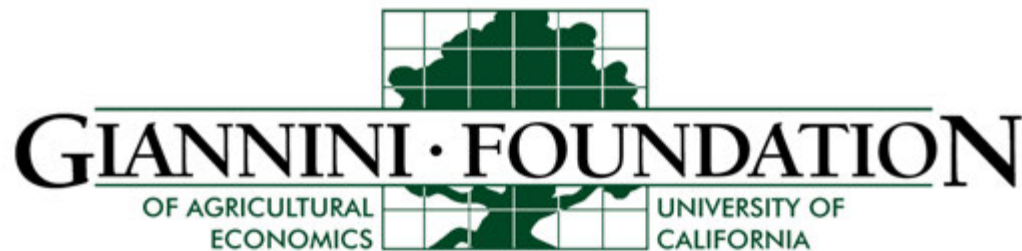


# Giannini Economics and Agricultural Supply in California

75<sup>th</sup> Anniversary Conference

May 3, 2006

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# The Giannini Foundation and California Agriculture

- The purpose of the GF, from the first, was to use agricultural economics research to aid California farmers
  - This is different from our mandate as employees of the University of California and the State of California and from the purpose of Federal funds.
  - A broader stakeholder set (everyone in California, or the in United States, or in the world) applies from these other funding sources.
- Even with the more narrow set of beneficiaries the Giannini Foundation approach and the definition of what research benefits California farmers was very broad and included research on applicable theory and methods and a broad set of global issues.



# Giannini and California Agriculture

- Seventy-five years is long enough to expect some return on an investment!
- The GF has partially supported of almost 3,000 economist-years. (Without deducting for teaching and other activities.)
- There has been output:
  - More than 10,000 studies of various forms produced by Giannini members
  - About 800 dissertations supervised by Giannini members.



## Outline and Preview

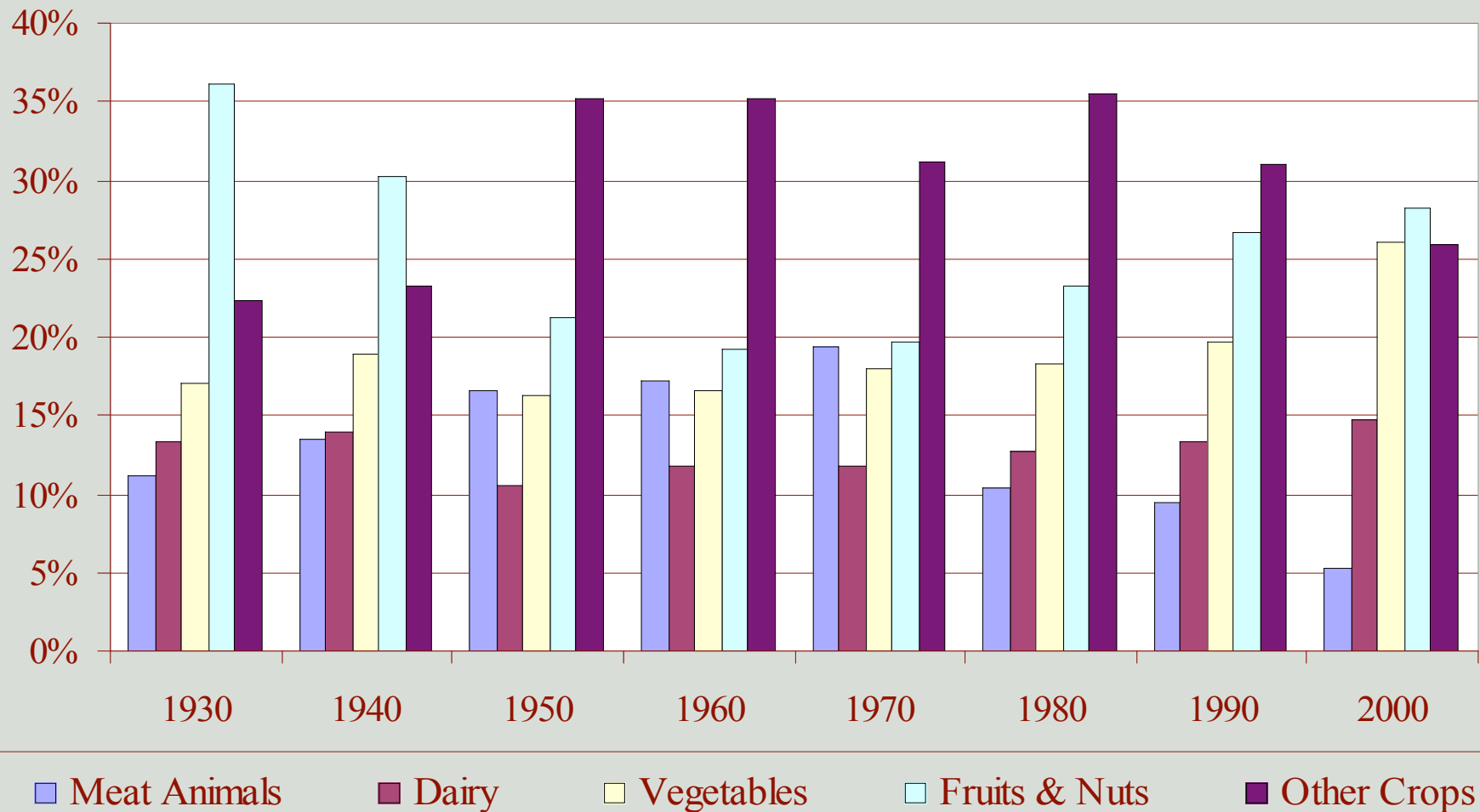
- Evolution of California Agriculture
- Evolution of GF research
- Discussion of the linkage between these two
- Some review of early examples of GF research and assertion that these are representative of what we have done all along:
  - A few references to the work of some of the early figures in the Foundation history
- I refer to almost none of the work of the past 50 years (Given the current audience that would have been too much like pandering and perhaps frustrating to those left off the necessarily short list.)

# Selected Characteristics of California Agriculture, 1929 to 1997

<i>Year</i>	<i>Number of farms</i>	<i>Land in farms</i>	<i>Cropland harvested</i>	<i>Irrigated land</i>
	<i>(in 1000s)</i>	<i>(in 1000 acres)</i>		
<b>1929</b>	<b>136</b>	<b>30,443</b>	<b>6,549</b>	<b>4,747</b>
<b>1939</b>	<b>133</b>	<b>30,524</b>	<b>6,534</b>	<b>5,070</b>
<b>1949</b>	<b>137</b>	<b>36,313</b>	<b>7,957</b>	<b>6,599</b>
<b>1959</b>	<b>99</b>	<b>36,888</b>	<b>8,022</b>	<b>7,396</b>
<b>1969</b>	<b>78</b>	<b>35,328</b>	<b>7,649</b>	<b>7,240</b>
<b>1978</b>	<b>73</b>	<b>32,727</b>	<b>8,804</b>	<b>8,505</b>
<b>1987</b>	<b>83</b>	<b>30,598</b>	<b>7,676</b>	<b>7,596</b>
<b>1997</b>	<b>74</b>	<b>27,699</b>	<b>8,543</b>	<b>8,713</b>

Source: Olmstead and Rohde, U.S. Census of Agriculture

# Share of Commodity Groupings in Cash Receipts, California, 1930-2000



Source: USDA, NASS

## Top-5 California Agricultural Commodities by Cash Receipts in 1930, 40, 50 and 2004

	<i>1930</i>	<i>1940</i>	<i>1950</i>	<i>...</i>	<i>2004</i>
	<i>Ranking</i>				
<b>Oranges</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>...</b>	<b>16</b>
<b>Dairy products</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>...</b>	<b>1</b>
<b>Poultry &amp; eggs</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>...</b>	<b>9</b>
<b>Cattle &amp; calves</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>...</b>	<b>5</b>
<b>Grapes</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>...</b>	<b>3</b>

Source: United States Department of Agriculture, NASS



## California Agriculture and Giannini Research by Commodity

- A review of publication titles by decade confirms Giannini research focused early and continuing work on tree crops and vegetables (more tree crops and less on vegetables)
- Dairy has been a significant commodity focus throughout
- Less work on cattle than the output share
- Less work on the ornamental horticultural industry than output share in recently

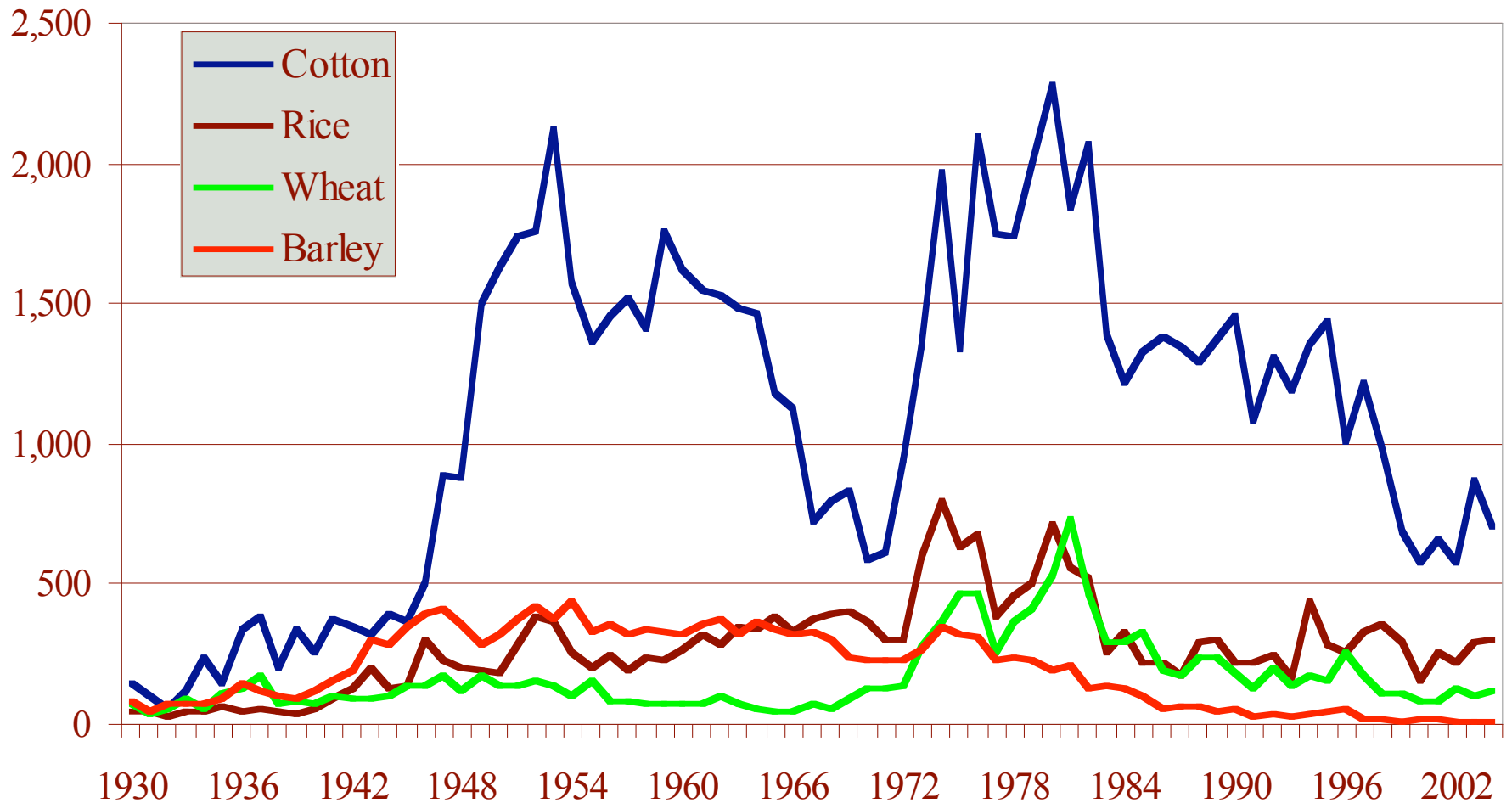


# Top-7 California Counties (by Value of Product Sold) in 1930 and Rankings in 1940, 1950 and 2002

<i>County</i>	<i>1930</i>	<i>1940</i>	<i>1950</i>	<i>...</i>	<i>2002</i>
<b>Los Angeles</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>...</b>	<b>21</b>
<b>Tulare</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>...</b>	<b>2</b>
<b>Fresno</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>...</b>	<b>1</b>
<b>San Bernardino</b>	<b>4</b>	<b>8</b>	<b>18</b>	<b>...</b>	<b>15</b>
<b>Imperial</b>	<b>5</b>	<b>12</b>	<b>5</b>	<b>...</b>	<b>8</b>
<b>Orange</b>	<b>6</b>	<b>11</b>	<b>10</b>	<b>...</b>	<b>22</b>
<b>San Joaquin</b>	<b>7</b>	<b>4</b>	<b>4</b>	<b>...</b>	<b>7</b>

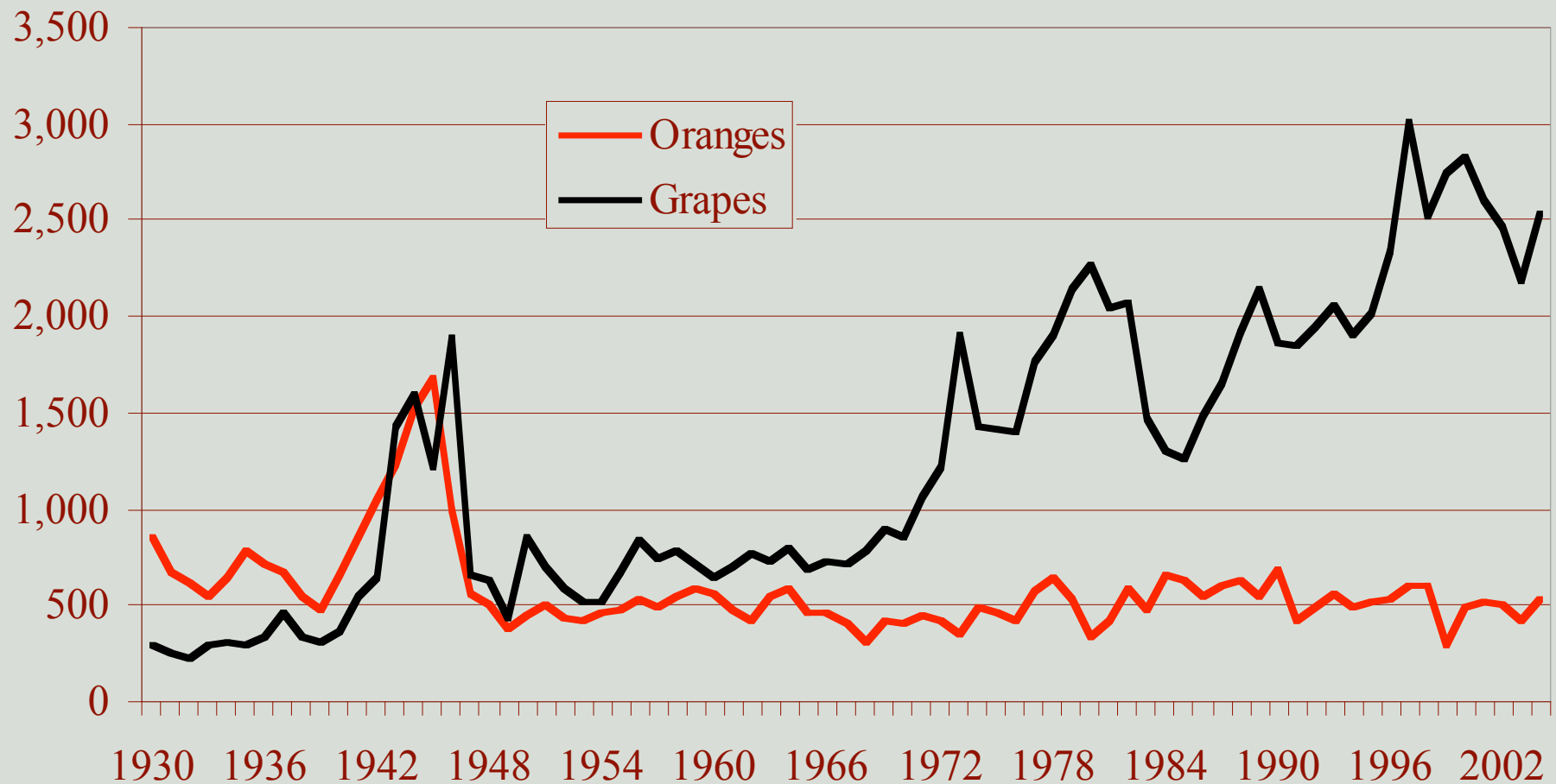
Source: Censuses of Agriculture and Johnson and McCalla

# Cash Receipts of Selected California Field Crops, 1930-2004, in inflation-adjusted million year 2000 dollars



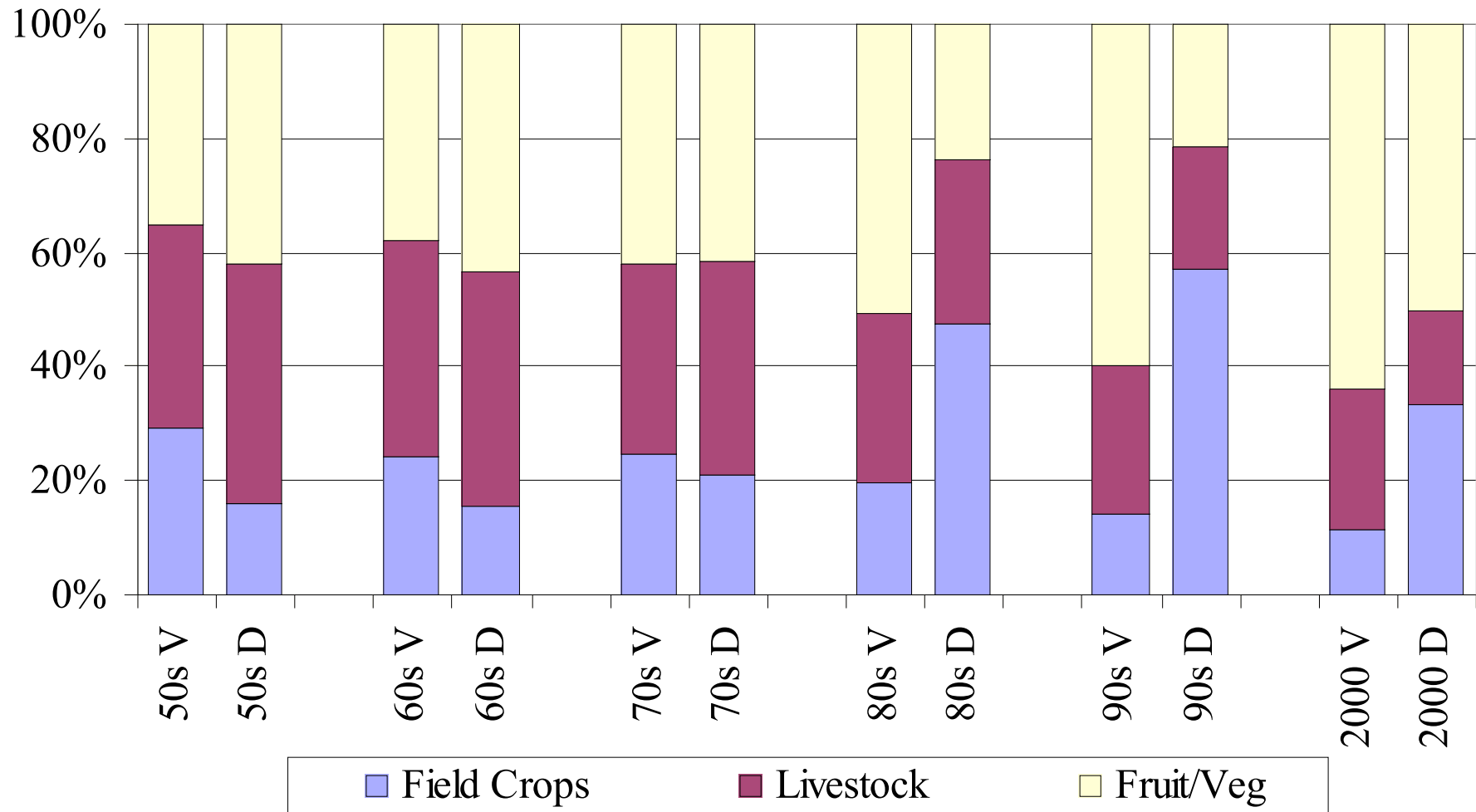
Source: USDA, NASS

# California Orange and Grape Cash Receipts, 1930-2004, in inflation-adjusted million year 2000 dollars



Source: USDA, NASS

# Distribution of California Value of Production and Commodity-Based Dissertation Titles, 1950s to 2000s



Source: USDA, NASS and Giannini Dissertation Files



## California Agriculture and Giannini Dissertation Research by Commodity

- Significant numbers of dissertations list a commodity in the title.
- Mostly the correspond with commodity focus, except the emphasis on field crops in the 1980s and 1990s lags and overemphasizes these crops, which that peaked in the 1970s and early 1980s
- These crops were high relative to crop revenue:
  - Because of major policy or trade issues? or the importance global market? or the importance of these commodities in home countries of students? or “marketability” of students writing on national and global commodity issues?



## California Agriculture and Giannini Policy Research

- I focus on production and supply issues and leave most “policy” and demand-side issues to others.
- Policy related research was an early focus of Tolley, Benedict and Tinley among many others (but not Galbraith)
- Remember the GF began in the Great Depression and the infancy of the Foundation coincided with the birth of the New Deal
- Only seven percent of studies were classified as “policy,” but a review of the titles suggests that many research publications contained some explicit policy focus or motivation.



## Giannini Tradition of Revisiting Issues and Topics of Continuing or Recurrent Interest and Importance

- Not a policy or rule, just an evident pattern
- Consider research on the honey bee industry
  - Voorhies, Todd and Galbraith, 1932 and 1933
  - Berkeley dissertation and journal article, Siebert 1979 and 1980 (J.W. not Jerry)
  - Olmstead and Wooten, 1987 (about the 1940s and 1950 experience)
  - Davis dissertation and journal article early 1990s, Willet and French
  - And, current work 15 years later



## Early Research on Supply Issues: Peterson and Galbraith, 1932

- **Conceptual work on marginal agricultural land**
  - Examples from California
  - Biophysical characteristics for what it means to be on the margin of cultivation
  - Some missing consideration of opportunity cost and the idea of economically marginal land on the urban fringe or because of valuable environmental services
- **Building on the Marshallian tradition in mainstream economics,**
- **Not at all the style of economics one associates with Galbraith during his Harvard years after he abandoned agricultural economics**





## Early Research on Supply Issues: King, 1956

- **Short discussion of Nerlove's famous work on expectations in supply econometrics**
  - King was still at USDA (as was Nerlove then or soon after)
- **King clarified and suggested extensions to Nerlove and pointed out the tough questions that remained**
- **Perhaps that is why King focused on the demand side in his most famous work after he arrived at Davis shortly after this paper.**



## Early Research on Supply Issues: Mundlak and McCorkle, 1956

- Time-series econometric estimation of supply response for spring potatoes in the southern Central Valley
- (This seemed like an odd couple to me, given the well-known later career of each... that just shows my own ignorance of our intellectual history)
- Uses one year lagged price, but focuses on cross commodity effects
  - Some discussion of usefulness of survey data, and programming models, but no mention of panel data
- Own price elasticity  $\sim 0.24$ ; cotton is a crop substitute, but alfalfa is a complement. No explanation of this puzzling (to me) result. (Ask them about this next time you see Chet or Yair.)



## Early Research on Farm Management and Supply Issues: McCorkle, 1955

- He reviews the use of linear programming in farm management research. (Also, in that period, Boles was writing on more theoretical aspects)
- A practical overview written when such work was considered part of the promising future
- Precursor to work of Carter, Dean and others
- From the current perspective he was perhaps optimistic
- Farm management research of a normative flavor (whatever the method used) is not so much practiced these days by Giannini economists (or others) as it was for a decade or so after McCorkle wrote.



## Early Research on Supply Issues: Bressler, 1958

- His presidential address... not on marketing or spatial issues for which he is now so famous, but rather on “The impact of science on agriculture”
- In the context of farm policy, he emphasized the importance of R&D as a long term investment, even if farm subsidies of the time had created “over-production” with government stock acquisition and land set-asides.
- His issue of subsidies versus science is relevant still in the current 2007 farm bill debate



## Giannini Agricultural Situation and Outlook Studies

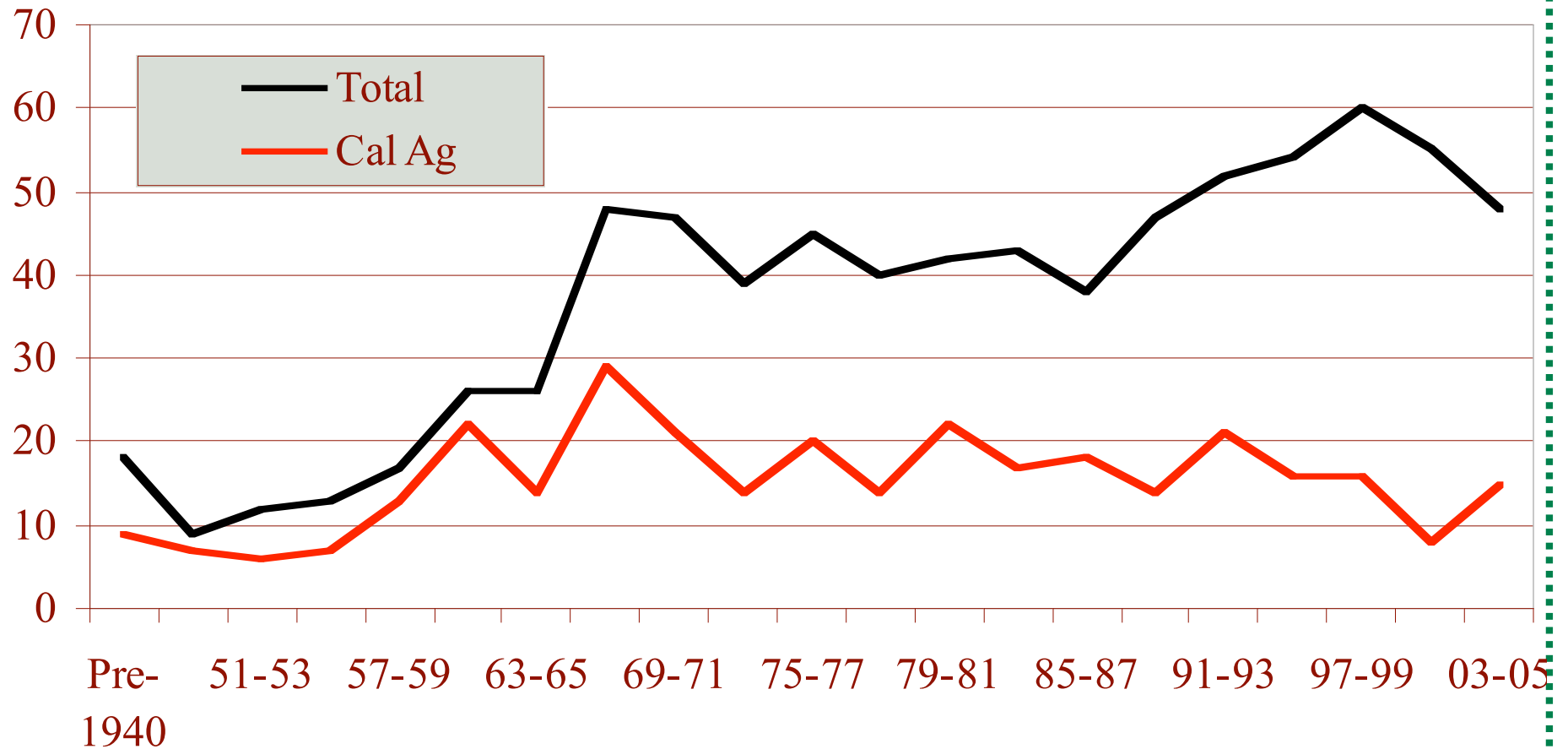
- This work was a major focus in the early years.
  - Much less practiced later, as this shifted more to USDA and private sector, but we still do regular extension publications and unpublished outlook conferences and other presentations.
- Early work included cost of production and farm budgets and that tradition has grown in the subsequent decades.
  - I expect COP studies are the most used of any of our work by commercial agriculture, including by the Bank of America



## Giannini Dissertations and California Agriculture

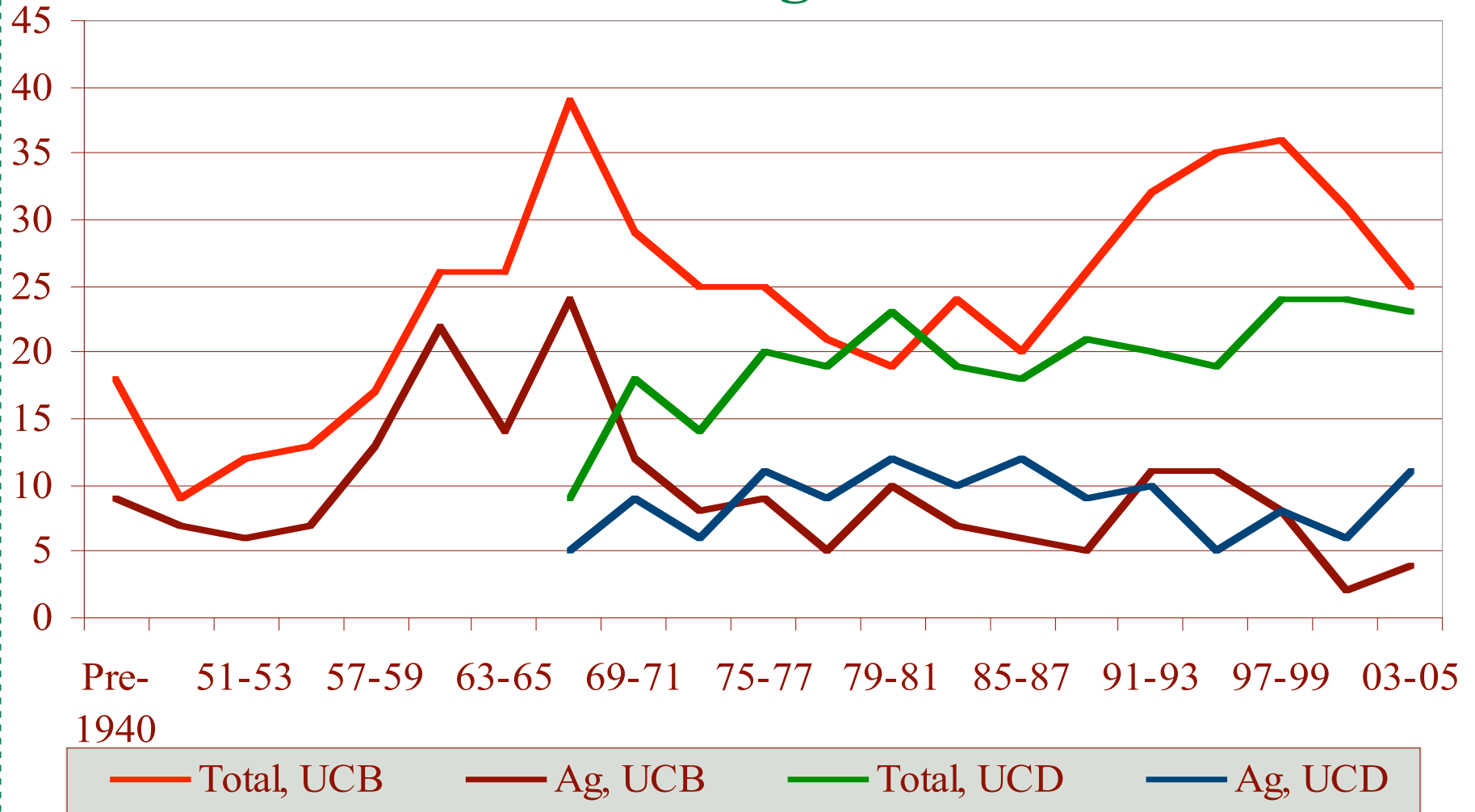
- Only a subset of UC ARE dissertations have explicit Giannini support and that support is partial
- We asked: what number and share of dissertations have a main, direct focus on California agriculture?
  - We defined focus by title and required an explicit agriculture mention without an explicit focus exclusively on some other place (such as farm level studies in a developing country)
  - Of course almost any economic research affects California agriculture indirectly

# UC Dissertations in ARE per Triennium, Total and those Dealing with California Agriculture



Source: Giannini Dissertation Files

# UC Dissertations in ARE per Triennium by Campus: Total and Those Dealing with California Agriculture



Source: Giannini Dissertation Files

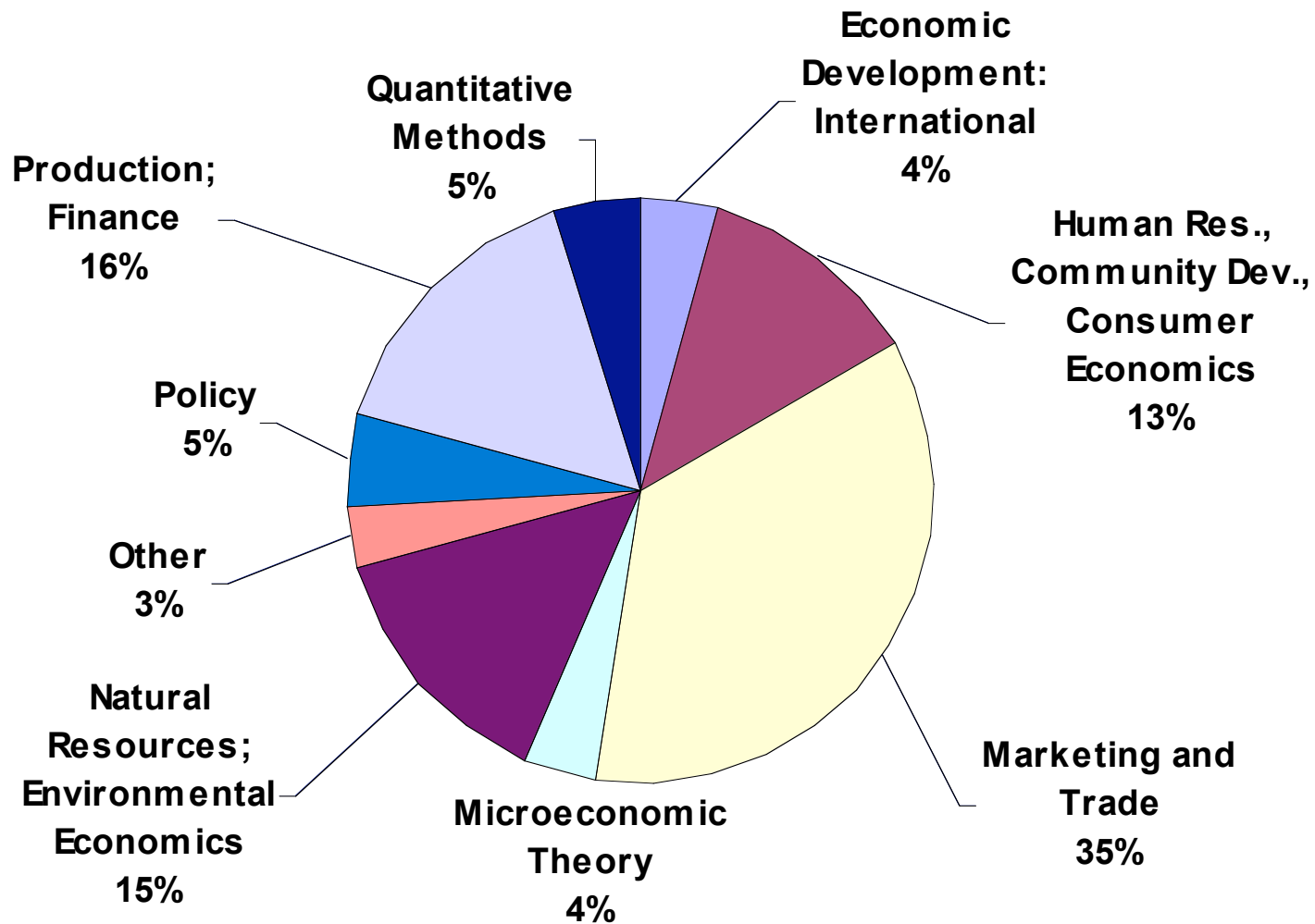




## Trends in Giannini Publications by Topic: Changes in Orientation

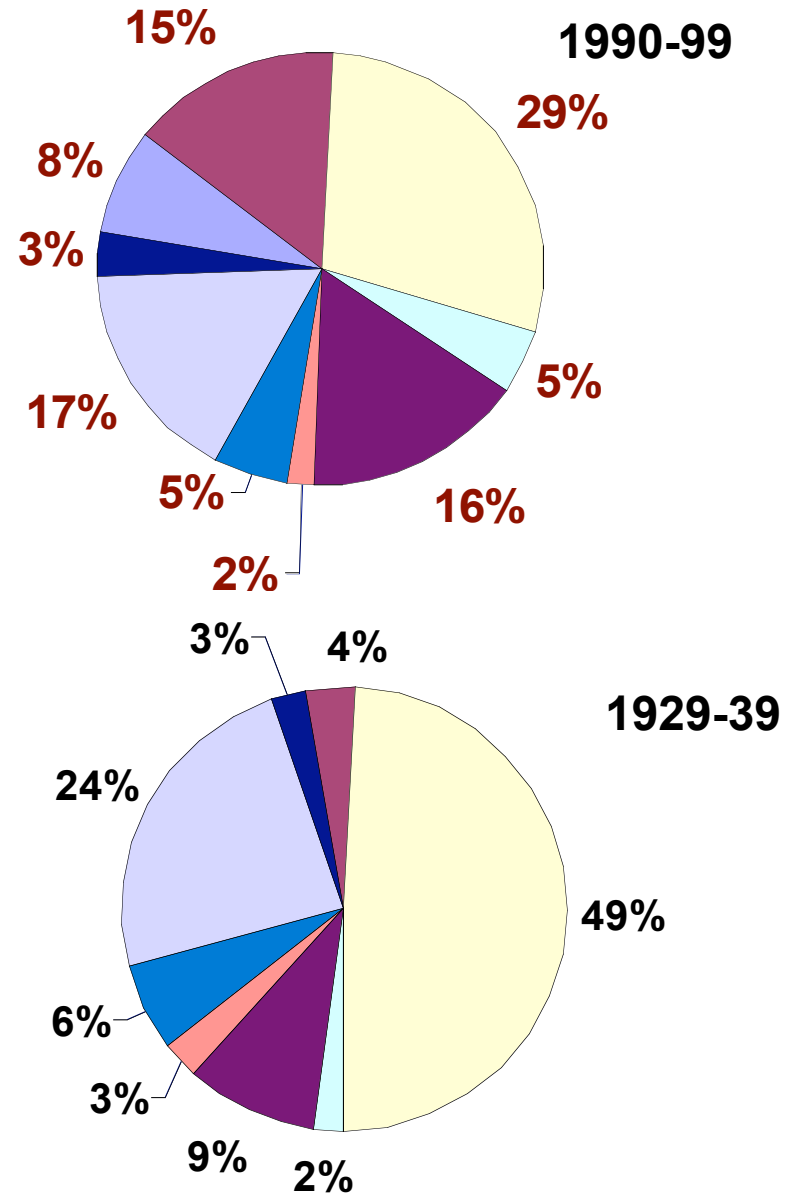
- Only a subset of UC ARE research has explicit Giannini support and that support is a small share of total support even for Giannini projects
- We asked: what is the distribution of research and how has that changed?

# Proportions of Publications by field, 1929-1999



# Proportions of Publications by field

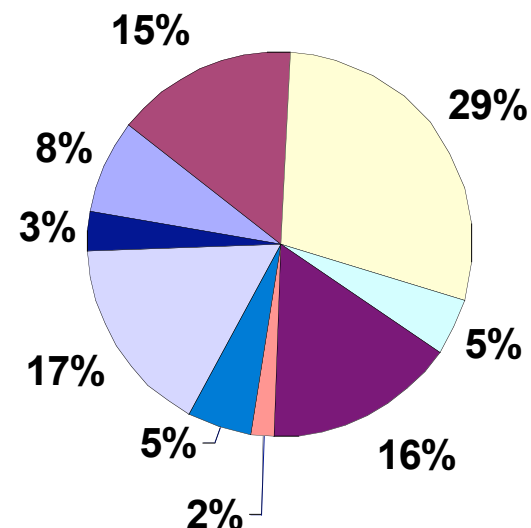
- Economic Development: International
- Human Res., Community Dev., Consumer Economics
- Marketing and Trade
- Microeconomic Theory
- Natural Resources; Environmental Economics
- Other
- Policy
- Production; Finance
- Quantitative Methods



Source: Giannini Files

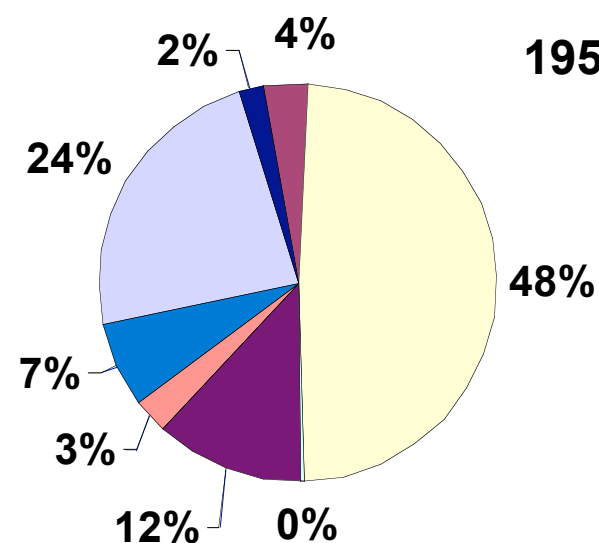
# Proportions of Publications, by field

1990-99



- Economic Development: International
- Human Res., Community Dev., Consumer Economics
- Marketing and Trade
- Microeconomic Theory
- Natural Resources; Environmental Economics
- Other
- Policy
- Production; Finance
- Quantitative Methods

1950-59





## Conclusions: What is Left Out

- We might all enjoy discussions of each of the 10,000 publications, but I did not undertake that review
- I also did not attempt to categorize the agriculturally oriented publications by commodity or by resource or by issue. I therefore did not analyze statistically the relationship between research effort and commodities shares or issues facing California agriculture
  - That analysis would require a major data effort to further characterize publications, however,
  - Such a statistical analysis would be of considerable interest and is feasible. We may undertake that project, if Giannini support becomes available.



## Conclusions: What is Left Out

- I did not summarize or list my favorite Giannini contributions to California agricultural supply over the past 75 years.
  - To be convincing such a summary would require thorough documentation of how important issues were addressed by Giannini research, and
  - thorough analysis of impact,
  - Such a project that is always fraught with complexities of attribution among other concerns
  - This project would be fun, but clearly subject to personal ideosyncracies
  - This is work that might be conducted by a committee of experts



## Conclusions: What is Left Out

- I also did not attempt to calculate a rate of return to Giannini research. This is also too tough for the present effort, But, I refer you to a delightful essay by Stigler, “Do Economists Matter?”
  - Stigler cites some computations by Coase to show how little impact is needed for a substantial rate of return, given the tiny investment in economists relative to the size of the economy.
- Finally, I did not attempt to summarize my favorite academic contributions made by Giannini members. That would have been fun and maybe I would have made some friends in the process of flattering some of our audience but there seemed to a downside too. I leave that listing to our discussion.