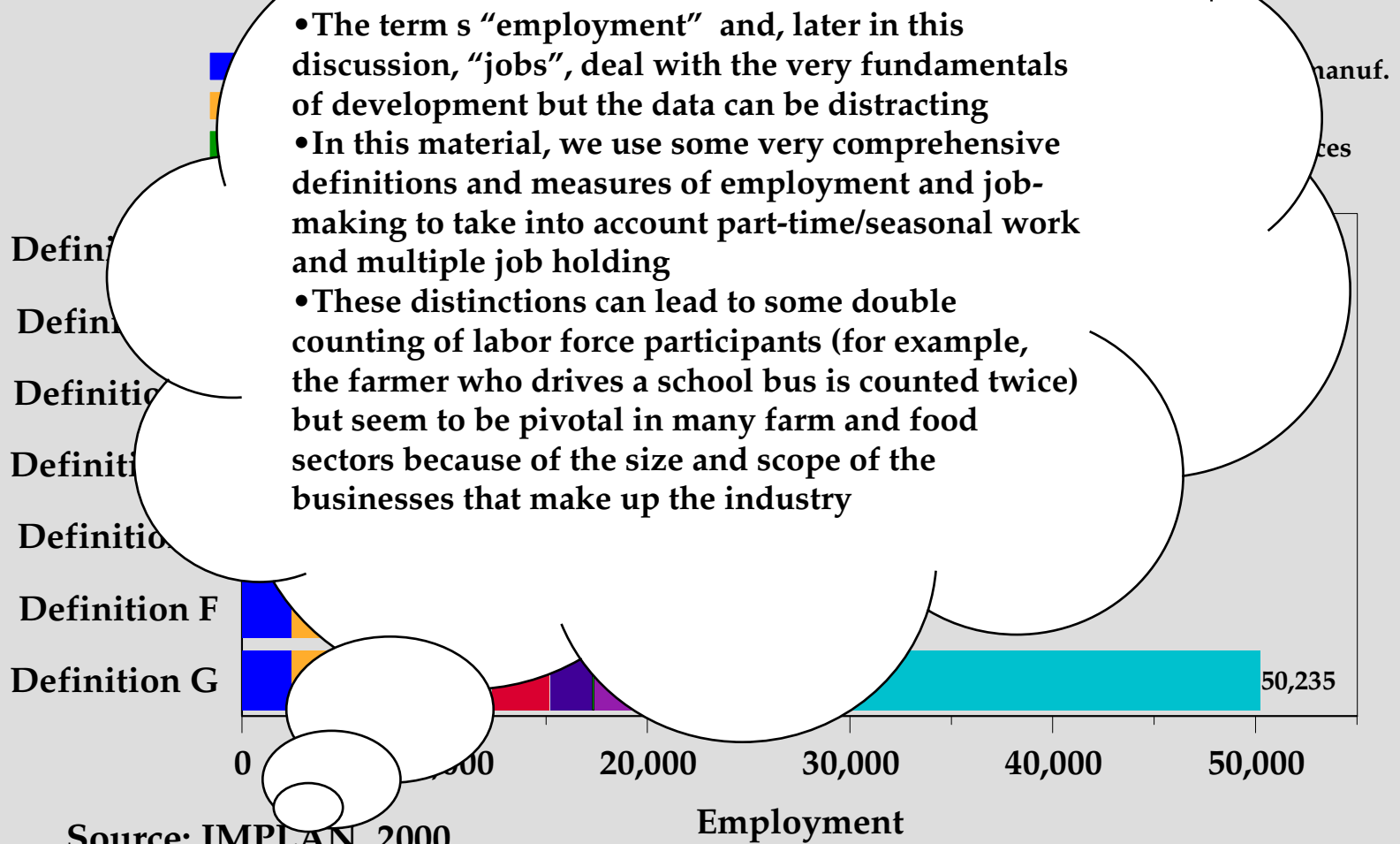
Defining Food and Agriculture: Employment by Industrial Sector, Southern Tier Counties, New York, 2000



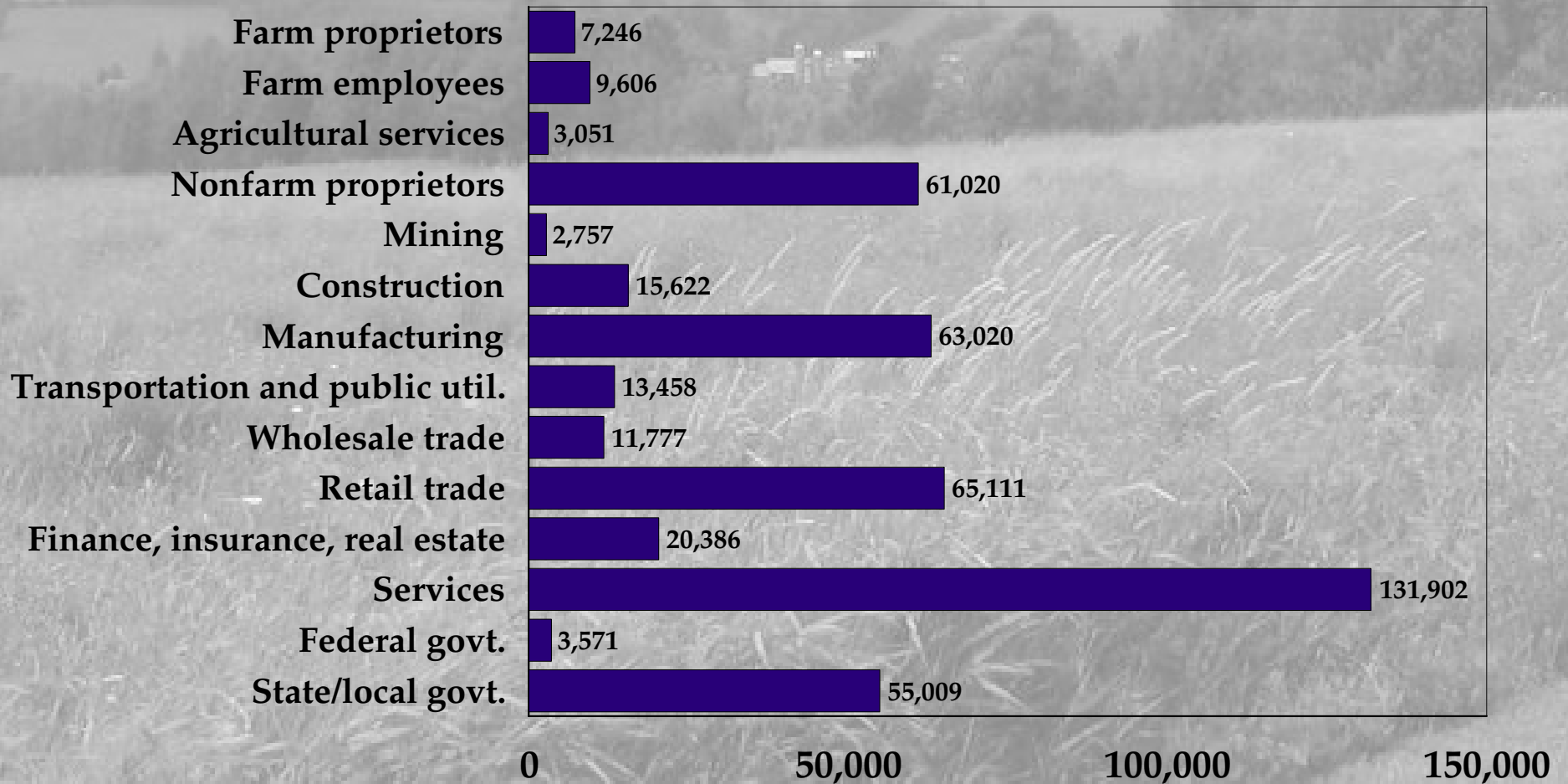
Source: IMPLAN, 2000

Employment

Defining Food and Agriculture: Employment by Industrial Sector, Southern Tier Counties, New York, 2000



Jobs in the S. Tier, 2000

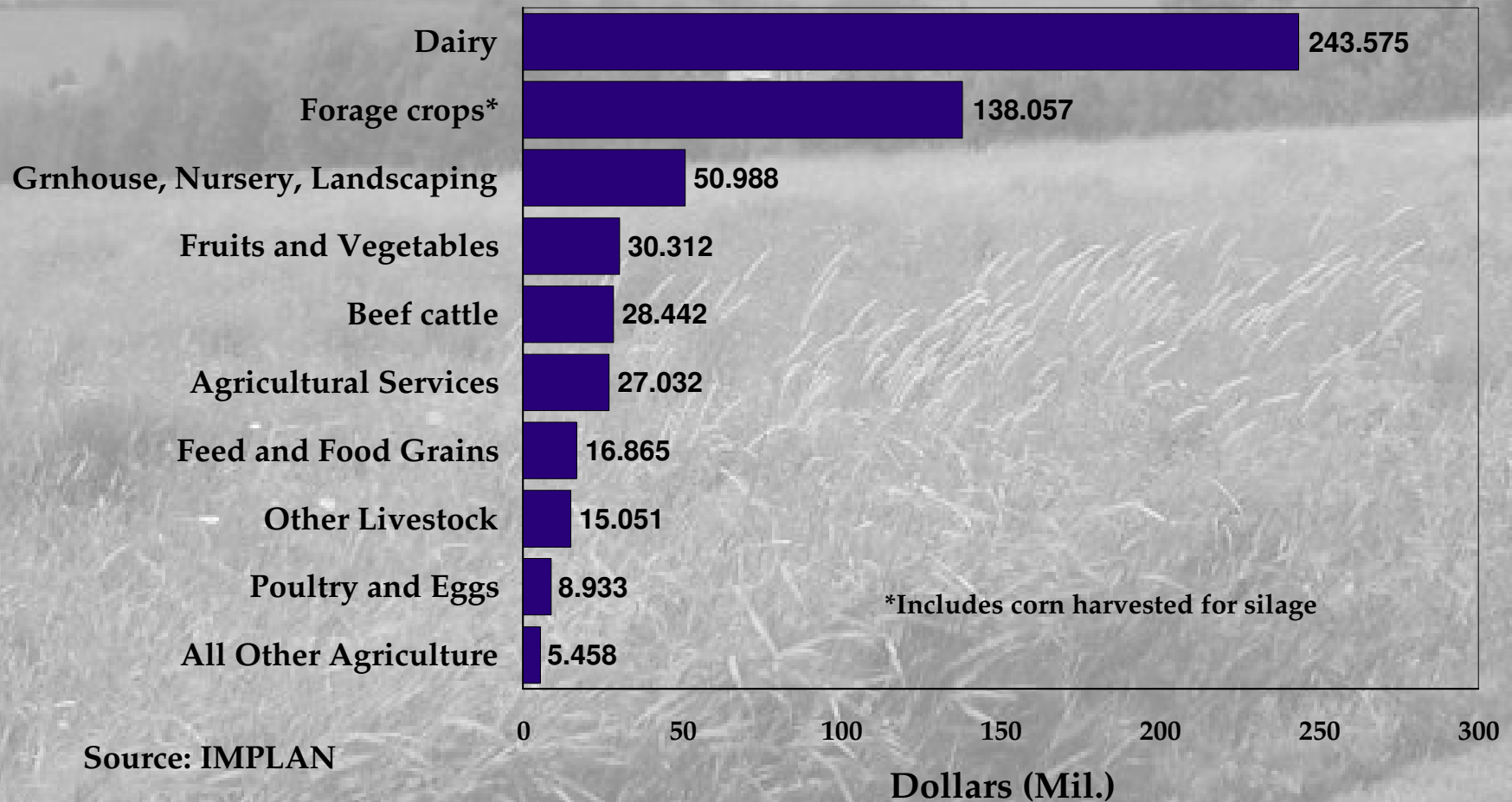


Source: BEA-REIS

Bills, Cail and Roth 2005

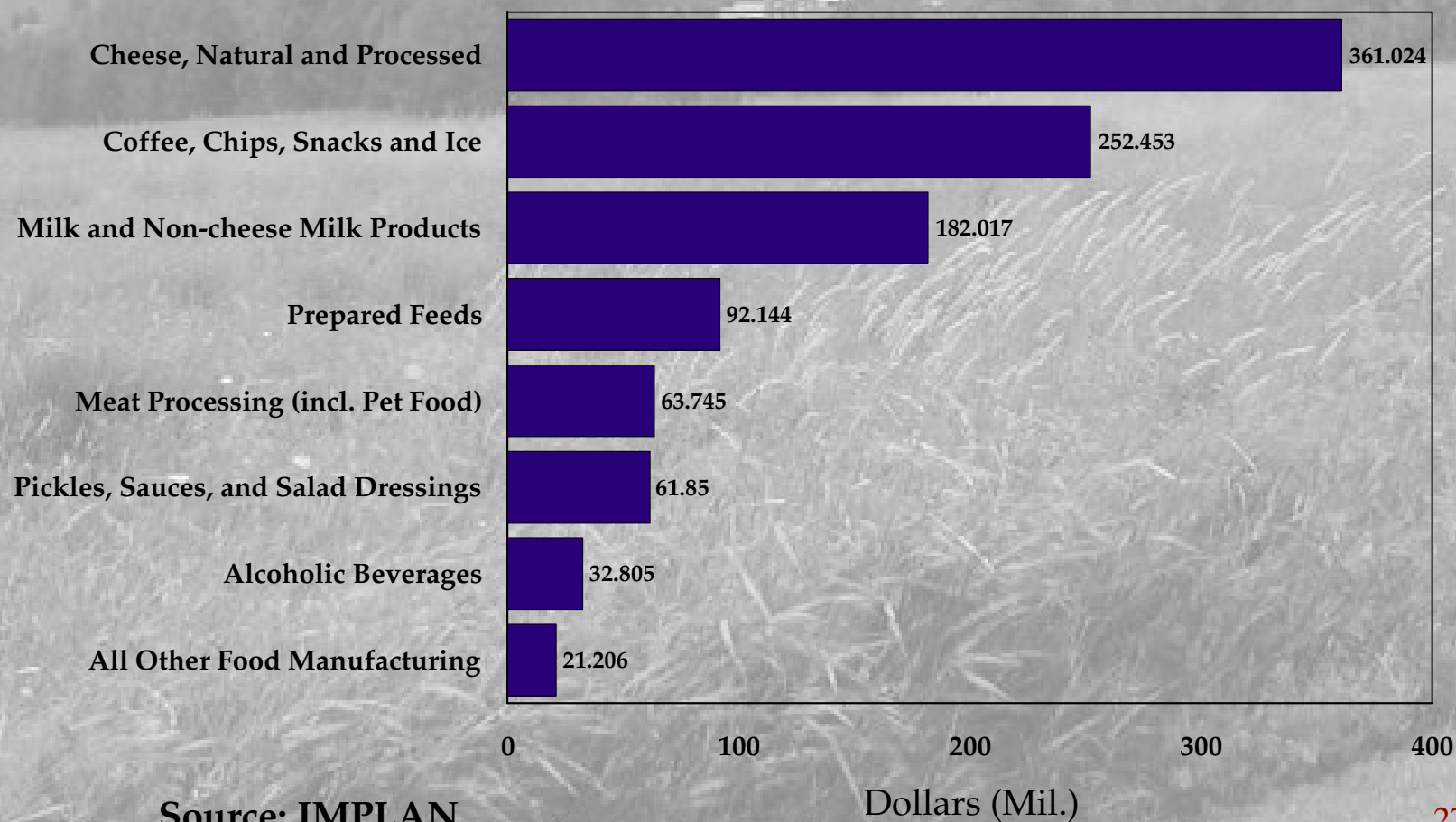
- Our output estimates, based on an IMPLAN region model, showcase several agricultural sub-sectors. These include landscape and horticultural products and services along with commodities for food products
- Unsurprisingly, Dairy Farm Products and Forage Crops (including corn harvested for silage) show the highest output, at more than \$243 mil. for dairy and more than \$138 mil. for forages, the Southern Tier's largest crop sector.
- Other sectors with significant output include Cattle, Misc. Livestock, Feed Grains, Vegetables, Greenhouse and Nursery Products, and Forest Products
- Agricultural, Forestry and Fishery Services, and Landscape and Horticultural Services add yet another dimension to the overall farm and food picture.

Value of output in various Southern Tier agricultural subsectors, 2000



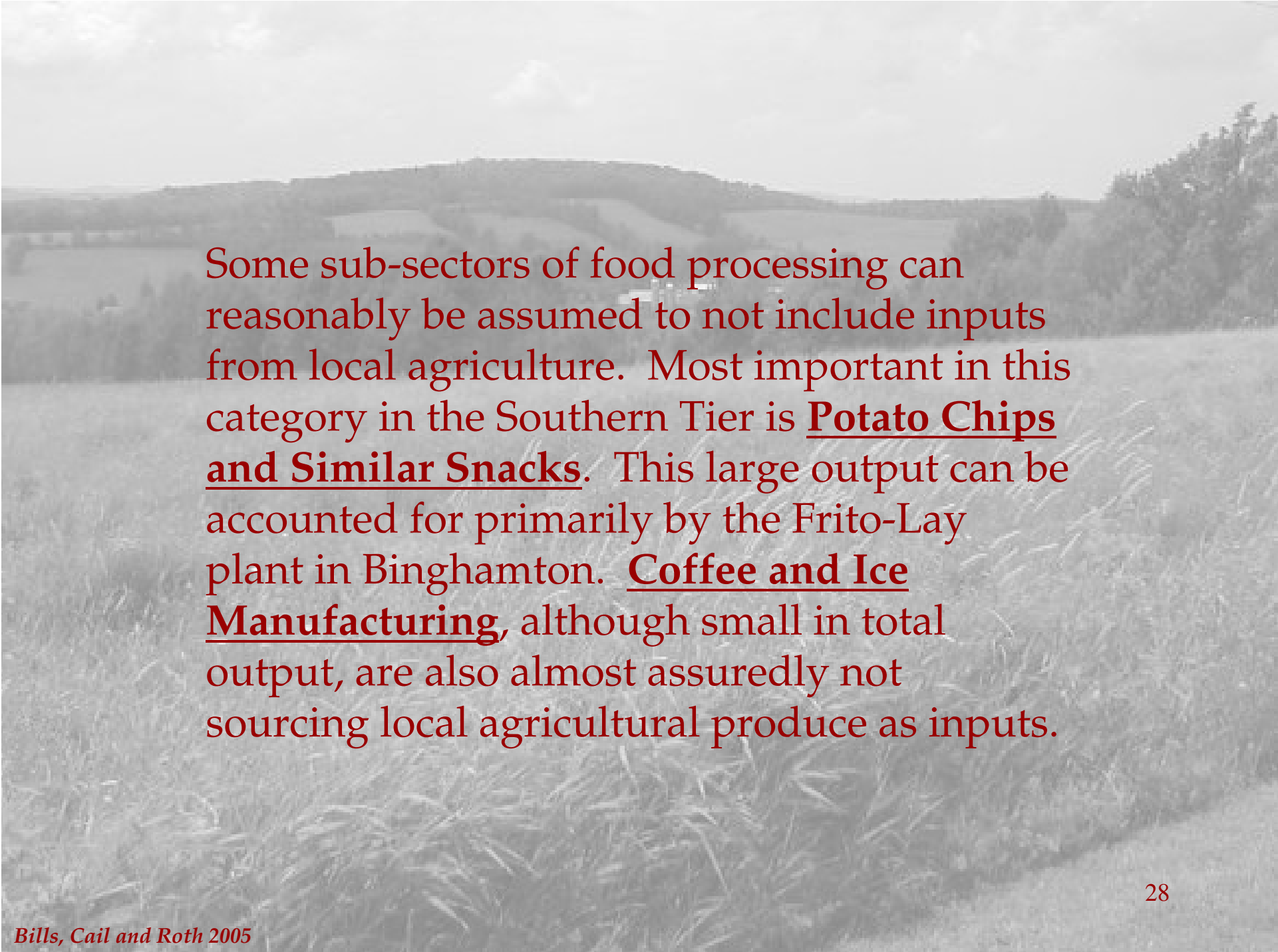
- Food processing and wood manufacturing dominate the Southern Tier farm and food scene in dollar output or value added terms
- Some food processing sectors are located in the Southern Tier to capitalize on local markets and access to larger regional outlets; but others are connected by backward linkages to Southern Tier farm commodity production.
- The Natural and Processed Cheese sector stands out at with over \$361 mil. In gross output, as well as the Fluid Milk sector at over \$124 mil., and Prepared Feeds more than \$92 mil. Specialty food items, such Pickles, Sauces and Salsas, as well as Condensed and Evaporated Milk and Meat Packing Plants also have some significant output, according to IMPLAN model estimates.

Value of output in various food manufacturing subsectors, Southern Tier, 2000



Source: IMPLAN

Dollars (Mil.)



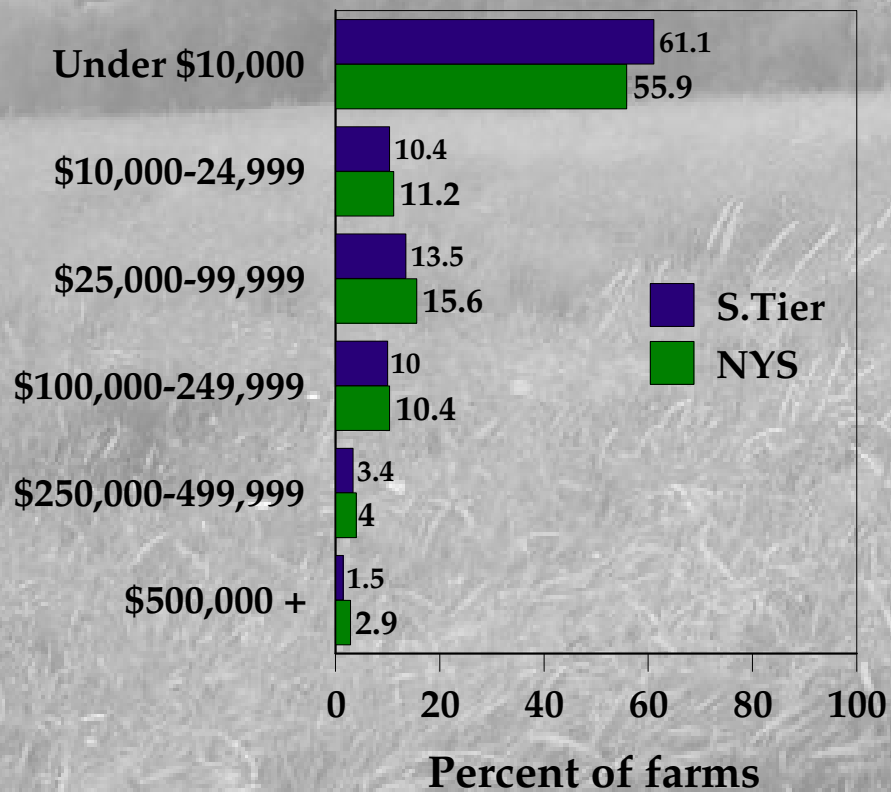
Some sub-sectors of food processing can reasonably be assumed to not include inputs from local agriculture. Most important in this category in the Southern Tier is Potato Chips and Similar Snacks. This large output can be accounted for primarily by the Frito-Lay plant in Binghamton. Coffee and Ice Manufacturing, although small in total output, are also almost assuredly not sourcing local agricultural produce as inputs.



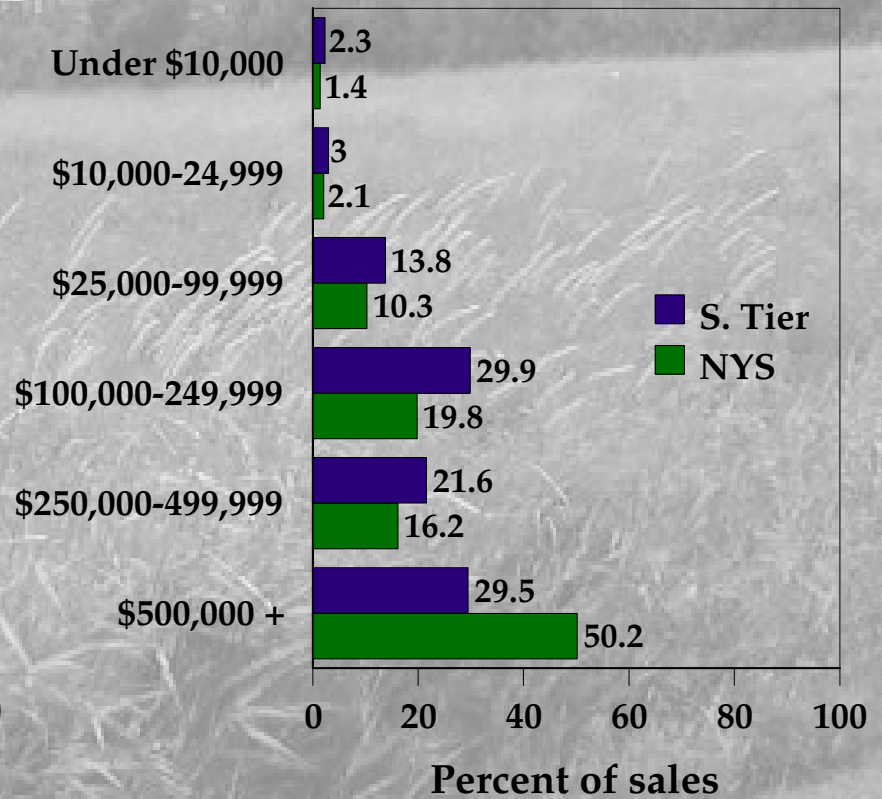
Farm businesses in the Southern Tier

Distribution of farms by commodity sales class, Southern Tier and New York State, 2002

2002 value of sales



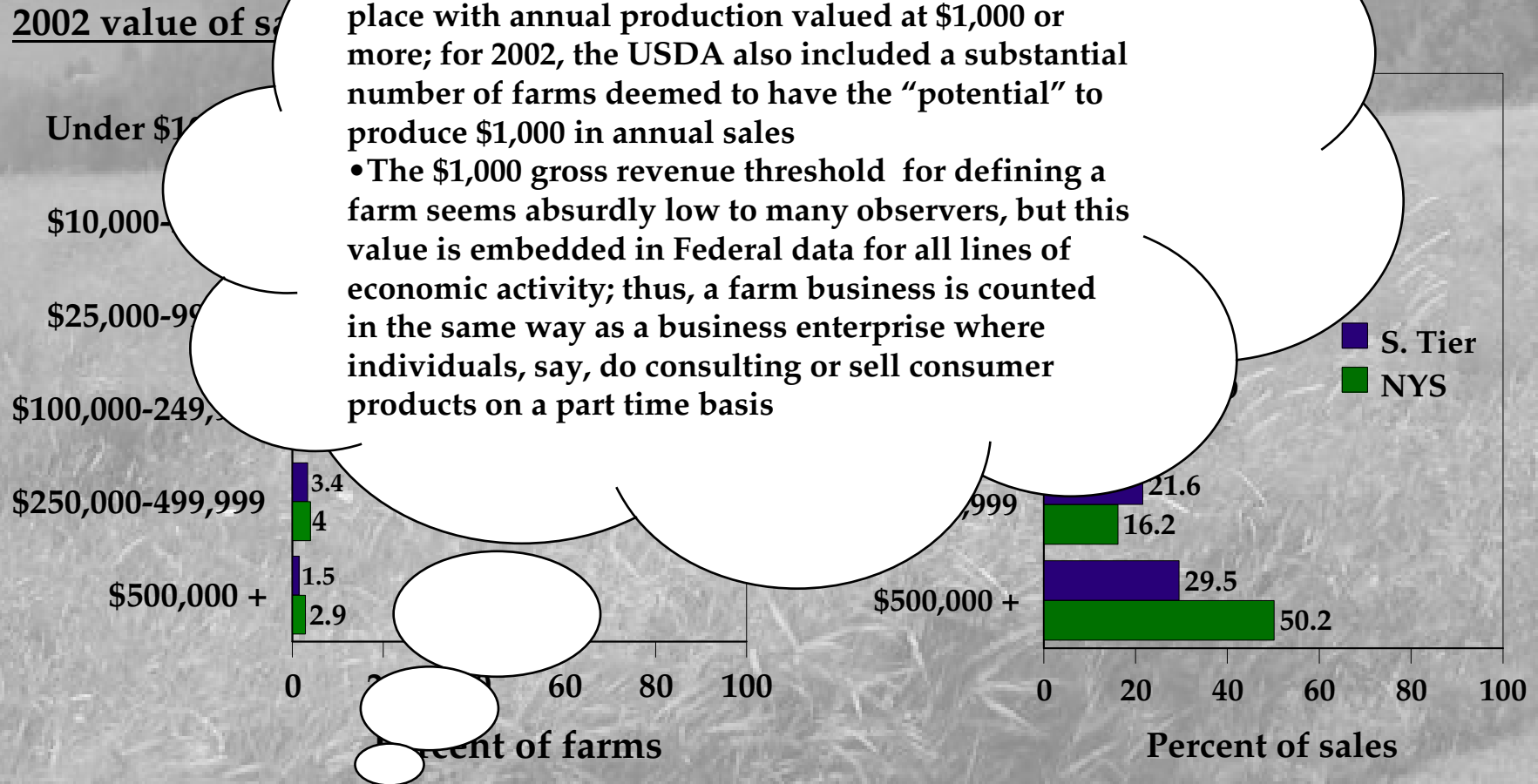
2002 value of sales



Source: 2002 Census of Agriculture

Distribution of farms by commodity sales class, Southern Tier and NYS

- Our data follow the Federal definition of a farm: a place with annual production valued at \$1,000 or more; for 2002, the USDA also included a substantial number of farms deemed to have the “potential” to produce \$1,000 in annual sales
- The \$1,000 gross revenue threshold for defining a farm seems absurdly low to many observers, but this value is embedded in Federal data for all lines of economic activity; thus, a farm business is counted in the same way as a business enterprise where individuals, say, do consulting or sell consumer products on a part time basis



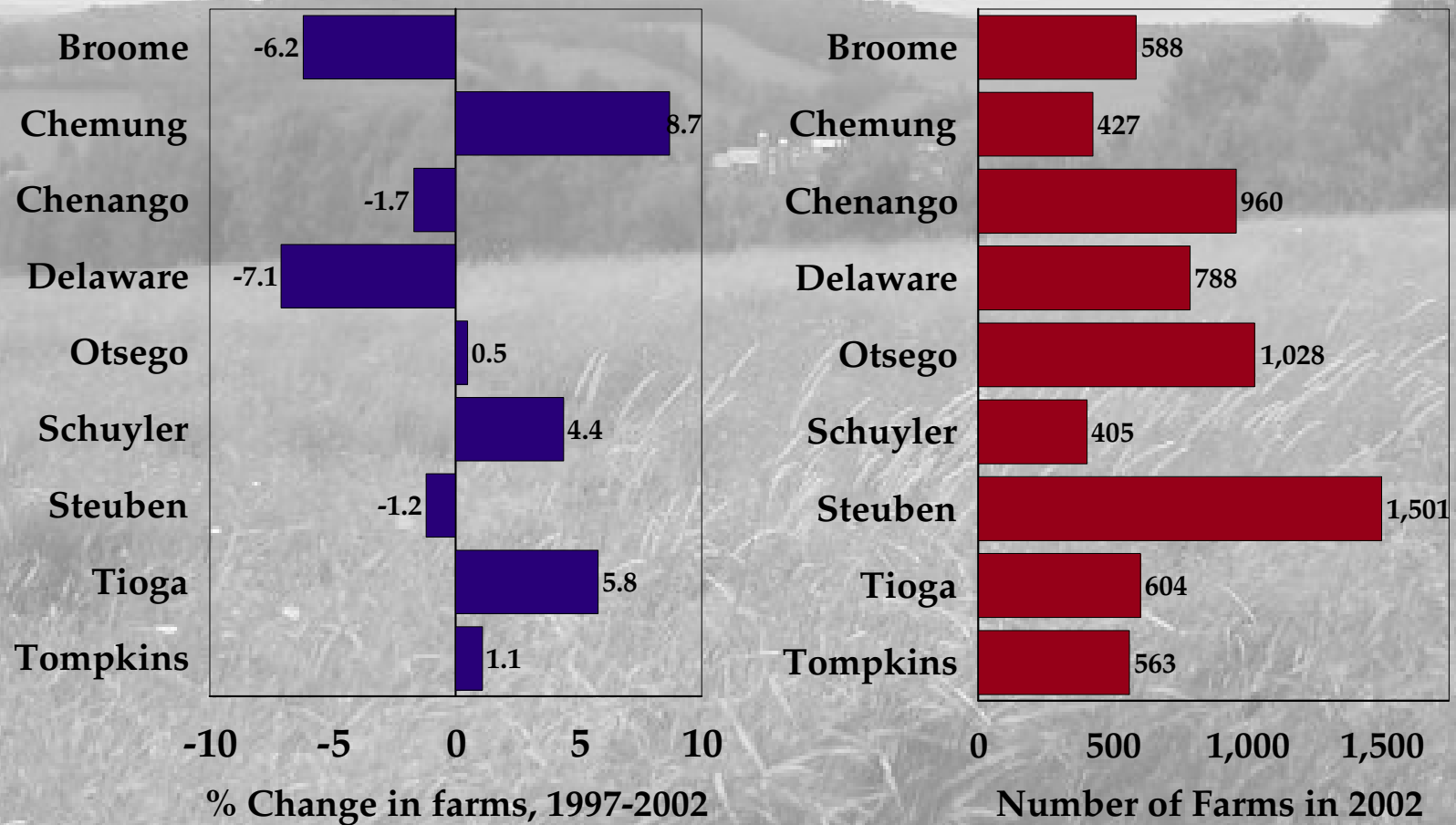
Source: 2002 Census of Agriculture



Land Resources Are Being Used Differently Than They Were Just Five Years Ago

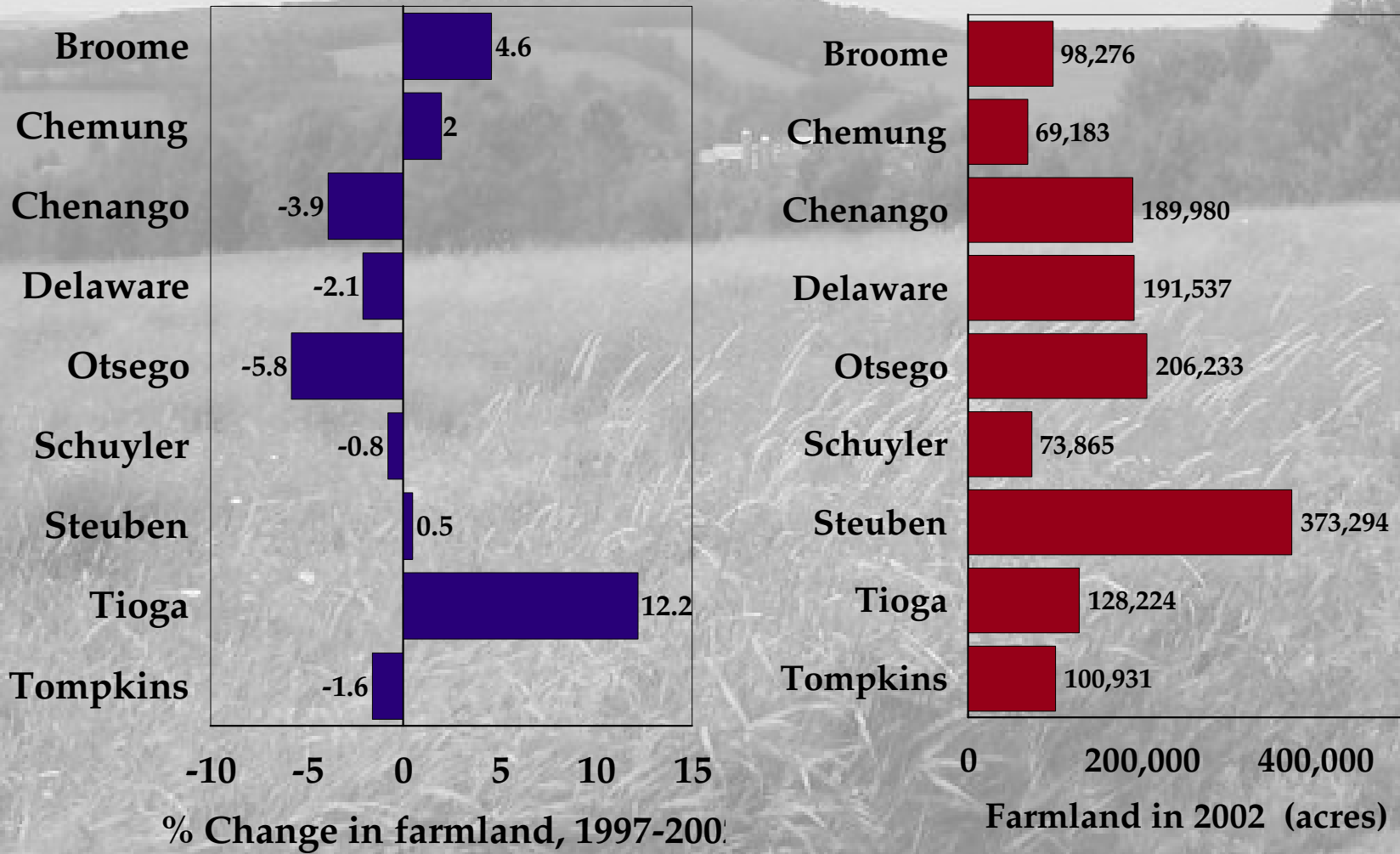
- To what extent does this shift in farm ownership/operation reflect the loss of “agriculture of the middle”?
- To what extent does the availability of surplus agricultural “plant and equipment” allow larger operators to farm land owned by others?
- What changes are we seeing in land use, as viewed from other sources of information?

Number of farms, Southern Tier, 1997 and 2002



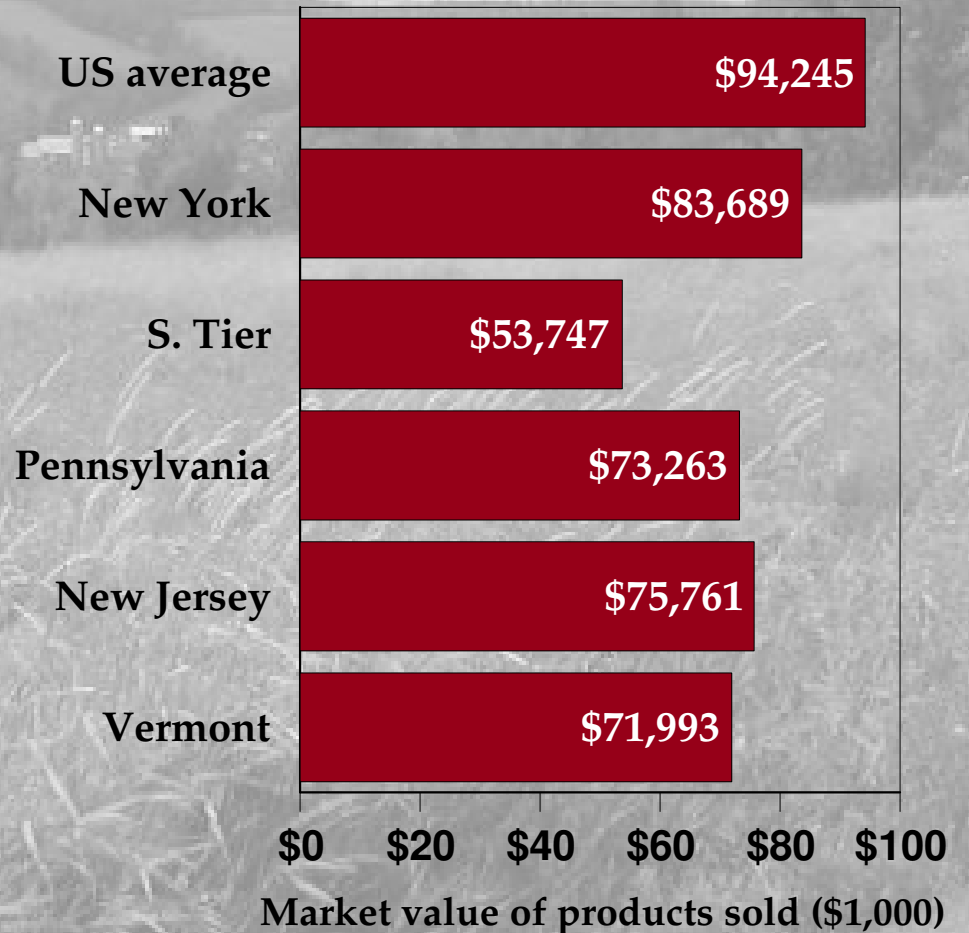
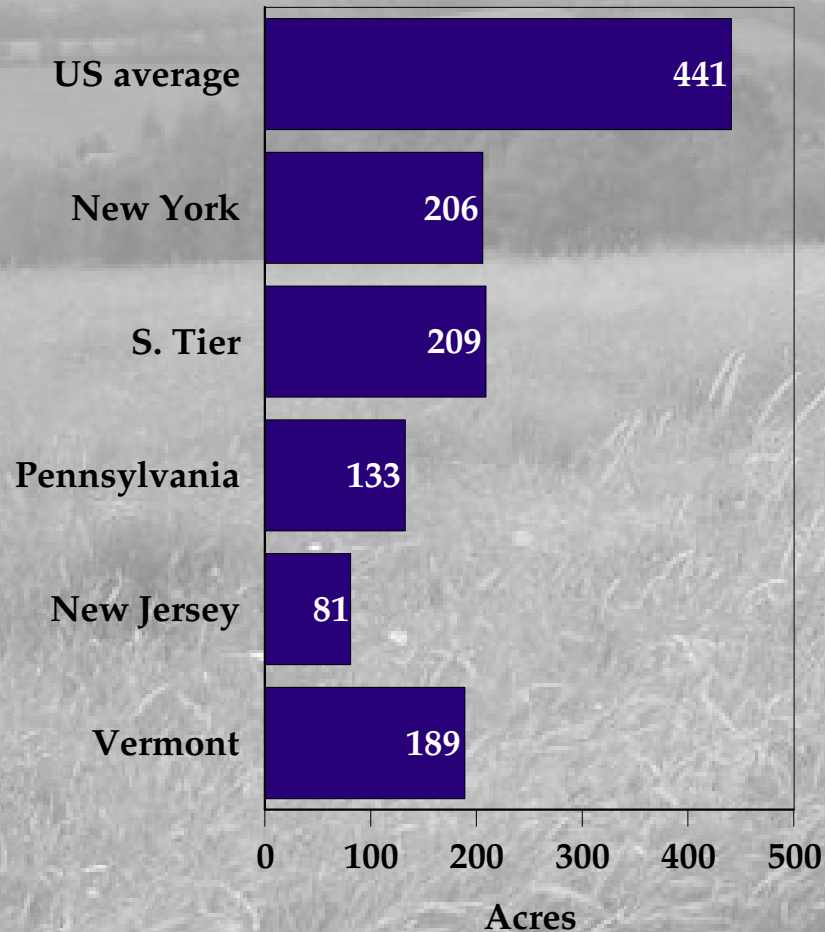
Source: 2002 Census of Agriculture

Owned or rented land in farms, Southern Tier, 1997 and 2002



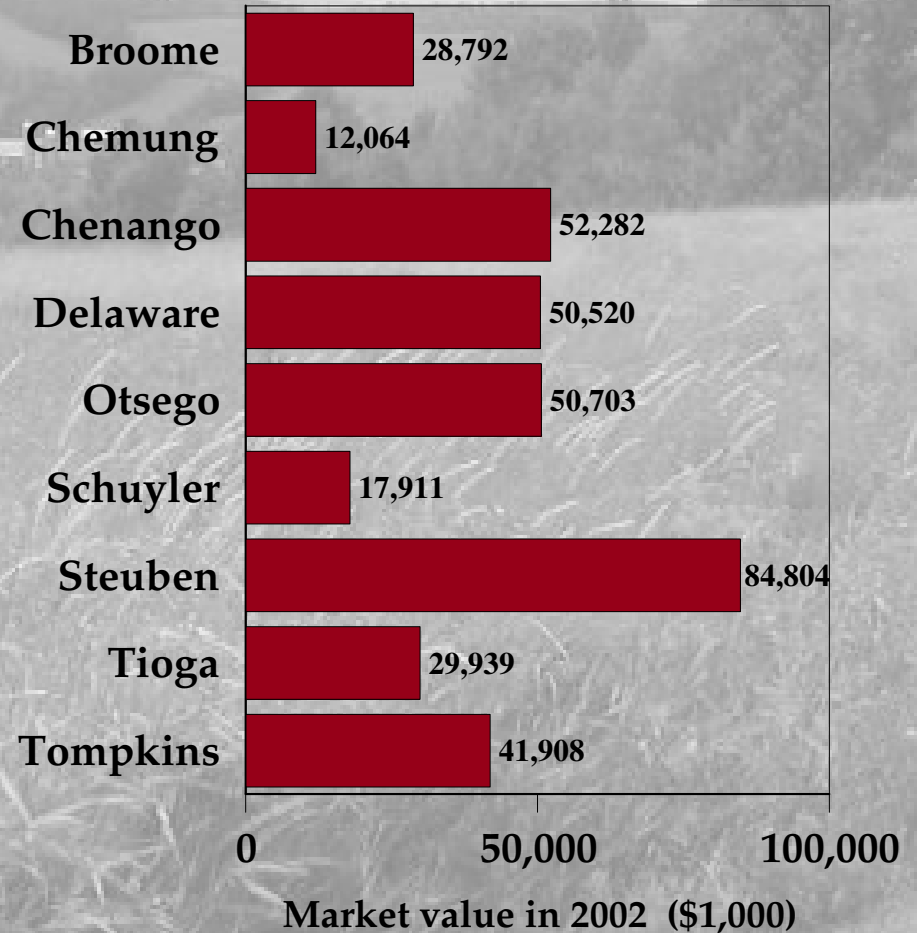
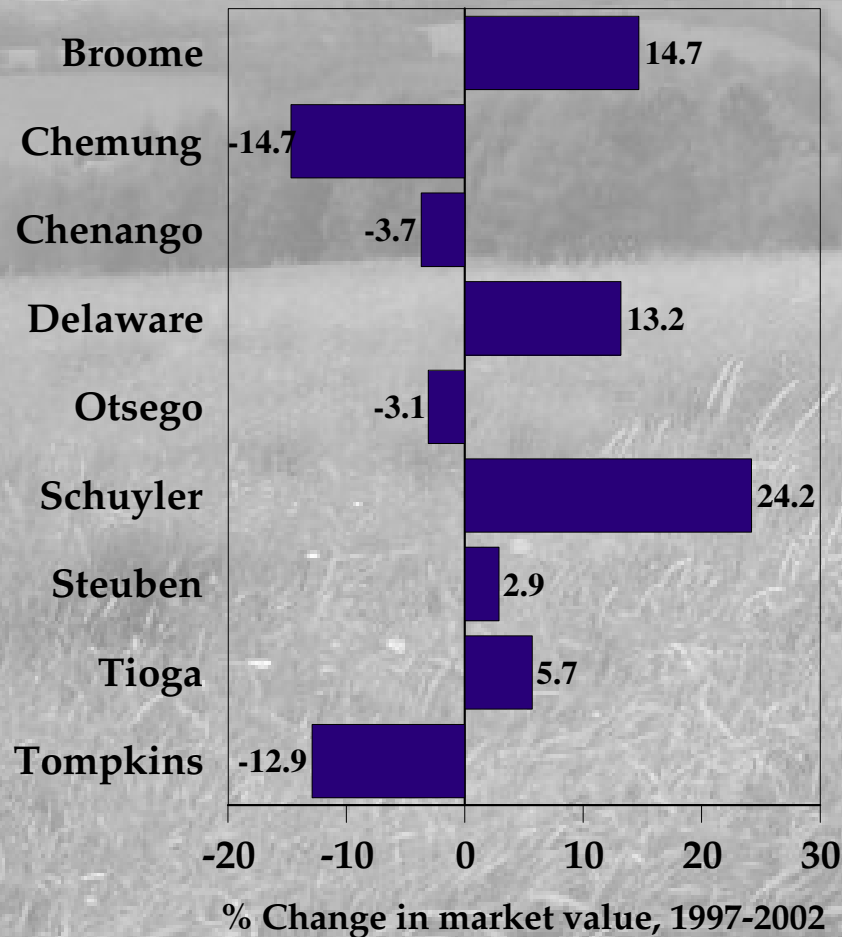
Source: 2002 Census of Agriculture

Average farm size, 2002



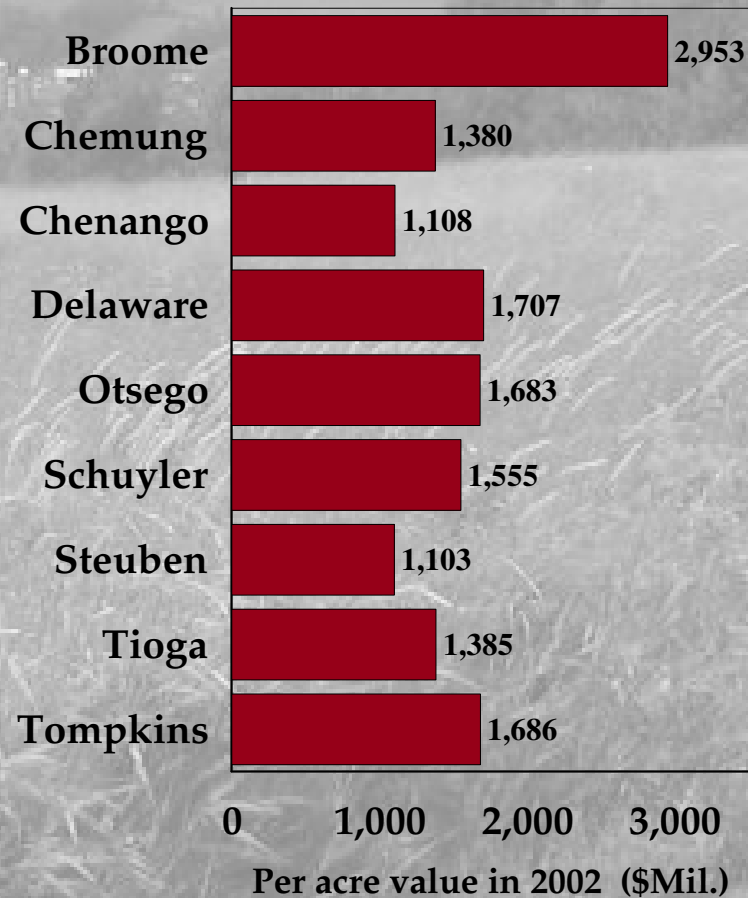
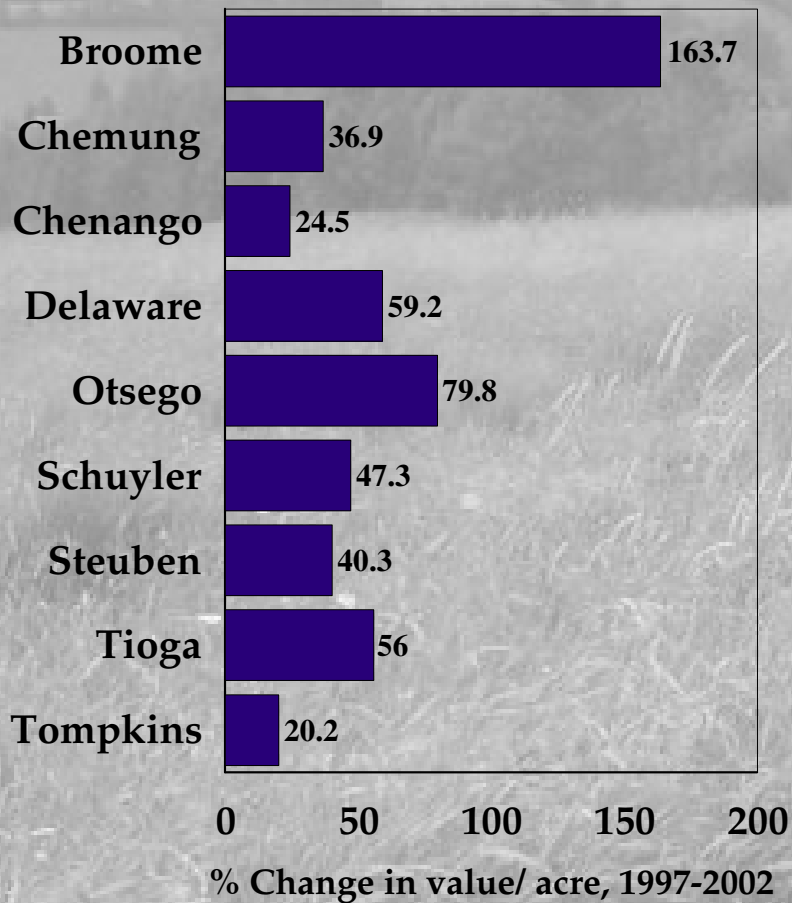
Source: 2002 Census of Agriculture

Market value of all agricultural products sold, Southern Tier, 1997 and 2002



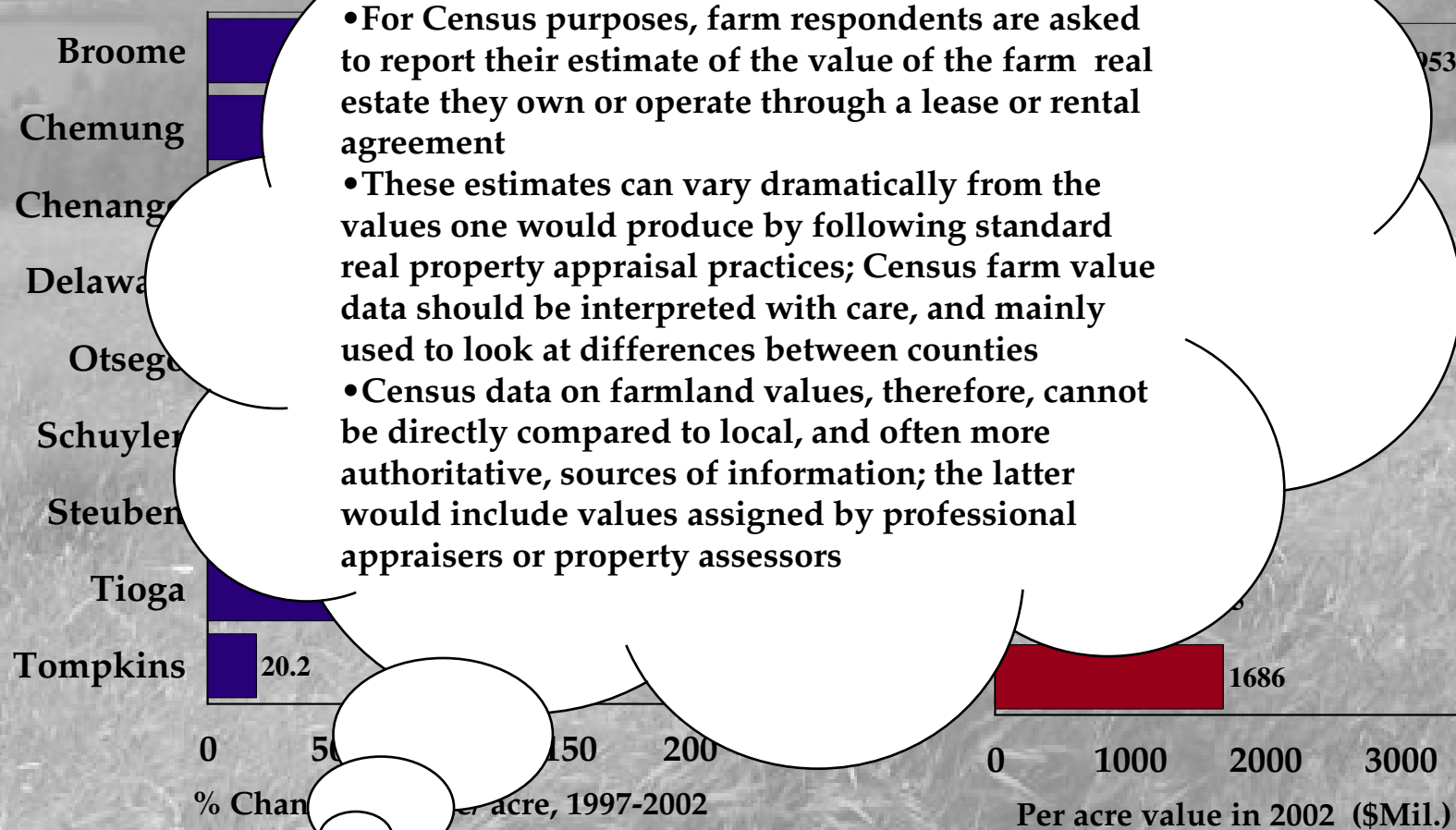
Source: 2002 Census of Agriculture

Per Acre Value of Farm Real Estate, Southern Tier, 1997 and 2002



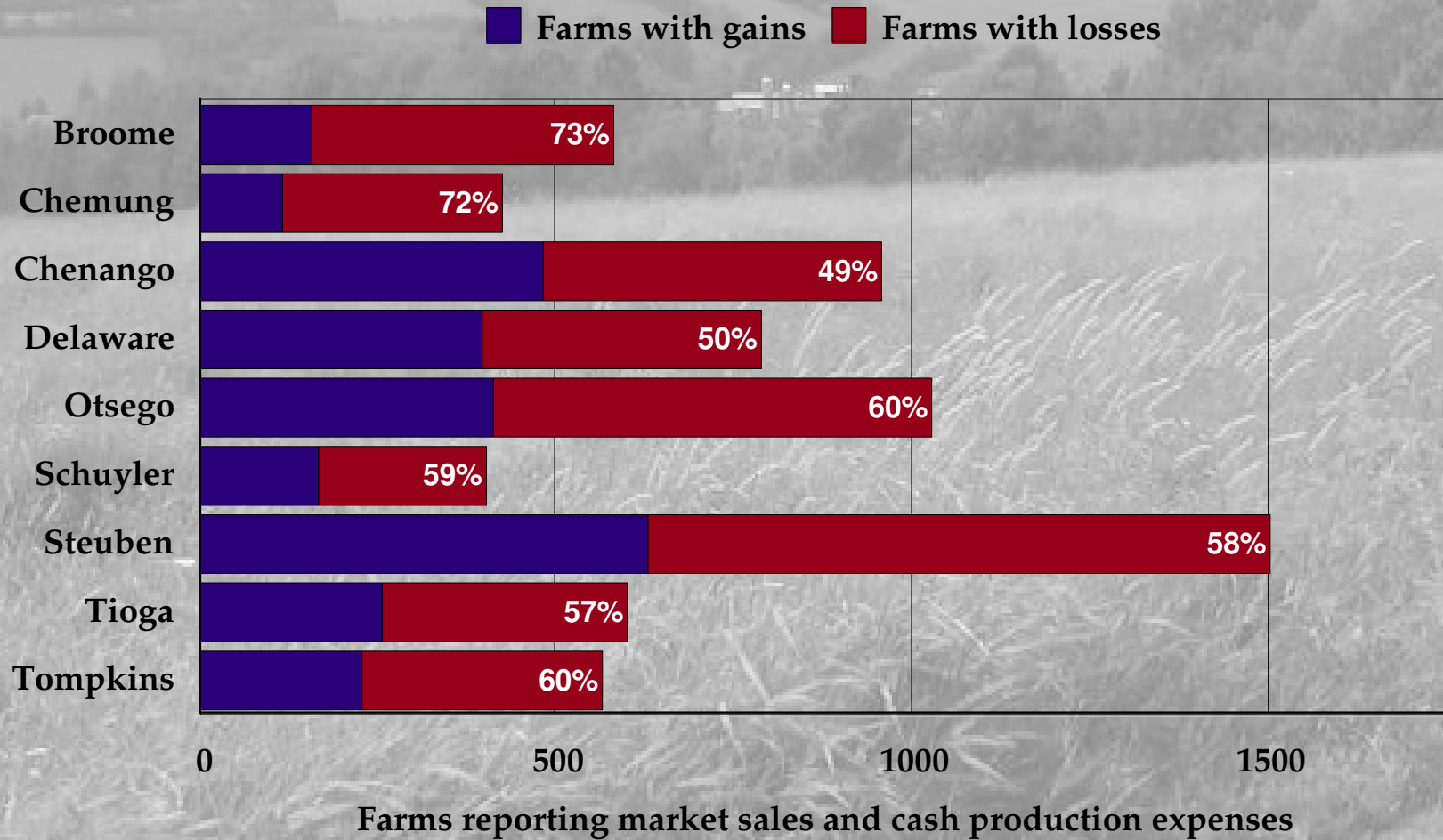
Source: 2002 Census of Agriculture

Per Acre Value of Farm Real Estate, Southern Tier, 1997-2002



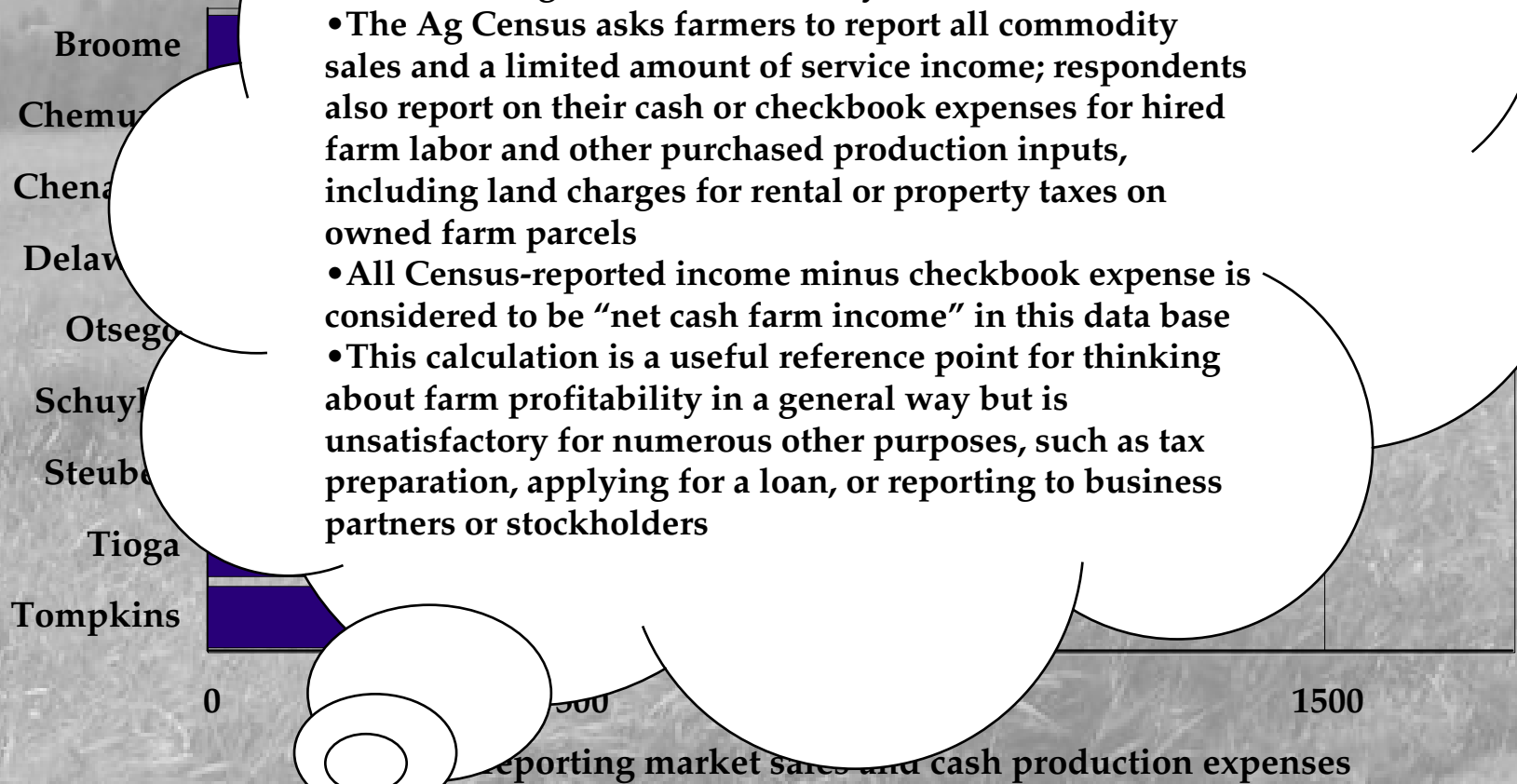
Source: 2002 Census of Agriculture

Net Cash Farm Income of Operations and Operators: Southern Tier, 2002



Source: 2002 Census of Agriculture

Net Cash Farm Income of Operations and Operators: South

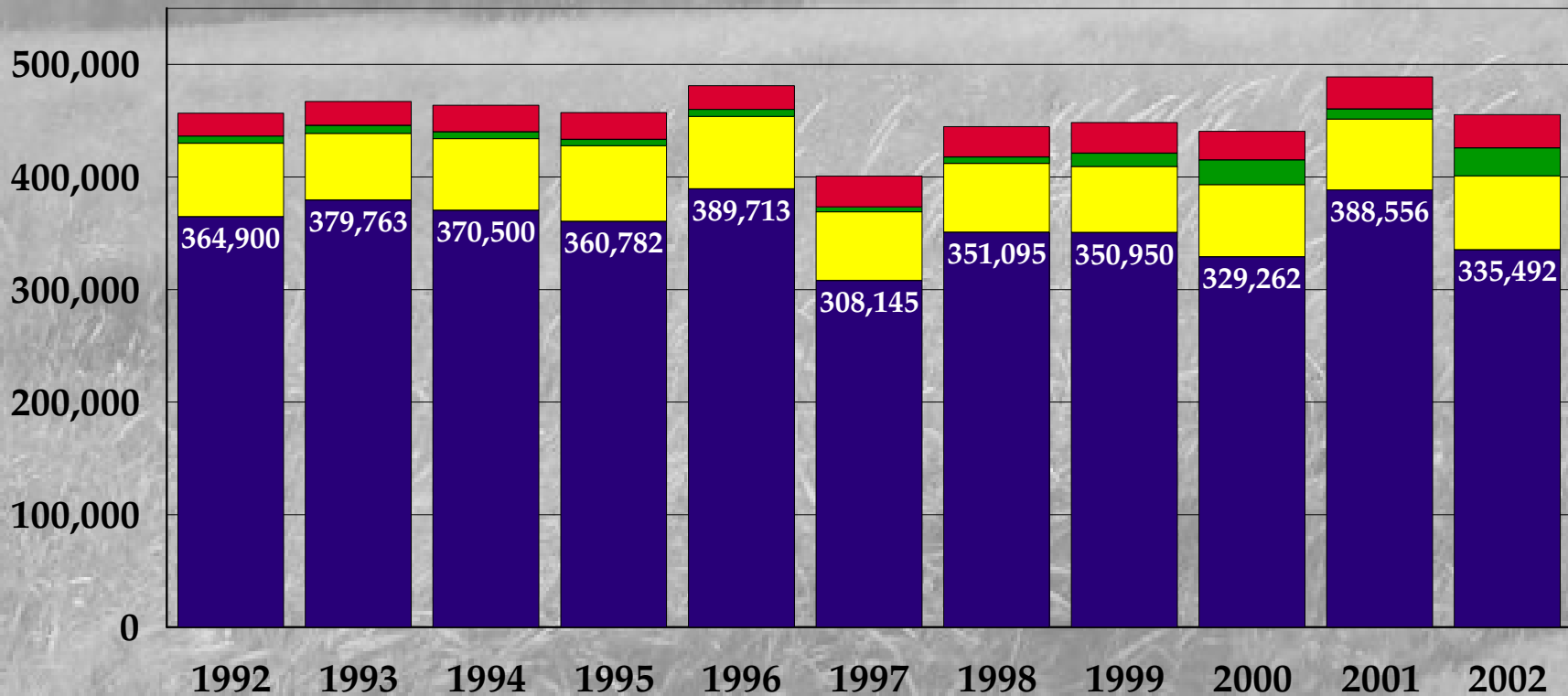


Source: 2002 Census of Agriculture

Gross farm income in the Southern Tier, 1992-2002

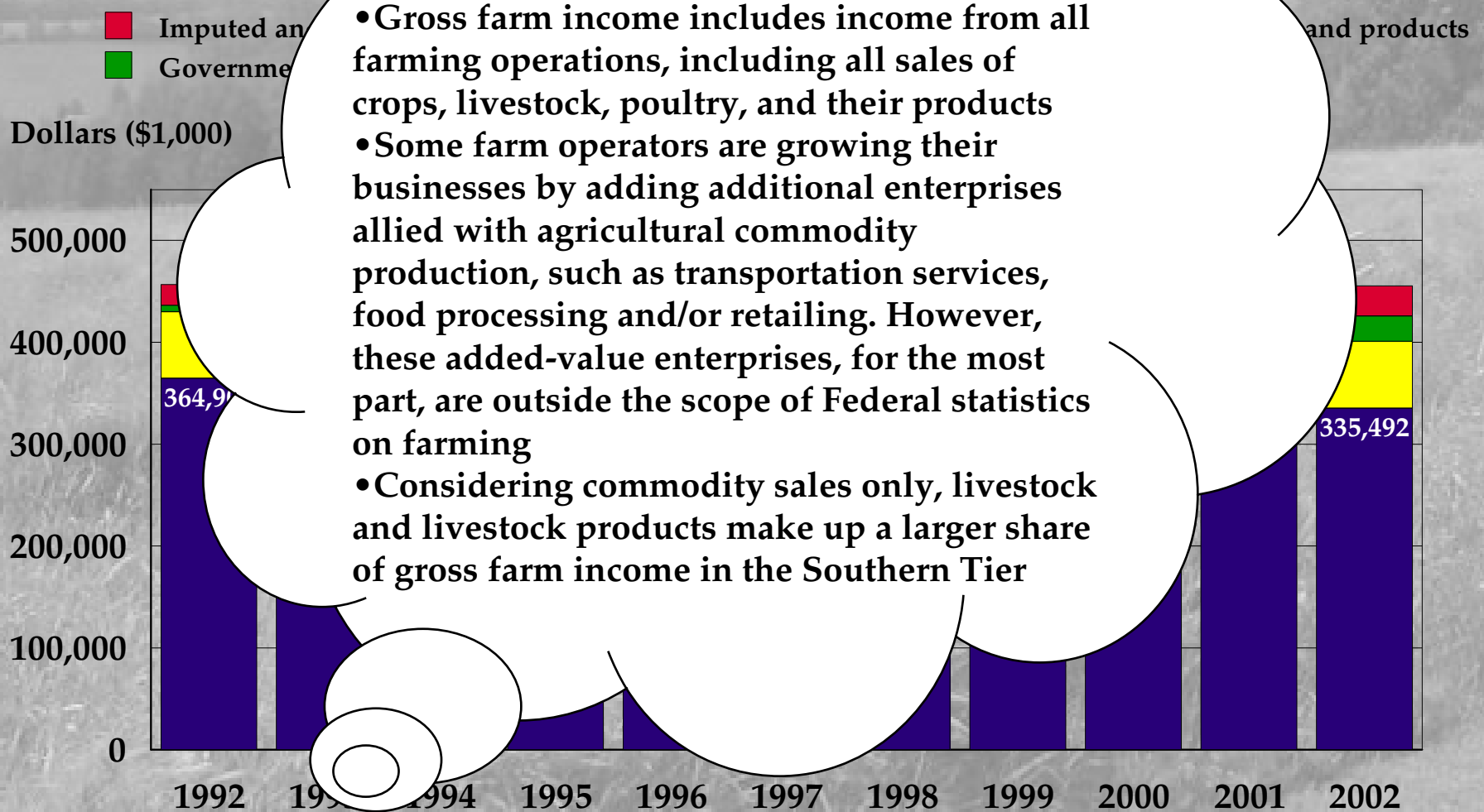
■ Imputed and miscellaneous income
 ■ Cash receipts: crops
 ■ Cash receipts: livestock and products
■ Government payments

Dollars (\$1,000)



Source: BEA-REIS

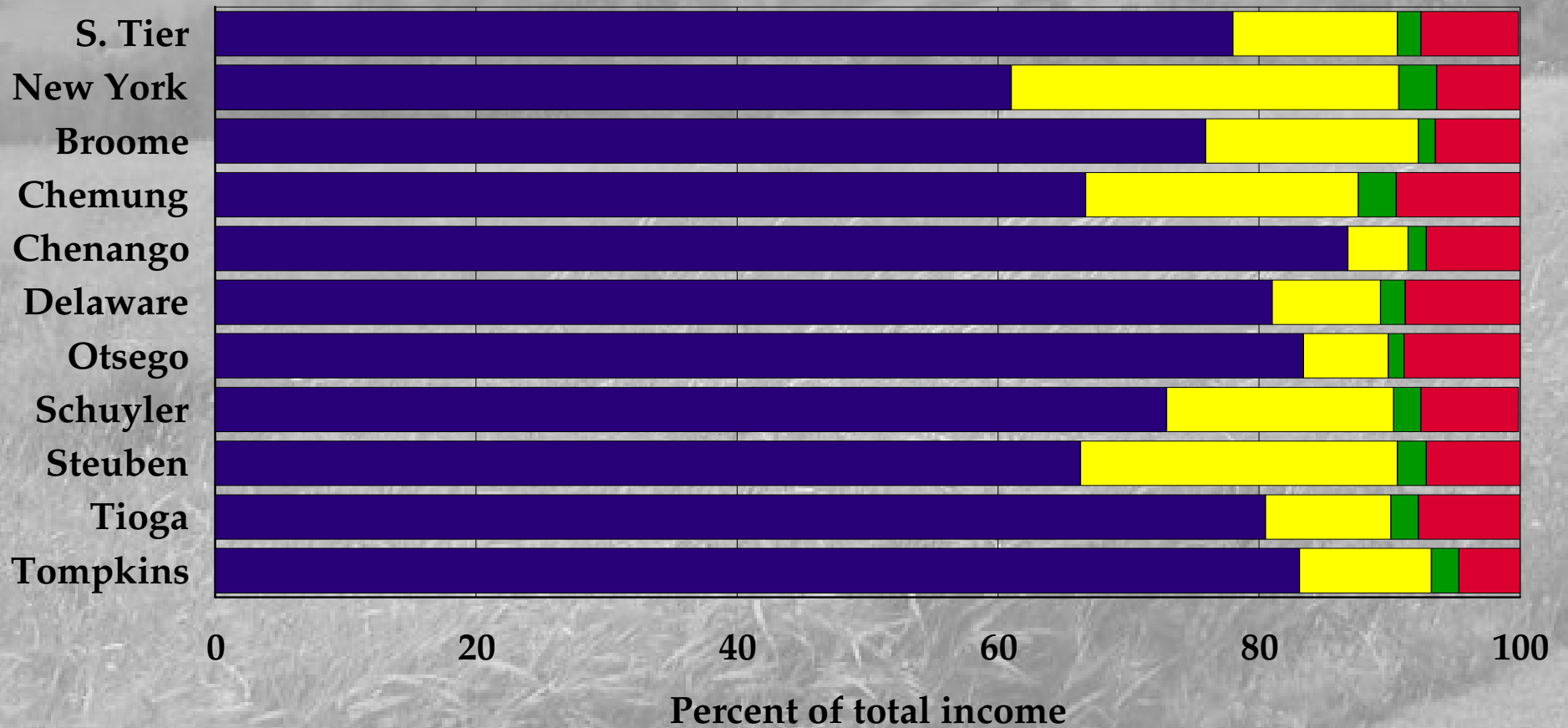
Gross farm income in the Southern Tier, 1992-2002



Source: BEA-REIS

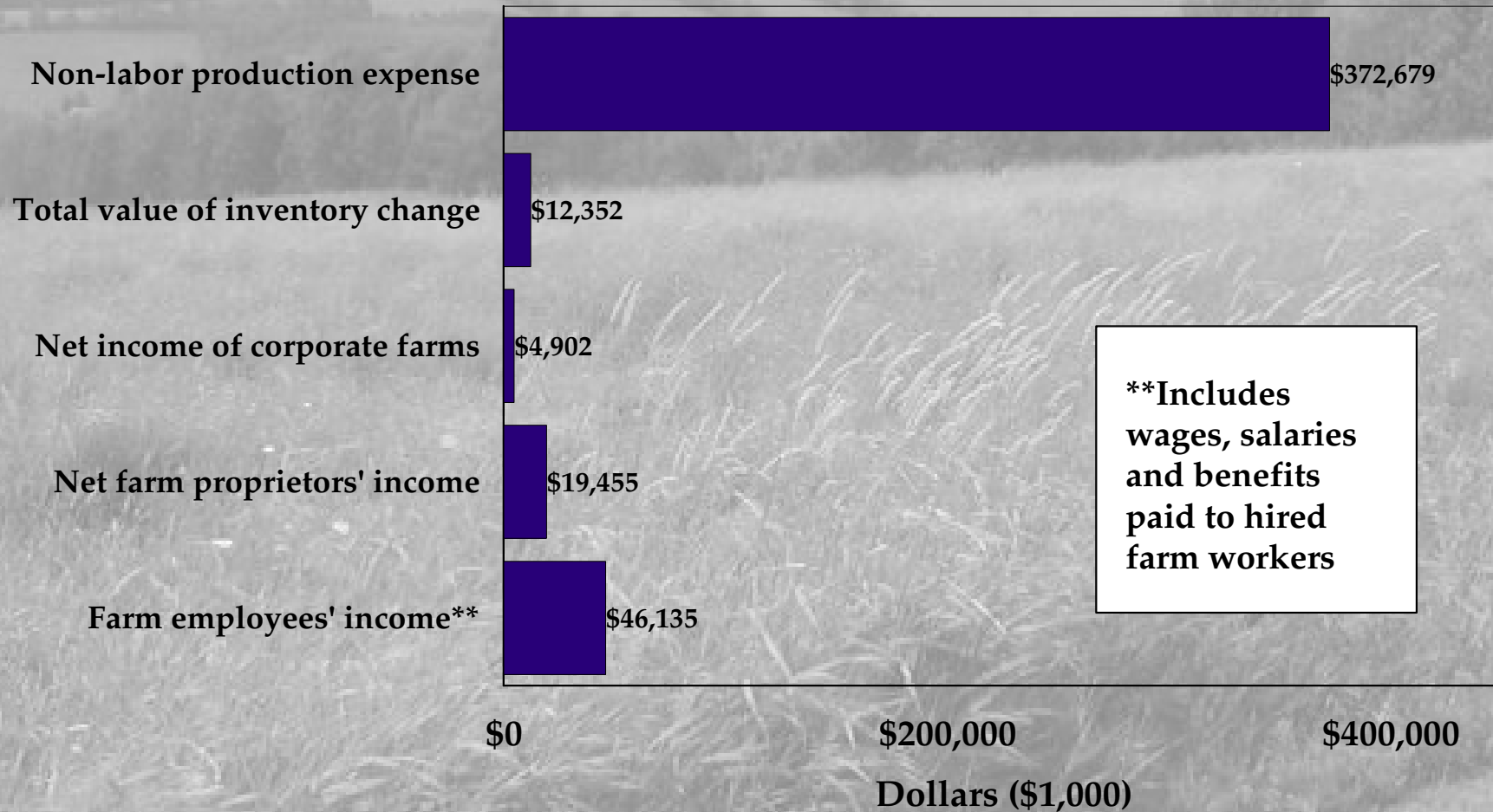
Farm income in the Southern Tier, 2001

■ Cash receipts: livestock and products
 ■ Government payments
 ■ Imputed and miscellaneous income
■ Cash receipts: crops



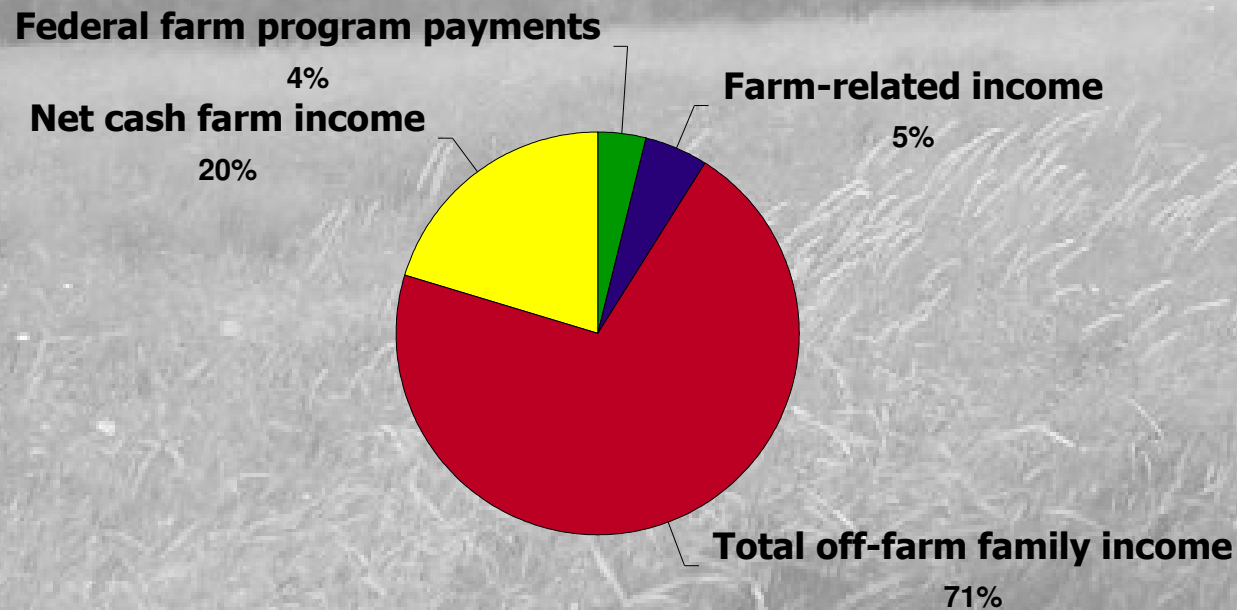
Source: BEA-REIS

Where gross farm income went in the Southern Tier in 2002

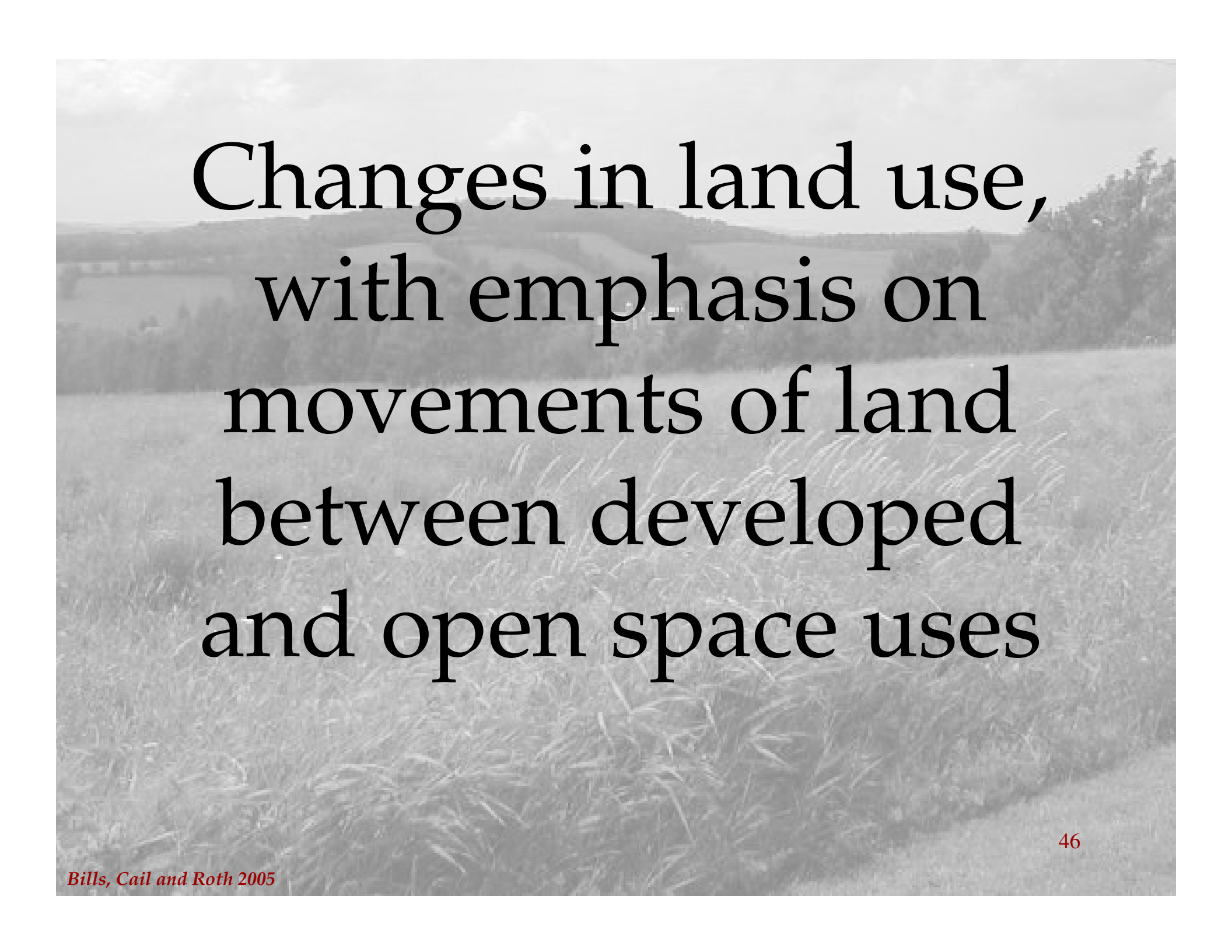


Source: BEA-REIS

Sources of income for households reporting farm operations, New York, 1999



Source: Unpublished USDA survey data reported by Deborah Streeter and Nelson Bills, 2003



Changes in land use,
with emphasis on
movements of land
between developed
and open space uses

Land use in the Southern Tier

- Overview

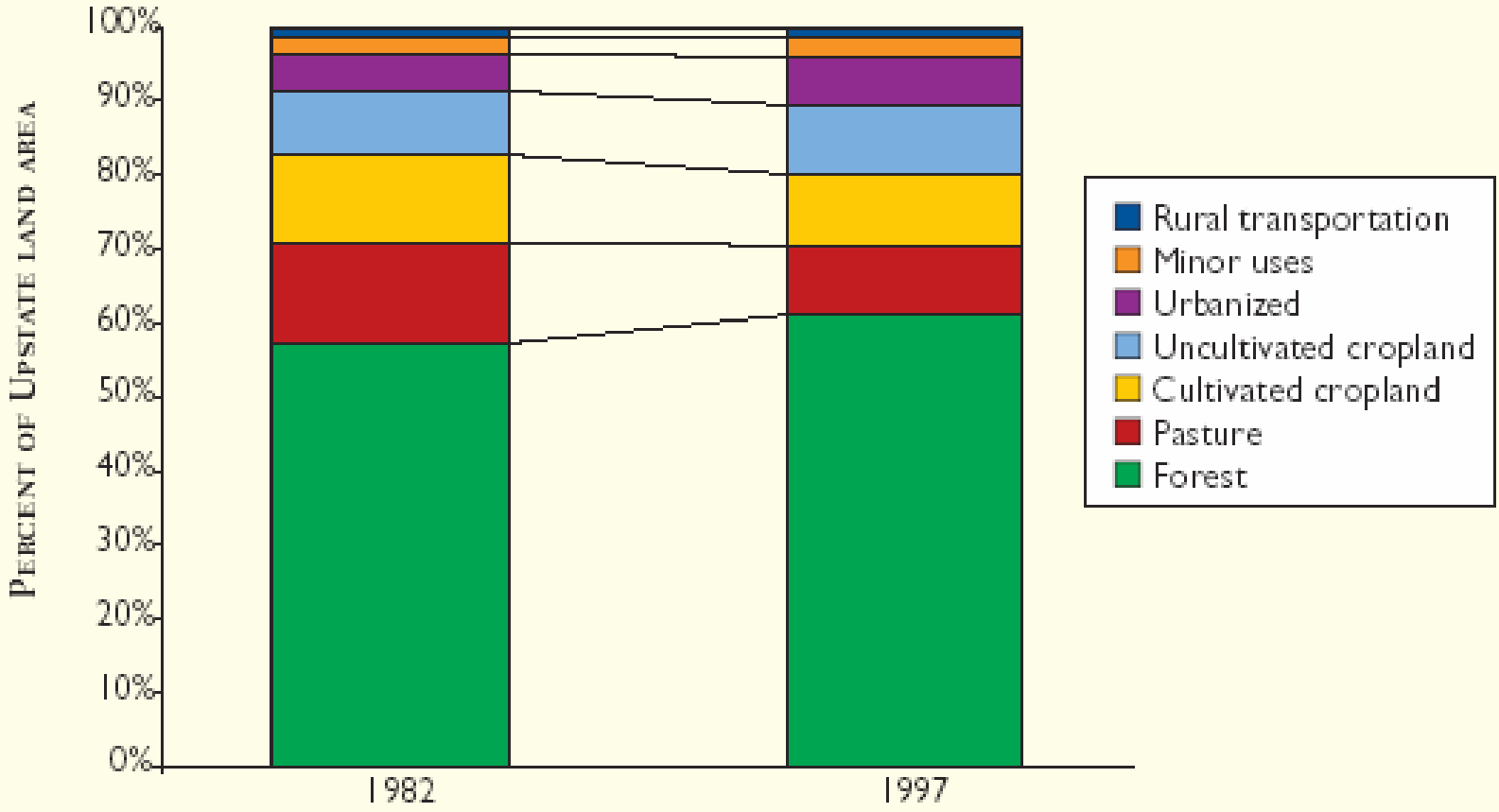
- What relation does changing agricultural practice have to rural land use?
- What opportunities, and what threats, does the continuing increase in agricultural productivity per acre represent?

- Land conversions

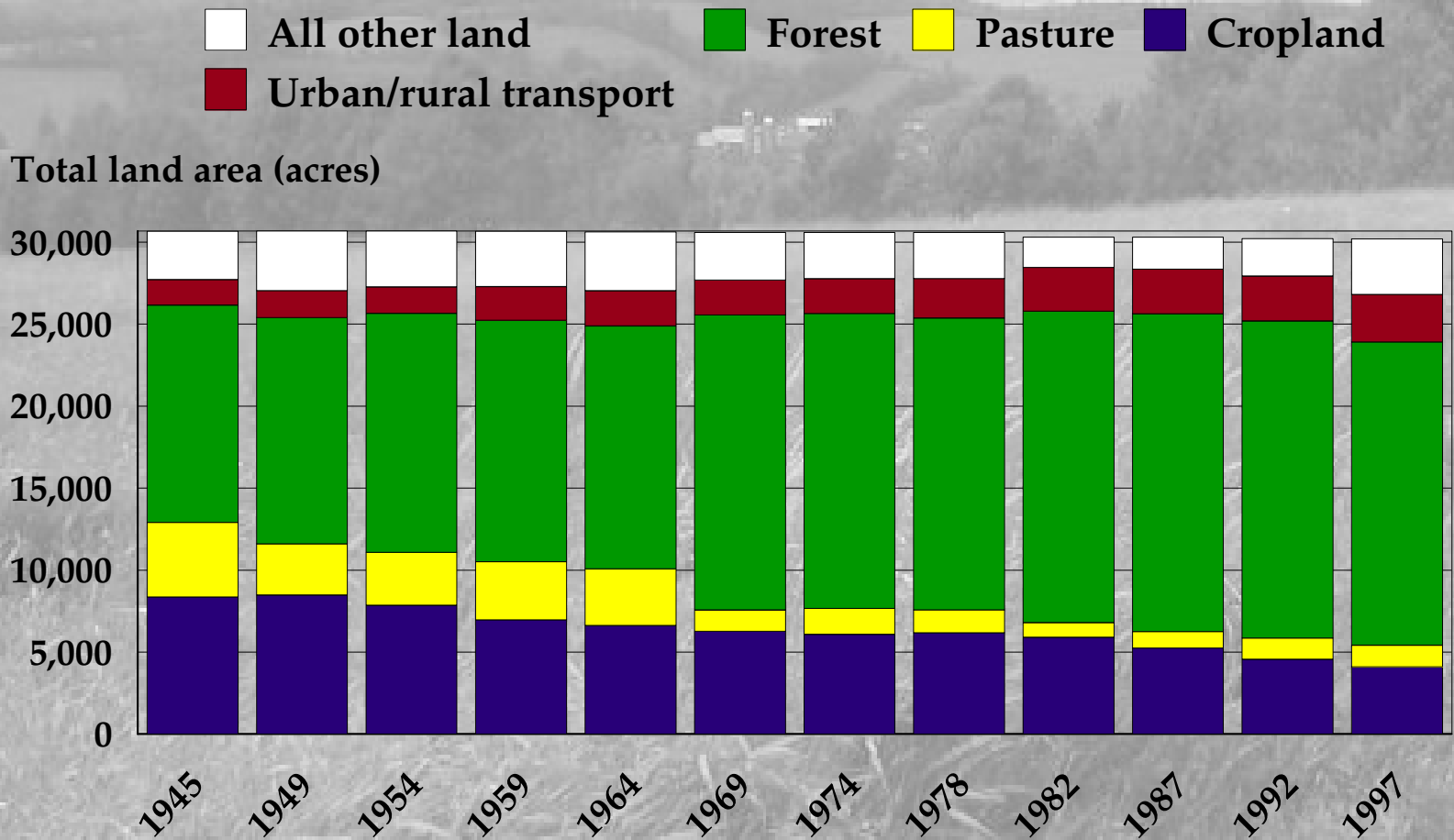
- Movements of land out of crop and pasture use
- Commodity agriculture and “backyard” or consumer-based agriculture, and service-based agriculture, such as many equine farms and agritourism enterprises
- Urban, suburban, and exurban land development ⁴⁷

Graphic from "Sprawl Without Growth: The Upstate Paradox" by Rolf Pendall (Brookings Institution, October 2003) Data are from USDA Natural Resources Inventory

Figure 2. Agriculture declines, urban and forest land increase in Upstate, 1982-97

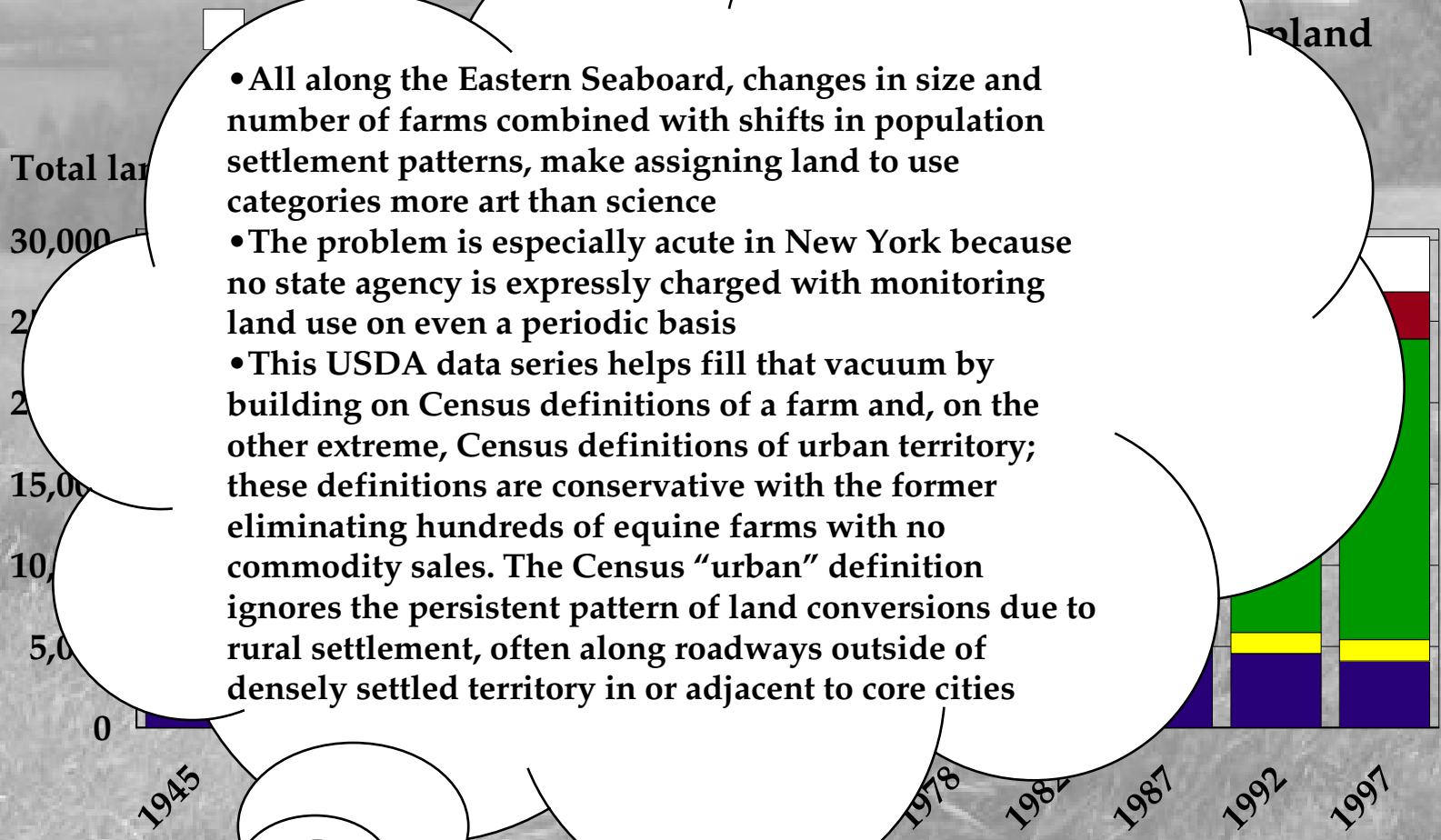


Major land uses, New York, 1945-1997



Source: Vesterby and Krupa











Major land uses, New York, 1945-1997



- All along the Eastern Seaboard, changes in size and number of farms combined with shifts in population settlement patterns, make assigning land to use categories more art than science
- The problem is especially acute in New York because no state agency is expressly charged with monitoring land use on even a periodic basis
- This USDA data series helps fill that vacuum by building on Census definitions of a farm and, on the other extreme, Census definitions of urban territory; these definitions are conservative with the former eliminating hundreds of equine farms with no commodity sales. The Census "urban" definition ignores the persistent pattern of land conversions due to rural settlement, often along roadways outside of densely settled territory in or adjacent to core cities

Source: Ver... and Krupa

We aggregated a very detailed land classification system local assessors use for farmland, as prescribed by the NYS Office of Property Services (ORPS)

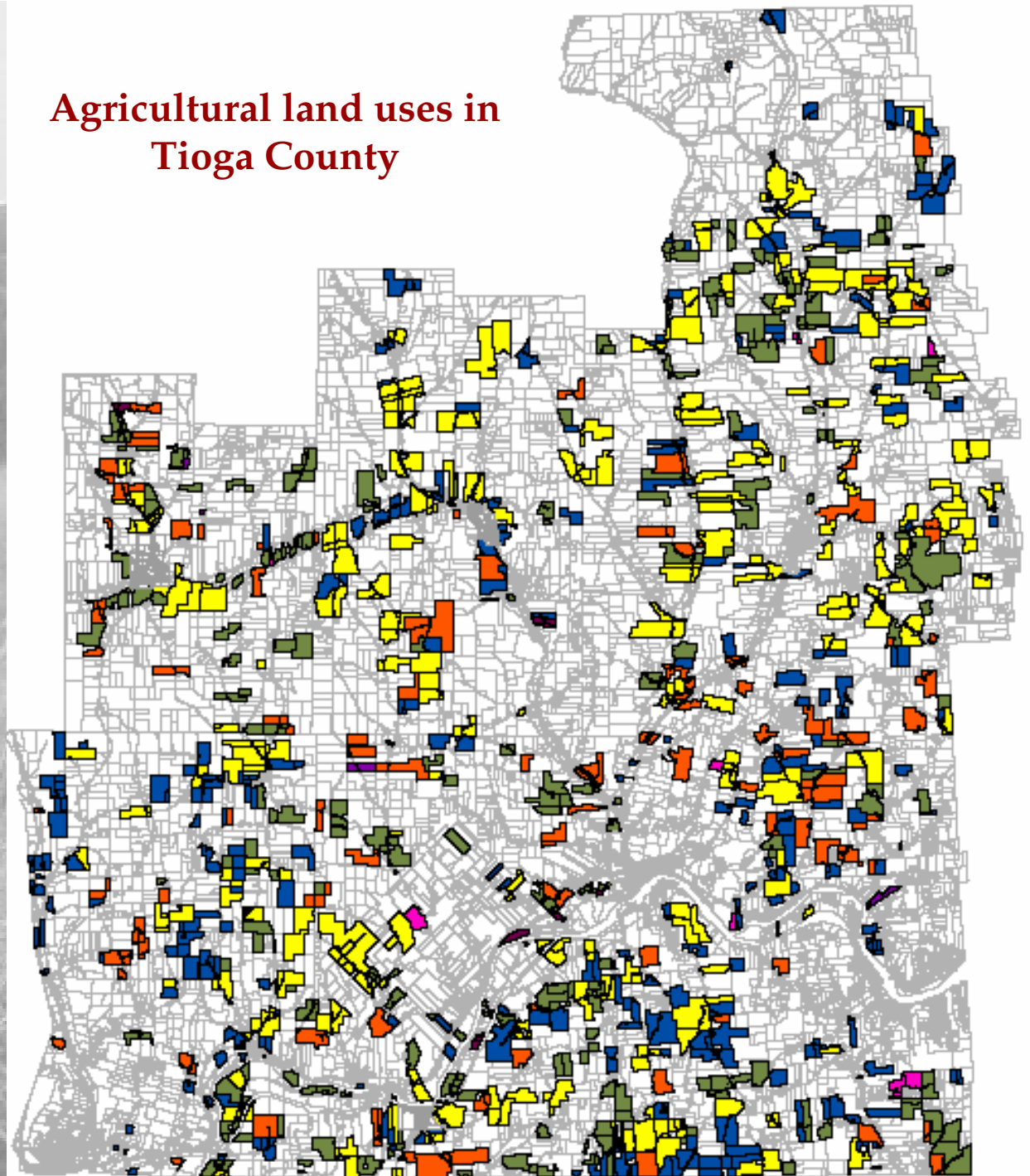
| Property Classifications | |
|---|---|
|  | Agricultural, General |
|  | Agricultural, Vacant |
|  | Livestock, Livestock Products (Non Dairy) |
|  | Dairy Products |
|  | Honey and Beeswax |
|  | Field Crops |
|  | Truck Crops |
|  | Orchard, Small Fruit Crops and Vinyards |
|  | Nursery and Greenhouse |
|  | Specialty Farms |

Local assessor's
judgments on
farmland,
when mapped,
shed more
light on the
land use
mosaic

Map created by Lisa Snopkoski

Bills, Cail and Roth 2005

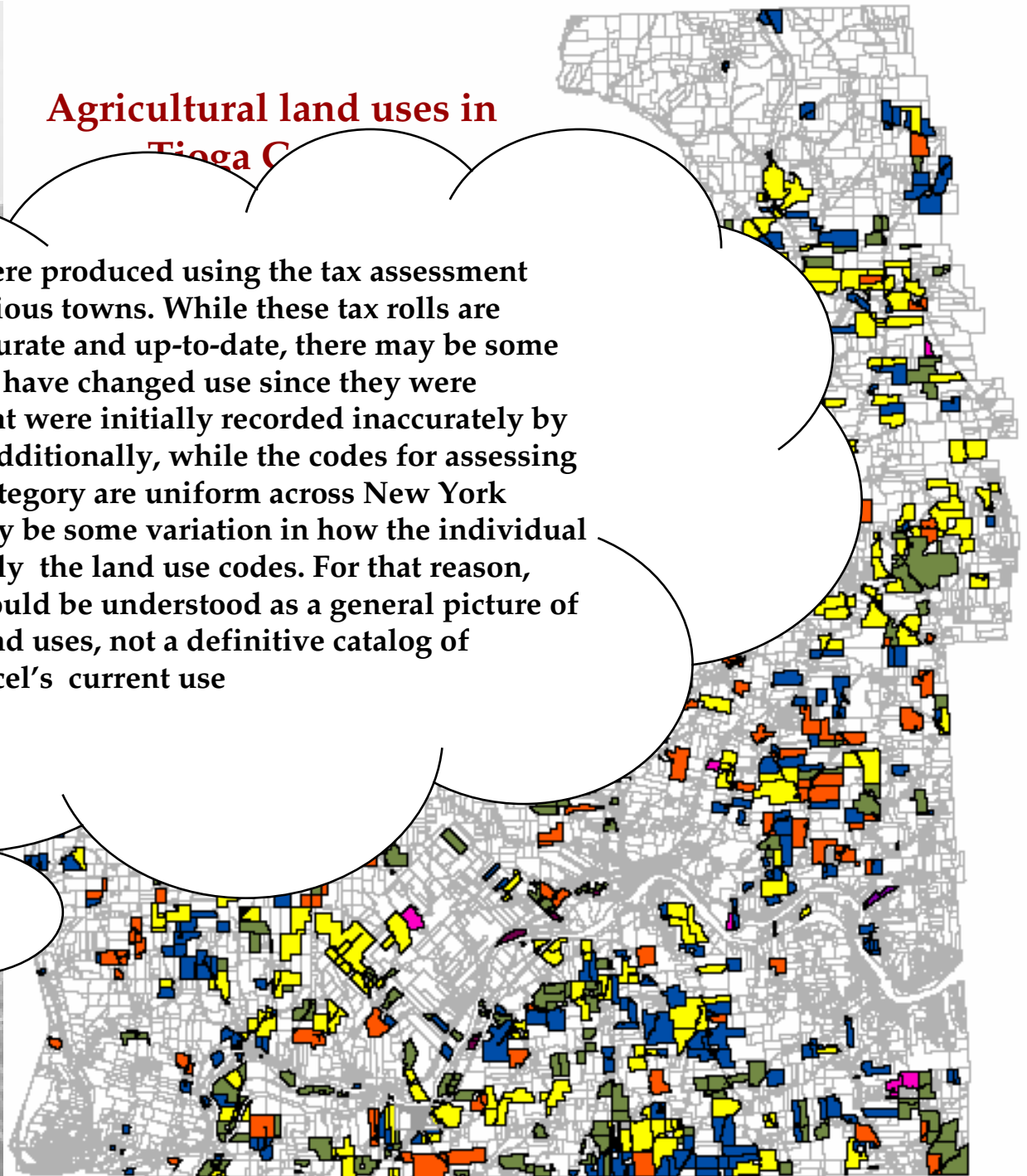
Agricultural land uses in Tioga County



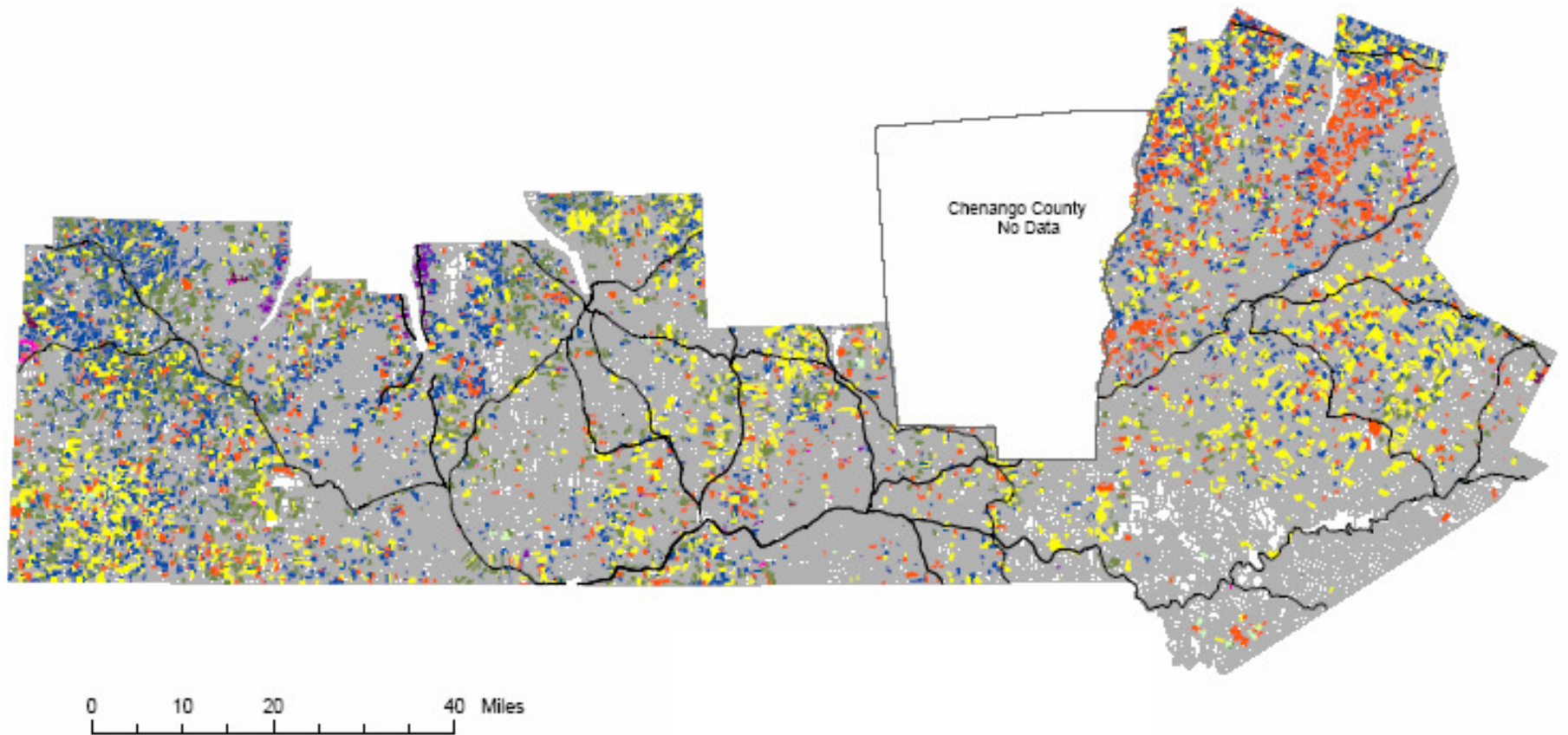
Agricultural land uses in Tioga County

These maps were produced using the tax assessment rolls of the various towns. While these tax rolls are reasonably accurate and up-to-date, there may be some properties that have changed use since they were assessed, or that were initially recorded inaccurately by the assessor. Additionally, while the codes for assessing the land use category are uniform across New York State, there may be some variation in how the individual townships apply the land use codes. For that reason, these maps should be understood as a general picture of agricultural land uses, not a definitive catalog of individual parcel's current use

Local assess
judgm
farm
whe
shed
light
land us
mosaic



New York State Southern Tier Counties, Agricultural Land Uses



Linkages

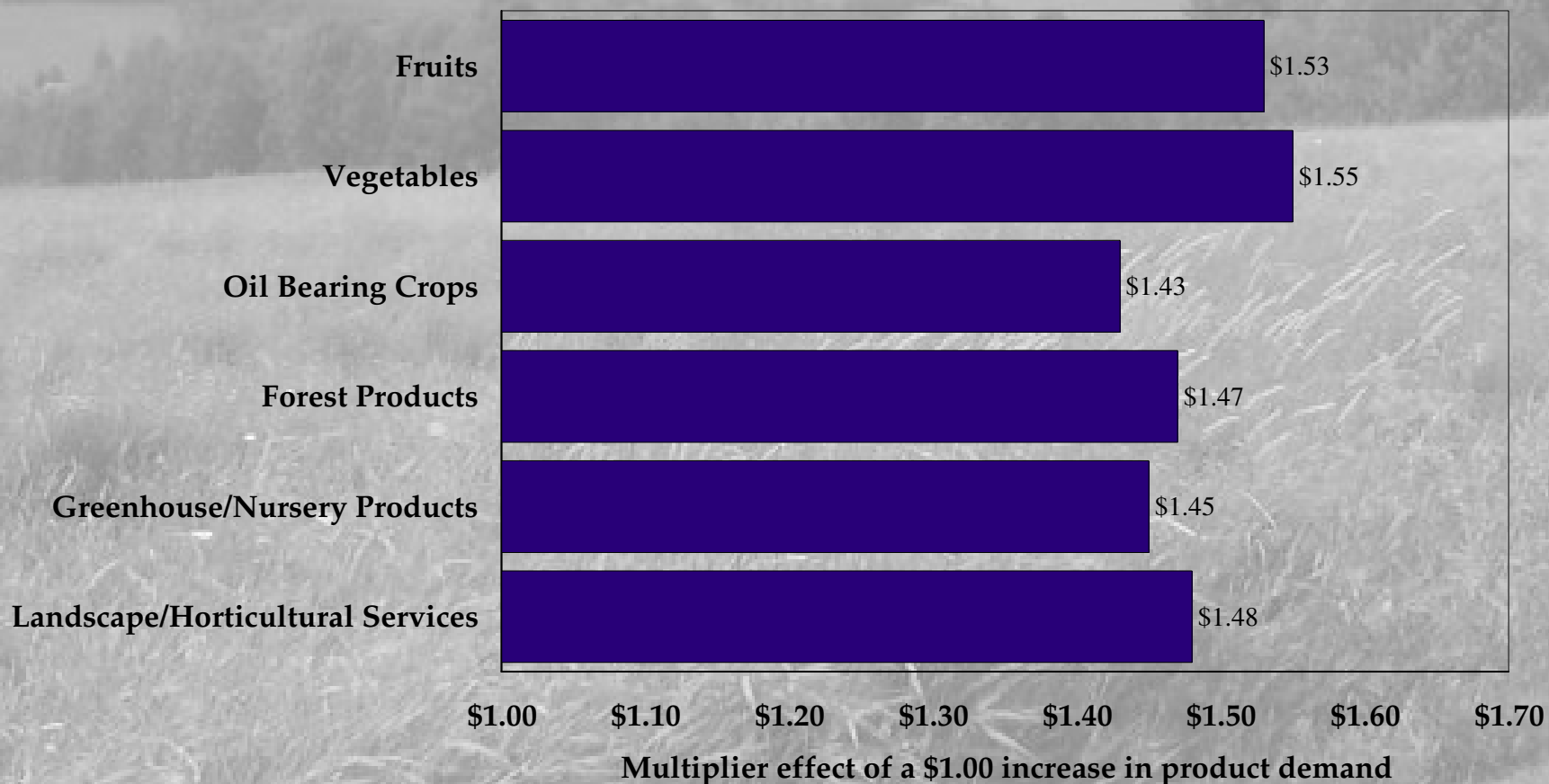
- Forward linkages-who buys what we sell?
 - Sales in the Southern Tier
 - Shipments to buyers elsewhere in New York State or to national, and international markets
- Backward linkages-when production expands (or contracts), what difference does it make?
 - Structural interdependence
 - Economic multipliers
 - Farm commodities
 - Ag Services
 - Food manufacturing

Output multipliers for selected livestock sectors, S. Tier, 2000



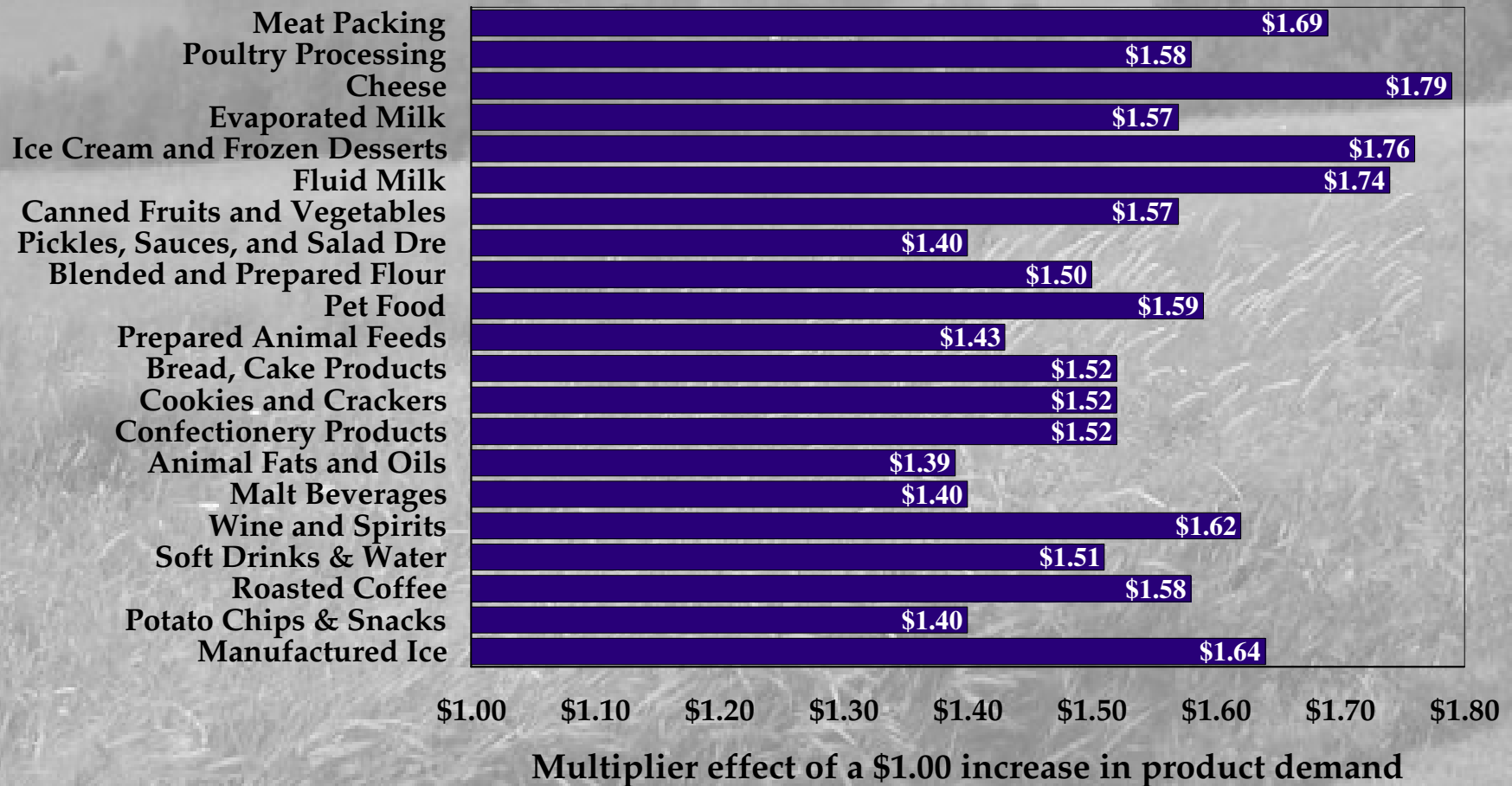
Source: IMPLAN

Output multipliers for selected crop sectors, S. Tier, 2000



Source: IMPLAN

Output multipliers for selected food manufacturing sectors, S. Tier, 2000



Source: IMPLAN

Case Studies: Purpose

- How do regional trends impact farms?
- How farmers respond to the stagnant economy?
- What strategies do farmers use to grow their businesses?

Case Studies: Purpose

Another key component of this project was to interview farmers to learn about strategies they use for survival in a stagnant farm and regional economy

- What strategies do farmers use to grow their businesses?

Case studies: information gathered

- **Business Background**
- **Business Evolution**
- **Changes/Investments (10-15 yrs)**
- **Resulting Impact of Investments**
 - on the farm's future
 - in the local economy/community
 - on the environment/landscape
 - for consumers

Case study:

- A total of 7 farms were interviewed
- 2 farms are singled out for illustrative purposes
- Together, we think that these farm level analyses support generalizations that apply to many other farms in the Southern Tier

- Res (yrs) tments
- on the farm's
- in the economy/community
- on the environment/landscape
- for consumers

AA DAIRY

Business Evolution

- Father started farming in 1941
- Son Bob bought out father in 1971: 450 acres-160 cows, expanded herd to 200 cows
- Bob formed partnership with 2 sons in 1993 - built new dairy facility 550 cows, purchased additional land – own 2,000 acres total (1,300 tillable)
- New enterprises – methane digester for generating electricity and composting
- Other Enterprises – beef, timber

AA DAIRY

- Father started
 - Son Bob 1
cows,
 - Bob f
new dai
own 2,0
 - New en
generating e
 - Other Ente - beer,
- This dairy farm has been expanding steadily since 1941 to keep pace with changes in the farm economy
 - In 1993, AA Dairy undertook a 1.5 million dollar expansion to cut costs, increase income for family members, and reduce environmental impacts
 - Family living expenses were not dependent upon farming and other farm enterprises helped with cash flow management.

KINGBIRD FARM

Business Evolution

- Purchased farm outright - 1996
- Transitioned from a full-time off farm to part time off farm income - 2001
- Diversified: pastured poultry, eggs, hogs, greenhouse herbs-fresh & dried
- Direct to consumer sales strategy
- Feed sales

KINGBIRD FARM

Business

- Purchased
- Traded
- to pay
- Diversified
- hogs, green beans, fish & dried
- Direct to consumer sales strategy
- Feed sales

- Personal funds and off farm income were used to start this enterprise
- Direct sales and diversification have helped this business grow 20% per year
- A year-round selling strategy has helped with cash flow, as does off-farm income

Impact of Investments made by farmers

- On the farm business
- In the local economy
- On the Environment
- On open space – the working landscape
- In the community
- On consumers

Impact of Investments made by farmers

- Traditional economic measures like jobs created have limited relevance to farms
- However, farms, contribute in other ways to the region's rural character and economy
- An attempt to document these impacts was made during interviews

- **community**
- **consumers**

Impact of investments back to the farm business

- Increased farm income
- Reduced risk from diverse income sources
- Greater efficiency (savings)
- Reduction in operating costs
- Increased production output
- Payback on investment
- Increased net worth

Impact of investments back to the farm business

- Increase
 - Re
 - C
 - Re
 - In
 - Pay
 - Increase
- Example:**
- The digester at AA Dairy has resulted in \$25,000 per year savings in electricity costs
 - And, the farm generates approximately \$15,000-20,000 income from compost
 - This additional income has helped maintain cash flow and pay down the debt

Impact of investments on the local economy

- More farm jobs (new jobs, jobs retained)
- Off farm jobs resulting from investment
(new farm construction, equipment, services, etc.)
- Dollars circulating in the economy
- Inflow of outside cash - new money brought
into the local economy
- Increase in assessed value of property
- Contribution to tax base

Impact of investments on the local economy

- More
 - Off
 - (n
 - Don
 - Inf
 - into the
 - Increase in
 - Contrib
- Examples:**
- AA Dairy invested 1.5 mil in their new facility, transitioned from 8 to 15 jobs
 - Kingbird farm was not able to obtain a mortgage from local banks so they used outside sources to purchase the farm bringing new money into the local economy
- brought**
- of property**
- to tax base**



Impact of investments on the environment

- Investment in practices that protect water, air and soil quality
- Natural resource buffers and wildlife habitat

Impact of investments on the environment

- **Inve**
- pr**
- **No**
- w**

Example: AA Dairy invested in the manure digester because of their proximity to the village and concern about protecting air and water quality

Impact of investments on open space: the working landscape

- Underutilized land resources are returned to the working landscape
- Land stays in active farming
- Land purchased by a farmer reduces rural development/sprawl
- Protects open space

Impact of investments on open space: the working landscape

- U
re

Example:

- Kingbird Farm revitalized an 80 acre abandoned farm. Investments in improving land and buildings have increased the value of the property and restored the working landscape
- AA Dairy owns 2,000 acres of land in part to buffer their farming operation from neighbors and in part for natural resource conservation

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Impact of investments in the community

- Farmer involvement on community boards, committees, etc.
- Good will – neighborliness, farmers lend a helping hand
- Quality of life – maintain rural character
- Contribute to a renewed interest in farming among rural landowners
- Leadership role in the farm community
- Mentor for beginning farmers
- Innovators in business

Impact of investments

in the community

- Farmers contribute to their community in a variety of ways from leadership roles with local government, community groups and farm organizations to providing services for neighbors like snowplowing and as mentors for other farmers
- Lead in the community
- Mentor new farmers
- Innovate in business

Impact of investments on local consumers

- Access to unique local products
- Value high quality, fresh products
- Sense of food safety, security, and choice
- Like supporting local farmers
- Develop a personal relationship with producers
- Increase agriculture awareness-literacy
- Help keep land in farms

Impact of investments on local consumers

- Access to
- Value
- Services
- Like
- Development with
- producers
- Increase agriculture awareness-literacy
- Help keep land in farms

Consumers increasingly value the opportunity to purchase foods from local sources and understand the contributions farms make to open space and the working landscape



Strategies for Business Growth

Strategic Business Case

Another purpose of the case studies was to identify the strategies used by farmers to grow their businesses

Start-up farm business growth strategies

- **INVESTMENT RESOURCES**
 - Personal Savings
 - Family Sources
 - Mortgage/Loans
 - NRCS/SWCD programs
 - Reinvest Earnings
 - Off farm Income

Start-up farm business growth strategies

- **INVEST**

- Personal

- Income

- Money

- Net

- Reinvest

- Off farm income

- Beginning farmers like Kingbird Farm rely on personal and family resources to get started
- Off farm income is critical
- Most reinvest earnings to grow their enterprises
- Government programs provide funding for land improvements

Start-up farm business growth strategies

- **IMPACT OF INVESTMENTS**
 - Bring in outside capital-new money
 - Purchase services/supplies locally
 - Soil/water quality improvements
 - Farmland-facilities put back into use
 - Stimulate interest in farming enterprises
 - Local farm and food products
 - Jobs for family - lifestyle

Start-up farm businesses

growth

- **IM**

Kingbird Farm contributions:

- New money from both personal and government sources and grants
- Farm improvements have increased the value of facilities and land
- Value of property increased but exemptions on farmland and new farm buildings help offset increase in property taxes
- Consumers benefit from local source of organic/pasture raised meats
- Jobs: 1 part time job, while 2 family members employed full-time
- New enterprise as a feed dealer for organic grain serves other farmers

– **LO**

– **Job**

Growth Strategies for Established Farms

- **INVESTMENT RESOURCES**
 - Refinance via farm lenders
 - Government grants/incentives
- **ONGOING SUPPORT**
 - Reinvest
 - Govt. programs
 - Off-farm income

Growth Strategies for Established Farms

- **INVESTMENT**

AA Dairy Example:

- Government programs provided incentive for making a large investment in the farm
- The majority of the project was financed by Farm Credit

- **CAPITAL**

- Reinforce
- Govt. programs
- Off-farm income

Growth Strategies for Established Farms

IMPACT OF INVESTMENTS

- Short-run debt/long-run survival?
- Asset building, Increase net worth
- Some new jobs (on-farm, local labor)
- Land stays in farming
- Environmental stewardship
- Leadership roles in the community
- Products/services for local residents

Growth Strategies for Established Farms

IMP

AA Dairy contributions:

- \$1.5 million invested
- Additional income: \$15,000 per year from compost; \$25,000 per year energy savings
- Timber and beef sales also generate cash
- Increased future farm viability for next generation
- Jobs: 15 at first, now 12 (due to reduced cash flow)
- Improved manure handling-reduced environmental impact
- Family members active in the community
- Produce compost for local use-sales to organic farmers and landscapers

LE

- Lea

- Pr

Community

services for local residents

Bottom Line

- Each farm is unique in how it contributes to the economy and region's rural character
- Investment by large farms is motivated by need to maintain income and lower costs
- Investment by small farms is fueled by consumer interest – demographics and the regional economy may pose limitations

Bottom Line

- Each farm has its own growth strategy and the growth strategies of larger farms has more to do with the farm economy while smaller farms are impacted both by the farm economy and regional economy depending on their enterprise
- Investment in infrastructure and the regional economy may pose limitations

Strategies that Position Farms for Survival

- **Must fit with the overall business vision**
- **Must respond to a need (business or consumer)**
- **Must be outcome focused – clear goals**
- **Must be built on sound information**
- **Must be managed to perform over time**
- **Added costs must add more revenue**
- **Must include diverse income streams**

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