



*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*

## DISCUSSION: THE ROLE OF ALTERNATIVE AGRICULTURAL ENTERPRISES IN A CHANGING AGRICULTURAL ECONOMY

Joyce E. Allen

Much attention has been given to alternative agriculture in recent years by producers, state departments of agriculture, and agricultural economists. Professors Babb and Long documented the causes of renewed interest in alternative agriculture, effects of alternative agriculture on farm structure in the South, and barriers that may affect the shift toward alternative agriculture. Their paper represents a major contribution to the limited economic literature on alternative agricultural enterprises.

Babb and Long have prepared an excellent paper on alternative agriculture and its likely impact in the South. This discussion will attempt to offer a different perspective on two of the premises that were suggested as relevant to the shift to alternative agriculture. I will also provide additional information on some topics raised by Babb and Long.

### PREMISES

Babb and Long took considerable time to introduce and define the concept of alternative agriculture. They used the term to refer to "adoption of production methods designed to use fewer purchased inputs, selection of unconventional farm enterprises, and diversification of enterprises and uses of family resources." However, not much time was given to the discussion of trends which are the driving forces behind the shift to alternative agriculture. The premises, which the authors adopted "with little questioning of their validity," were (1) continued financial stress in agriculture, (2) changes in the pattern of food consumption (i.e., increased consumption of nutritious, low-calorie food), (3) continued large and unpredictable shocks from macro-

economic forces, and (4) acceleration of technology development.

### Financial Stress

The premise of continued financial stress in agriculture needs some justification and/or further explanation. Agriculture is a dynamic industry, characterized by periods of prosperity and economic downturns. In the short run, agriculture will likely continue to experience financial problems but will probably recover. Analysis of recent U.S. Department of Agriculture data suggests that financial conditions in agriculture are slowly improving.

USDA data indicate that total farm sector debt decreased by more than \$7 billion (or 4 percent) between January 1, 1985, and January 1, 1986 (Banker). Preliminary estimates indicate that debt continued to decline in 1986. Moreover, the data show that net cash income increased from \$39 billion in 1984 to a record \$44 billion in 1985. USDA's annual Farm Costs and Returns Survey indicated some improvement from 1984 to 1985 among farms with both negative cash flows and debt-to-asset ratios above 40 percent. In 1985, these farms accounted for 11.2 percent of all farms in the survey, down from 12.6 percent in the previous year. The share of total farm debt held by these farms also declined, from 45 percent to 37 percent (Banker).

Cash flow data also show that there is some improvement in the financial performance of the agricultural sector. For example, 49 percent of all farms had positive cash flows in 1984. The proportion rose to 55 percent in 1985 (Banker).

Although the financial situation in the agricultural sector may be improving, some farmers remain in poor financial condition. Alter-

---

Joyce E. Allen is an Agricultural Economist, Food and Agricultural Policy Branch, Economic Research Service, U.S. Department of Agriculture.

Invited discussion paper presented at the annual meeting of the Southern Agricultural Economics Association, Nashville, Tennessee, February 1-4, 1987. Invited discussion papers are routinely published in the July *SJAE* without editorial council review but with review of the copy editor (as per Executive Committee action June 25, 1982).

The views expressed in this paper are those of the author and not necessarily those of the USDA.

Copyright 1987, Southern Agricultural Economics Association.

native agriculture, especially the production of vegetables and specialty crops, could be a means for some of these farmers to improve their profitability or reduce their losses. However, the largest benefits would probably accrue to the initial producers of alternative crops. The entry of many farmers into a small market could quickly drive profits down. Farmers could form cooperatives to influence entry, production, and marketing of specified alternative crops. Financial stress may provide the impetus for farmers to consider alternative crops, but lack of a large market for these crops would imply that only a limited number of farmers would find the shift to alternative agriculture profitable.

### Consumption Patterns

Further examination is needed of the second premise—increased consumption of fruits, vegetables, and poultry, and decreased consumption of red meat will continue. Babb and Long cite the study conducted by Capps as support for this premise. Capps described trends in food consumption, based on consumption data from the Economic Research Service (ERS), USDA. The ERS derived consumption data from annual production and marketing estimates of food products and adjusted for imports, exports, and stock changes (Bunch and Simon). Capps found a 29 percent increase in per capita consumption of poultry from 1970–74 to 1980–84 and a 5 percent decrease in red meat consumption. During this period, fruit consumption increased by 6 percent and vegetable consumption increased by 5 percent (Capps).

A somewhat different trend emerges, especially for fruits and vegetables, when dietary intake data (i.e., type and amount of food eaten) are analyzed. This difference could have important implications for alternative agriculture because fruits and vegetables comprise an important share of the alternative commodities that are being produced or promoted.

Recent dietary intake data from the Human Nutrition Information Service, USDA show that women 19 to 50 years old decreased their fruit and vegetable consumption from 1977 to 1985 (Peterkin and Rizek). The consumption trends reported by Peterkin and Rizek were based on data from the Continuing Survey of Food Intakes by Individuals, 1985 and the Nationwide Food Consumption Survey, 1977–78. The period between the surveys was a time of

increasing public awareness and concern about diet and health due, in part, to the publication of the dietary goals in 1977 and dietary guidelines in 1980.

Only women aged 19 to 50 were included in the 1985 survey. Thus, Peterkin and Rizek analyzed the diets of women in 1985 relative to the diets of a comparable group of women from the 1977 survey. Although the analysis did not cover the general population, it is still a valid indicator of how food consumption changed over time because (1) women are generally the food managers in the households and (2) they are generally more concerned than men or children about eating low-calorie, nutritious foods.

Despite nutrition advice to consume more fruits and vegetables, the quantity of fruit consumed by women declined by 7 percent from 1977 to 1985 while the quantity of vegetables consumed also declined by 7 percent (Peterkin and Rizek). Consumption of red meat and poultry decreased by 34 percent and 8 percent, respectively, while consumption of fish and shellfish rose by 18 percent. These data do not take into account the consumption of meat, poultry, and fish as an ingredient in a food product (e.g., stews, casseroles, hamburgers, sandwiches, frozen entrees). The consumption of these mixtures increased by 35 percent from 1977 to 1985. Aggregating the data on mixtures with data on the quantity of meat, poultry, and fish eaten separately could show a different trend, especially for poultry. However, the data were not aggregated in the study by Peterkin and Rizek.

Numerous studies (e.g., Hamm; McLaughlin and Hamm; Bunch) have documented the change in consumer preference from canned to fresh and frozen fruits and vegetables. Although Babb and Long did not discuss this change, it has important implications for alternative agriculture. Consumers are willing to pay higher prices for fresh vegetables (Bunch) which could generate additional interest in this market by southern producers seeking alternative enterprises. An important factor that may affect alternative agriculture is consumer interest in a greater variety of fresh fruits and vegetables (McLaughlin and Hamm). Research suggests that southern producers are responding to this interest. For example, broccoli has been adopted in many southeastern states as an alternative crop. Texas led all states in expanding broccoli production since the mid-1970s (Love).

The existing research on trends in fruit and

vegetable consumption can be summarized as follows:

- Recent USDA studies on food eaten by women show that fruit and vegetable consumption did not increase from 1977 to 1985.
- Consumers increasingly show a preference for fresh products.
- Consumers prefer to choose from a wide variety of fruits and vegetables.

These are some of the relevant consumption trends that could affect a shift toward alternative agriculture. Understanding these consumption trends is important because, as Babb and Long emphasize, "demand, including the identification of niches and unsatisfied needs, will be the driving force for alternative agriculture."

### Technology Development

Babb and Long noted that technology development will accelerate and discussed the lags in the impacts of new technology. They suggest that those with superior management skills and those who are engaged in conventional farming methods are most likely to benefit from biotechnology.

It has been stated that biotechnology offers the opportunity for U.S. agriculture to restore and enhance its competitiveness in the world market (Clarke). The American Association for the Advancement of Science has referred to genetic engineering as one of the four major scientific revolutions of the twenty-first century (Clarke). Agriculture has been characterized as energy and labor intensive. Costs for these inputs could be reduced through biotechnology. For example, genetic engineering has the potential to reduce the cost and increase the effectiveness of plant pest control through the development of genetic resistance to disease.

Inherent resistance to pests and disease could reduce the use of chemical pesticides (Clarke). As Babb and Long pointed out, yields in the South are adversely affected by less productive soils and greater risk of damage from pests and disease. Thus, genetic engineering could have a significant impact on southern agriculture and slow the shift toward alternative agriculture. According to Clarke, disease resistance is controlled by relatively few genes which means that the development of genetic disease-resistant plants is likely to be one of the earliest applications of biotechnology to plants.

Another application of biotechnology in

agriculture is the manipulation of plant growth and development. Altering chemical composition of the plant product, improving processing quality, and altering plant size are examples of some of the potential advancements that biotechnology provides (Clarke). The speed with which these new technologies are developed and adopted will, of course, affect the shift from conventional to alternative agriculture.

### INFORMATION

Babb and Long succinctly discussed the need for information on production practices and marketing strategies for alternative enterprises. Information is needed regarding consumer demand, enterprise specific costs and returns, sources of credit, management practices, and market outlook. Budget reductions could affect the availability of this information, much of which is not currently available for alternative agricultural enterprises. For example, budget reductions limited collection of data in ERS's annual study on food consumption, prices, and expenditures. Since 1983, data are no longer available for some fresh and processed vegetables, processed fruits, and melons (Bunch and Simon). Babb and Long indicated that the demand for research and extension services will increase if there is a shift toward alternative agriculture. However, this demand is likely to come during an era of austere budgets. It is not clear how research and information on alternative agriculture will be funded, if this increased demand is to be met.

The new USDA Office of Small Scale Agriculture could help increase the availability of information on alternative agriculture. This office was established to provide technical and marketing information to farmers seeking new markets for specialty crops. The office will work with USDA agencies to focus department expertise and resources concerning alternative farming. An important mission of the new office is to assess information on research, education, and technological developments. The office will publish a bimonthly technical newsletter to disseminate information on alternative farming.

### HUMAN CAPITAL

Alternative agriculture has human capital implications for agricultural labor and the agricultural economics profession. Babb and

Long emphasized that many of the alternative enterprises are labor intensive and suggested that displaced workers and retired persons could constitute an important part of the additional labor that will be needed. This potential source of labor could become vital to the success of alternative agriculture, given the new federal immigration law. The law will make it illegal for all employers to hire illegal aliens and could have significant ramifications for the supply of agricultural labor in the South.

Another key point made by Babb and Long is that the returns to labor employed in alternative agriculture are likely to be relatively low. Thus, while alternative agriculture will offer some employment opportunities, the workers are likely to receive relatively low wages. Moreover, it will be difficult for many small, limited-resource producers to make a

shift to alternative enterprises. These human capital implications suggest that alternative agriculture may not substantially improve the economic well-being of low-income producers or displaced workers.

As Babb and Long indicated, much of the human capital related to conventional agriculture may not be directly transferable to alternative agriculture. Research is needed on credit, risk management, production, marketing, etc., as it relates to alternative agriculture. Public institutions will be increasingly asked to invest in human capital relative to alternative agriculture while maintaining their human capital in conventional agriculture. Agricultural economists can play an important role in providing analyses and information that could affect decision making on alternative agricultural issues.

## REFERENCES

- Banker, D. "Agriculture's Financial Profile: A Look Behind the Aggregates." *Farmline*, U.S. Department of Agriculture, Economic Research Service, 8,1(1987):6-7, 14.
- Bunch, K. L. "Consumption Trends Favor Fresh, Lowfat, and Sweet." *National Food Rev.*, U.S. Department of Agriculture, Economic Research Service, 32(1986):1-5.
- Bunch, K. L., and G. Simon. *Food Consumption, Prices, and Expenditures, 1964-84*. U.S. Department of Agriculture, Economic Research Service, Statistical Bulletin No. 736, December 1985.
- Capps, O., Jr. "Changes in Domestic Demand for Food: Impacts on Southern Agriculture." *So. J. Agr. Econ.*, 18,1(1986):25-36.
- Clarke, N. P. "Implications of the Biotechnology Revolution for Agriculture." *Research for Tomorrow, Yearbook of Agriculture, 1986*, U.S. Department of Agriculture, pp. 37-41.
- Hamm, S. R. "Profile: Consumption and Production of the U.S. Vegetable Industry." *Proceedings of Analyzing the Potential for Alternative Fruit and Vegetable Crop Production Seminar*, N.C. Agr. Res. Ser., November 1985, pp. 4-13.
- Love, J. "U.S. Vegetable Industry in the 1980's." *National Food Rev.*, U.S. Department of Agriculture, Economic Research Service, 31(1985):7-11.
- McLaughlin, E. W., and L. G. Hamm. "Consumers Demand Quality Produce." *National Food Rev.*, U.S. Department of Agriculture, Economic Research Service, 28(1985):6-9.
- Peterkin, B. B. and R. L. Rizek. "Diets of American Women: Looking Back Nearly a Decade." *National Food Rev.*, U.S. Department of Agriculture, Economic Research Service, 34(1986):12-15.