

A COMPREHENSIVE ANALYSIS OF THE MARKET FOR  
AGRICULTURAL CREDIT IN VIRGINIA

by

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(ABSTRACT)

The market for agricultural credit in Virginia was analyzed to provide market intelligence to financial institutions which extend credit to Virginia farmers. The agricultural environment in the U.S., the South, and Virginia were reviewed concerning the effect of current agricultural sector transition on producers, lenders, agribusinesses, and rural communities. The agricultural credit delivery system in Virginia was studied. The credit use and needs of Virginia farmers and agricultural customers of three Virginia banks were also evaluated.

The market for agricultural credit in Virginia was found to be stable. Virginia agriculture is in relatively good financial condition, benefiting from the state's diverse and strong general economy. The use of agricultural credit varied demographically, with one-half of Virginia farmers owing no agricultural debt. Virginia farmers considered interest rates most important to lender selection and desired the implementation of financial services such as tax planning, estate planning, and financial management seminars. Statistical

analysis revealed the presence of market segmentation variables but failed to definitely identify segments. Bank customer survey group responses varied from those of Virginia farmers in general and from each other.

Challenges facing Virginia agricultural lenders include adapting to the new agricultural environment, meeting the changing needs of the modified customer base, and competing with new sources of credit.

A synopsis of recent studies and statistical information concerning U.S., Southern, and Virginia agriculture and results of the 1987 Virginia Agricultural Credit Use and Needs Survey are included.

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**Chapter 1**

**INTRODUCTION**

## INTRODUCTION

### The National Agricultural Environment

The prosperity enjoyed by the American agricultural economy in the 1970's was replaced with farm sector crisis in the early and mid 1980's. The effect of economic distress at the agricultural producer level has been felt at the support industry level as well.

The economic environment of the American agricultural sector throughout the 1970's was characterized by favorable macroeconomic and international conditions. Relatively high levels of inflation resulted in an illusion of perpetually increasing asset values. Government programs encouraged higher levels of production in view of abundant domestic and international marketing opportunities. Credit extension and use and tax programs were liberalized, encouraging expansion.

The onset of the 1980's, however, saw an abrupt reversal. Large debt loads incurred in the boom-period of the 1970's became complicated by declining international and domestic markets. A return to single-digit inflation, volatile foreign exchange rates, asset devaluation, excess production capacity, shifts in agricultural asset ownership, and changing consumer demands will shape American agriculture in the 1980's and 1990's. (Boehlje) (Jackson, p. 2)

Farmers and support industries are emerging from the prosperous environment of the 1970's to the realization that permanent structural changes are underway. The emerging agricultural sector will face major adjustments in farm production units, technology adoption, cost relationships, the role of information, international market interaction, environmental concerns, and changing U.S. consumer demand for agricultural products. (Jackson, p.3)

Individual segments of the agricultural sector have developed different means of coping with change. A bimodal producer segment with a large number of small part-time farmers and a small number of large, full-time farmers has emerged. Support industries such as farm machinery and equipment manufacturers and feed and fertilizer firms have turned to mergers to boost their competitiveness and survivability in the transitional environment. (Stone, p. 43)

"Structurally, agriculture will follow banking, automobile, and airline industries through a decade of deregulation, changing consumer demands and dramatic increases in the variety, number, and packing of new food products." Farm price uncertainty and volatility are expected to increase rather than subside. (Fitch and Tubbs, pp. 4-5)

#### The Changing Environment of Agricultural Lending

Lenders, especially, have been affected by the stressed state of the agricultural economy. Estimates place the level of

potential losses to all agricultural lenders at \$9 billion with 90% of the estimated loss attributable to commercial-sized farms. (Ag Outlook, p. 29) Realization of this huge loss is anticipated to occur over the five year period 1986 through 1990. (Ag Outlook, p. 29) Inclusion of loss figures realized prior to 1986 would substantially increase the total loss estimate.

The Farmers Home Administration (FmHA), the Farm Credit System, and commercial banks share the amount of debt-at-risk<sup>1</sup> almost equally, while individual lenders, "other" lenders, and the Commodity Credit Corporation (CCC) have incurred considerably lower levels. FmHA, however, has slightly higher potential losses<sup>2</sup> compared to the agency's share of debt-at-risk, whereas Farm Credit has a slightly lower percentage of total potential losses than the System's share of total debt-at-risk. The CCC has little, if any, potential losses because the reserve program's loans are completely secured with storable commodities. (Ag Outlook, p. 30)

Absorption of such extraordinary losses is expected to take several years. Thus, improvement in the financial health of

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<sup>1</sup>"Debt-At-Risk" = loans to financially stressed commercial-sized operators.

<sup>2</sup>"Potential loss" = Difference between total debt and total assets, where debt is greater than assets.

major agricultural lenders may substantially lag the recovery in the producer sector throughout the remainder of the decade. (Ag Outlook, p. 31)

The pattern of agricultural financing by commercial banks will likely follow closely the evolving structure of commercial agriculture. (Barry, p. 39) Potential loan losses, along with changes in the structural and regulatory environment of banking are resulting in geographically diverse institutions and non-traditional competitors. Availability of nonlocal sources of funds for rural banks is also affecting the commercial bank lender. (Barry, p. 28)

The sources of challenge to agricultural lenders in the future are three-fold: the inherent financial structure of individual institutions, the nature of agricultural clients' operations, and factors outside of the control of farmers or lenders (Lins, Drabenstott, Brake, p. 138) Tougher competition, less loyal customers (Jackson, p. 2), and agricultural customers with a modified concept of commitment with respect to financial obligations (Boehlje) will be challenges facing all lenders to agriculture in the 1980's.

Transition is demanding creative lending and new banking services and products. (Fitch and Tubbs, p. 5) Innovation is considered to be the key to agricultural lending in the current transitional environment and into the future. (Fitch and Tubbs, p. 5)



### Virginia's Agricultural Environment

Virginia's agricultural economy is mirroring changes occurring nationally. The nature of transition in the state has some similarities to the national transition. However, the scope and magnitude differ. The relative strength and diversity of Virginia's general economy, the benefits from broad employment opportunities, the infusion of tax dollars from densely populated, high-income Northern Virginia and Hampton Roads, and the attractiveness of many rural areas and small towns to industrial developers makes the transition differ from that of heavily agricultural states.

Virginia's agricultural sector is highly diverse as are the issues and challenges faced by the state's producers. Virginia's tobacco producers face declining markets, while alternative crops are promoted as a highly viable replacement. The Shenandoah Valley is an important poultry production area, and sheep are becoming more common statewide. Drought has become an increasing problem in view of crop losses to drought in four of the last eight years, causing volatile incomes.

Three Virginia banks, all of which have a relatively small percentage of their total loan portfolio devoted to agricultural loans, have realized the importance of understanding the nature, scope, and magnitude of change occurring in Virginia's agricultural sector which will affect the stability and composition of their respective agricultural loan portfolios.

Market share and market stability are concerns of these banks with respect to projections of a general down-sizing of the state's and nation's agricultural credit market. Increased competition for a smaller number of potential clients could result.

Market intelligence and strategic planning are high priorities and are considered essential to remaining competitive in the current transitional environment.

### LITERATURE REVIEW

#### Bank Marketing

Marketing is becoming a high priority for many banks. Thompson expresses the opinion that the focus of commercial banks' marketing should be customer creation and satisfaction in an article appropriately titled, "Marketing 101." Thompson offered four fundamentals of marketing in respect to establishing satisfied customers. First, he feels that "customer satisfaction engineering," or making the bank look good as a result of customer satisfaction, is a very basic tool of bank marketing in today's environment. (p. 48)

The second fundamental of marketing, according to Thompson, is the understanding that marketing involves a combination of the performance of functional tasks, such as research, promotion, and product design, as well as a philosophy of doing business. The third fundamental involves the traditional marketing square, or marketing circle as Thompson prefers to

view it, which addresses four questions: (1) What are we marketing?, (2) Who are we marketing to?, (3) Why are we marketing, for what clear and clearly understood purpose?, and (4) How, tactically, should we go about marketing?

Thompson's final marketing fundamental refers to customers' perceptions of what constitutes a "bank" in light of non-traditional competitors. The author argues that although legal differences may exist, customers probably do not consider there to be any differences between competitors. Thus, Thompson indicates that banks must offset this problem with quality personnel and services.

Roderique makes some practical suggestions for basic bank marketing in "Begin with the Basics." The author's marketing philosophy is: "Basic things, if performed well, can set a bank apart." Roderique suggests that the bank first find out what customers want via questionnaires or other direct response methods. Good communications are considered to be essential and basic to marketing to financial services customers. Finally, Roderique stresses the need for banks to successfully sell the bank to its own employees.

Bettinger's argument is that marketing is the key to credit quality, and is essential since the quality of a bank's loan portfolio is the most imminent determinant of a bank's survival. Bettinger defines marketing as: "that function of the organization charged with converting corporate objectives into

bottom-line reality." (p. 22) The author outlines five steps to carry out marketing.

1. Determine desired customer base.
2. Identify specific needs, current and future, of desired customers and potential customers.
3. Introduce need-satisfying services to respond profitability to customer and prospect needs. Differentiate from competitors, positively.
4. Communicate about and deliver services effectively and efficiently.
5. Take steps to assure a well-informed, disciplined and professional staff with commitment to values and objectives of the bank.

The author calls for strategic marketing involving practical application of sophisticated segmentation and differentiation strategies in order to improve credit quality and, thus, long-term viability.

Ries advises bankers to market according to their competitive position and outlines appropriate strategies for banks in each of four competitive standings. Ries suggests that the banking leaders in a community should use "defensive" tactics, while those institutions ranked second or third should employ "offensive" strategies. "Guerrilla" tactics are advised for those institutions lowest in standing, with "flanking" tactics recommended for institutions on middle-ground. Reis reminds that big organizations can be slow and that often the broadness necessary to control a market leaves ample room for other organizations to focus on specific segments and/or needs. Strategy and timing are critical to successful marketing in a highly competitive market, according to Reis. The key is to

develop a strategy that will work for a given bank in a given situation and then to make adjustments in the organization to comply with the strategy.

Metzger cites six specific concerns for bank marketers and administrators involved in developing strategic marketing plans for their institutions. First, Metzger advises, as the bank contemplates its future, consider what new ventures, products and services, and markets that you would recommend that the bank enter ignoring entry cost. Second, consider these new entrances again, this time including entry cost as a factor in the decision.

Third, try to envision what actions competitors will be likely to take in the next three years that would either help or hurt your organization in respect to new products or with respect to marketing and/or pricing programs, policies, and practices. Fourth, look at your bank from your competitors' viewpoint and consider which of your bank's services that would be most vulnerable to attack. Fifth, determine what additional market information would be helpful in strategic planning. Finally, Metzger suggests, analyze your major lending and deposit services and products with respect to the product/service life cycle.

Bettinger emphatically states that strategic planning must result in a competitive advantage for the organization, or it is not strategic at all! And, Bettinger stipulates, a competitive

advantage must not only be identified, it must be exploited or a competitor may reap the benefits. A competitive advantage results from customers' perceived positive differences between a bank and its competitors.

The author answers the title-question, "What puts the 'strategic' in planning?", by stating that the critical element is marketing. Bettinger establishes the importance of strategic planning by citing a survey of bank CEO's which revealed an overwhelming consensus that "strategic thinking and planning," regardless of bank size or market, has a greater potential impact on a bank's bottom line than any other CEO activity. Areas of concern to be addressed by market research in order to provide the necessary market intelligence include:

1. Demographics of the market
2. Identification of segments attractive to banks? And, why?
3. Strengths and weaknesses of competitors.
4. Specific needs of individual market segments. How are needs changing? How can they be most profitably satisfied?
5. Image of bank in major market segments in relationship to images of major competitors.
6. Economic and legislative trends affecting a bank's market. How to best position the bank based on these trends?

Numerous authors have addressed the specific issue of marketing to agricultural customers. Jackson offers strategies for agricultural banks in particular. He advises the development of a comprehensive market action plan. Jackson reminds marketers that marketing is a continuous process, not a one-time effort and warns that tactics which have proven successful in the past may not guarantee success in the future. He advises marketers

to aggressively adapt to current, and potential future, changes in the agricultural credit market as Jackson anticipates the future challenges of dealing with less loyal customers, increased competition, and financial pressures.

Jackson cites the occurrence of fundamental changes in the structure of all segments of agriculture. Adjustment to these changes will be critical for lender survival. Necessary steps for banks who serve the agricultural market will include keeping up with changing customer needs and developing plans to meet those needs. Jackson offers five strategies for agricultural banks:

1. Understand the market
2. Aggressive selling to meet key customers' needs
3. Exercise of leadership to encourage performance and to reward excellence
4. Employ systematic and flexible market planning
5. Put market plans to work

One method advocated by Jackson to deal with transition is the use of "target marketing," or simply identifying the markets that can be served most cost-effectively and profitably. The goal of target marketing, as with any marketing strategy, is the creation or identification of a differential advantage which must be based on value as defined by the customer. Target marketing is a three step process -- segmentation, actual targeting, and product positioning. Segmentation may be done on

the basis of sociographic as well as psychographic characteristics, keeping in mind that a segment must be measurable, accessible, and substantial.

Boehlje advises that bankers consider segmentation of the agricultural credit market. He further suggests the separation of good loans versus problem loans and advocates spending less time on problem loans while devoting more time to aggressive new customer programs. Boehlje offers that agricultural bankers must make a conscious decision about their portfolio composition. Finally, it is suggested that bankers should treat farmers as commercial customers and to evaluate creditworthiness based not on collateral or cash flow, but rather on performance measures which are indicative of risk, enterprise productivity, efficiency, and repayment ability.

#### Customers' Perceptions of Banking Institutions

Gwin and Lindgren have found that service is extremely important in the selection of a bank by consumers. Fair and reasonable terms of checking accounts were also found to be important in bank selection. These conclusions were drawn from a mail survey of 3,830 primary wage-earners in Virginia households. Both random sampling of households statewide and customer households of a statewide bank were studied to assess the value of market focus efforts on customers.



Responses from the two sampling segments with regard to demographics or bank usage were not statistically different. Determinant attribute analysis was used to identify the financial institution attribute, ranked according to importance and similarity, which was most indicative of a customer's bank preference. "Friendly and efficient service" was found to be the most determining factor with "personal interest in the customer" ranked as second most important and "reasonable checking account requirements and fees" deemed third most important in the group of eight attributes.

The authors found, using chi-square analysis, that education, age, and income did not affect the top three determinants except for age in the case of younger people who were found to be more sensitive to checking account requirements/fees than other age groups. A t-test analysis to assess the importance of all eight attributes was also conducted. Three significant relationships were determined.

1. Younger people felt convenient locations and hours to be more determinant than did other age groups.
2. Lower income households felt convenient locations and hours to be more determinant than other income groups.
3. Younger people considered reasonable checking account requirements and fees as more important compared to other age groups.

Results indicate that banks which desire to segment the market demographically should consider age as a segmenting variable. Banks that do not wish to segment should perhaps pay particular attention to the three attributes identified as most

determinant in this study. Gwin and Lindgren offer six suggestions to banks that do not wish to segment.

1. Offer incentives to bank personnel for delivery of friendly and efficient service.
2. Enact training programs that stress relationship skills rather than just selling skills.
3. Research ways to evaluate performance on the delivery of friendly and efficient service and personal interest over a period of time.
4. Keep track of market-pricing strategies to aide in regional competitiveness.
5. Start or improve communication programs stressing the institution's commitment to quality service and competitive checking account terms.
6. Encourage employees to contribute ideas for improvement of customer service by offering recognition and rewards for good ideas.

Cox and Lasley address the slightly different issues of whether bank services meet the needs of customers and if they will be able to adequately meet the need in the future. The authors based this analysis on a survey of 1,000 U.S. households in 1984. The survey found that consumers expect banks to provide convenience, service, safety, and competitive market rates. However, the survey revealed that banks need to educate customers about new services before patrons will take full advantage of them. Survey questions related to a household's feeling of financial well-being and expected future financial well-being, number of financial institutions currently dealing with and number of different types of accounts, investment vehicles currently used, awareness of the existence of debit cards, use of financial advisory services, and awareness and use of discount brokerage services.

Carcione discusses an American Bankers Association survey which found that consumers are both using more types of financial services and using a wider variety of providers of financial services. These findings were based on a three-part telephone survey of 500 middle income and affluent U.S. households conducted in January, June, and August 1984. Analysis of survey results also revealed a feeling among consumers that banks and non-traditional providers of financial services are essentially identical. Thus, Carcione blames poor bank salesmanship skills for some loss of bank business to brokers. The only somewhat distinguishing attribute of banks was found to be that consumers perceived these traditional institutions to be worthy of more trust than their new competitors.

A comprehensive study conducted by Croushorn and Dalton in late 1985 and early 1986, in which each of four major segments of Virginia's agriculture sector were surveyed, addressed many of the issues at hand. Virginia agricultural lenders, Virginia Cooperative Extension Service personnel, Virginia machinery and equipment dealers, and Virginia farmers responded to the mail surveys. Valuable insight can be gained from the results even though strict statistical procedures were not followed.

Two-thirds of all farmer respondents indicated a pessimistic attitude toward the future of farming. Slightly fewer (50%) reported pessimism among agricultural lenders. The

majority of Virginia farmers reported that the availability of agricultural credit in their area was stable. However, 22% cited decreasing credit availability.

Most farmers were identified as not planning to purchase farmland or major machinery (> \$20,000) in the next five years (1980-1990). Over one-half (55%) of all Virginia farmers responding said that young people should not be encouraged to enter farming.

Lenders were asked whether or not that they expected to provide incentives to borrowers for good financial records in the future. Respondents were almost evenly split between those who expected to (49%) and those who did not expect to offer incentives (51%). Of those lenders who expected to offer incentives for good financial records, the largest single group expected incentives to be in the form of overall better and faster service or in the form of lower interest rates. (p. 24)

Lenders indicated recordkeeping systems, personalized services, differential interest rates, and young farmer programs to be the most likely candidates for future implementation among a list of eleven potential services. (p. 27) A large majority (82%) of machinery/equipment dealers surveyed reported that they felt change imminent in their respective firm's credit policies. (p. 56) The most likely change was determined to be the

requirement of complete financial statements from potential borrowers. (p. 57) The second most likely change was expected to be a shortening of the financing period.

A J.I. Case commissioned study to determine farmer attitudes towards agricultural lenders, to measure perceived importance of services provided by agricultural lenders, to determine the extent to which farmers feel that the farmer-lender relationship has changed over time, and to determine farmers relative satisfaction with agricultural lenders has been conducted in September 1985.

Six hundred and seventy-nine U.S. and Canadian farmers were surveyed via telephone. Respondents were limited to those who currently own and operate a farm and who had an annual gross farm income over \$100,000.

J.I. Case found that farmers consider their relationship with lenders to be more important than their relationship with other agriculture-related professionals. The majority of respondents voiced a "very to somewhat favorable" opinion of agricultural lenders. This high rating resulted primarily from a perception of agricultural lenders as "good reputation/service/meets needs," while only one out of five farmers considered lenders to be "unfamiliar with agriculture/poor services." Thus, J.I. Case concluded that the level of service and familiarity with agriculture is important

to farmers' selection of lenders. (p. 11) Livestock producers were found to view lenders unfavorably more than either crop or dairy farmers. (p. 12)

The services found to be most important to farmers were "providing all your credit needs," "offering lowest interest rate in the area," and being flexible in dealing with farm credit needs. Extending recordkeeping services, computers for planning purposes, and equipment leasing programs were considered to be least important. Regionally, farmers in the South considered "providing the lowest interest rate in the area" to be more important, while farmers in the West Central U. S. and Midwest considered this service to be less important than it was in the aggregate U.S. sample. (p. 13)

Approximately three out of four U.S. farmers felt that the farmer-lender relationship was "very/somewhat different" than it was several years ago, according to the Case study. The biggest changes were mentioned to be lenders that were "more conservative/tighter with money," and "stricter/more detailed records." Forty-five percent of the Case respondents could not identify a service that they would like to have that was not currently available. Services cited as desirable by other respondents were (in decreasing order of desirability): "more on-farm supervision," "lower interest rates," "advice on market alternatives," "business/management training," and "more financial alternatives." (p.14)

Case found that surveyed farmers met with a representative of their primary lending institution an average of 4.5 times a year. (p. 15) Dairy farmers in the South, East Central, and North East met fewer times, while West Central, Western, Eastern, and Canadian farmers had more annual meetings. (p. 15) Respondents revealed that lenders visit their farms only an average of .9 times per year. While lenders tend to visit farms more in the US than in Canada, it was determined that more (76%) US farmers did not want lenders to visit than did Canadian farmers (67%). (p. 15)

The study determined that almost 2/3 of US farmers use commercial banks for financing, while 42% use Federal Land Bank (FLB) and 38% use Production Credit Associations (PCA's). The Farmers Home Administration (FmHA) was used by 17%; manufacturers credit, by 16%; insurance companies, by 8%; and, savings and loans, by 6%. (pp. 15-16) Livestock producers were found to use commercial banks more and FmHA less than dairy and crop farmers.

The highest average percentage of operating lines of credit was held at PCA's and commercial banks. Manufacturer's credit was not widely used. The highest average percentage of land mortgages tended to be with Federal Land Bank, insurance companies, and Farmers Home Administration. Commercial banks had the smaller average percentage of land mortgages. (p. 16)

US farmer-respondents indicated that they used commercial banks because of "convenience/familiarity." Dominant reasons for using FLB's were, first, "source of long term loans" and, second, "low competitive rates." PCA customers favored this institution primarily because of "low/competitive rates" and "convenience/familiarity." (p. 17) FmHA borrowers favor that government lender because of their "low/competitive rates." Manufacturer credit was favored by users because it was "a source for long term loans," while savings and loan borrowers cited "low/competitive rates." The same reason was given by farmers who borrow from insurance companies. (p. 18)

The study also found that factors such as "having a good understanding of agriculture" and "having greater flexibility" (PCA), "providing loans to those who can't borrow elsewhere"(FmHA), and "offering other services" (Savings and Loans) were institution specific. (p. 18)

Finally, the J.I. Case-commissioned study found some concern about the financial strength of FLB's and PCA's by a majority of respondents. One-third of the survey respondents voiced some apprehension over the financial strength of FmHA, while one out of four cited concern with respect to commercial banks. No appreciable concern was indicated over the financial strength of manufacturers which offer credit, savings and loans, or insurance companies. (p. 19)



The new challenges facing commercial banks, including those which have agricultural clients, involve marketing in a new environment. The vigorous competition for financial services resulting from deregulation of the commercial lending industry has resulted in a search for new marketing ideas both by banks which have done little past marketing and by banks which have conducted extensive marketing programs.

The review of literature revealed the existence of only one major study (J.I. Case) on farmer perception of lenders and farmer credit use and needs. Also, the Case study being of a national scope was not adequately specific to Virginia to rely on for the market intelligence required by Virginia agricultural lenders. Thus, a study targeted at Virginia farmers was conducted.

The bank marketing articles reviewed define the objectives of this study. Many of the authors pointed out the popularity of and need for development of strategic marketing plans. The first three objectives of this study are designed to gather information relevant to the development of such a plan, while the final objective is to integrate the information into an analysis of the market for agricultural credit in Virginia and to draw implications to cooperating banks and other providers of agricultural credit services in Virginia.

Thompson's second fundamental of marketing stresses the importance of research, promotion, product design, and philosophy of doing business. The functions of research and product design will be carried out in this study, while more entity-specific functions such as promotion will be left to respective individual financial institutions.

The first objective of the study, concerning the review of futuristic documents on the direction of American and Virginian agriculture to 2000, relates to Jackson's observation that lender adjustment to fundamental changes in the structure of agriculture will be critical to survival. Jackson's first strategy in a list of five marketing strategies is to "understand the market." In an environment of transition, such as that present in American agriculture, merely extrapolating past trends into the future will not be sufficient.

Knowing your market and applying that knowledge to market segmentation is an issue discussed by Bettinger in relation to broad markets. Both Jackson and Boehlje specifically advocate implementation of segmentation for agricultural markets. Study objectives were designed to provide information on current projected market share, demographics of agricultural credit users and non-users, current and future needs of Virginia farmers, desired services, reasons for banking with a specific organization, and rationale for changing sources of credit.

The procedures selected to achieve these objectives are consistent with Roderique's suggestion that questionnaires be used to find out customers' needs and wants and to improve communications between lenders and customers. Mail surveys were also the major tool in a study conducted by Gwin and Lindgren to determine the most important characteristic to financial institution selection by Virginians.

Even though Gwin and Lindgren's and Cox and Lasley's studies were not specific to users of agricultural credit, it is expected that survey responses from this study will identify similar bank characteristics to be important to farmer selection of banks. Friendly and efficient service and a personal interest in the customer as well as convenience, service, safety, and competitive market rates are expected to be identified as important to farmers just as they were found to be important to consumers in general.

Gwin and Lindgren found age to be a demographic segmentation variable and even more significant results may be anticipated among farmers because of the structure of agriculture.

A J.I. Case finding that farmers consider their relationship with lenders to be more important than their relationship with other agriculture-related professionals is expected to be reflected in a high rating for both personnel with a knowledge of agriculture and for loan officer stability.

The Case study also identified providing lowest interest rates, accomodating all credit needs, and flexibility as important services. Southern farmers especially favored low interest rates. These findings are expected to be reflected in high importance ratings for favorable interest rates and availability of other services such as checking and savings accounts.

Case study respondents identified desirable services to include advice on market alternatives, training in business and management and availability of more financial alternatives. Thus, a similar series of question on this study's survey are expected to result in high priority ratings for credit cards for operating needs and for marketing and financial management training.

The review of literature pertaining to agricultural bank marketing indicates that there is a void of relevant information and research. The purpose of this study is to provide information and suggestions that will assist agricultural bank managers market their products more effectively. The specific objectives of this agricultural bank marketing management study are:

1. To provide information on and analyses of significant trends and directions in Virginia's agricultural production and agribusiness sectors and in the state's rural communities, including enterprise trends, farmer financial ratios, off-farm employment potential, and population patterns;

2. To assess past and future trends in the agricultural credit delivery systems in Virginia among Farm Credit, Farmers Home Administration, commercial banks, and other lenders and to explore how these institutions will adjust their respective credit delivery systems in view of transition in agriculture;
3. To project products, services, and programs that will assist banks meet the credit and financial needs of the evolving agriculture and rural sectors and to successfully compete in the rural credit market;
4. To integrate the results of objectives one through three into a comprehensive analysis of the market for agricultural credit in Virginia and to draw implications for cooperating banks to better assure the economic profitability and viability of agriculture loan portfolios, amid structural market changes.

#### Procedures

In order to achieve the first objective, a study of emerging trends and future projections was conducted on the U.S. and the Virginia agricultural sectors. Secondary data sources in the form of recent studies on the subject were utilized to incorporate expert opinions on the future direction of agriculture within the U.S. and Virginia.

Published government and private-sector statistics were analyzed to determine enterprise production trends, population patterns, farm sector financial ratios, and off-farm employment potential for various areas of Virginia.

Integration of both statistical information and futuristic literature was conducted to address the future profitability and viability of agriculture in Virginia and within each geographic

region of the state within the context of technology adoption, structural changes, government policies, and changing consumer demand patterns.

Current agricultural credit delivery systems in Virginia were analyzed via published statistics and farmer responses to mail survey questions regarding their past and current sources of credit. The agricultural credit delivery system in Virginia to the year 2000 was also studied. Information was obtained from the futuristic studies previously cited as well as from USDA statistics and the Baltimore District Farm Credit Banks' annual reports. The major focus of this aspect of the study was on changes in available sources and terms of credit for Virginia's producers resulting from the farm sector crisis as well as from deregulation of banking systems and government changes in the role of the Farmers Home Administration and the Farm Credit System.

Satisfaction of the third objective was achieved by collecting primary data from Virginia farmers via mail surveys. Questions were designed to address farmer debt levels, farmer choice of lenders, and farmer priority of potential future services. Demographic characteristics were also determined.

Data was gathered via four groups of mail surveys. One survey group consisted of a random sample of 500 Virginia farmers. The statewide survey mailing was conducted through the

Virginia Agricultural Statistical Service. Regulations prohibit disclosure of the Service's farmer survey list, therefore precluding any type of non-respondent follow-up.

The other three survey groups consisted of approximately 100 bank customers each from three cooperating Virginia financial institutions. The survey sample for Bank A was selected via computer. Bank B's and Bank C's survey samples were chosen by selecting every nth name from a list of agricultural customers. The initial mailing of surveys was followed by a second, identical mailing of surveys in the case of the statewide sample and by a postcard reminder to the bank customer survey groups.

Statistical analysis was conducted on five aspects of the survey responses to check for statistically significant relationships. All statistical analysis was carried out using the SAS<sup>3</sup> mainframe statistical analysis package.

Analysis of variance was used to determine the financial institution characteristic most important to a farmer's choice of loan source, the highest priority future financial services according to farmers, and to reveal if the importance of lender characteristics or the priority of potential future services differed demographically. Chi-square analysis was employed to

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<sup>3</sup> Version 5.16 distributed by SAS Institute, Inc. SAS Circle, P.O. Box 8000, Cary, N.C. 27511-8000

Indicate if a significant difference existed between borrowers at different institutions with respect to age, education, or gross farm income.

Achievement of the fourth objective required synthesis of all previous aspects of the study. Findings on market segmentation variables and product implementation were coupled with inferences from both futuristic and statistical sources to allow recommendations on bank marketing strategies with respect to agricultural clients.



Chapter 2

THE AGRICULTURAL ENVIRONMENT:  
THE UNITED STATES, THE SOUTH, VIRGINIA

THE AGRICULTURAL ENVIRONMENT IN THE UNITED STATES

## BIOTECHNOLOGY AND INFORMATION TECHNOLOGY ERA

The thirty year period 1920-1950 was known as the "Mechanical Era" in American agriculture. This revolutionary period was followed by the "Chemical Era", spanning 1950-1980. We are currently in the midst of yet another technological revolution in American agriculture: the "Biotechnology and Information Technology Era." Experts suggest that this era may well have a greater impact than either one of the two previous eras. (OTA 1986, p. 4) Anticipated yield improvements will be critical to the achievement of production increases of 1.8% per year estimated to be necessary to meet world needs by the year 2000. (Table 1)

Numerous technological advances are expected to be commercially available by the turn of the century. Biotechnologies are expected to have a more important effect on future resource concentration than any other type of technological development. (OTA 1986, p. 9) Advancements in information technology are expected to decrease barriers to entry into agriculture as well as to increase market accessibility. (OTA 1986, p. 7) Animal agriculture is expected to experience the most immediate effects; however, plant agriculture will be most affected in the long run. (OTA 1986, p.10)

Table 1. IMPACT OF EMERGING TECHNOLOGY ON ANIMAL AND PLANT PRODUCTION EFFICIENCY BY YEAR 2000

<u>Production Group</u>	<u>Actual</u> <u>1982</u>	<u>Most Likely</u> <u>2000</u>	<u>Growth Rate</u> <u>Per Year</u>
<u>Beef:</u>			
Pounds meat per pound of feed	0.07	0.072	.2%
Calves per cow	0.88	1.000	.7%
<u>Dairy:</u>			
Pounds milk per pound of feed	0.99	1.030	.2%
Pounds of milk per cow per year (1,000's of pounds)	12.30	24.70	3.9%
<u>Poultry:</u>			
Pounds meat per pound of feed	0.40	0.57	2.0%
Eggs per layer per year	243.00	275.00	0.7%
<u>Swine:</u>			
Pounds meat per pound feed	0.157	0.176	0.6%
Pigs per sow per year	14.400	17.400	1.1%
<u>Corn:</u>			
Bushels per acre	113	139	1.2%
<u>Cotton:</u>			
Pounds per acre	481	554	0.7%
<u>Rice:</u>			
Bushels per acre	105	124	0.9%
<u>Soybeans:</u>			
Bushels per acre	30	37	1.2%
<u>Wheat:</u>			
Bushels per acre	36	45	1.3%

Source: Office of Technology Assessment, Congress of the U.S. Technology, Public Policy, and the Changing Structure of American Agriculture, 1986, p. 10.

At least 70% of the largest farms are expected to adopt some of the biotechnologies and information technologies compared to approximately 40% of moderate farms and only about 10% of small farms. Early adopters of technology are expected to benefit most, and these early adopters will most likely be operators of large farms. (OTA 1986, p.9)

Overall, two major impacts of the Biotechnology and Information Technology Era are anticipated:

1. surpluses in certain commodities in the immediate future
2. transition from a production sector dominated by moderate-sized farms to a production sector dominated by "large and very large industrialized farms"<sup>4</sup>

#### STRUCTURE

The number of farms in the United States peaked at 6.8 million in 1935. After World War II, however, agricultural employment started to decline. (OTA 1985, p. 19) Forty-five years later, the 1980 Census reported only 2.2 million farms. (US-State Ag Data, p. 3)

Recent years have seen a greater tendency towards a bimodal agricultural producer segment, composed of a large number of small-acreage or small-capacity farms and a small number of large, commercial farms.

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<sup>4</sup> OTA definitions:

"small farms" = annual farm sales less than \$20,000

"part-time farms" = annual sales of \$20,000 to \$99,999

"moderate-sized farms" = annual sales of \$100,000 to \$199,999

"large farms" = annual sales of \$200,000 to \$499,999

"very large farms" = annual sales of more than \$500,000

Frequently heard comments about an increase in the number of small farms refer to an increase in the number of farms that are small in size, not farms that are classified as small with respect to sales. (OTA 1985, p. 20)

The U.S. Office of Technology Assessment has characterized the three emerging producer classes. (Table 2) The survival of small farms is considered to depend on the operator's ability and willingness to accept potentially lower returns on labor and capital than those enjoyed by much larger farms and/or to offset farm losses against nonfarm income. (Hopkins and Associates, p. 28)

Farmers in the moderate-sales class, which includes most U.S. farms that depend on agriculture for the majority of their income (OTA 1986, p. 9), may be under the most stress. (OTA 1985, p. 22) Problems stem from the inability to achieve the economies of scale available to very large farms and a lessened opportunity to earn substantial off-farm income because of the demands of the farm operation. (Hopkins and Associates, p. 30) Government farm programs were found to be necessary to the survival and success of these farmers. (OTA 1986, p. 15)

Economies of scale of large operations plus a moderate level of off-farm income led to operators in the "large" and "very large" sales classes being termed "well-off" by OTA. (Hopkins and Associates, p. 28; OTA 1985, p. 22) One study has revealed that larger farms enjoy lower overall costs and the

Table 2. FUTURE AGRICULTURAL PRODUCER CLASSES

LARGE SCALE FARM SEGMENT: (Annual Sales greater than \$200,000)

- relatively small number of farms responsible for most U.S. agricultural production (by 2000, as few as 50,000 farms producing as much as 75% of output)
- highly efficient with respect to production, marketing, financial, and business management
- managed by full-time, well-educated businessmen
- paid consultants to replace role of Extension

MODERATE-SIZE FARM SEGMENT: (Annual sales - \$100,000 to \$200,000)

- will experience major problems competing in Biotechnology and Information Technology Era
- traditionally, the backbone of American agriculture
- searching for niche in market
- frequently must accept low return on all forms of investment (capital, time, and effort)
- survival will depend on access to state-of-the-art technologies at competitive prices and willingness of better educated operators to continue to accept low returns

SMALL, PREDOMINANTLY PART-TIME FARM SEGMENT: (Annual Sales less than \$100,000)

- most net income from off-farm sources
- very diverse operator base:
  - (a) wealthy urban investors and professionals
  - (b) potential moderate-size farmers who are trying to use nonfarm income to enter agriculture on a full-time basis
  - (c) poor, essentially subsistence, farmers, reminders of the 1960's war on poverty
- not viable commercially, but large multiplier effect on local economy with even a small increase in farm income

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Source: Office of Technology Assessment, Congress of the US. Technology, Public Policy, and the Changing Structure of American Agriculture. 1986, pp. 20-23.

ability to buy inputs cheaper (input economies of 5% to 25%) and to sell commodities higher (sales price 5% higher). (Hopkins and Associates, p. 28) Large farms were found to be viable without government farm programs.

#### FINANCING AGRICULTURE

In 1986, total U.S. farm debt including farm households was \$169.8 billion dollars, reflecting three straight years of decline in the total debt figure. Including CCC loans, the 1986 total debt figure rises to \$187.7 billion. (Figure 1) (Melichar, p. 26) The relative real estate and nonreal estate components of farm debt, by lender, are presented in Figures 2 and 3. Among institutional lenders, Federal Land Bank lost marketshare in 1986. Commercial banks and FmHA gained marketshare. However, Federal Land Bank continues to dominate the real estate market. FmHA and commercial banks increased their respective nonreal estate marketshares in 1986, while PCA and FICB's experienced some decline. Commercial banks continue to dominate institutional lender presence in the nonreal estate credit market. The total amount of real and nonreal estate debt extended by individual and other lenders declined in 1986. (Melichar, pp. 26-31)

Overall, a more competitive environment is expected for both public and private sources of agricultural credit in the future. (Hopkins and Associates, p. 18) The basic functions of financial service marketing, loan servicing, and credit

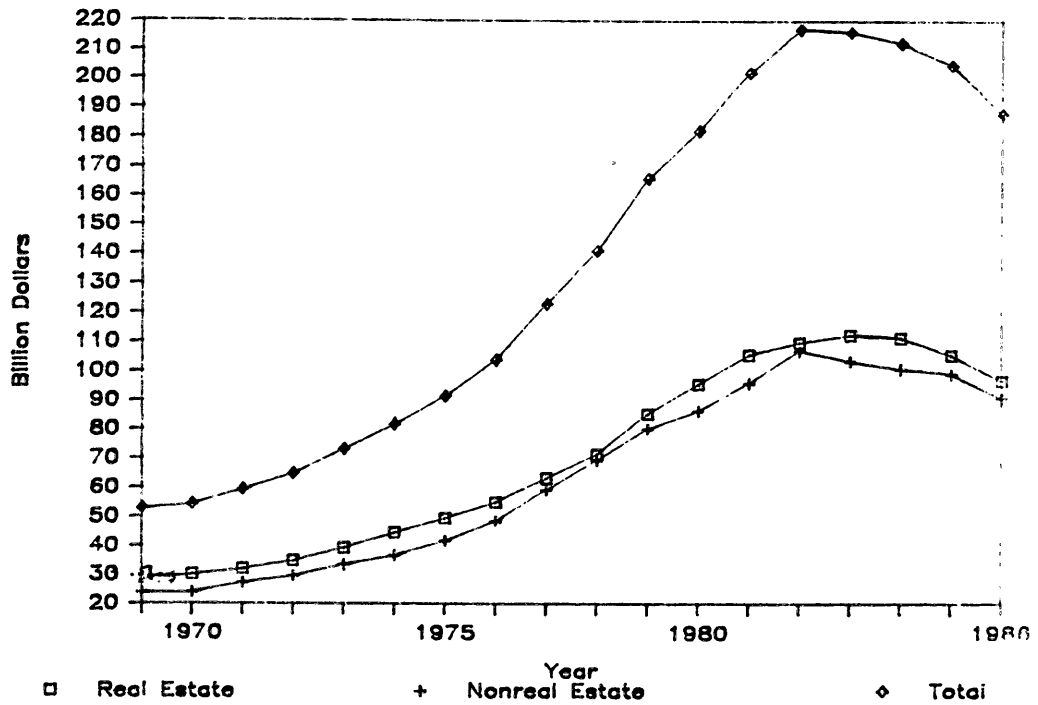


Figure 1. US FARM DEBT OUTSTANDING BY TYPE, Including Operator Households and CCC Loans, December 31, 1969-1986.

Source: Hopkin and Associates, Transition in American Agriculture, p.63. Compiled from Economic Indicators of the Farm Sector, National Financial Summary, USDA ERS 1984.

Mellichar, Emanuel. Agricultural Finance Databook. Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington DC: June 1987.



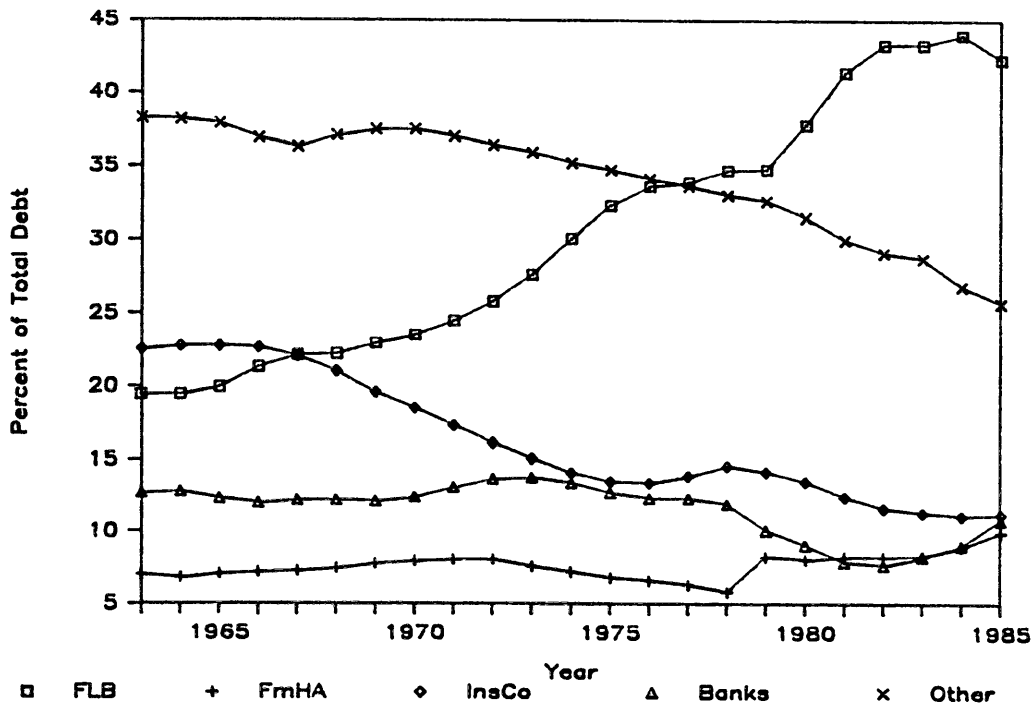


Figure 2. US FARM REAL ESTATE DEBT OUTSTANDING BY LENDER, Including Operator Households, December 31, 1963-1985.

Source: Hopkin and Associates, Transition in American Agriculture, p. 64. Compiled from Economic Indicators of the Farm Sector USDA ERS 1984.

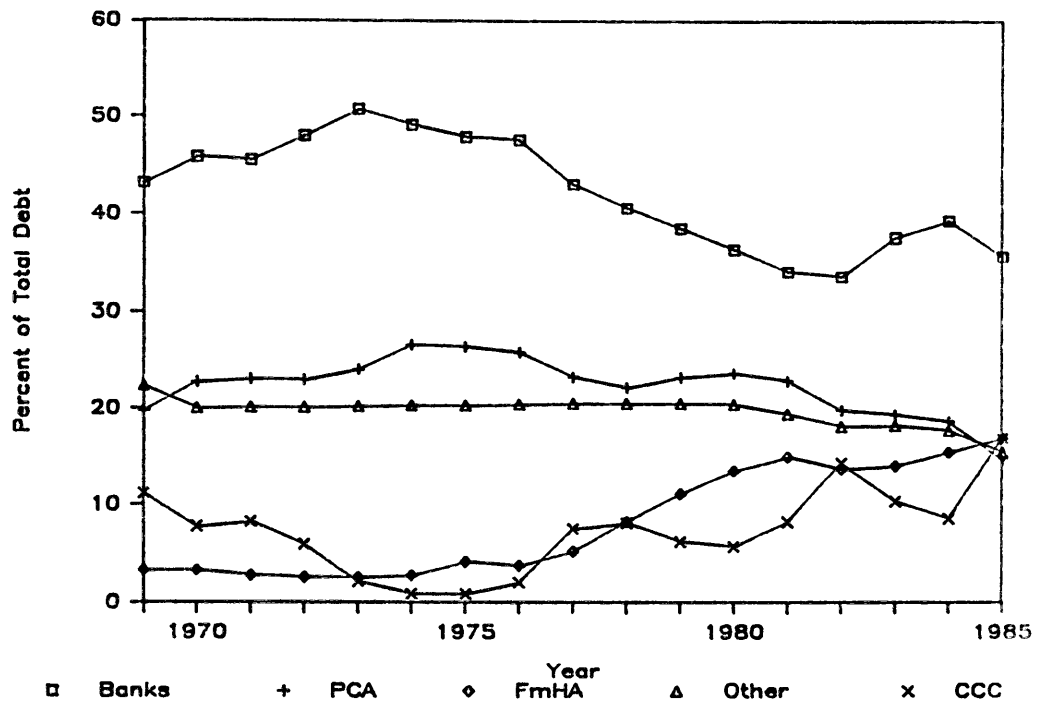


Figure 3. US FARM NONREAL ESTATE DEBT OUTSTANDING BY LENDER, Including Operator Households, December 31, 1969-1985.

Source: Hopkins and Associates. Transition in American Agriculture, p. 65. Compiled from Economic Indicators of the Farm Sector, USDA ERS 1984.

evaluating are expected to become more distinct. An increasing degree of credit control and loan authority will occur sub-regionally. (OTA 1986, p. 13)

Non-traditional sources of credit as well as new financial instruments are becoming available and are being aggressively marketed to American farmers and will provide additional competition for traditional lenders. Equity financing, especially from off-farm sources, will be an additional source of capital.

The level of future agricultural credit needs will depend much on the stability of the general economy. However, farm real estate debt in real terms is expected to decrease through 1988, resulting from both decreased asset values and a more conservative lending environment. After 1990, the level of real estate debt is expected to stabilize and to then experience a modest increase with anticipated improvements in farm income conditions. (Hopkins and Associates, p. 102)

Nonreal estate debt in real terms is also expected to decrease through 1988, to stabilize, and, then, to upturn somewhat after 1991. By 1995, the level of nonreal estate debt is expected to surpass that of real estate debt for the first time in modern history, as farmers replace worn out equipment and vie for attainment of the newest technologies. (Hopkins and Associates, p. 102)

## RURAL COMMUNITIES

The first official U.S. Census taken in 1790 reported 95% of the U.S. population to be living in rural areas. By 1980, this proportion had dwindled to only 25% of the U.S. population living in rural areas. Only 2.5% of the current U.S. population reside on farms. (Hines, p. 30)

Currently, four forces are combining to have large impacts on rural communities:

1. Willingness of operators of larger farms to travel further for services/supplies
2. Tendency of agribusinesses to focus rural business activity and employment opportunities on a limited number of communities
3. Proximity to urban industrial complexes will provide off-farm jobs and rural community growth
4. Ability of a community to offer quality services (Hopkins and Associates, p.59)

Two major types of rural communities are emerging. Pure or relatively pure agricultural regions typically lack proximity to large urban industrial complexes, to jobs, and to factors which lend support to land prices. Some communities in such regions will prosper and a few will evolve into agricultural trade centers; however, others will face severe economic decline. Rural - urban agricultural regions are characterized by off-farm job availability and the presence of other factors which act to support land prices and which are conducive to a mixture of small and large farms.(Hopkins and Associates, pp. 59-60)

The changes occurring in rural-urban regions will not be as pronounced as those in more rural areas. The challenge will be to adjust services to the population, growth, development and demands of the various population groups. (Hopkins and Associates, p. 60)

The political aspects of a community may also be altered with changes in the structure of the farm sector. As the proportion of part-time farmers within a community increases, the representative voter acquires preferences increasingly similar to those of urban residents. (Kraybill, p. 17)

#### AGRICULTURAL BUSINESS

The agribusiness sector is seen as both an "actor and a reactor" in the overall changing agricultural environment. (Hopkins and Associates, p. 55) Agribusinesses are expected to become larger and fewer, mimicing the trend in the producer segment. Larger firms will likely become involved in the research and development of new technologies. (Hopkins and Associates, p. 117)

Distribution systems for supplies such as chemicals, seed, and fertilizer will also undergo adjustments. The demand for fertilizer is expected to decrease greatly with the adoption of new biotechnological advances, while chemical use is predicted to become more complex. The distribution system for chemicals should become more centralized, more controlled, and more integrated. (Hopkins and Associates, p. 57)

The machinery and equipment industry will feel the impact of emerging new technologies as they also face adjustments to serving a bi-modal customer sector. The future direction of government conservation programs will also have a significant impact on the machinery and equipment industry as it is estimated that for each 10 million acres idled, farm suppliers' revenues decrease by \$1 billion. (Farm Journal, p. 16)

The number of dealerships is declining, with the relative size of remaining dealerships anticipated to increase somewhat. Some local service centers will be maintained to meet day-to-day needs, while much service may be provided at the area level. Dealerships are expected to become more active in the financing of purchases, and loss-leader credit strategies will be one tactic used to sell machinery. (Hopkins and Associates, p. 56-57)

The small farm segment (less than \$40,000 in annual farm sales) will remain important as such farms buy more than one-half of all tractors. "...Were the nation's small farms to cease production, the market for farm equipment would shrink substantially." "The cost of manufacturing equipment would in all likelihood increase as the manufacturers' fixed cost investment in plant is spread over fewer units, and the higher costs would be passed along primarily to large farm operators." (Kendall)

## SUMMARY OF TRENDS AFFECTING AMERICAN AGRICULTURE

1. The Biotechnology and Information Technology Era may well be the major determinant of American agriculture to the year 2000. Structure, rural communities, agricultural businesses, and financing needs and instruments will also be affected.
2. The Biotechnology and Information Technology era will result in substantial potential yield increases in both plant and animal agriculture by the year 2000.
3. The development of a bi-modal producer sector is underway. However, very large farms will not operate at the exclusion of all others. "Fewer and bigger" will apply not only to farms, but also to rural communities, agricultural businesses, and financial institutions.
4. Off-farm employment potential will determine survivability of many rural areas.
5. Rural business centers will emerge, while other communities face severe economic stress.
6. Traditional lenders will face competition from new sources of credit and will see the introduction of financial instruments new to agricultural lending. FmHA and other government lenders to agriculture may expect to find their role changing.

7. Agricultural businesses will become more regionally based to spread fixed cost and expertise.
8. Small farms will remain important purchasers of capital, inputs, and equipment and machinery.
9. Externalities will continue to be important into the future. Domestic and foreign policy as well as the international economy in general will continue to affect American agriculture.
10. Substantial changes in government agriculture programs will likely be seen in an attempt to cut government spending and to bolster exports, especially if commodity surpluses continue.



THE AGRICULTURAL ENVIRONMENT IN THE SOUTH

## GENERAL ECONOMY

The South<sup>5</sup>, which is now the nation's most populous region, (Southern Growth Policies Board (b), p.26), is considered by some to be the most diverse region in the United States. (OTA 1986, p. 238) The South's population, personal income, personal income per capita, and employment are all expected to grow faster than the same national measures through 2000. (Table 3) (Southern Growth Policies Board (b), p. 26)

However, a very real concern among experts is that the growth in the South has been largely one-sided. Growth areas, or the "New South," fit the popular image of the modern Sunbelt with flourishing cities and high wage-high tech industry. Other areas, dubbed the "Old South," are largely rural and often undereducated, underproductive, and underpaid. (Winter, p.3) The economic gap between the rural and urban South appears to be widening. The decline in textiles, apparel, primary metals, and coal has dealt a severe blow to the South's rural economies, while growth in services and high tech industries has bolstered urban economies in the region. (Beschloss, p. F5)

## FARM SECTOR

Overall, the Southeast's agricultural sector is expected to experience a much lower magnitude of change than other areas

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<sup>5</sup> Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

Table 3. PROJECTED GROWTH TRENDS THROUGH 2000, SOUTH AND U.S.

	<u>Population</u>	<u>Personal Income*</u>	<u>Personal Income Per Capita</u>	<u>Employment</u>
South	+26.8%	+128.5%	+80.3%	+37.9%
U.S.	+19.2%	+105.0%	+72.0%	+29.5%

\*Income projections are adjusted to exclude the impact of inflation.

Source: Southern Growth Policies Board. A Profile of the Southern States Data Book II, p. 26.

of the nation, with the exception of the Northeast. (Hopkin and Associates, pp. 52-54)

The South is an important producer of such commodities as poultry, cotton, forest products, and tobacco. Manufacturing replaced agriculture as the leading employment sector in the South in 1958. (Southern Growth Policies Board (a), p. 12) By 1980, only 3.2% of the South's total employment was in agriculture. Yet, 235 Southern counties are still dependent on agriculture to sustain their local economy.<sup>6</sup> (Hines, p. 54) Loss of manufacturing jobs adds to an already stressful farm situation because over one-third of the South's farmers work off of the farm at least 200 days a year. (Beschloss, F 6)

The diversity of the South implies highly variable structural changes within in the region. Even though much of the terrain is not suitable for large scale production, the topography and climate of the coastal areas of the South could lend themselves to the development of "highly concentrated industrial-scale agriculture" (OTA 1986, p. 241) similar to that of other Sunbelt States ("CATF" - California, Arizona, Texas, and Florida).

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<sup>6</sup> 20% or more of total labor and proprietor income from farming or ranching during 1975-1979, the last period for which figures were available

## SUMMARY OF TRENDS AFFECTING SOUTHERN AGRICULTURE

1. The South is an important producer of poultry and eggs, cotton, tobacco, and forest products.
2. The potential was discovered for some areas of the South to become areas of large-scale agriculture. Cotton, especially, will likely be produced by large farms in the future.
3. A large proportion of the South's farmers will likely be relatively small scale with dependence on off-farm income. Therefore, off-farm employment opportunities will be important to the viability of most Southern farmers.
4. The general economy of the South is changing faster than that of the nation. However, with respect to agriculture, the total change occurring in the South is expected to be of less magnitude than that of occurring nationally.
5. Continuation and/or magnification of New South-Old South dichotomy.

THE AGRICULTURAL ENVIRONMENT IN VIRGINIA

## GENERAL ECONOMY

Within the South, Virginia is a relatively strong link. Virginia has a very diversified economic base. Figures 4a and 4b indicate the respective contributions (in 1982 constant dollars) of the state's primary economic sectors. Manufacturing, services, trade, transportation and public utilities (T & PU), FIRE (Finance, Insurance, and Real Estate) are supplying an increasingly greater percentage of Virginia's gross state product. Federal government jobs, construction and farming have decreased in their share of Virginia's gross state product. (Robert Cox, p.7)

The Virginia Department of Economic Development groups the state's economic sectors into seven basic classifications: manufacturing, federal government (civilian and military), tourism, agriculture, ports, mining, and fisheries. (Virginia Department of Economic Development, p. 1)

1. Manufacturing is the state's largest basic employer. Foreign firms account for 5.9% of all manufacturing jobs in Virginia with a foreign investment of \$1.1 billion. (Va Dept of Econ Dev, p. 1)
2. The federal government has approximately 399,000 employees in Virginia. Civillians account for 169,000, military for 170,000, and Virginia residents that work in the non-Virginia Washington DC area account for the remaining 60,000

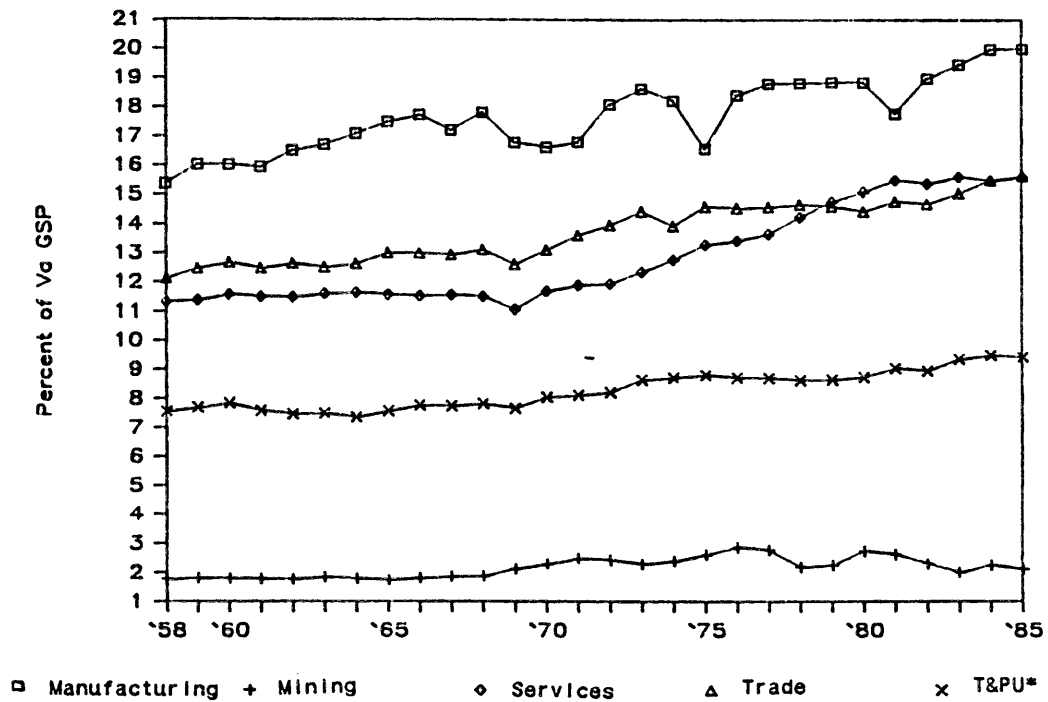


Figure 4a. VIRGINIA ANNUAL GROSS STATE PRODUCT, Percentage Distribution by Economic Sector, 1958-1985.

\*Transportation and Public Utilities

Source: Cox, Robert W. "Virginia Annual Gross State Product 1958-1985." Tayloe Murphy Institute, University of Virginia. December 1986, p. 7.

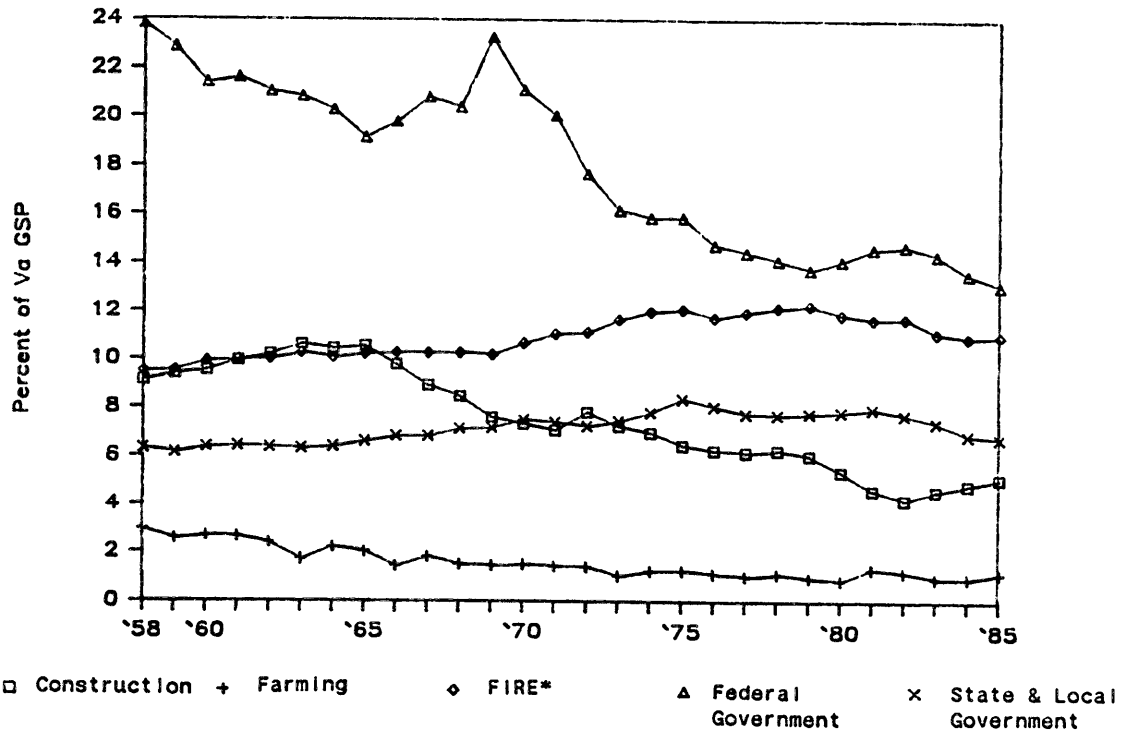


Figure 4b. VIRGINIA ANNUAL GROSS STATE PRODUCT, Percentage Distribution by Economic Sector, 1958-1985 - Continued.

\*Finance, Insurance, and Real Estate

positions. The Hampton Roads area, which is the site of the nation's largest concentration of military installations, accounts for many of the federal positions. (Va Dept of Econ Dev, p. 1)

3. Travel and tourism bring in about \$5.4 billion per year to Virginia. Attractions range from beaches to mountains and from historical landmarks to modern amusement parks. (Va Dept of Econ Dev, p. 1)
4. The number of Virginians employed in agriculture and fisheries has steadily declined since 1900. The type of agricultural production varies with the region of the state. The eastern shore is known for truck farms, while peanuts, soybeans, and hogs are produced inland from Norfolk. Southside Virginia is heavily involved in the production of tobacco, whereas the Shenandoah Valley is "one of the nation's most important apple growing regions" as well as being a large producer of poultry. The Appalachian Valley and some central Virginia counties are important cattle producers. (Va Dept of Econ Dev, p. 1)

The Atlantic Coast, the Chesapeake Bay, and the state's large tidal rivers support 8,000 commercial fisherman. Virginia ranks third among all U.S. states in the number of commercially caught finfish and shellfish. (Va Dept of Econ Dev, p. 1)



5. The Port of Hampton Roads "traditionally leads all other ports in the nation in the volume of exports and frequently ranks first in total foreign trade tonnage." (Va Dept of Econ Dev, p. 1)
6. Coal and forest resources are also important contributors to the state's economy. The large bituminous coal reserves in Southwest Virginia are the state's chief mineral resource. Also of great importance are the hardwood and pine forests that cover two-thirds of Virginia. (Va Dept of Econ Dev, p. 1)

The fastest growing metropolitan area in Virginia is the Northern Virginia MSA which is one of the nation's leading high-tech centers. (Va Dept of Econ Dev, p.2) The Norfolk/Va Beach/Newport News MSA has long been regarded as the state's center of durable goods manufacturing. This designation can be somewhat attributed to the location of the state's largest employer, Newport News Shipbuilding, in that MSA. (Bureau of Business Research, March 1987, p.4) Tourism is also important to the Norfolk/Va Beach/Newport News economy. (Va Dept of Econ Dev, p.2) Each of these two largest MSA's has a population of approximately 1,290,000. (Va Dept of Econ Dev, p.2)

The Richmond-Petersburg MSA is the center of nondurable goods manufacturing in Virginia and ranks third in size with a population of 801,000. (Bureau of Business Research, March 1987, p. 4) This MSA also contains the state capital, with trade and

government, being important contributors to the area's economy. The Roanoke MSA with a population of 223,000 is regarded as the manufacturing, trade, and transportation center of Western Virginia. (Va Dept of Econ Dev, p. 2)

The Lynchburg MSA is characterized by a highly diversified manufacturing structure. It is the state's fifth largest MSA with a population of 144,000. (Va Dept of Econ Dev, p. 2) The Charlottesville MSA is the home of the University of Virginia and has a diversified manufacturing base. A population of 120,000 ranks Charlottesville as the sixth largest MSA in the state. (Va Dept of Econ Dev, p. 3)

The Danville MSA, with a population of 111,000, and the Virginia portion of the Johnson City/Kingsport/Bristol MSA, with a population of 91,000, both have sizeable manufacturing sectors. (Va Dept of Econ Dev, p. 3)

#### Employment

Virginia's employment tends to be somewhat concentrated, with the state's eight metropolitan statistical areas accounting for 75.1% of all employment. (Table 4) (Bureau of Business Research, p. 3, March 1987) The rate of job growth is highest in metro areas, as well. However, the gap between urban and rural employment growth rates is narrowing. And, even though three out of four new jobs in Virginia in 1986 were in Northern Virginia,

Table 4. NONAGRICULTURAL EMPLOYMENT IN VIRGINIA, Employment Percentage Change, 1965-1986

	Total Non-		Nondurable		Transportation		Wholesale		Insurance		State	
	Agricultural	Durable Goods	Goods	Manufacturing	and Public	and	and	Retail Trade	Real Estate	Services	Federal	and Local
	Employment	Manufacturing	Construction	Utilities	Real Estate	Government	Government				Government	Government
The State	4.2	0.0	0.3	10.6	4.0	6.1	6.5	6.3	6.3	6.3	-0.1	1.6
Nonmetro Area	3.6	-0.1	0.6	15.3	6.1	9.0	4.2	2.5	2.5	2.5	-6.5	0.4
Sum of MSAs	4.3	0.0	0.0	9.1	3.5	5.3	6.9	7.3	7.3	7.3	0.7	2.0
Northern Virginia	6.6	5.6	13.1	11.6	7.1	7.9	9.6	9.2	9.2	9.2	0.4	1.9
Bristol	3.6	0.0	2.3	-25.0	0.0	6.7	-10.0	15.8	15.8	15.8	0.0	4.4
Charlottesville	2.5	-6.7	-9.1	0.0	0.0	4.4	0.0	6.9	6.9	6.9	6.3	4.0
Danville	0.0	3.3	-5.0	0.0	11.1	-3.6	20.0	7.5	7.5	7.5	0.0	2.1
Lynchburg	-0.4	-4.4	-3.3	14.6	0.0	-0.6	0.0	6.1	6.1	6.1	0.0	-3.2
Hampton Roads	3.9	0.0	2.6	10.7	2.0	4.3	5.7	5.1	5.1	5.1	-0.4	4.2
Richmond/ Petersburg	3.0	0.0	-1.6	6.8	1.4	3.6	4.7	6.6	6.6	6.6	6.1	0.4
Roanoke	3.5	0.0	-2.3	3.1	-2.2	6.6	12.9	4.7	4.7	4.7	3.0	0.0

Source: Virginia Business Report, March 1987.

Hampton Roads, Richmond-Petersburg, and Roanoke, this figure is down from 4 out of 5 jobs in 1985. (Bureau of Business Research, March 1987, p. 4)

Northern Virginia and Hampton Roads accounted for 80% of the total job growth in Virginia from 1980 to 1985. (Beschloss, p. F5) Northern Virginia alone accounted for approximately 40% of the total employment increase in 1986, while Lynchburg was the only MSA to report a decrease in nonagricultural jobs. (Bureau of Business Research, March 1987, p. 4)

The Virginia Community Certification Program has been implemented to assist Virginia communities improve job opportunities by becoming more attractive to industry and related economic development. Numerous localities are participating in the program. (Table 5)

Virginia compared favorably with other states in the South and with the nation as a whole in job growth during the first half of the 1980's. (Table 6) Virginia experienced a 13.4% increase in the total number of jobs available. Only Florida, Georgia, and Texas had larger percentage increases in total employment. Within each of the three job sectors, Virginia outperformed both the South and the US. (Beschloss, p. F6)

#### Personal Income

Virginia personal income per capita was only 85% of the national average in 1960. However, by 1985, the state's personal income had increased to a level of 105% of the national

Table 5. VIRGINIA COMMUNITY CERTIFICATION PROGRAM, Status of Participating Communities

<u>Community</u>	<u>Enrolled</u>	<u>Reentered</u>	<u>Status</u>
Halifax County/ South Boston	7/18/83		Certified
Rockbridge Area	7/20/83	12/10/86	
Wythe County	7/21/83		Certified
South Hill	8/3/83		Certified
Greensville County/ Emporia	8/25/83		Certified
Bristol	8/30/83		Certified
Scott County	8/31/83		Certified
Lunenburg County	9/8/83		Certified
Waynesboro	10/13/83		Certified
Franklin County/ Rocky Mount	11/1/83		Certified
Alleghany County/ Covington/Clifton Forge	11/4/83	3/27/87	
Louisa County	12/20/83		Certified
Brunswick County	1/4/84		Certified
Chase City	1/11/84		Certified
Nottoway County	1/12/84		Certified
Shenandoah County	2/10/84		Certified
Amherst County	4/17/84		Certified
Smyth County	5/1/84		Certified
Culpeper (Town & County)	5/10/84		Final Reviews
Frederick County/ Winchester	5/10/84		Certified
Warren County/ Front Royal	6/5/84		Certified
Rockingham County/ Harrisonburg	7/17/85		Final Reviews
Tazewell County	8/28/85		
Danville	10/1/85		
Henry County/ Martinsville	10/17/85		
Pittsylvania County	10/1/85		
Suffolk	11/19/85		Certified
Montgomery County	12/10/85		
Charles City County	1/9/86		
Augusta County	11/20/86		
Page County	2/5/87		
Spotsylvania County	3/10/87		
Stafford County	Application on file		
Altavista	Application on file		
Accomack County/ Northampton County	Application on file		

Source: Virginia Department of Economic Development.

Table 6. JOB GAINS AND LOSSES, 14 SOUTHERN STATES AND THE SOUTHERN REGION COMPARED TO THE US

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	<u>Manufacturing</u>	<u>Services</u>	<u>Trade</u>	<u>Total Employment</u>
	(Percent Change 1980 to 1985)			
Alabama	-1.8%	18.3%	11.5%	4.8%
Arkansas	.5	21.2	13.8	7.8
Florida	12.9	39.7	27.2	23.7
Georgia	6.8	34.0	29.7	18.8
Kentucky	-7.5	16.8	13.5	3.1
Louisiana	-16.8	16.5	7.7	1.2
Mississippi	-.3	7.6	8.2	.35
North Carolina	.9	25.3	21.8	11.2
Oklahoma	-10.0	16.0	8.0	4.0
South Carolina	-6.8	32.0	23.9	9.3
Tennessee	-2.5	23.5	15.3	6.5
Texas	-4.9	32.5	18.7	14.2
Virginia	2.3	31.7	20.8	13.4
West Virginia	-24.0	16.0	3.0	-8.0
South	-2.0	28.0	19.0	11.0
United States	-5.0	22.8	14.0	8.0

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Source: Beschloss, Steven. "Rural South Grasps at Economic Straws: Broken Promises of Prosperity." Roanoke Times and World News, March 1987, p. F6.

average. Virginia's 1986 annual personal income per capita was expected to rank the state highest among all 50 states. (Bureau of Business Research, April 1987, p. 3)

### Population

Virginia had a 1986 population of 5.8 million, ranking it thirteenth among the 50 states. (Va Dept of Econ Dev, p. 2) While two-thirds of all Virginians lived in rural areas in 1945, today that trend has reversed. Seventy percent of the state's population currently reside in urban areas. This point is illustrative of Virginia's rapid rate of urbanization, one of the nation's highest. (CALs, VPI&SU, Jan 1987a, p. 13)

Sixteen Virginia localities are expected to experience population increases greater than 10% from 1985 to 1990. (Table 7) The vast majority of these areas are located in the eastern portion of the state, stretching from Northern Virginia to the Va Beach/Hampton Roads area. (1986 Survey of Buying Power Data Service)

Conversely, thirteen Virginia localities are projected to lose population over the same 5 year period. These areas tend to be located in the southern and southeastern portions of the state with some declines expected in western Virginia, as well. (1986 Survey of Buying Power Data Service)

Two important implications result from the population shift towards urban areas. First, urban sprawl may threaten farmland and forest. Second, some experts are concerned that urban

Table 7. PROJECTED 1990 POPULATION CHANGES IN SELECTED VIRGINIA LOCALITIES

Projected Population Increases Greater than 10%

<u>Area</u>	<u>Projected Increase</u>
Bedford County	10.1%
Chesapeake City	12.0
Chesterfield	15.0
Fairfax	12.2
Fredericksburg City	13.5
Gloucester	21.0
Greene	10.2
Harrisonburg City	23.8
King George	11.8
Loudoun	15.0
New Kent	14.4
Poquoson	11.8
Powhatan	11.3
Prince William	14.5
Spotsylvania	13.0
Stafford	19.0

Projected Population Decreases

<u>Area</u>	<u>Projected Decrease</u>
Alleghany	-1.4%
Bristol City	-2.2
Brunswick	-2.5
Buena Vista City	-3.1
Charlotte	-2.5
Clifton Forge City	-6.4
Covington City	-1.3
Danville City	-2.0
Dinwiddie	-1.8
Emporia City	-2.1
Falls Church City	-4.4
Greensville	-2.8
Halifax	-2.0

Source: 1986 Survey of Buying Power.



centers will attract both the state's youth and the state's "most energetic enterprises." (CALs, VPI & SU, Jan 1987a, p.13)

Urbanization is most evident in "the corridor" from Washington to Richmond and running on to Norfolk. The 34 cities and counties in the corridor are currently home to 3 out of every 5 Virginians. By 2000, it is estimated that more than 2 out of every 3 Virginians will inhabit this area. Roanoke, Lynchburg, Charlottesville, Harrisonburg, and Bristol are also expected to experience population growth. Experts view this trend to be dividing the state into the "booming Urban Corridor and blighted Rural Virginia." (CALs, VPI & SU, Jan 1987a, p. 13)

Some experts anticipate that urbanization will eventually result in substantial decreases in production of land-intensive commodities (i.e.-corn, soybeans, and wheat) as highly fertile land in the Urban Corridor area is taken over by cities. (CALs, VPI & SU, Jan 1987a, p. 14) Others cite the potential loss of people from rural areas and the potential "aging" of rural populations as a major effect of urbanization.

#### Rural Communities

Evolution in rural communities will result, as well. "In some areas, agriculture will be a major contributor to the local economy; in other areas, a healthy rural economy will be required to maintain a viable agricultural sector". (CALs, VPI & SU, Jan 1987b, p. 14)

Non-metro Virginia counties which have at least one-third of their total employment in agriculture (input workers, farmers, and processing workers) are concentrated in the Shenandoah Valley and along the southern border with North Carolina. (1986 Agricultural Chartbook, Chart 104)

Sixteen areas in Virginia are expected to have retail sales greater than \$40,000 per household by 1990, (Table 8) while thirty-eight Virginia localities are projected to have 1990 retail sales per household of less than \$10,000. Average projected retail sales per household in Virginia is \$23,859. Projected retail sales per household in metropolitan counties is somewhat higher at \$26,101. (1986 Survey of Buying Power Data Service)

Localities with the highest projected retail sales per household are scattered throughout the state with the notable exception of Central to Southeast Virginia.

#### FARM SECTOR

Agriculture is a very important contributor to Virginia's overall economic well-being. Almost one out of every four employed Virginians, or roughly 500,000 people, worked in some phase of the state's agriculture, forestry, and food industries in 1984. (CALs, VPI&SU, Jan 1987a, p. 4) Virginia's farm sector directly contributed \$943.6 million to the state's gross state product in 1985. Agricultural services, forestry and fisheries accounted for approximately \$15 billion more, making

Table 8. PROJECTED 1990 RETAIL SALES IN SELECTED VIRGINIA LOCALITIES\*\*

Projected Retail Sales per Household Greater than \$40,000

<u>Area</u>	<u>Amount</u>	<u>Area</u>	<u>Amount</u>
Bedford City	\$62,345	Galax City	\$42,470
Bristol City	45,544	Harrisonburg City	53,742
Charlottesville City	47,883	Lexington City	54,665
Covington City	55,655	Manassas City	66,524
Emporia City	68,487	Norton City	94,849
Fairfax City	162,880	South Boston City	65,874
Falls Church City	102,077	Williamsburg City	133,830
Fredericksburg City	71,195	Winchester City	48,568

Projected Retail Sales per Household Less than \$10,000

<u>Area</u>	<u>Amount</u>	<u>Area</u>	<u>Amount</u>
Alleghany	\$ 292	Greensville	1,028
Amelia	9,694	Halifax	3,793
Bath	7,499	Highland	6,344
Bedford	2,118	Isle of Wight	9,738
Bland	4,825	King & Queen	3,736
Botetourt	9,840	King George	6,254
Brunswick	9,323	Lee	6,414
Buckingham	7,822	Louisa	8,946
Caroline	8,868	Manassas Park City	9,310
Carroll	9,073	Mathews	8,949
Charles City	1,180	New Kent	7,617
Charlotte	6,272	Patrick	7,909
Craig	4,336	Pittsylvania	7,222
Cumberland	9,596	Powhatan	8,982
Dinwiddie	6,879	Rappahannock	3,837
Floyd	7,632	Rockingham	9,306
Fluvanna	8,898	Russell	8,798
Franklin	8,859	Surry	7,473
Grayson	7,162	Westmoreland	9,071

Metro County Average: \$26,101

Virginia Average: \$23,859

\*\*Total retail sales in an area or county divided by the number of households in an area or county. Not, total annual spending of an household.

Source: 1986 Survey of Buying Power.

agriculture's direct and indirect contribution approximately 17% of the state's total gross state product. (Robert Cox, p.7)

Adjustment pressures in the form of changes in comparative advantages, changes in international trade, changes in government policy and in economic factors are currently present in the Virginia farm sector. (Kramer, p. 18) However, some argue that Virginia will continue to hold a competitive position with other states because of the state's proximity to highly-populated Eastern markets, Virginia producers being within approximately a one day drive of 60% of the nation's population. (CALs, VPI&SU, Jan 1987a, p.6) The rationale behind this hypothesis is that commodities such as vegetables, livestock, and poultry which have relatively high transportation costs especially benefit from large population centers. (Kramer, p.4)

However, proximity to population has and may continue to result in pressure from environmental groups on Virginia's farmers. The public outcry with respect to pollution of the Chesapeake Bay is one example. Soil erosion is also expected to be a major issue in Virginia in the future. Even though the national average yearly loss of soil per acre is 4.8 tons, experts report that Virginia loses an average of 6.6 tons of soil per acre each year. (CALs, VPI & SU, Jan. 1987a, p. 12)

A changing national political environment will also bring change to Virginia's agriculture. Several commodities important to Virginia, such as tobacco, dairy, and peanuts, are highly

vulnerable to changes in government support programs. In addition, reductions in funding for agricultural experiment stations, cooperative extension programs, and other such efforts could have a dramatic effect on the ability of Virginia to compete agriculturally. "...Experts estimate that 63 percent of the increase in agricultural productivity that occurred in Virginia between 1949 and 1979 is directly attributable to agricultural research, extension, and education programs." (CALs, VPI&SU, Jan 1987a, p. 12)

Another very important factor in the future role of agriculture in the Virginia economy is the changing political environment within the state. As the urban population has come to represent a larger proportion of Virginia's total population, the state's voter base has changed from voters with rural backgrounds and rural concerns to voters with urban backgrounds and urban concerns. (CALs, VPI&SU, Jan 1987a, p. 15)

#### Financial Condition

The stability of Virginia's general economy is extremely important to Virginia farmers as over one-half (53.5%) held nonfarm occupations<sup>7</sup> and 95.1% had some nonfarm income<sup>8</sup> in 1982. (US-State Agriculture Data, p. 94)

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<sup>7</sup>Farmers spending more than 50% of their worktime in 1982 in occupation other than farming or ranching.

<sup>8</sup>Farmers, who, on 1979 Farm Finance Survey indicated that they earned income from a source other than farming or ranching.

Over the past five years, Virginia has consistently had a debt to asset ratio (including operator households) lower than the national average. (Economic Indicators of the Farm Sector, State and National Summary) The state's debt to asset ratio has remained relatively stable with only slight increases observed in 1983 and 1984. The United States, conversely, has experienced steady increases in the national debt to asset ratio over the five year period. (Figure 5)

Virginia had higher net farm income as a percent of debt (including operator households) than the nation as a whole in 1981 and 1984. However, 1982, 1983, and 1985 saw Virginia lagging the nation in this measure. (Figure 6)

#### Number of Farms

The number of farms in Virginia decreased approximately 11.5% over a ten year period from 61,000 in 1976 to 54,000 in 1985. (Economic Indicators of the Farm Sector.) The number of farms in Virginia is expected to decrease an additional 21,500 by the year 2000. (CALs, VPI&SU, 1987a, p. 9)

#### Sales Class

The majority of Virginia's farms are in the smallest annual sales class category. A slightly lower percentage of farms nationwide are in this category. Consequently, Virginia has a lower proportion of farms in each of the three largest sales classes. (US-State Ag Data)

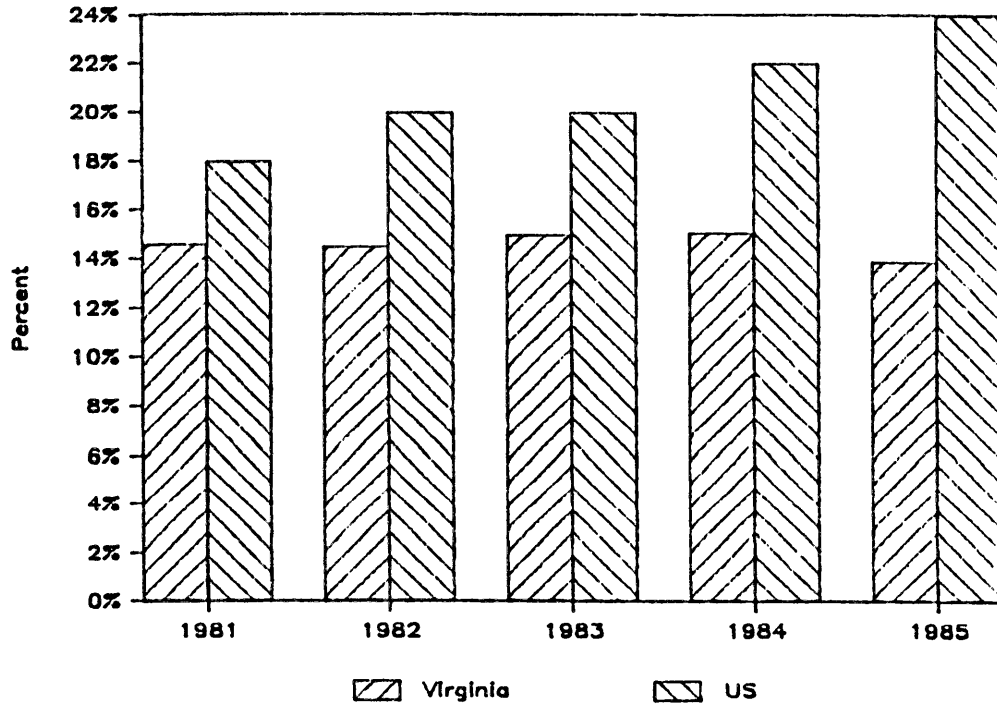


Figure 5. DEBT TO ASSET RATIO, VIRGINIA AND U.S., Including Operator Households.

Source: Economic Indicators of the Farm Sector, State Summary and National Summary, USDA ERS. Various Issues.

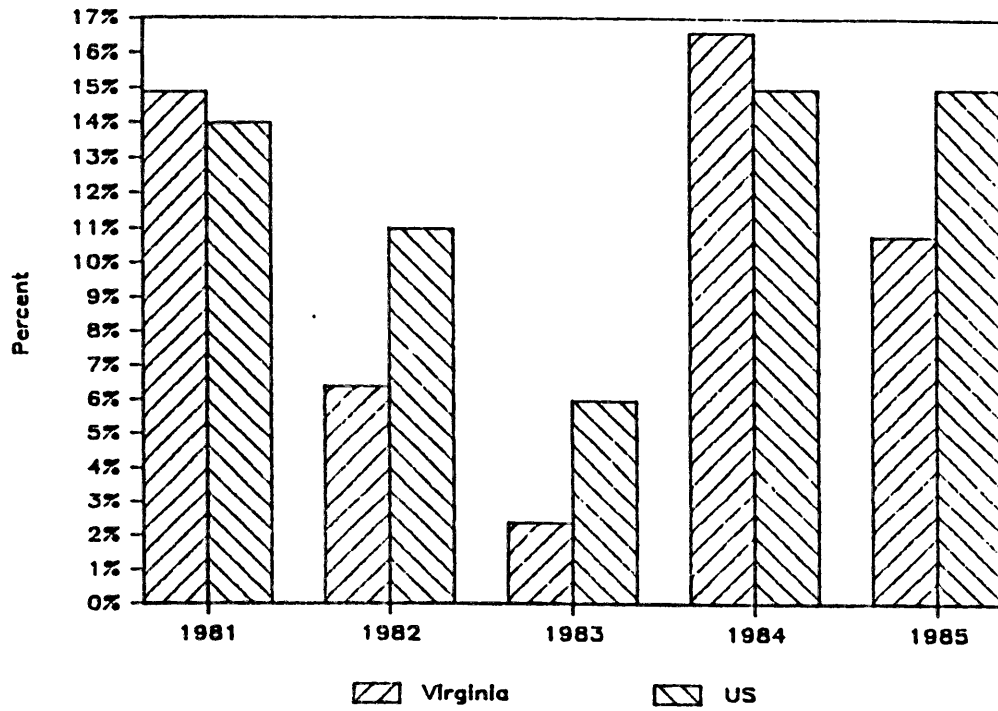


Figure 6. NET FARM INCOME TO DEBT, VIRGINIA AND U.S., Including Operator Households.

Source: Economic Indicators of the Farm Sector, State Summary and National Summary, USDA ERS. Various Issues.



The structural composition of Virginia's farm sector has been projected. (Table 9) These projections were based on a relatively short period, 1978-1982, and, thus, should not be construed as forecasts of what will actually occur by 2000, according to the forecaster. However, they should be regarded as the "best estimates of where current trends are likely to lead without major changes in the forces currently affecting agriculture." (Bosch, p. 65)

Farm size is expected to vary throughout the state. Areas with quality soils, favorable climates, and available markets may support large commercial operations, while rural areas without these amenities may be characterized by smaller part-time farms. (CALs, VPI&SU, 1987b, p. 14)

#### Farm Organization

The large majority of farms in Virginia (88%) continue to be individual or family farms. Almost one out of 10 Virginia farms is operated as a partnership, while only 2% are organized as corporations. Virginia has a slightly higher proportion of individual/family farms than does the United States and a slightly lower percentage of partnerships and corporate farms. (US-State Ag Data)

Virginia and the U.S. have equal proportions of non-family corporate farms, .3% in 1982. (USDA ERS) Virginia's nonfamily corporate farm operations account for substantially lower proportions of the state's total farm acreage, total value of

Table 9. SUMMARY OF 1982 ACTUAL VIRGINIA FARM NUMBERS AND PROJECTIONS FOR 1986-1998, BY SIZE

Sales Class	Number of Farms				
	1982	1986	1990	1994	1998
<\$99,999	45,874.40	37,460.77	30,765.95	25,406.49	20,859.17
\$100,000 -	2,376.10	2,694.54	3,093.62	3,656.41	4,347.25
\$249,000	1,098.90	1,320.18	1,591.77	2,012.50	2,606.75
>\$250,000	49,349.40	41,475.49	35,451.34	31,075.40	27,813.18
Total					
	<u>Percent of Total Number of Farms</u>				
<\$99,999	92.96%	90.32%	86.78%	81.76%	75.00%
\$100,000 -	4.81	6.50	8.73	11.77	15.63
\$249,999	2.23	3.18	4.49	6.48	9.37
>\$250,000	100%	100%	100%	100%	100%
Total					

Source: The Future of Agriculture, Forestry, Food Industries, and Rural Communities in Virginia--Supplementary Report. College of Agriculture and Life Sciences/Virginia Cooperative Extension Service. Blacksburg, Virginia: January 1987. p. 65.

land and buildings, and total value of sales than do nonfamily corporate farm operations nationwide. Livestock production is the most common enterprise of Virginia's nonfamily corporate farms with one out of every three operations in this category.

(USDA ERS)

#### Land Values

Virginia has had the smallest loss (1%) in land values of any state in the Appalachian region. (1986 Agricultural Chartbook, Chart #58) Virginia's average 1986 land value per acre was \$1146. Virginia's average land value was higher in 1986 than most other states with the notable exceptions Florida, California, and most New England and extreme Northeast states.

(1986 Ag Chartbook, Chart #57)

#### Farm Income Indicators

Various Virginia farm income indicators are shown in Figure 7. Gross farm income, net farm income, and net business income have been volatile over the past 10 years, while both production expenses and off-farm income have trended upwards and leveled off somewhat. Net farm income has remained positive; however, net business income in 1979, 1980, 1981, and 1983 was negative.<sup>9</sup>

(Economic Indicators of the Farm Sector.)

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<sup>9</sup> Net Business Income = Cash Income - Cash Expenses - Capital Consumption

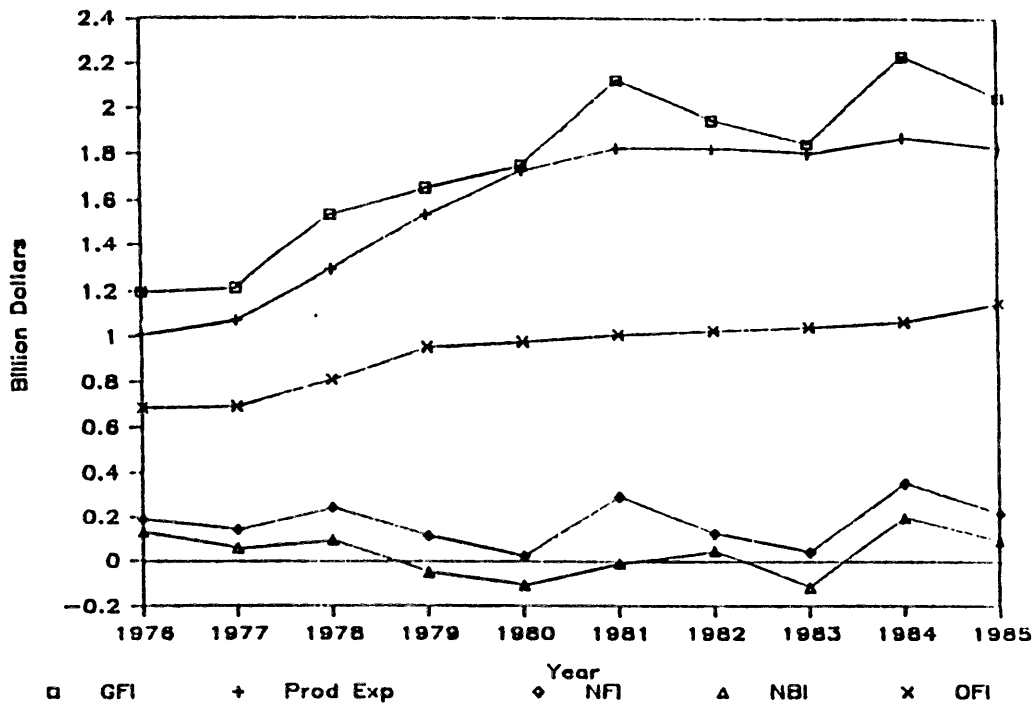


Figure 7. VIRGINIA FARM INCOME INDICATORS, Current Dollar, 1976-1985.

GFI = Gross Farm Income  
 Prod Exp = Production Expenses  
 NFI = Net Farm Income  
 NBI = Net Business Income  
       = (Cash Income - Cash expenses - Capital consumption)  
 OFI = Off-farm Income

Source: Economic Indicators of the Farm Sector, State Summary and National Summary. USDA ERS. Various Issues.

### Government Payments

Total government farm payments to Virginia farmers are shown in Figure 8. Virginia's participation in federal programs is relatively weak. For example, only one out of every three Virginia wheat producers is enrolled in the federal price-support program. (CALs, VPI&SU, 1987a, p. 19)

### Commodities

Overall, Virginia ranks 30th in total cash receipts in the nation; however, that amounts to only about 1.15% of total U.S. cash receipts. (Economic Indicators of the Farm Sector) (Table 10) Commodity production varies with the area of the state. Appendix 2 contains information concerning production of Virginia commodities.

According to experts, the future looks brightest for forest products, poultry, nursery stock, and some specialty items within Virginia. Some aspects of the state's horse industry are also expected to prosper into the future. (CALs, VPI&SU, 1987b, p. 13)

The potential is also considered to be high for the production of fish and other invertebrate animals which currently amounts to \$2 million a year in Virginia. Some experts feel that Virginia could produce as much as \$10 to \$20 million through expansion of small hatcheries and encouragement of rural landowners to add such enterprises to their farming operations. (CALs, VPI&SU, 1987a, p. 48)

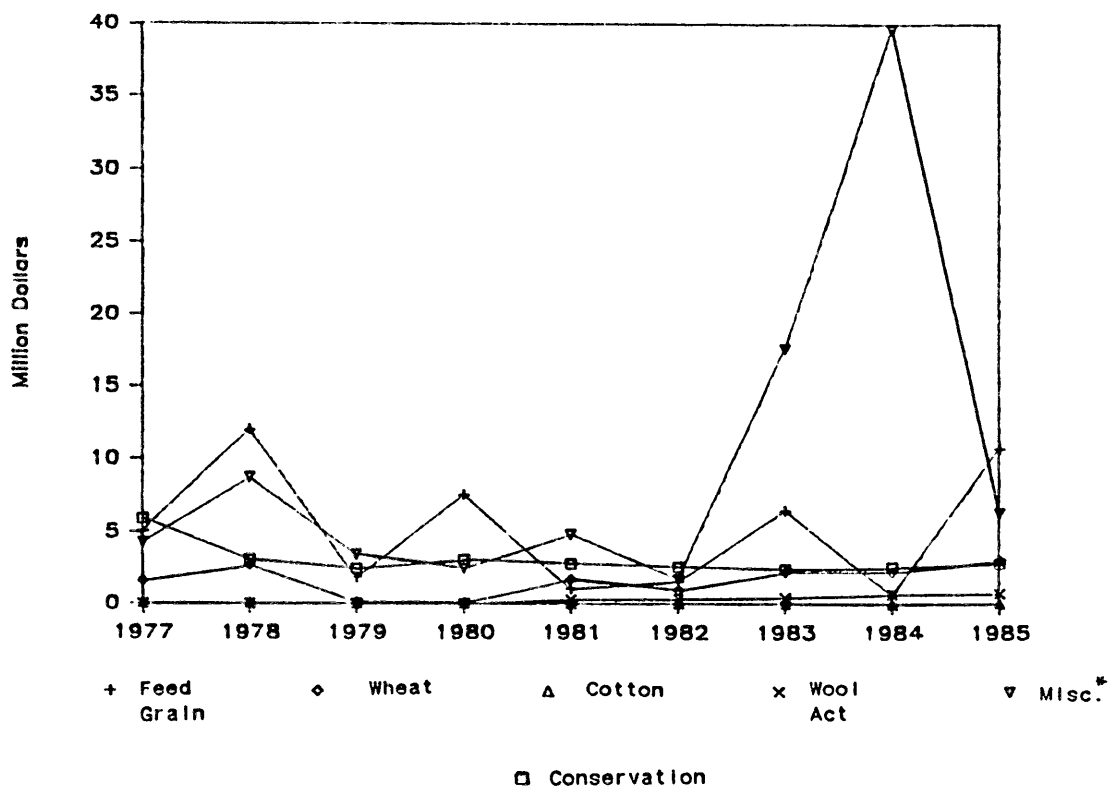


Figure 8. GOVERNMENT PAYMENTS BY PROGRAM IN VIRGINIA.

\*Misc: 1977-1979 = Drought and Flood program, National Wool Act, Milk Indemnity Program, Beekeepers Indemnity Program, Hay and Cattle Transportation Program, Cropland Adjustment Program, Forest Incentive Program, Water Bank Program, Emergency Livestock Feed Program, Great Plains Program, Etc.

1980-Present = Milk Indemnity, Regional Development Program, Rural Clean Water Program, Forest Incentive Program, Water Bank Program, Emergency Livestock Feed Program, and Extended Storage Program.

Source: Economic Indicators of the Farm Sector, USDA ERS. Various Issues.

Table 10. IMPORTANT VIRGINIA COMMODITIES, by 1985 Cash Receipts

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<u>Commodity</u>	<u>Dollar Value*</u>
Dairy	\$278 Million
Cattle and Calves	\$263 Million
Broilers	\$207 Million
Tobacco	\$184 Million
Turkey	\$124 Million
Soybeans	\$104 Million
Corn	\$ 85 Million
Peanuts	\$ 57 Million
Greenhouse/Nursery	\$ 53 Million
Apples	\$ 43 Million
Tomatoes	\$ 14 Million
Hay	\$ 11 Million

\* 1985 Cash receipts (Including CCC payments)

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Source: Economic Indicators of the Farm Sector, 1985, p. 9.

A system of farmers' markets throughout the state is a new marketing option for Virginia farmers. The proposed marketing system would consist of a complete farmers' market, offering both wholesale and retail produce, to be located in Hanover County. Six smaller markets are planned for Accomack County, Carroll County, Halifax County, Chesapeake County, Williamsburg, and Lynchburg. (Edwards, Sept 1987, p. E1 & E4.)

#### FINANCING AGRICULTURE

Virginia's total farm debt decreased somewhat in 1985 from the debt level in the early eighties. The decline occurred in both real estate and nonreal estate debt. However, the state's total outstanding farm debt in 1985 was almost double that in 1976. Real estate and nonreal estate debt have followed almost identical patterns except for 1978 when real estate debt decreased while nonreal estate debt increased. (Figure 9) (Economic Indicators of the Farm Sector.)

#### Real Estate

Federal Land Bank has been the dominant lender in the Virginia real estate farm credit market for the last decade, with approximately \$1 out of every \$2 of real estate financing in 1985. (Figure 10) The "other" category of lenders had the second largest 1985 market share. Notably, FmHA has doubled its market share from 1976 to 1985, a trend which is also apparent in the national real estate farm credit market. Insurance companies have lost market share both in Virginia and in the



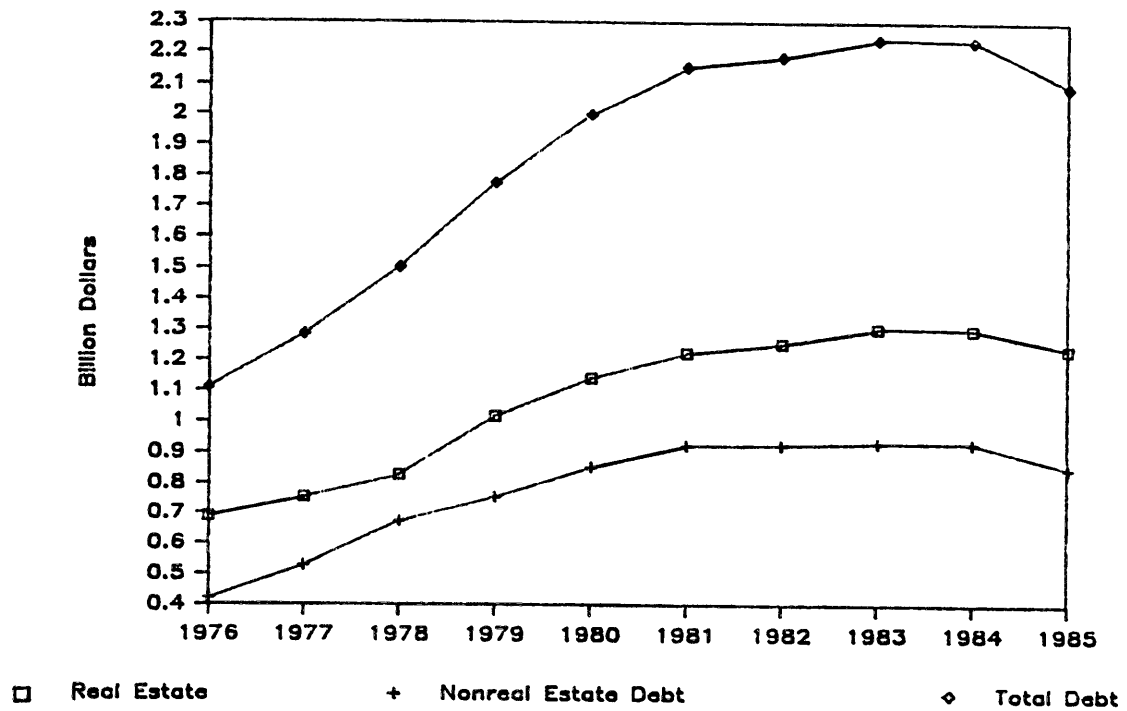


Figure 9. VIRGINIA FARM DEBT, BY TYPE, Including Operator Households, 1976-1985.

Source: Economic Indicators of the Farm Sector, State Summary, USDA ERS. Various Issues.

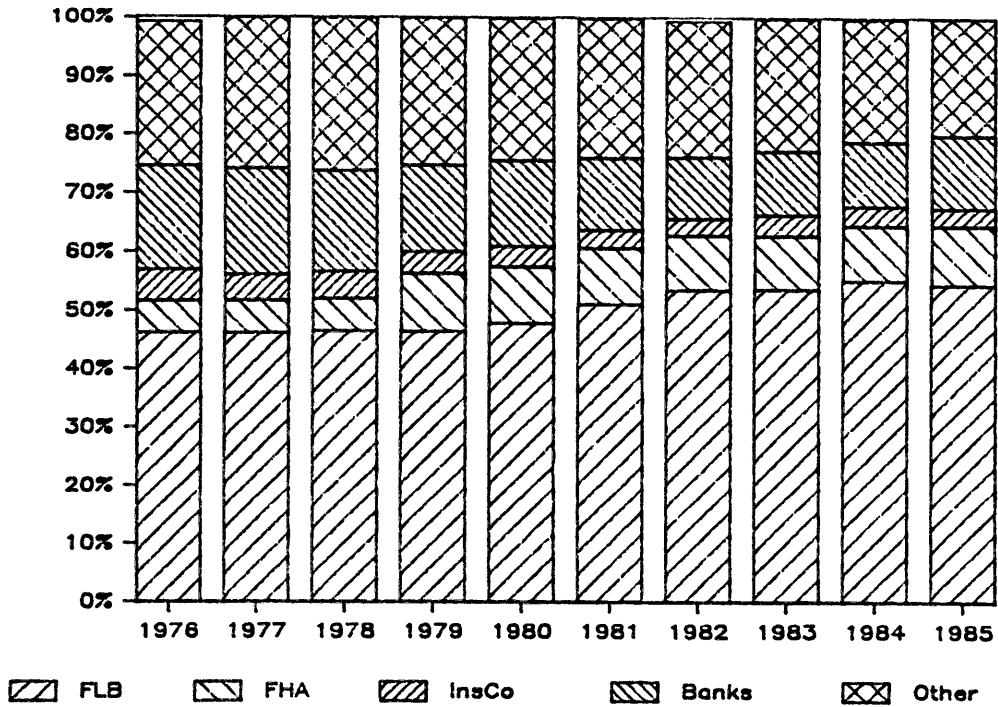


Figure 10. VIRGINIA REAL ESTATE FARM DEBT BY LENDER, Including Operator Households, 1976-1985.

Source: Economic Indicators of the Farm Sector, State Summary, USDA ERS. Various Issues.

United States, although insurance companies have traditionally been a relatively minor lender in the Virginia farm real estate debt market. Refer to Figure 2. (Economic Indicators of the Farm Sector)

### Nonreal Estate

No single lender dominated the Virginia nonreal estate credit market in 1985. Even though Farmers Home Administration has experienced a dramatic increase in market share from 1976 to 1985, banks and "other" lenders have lost marketshare over the decade. (Figure 11)

Similar trends have occurred nationwide. However, on the national level, banks are more important lenders than in Virginia, and FmHA is a less important lender than in Virginia. (Economic Indicators of the Farm Sector) Refer to Figure 3.

### Farm Credit System

The Baltimore District Farm Credit System remains one of the healthiest in the nationwide Farm Credit system. And, the Baltimore District plans to maintain a competitive position into the future. According to the 1986 Annual Report, "Bank management has indicated a willingness to decrease net interest income in 1987 to the extent necessary to competitively price the Bank's credit products in order to maintain market share, even though net operating losses may occur." (Farm Credit Banks of Baltimore, p. 17)

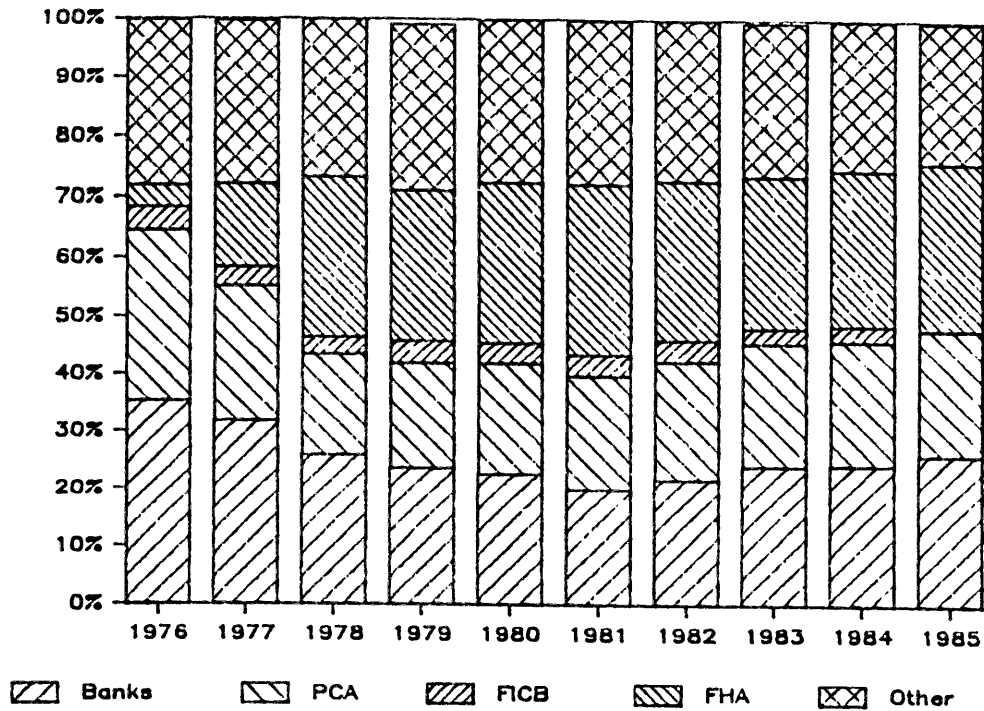


Figure 11. VIRGINIA NONREAL ESTATE FARM DEBT BY LENDER, Including Operator Households, 1976-1985.

Source: Economic Indicators of the Farm Sector, State Summary, USDA ERS. Various Issues.

The 1985 and 1986 Farm Credit Banks of Baltimore Annual Reports revealed new programs being implemented to meet this goal, including: (p. 2 (1985), p.6 (1986))

- (1) Differential, variable, fixed, and select rate programs through PCA;
- (2) Seasonal variable, term variable, fixed and variable differential rate programs via Bank for Cooperatives;
- (3) FLB variable and adjusted rate mortgage, fixed for 3, 5, 10, and 15-yr terms;
- (4) Leasing programs via Farm Credit Leasing Corporation available to Bank for Cooperatives and PCA borrowers;
- (5) Differential pricing (PCA loans);
- (6) 3 year adjusted rate FLB mortgages;
- (7) Fixed rate FLB and PCA loans;
- (8) "Investment Bond Program";
- (9) "Redi-Cash" line of credit.

Both FLB and FICB/PCA of Baltimore have experienced a decline in loan volume since 1982. (Table 11) However, net charge-offs as a percentage of average loans were lower in 1986 after a peak in 1985. Both entities reported net losses in 1986. These losses can be attributed to the system-wide regulations requiring profitable districts to contribute to districts in financial distress. (Farm Credit Banks of Baltimore)

Virginia receives the largest share of FLB loan dollars among the six states/territories<sup>10</sup> in the Baltimore District, with approximately \$.38 out of every loan dollar over the period 1983 to 1986. Virginia accounted for approximately one-third of

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<sup>10</sup> Virginia, Maryland, Pennsylvania, Delaware, Puerto Rico, and West Virginia.

Table 11. ANNUAL COMPARISON OF VARIOUS FINANCIAL MEASURES, Federal Land Bank of Baltimore and Federal Intermediate Credit Bank of Baltimore and District PCA's

-----Federal Land Bank of Baltimore-----

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
			(Thousand Dollars)		
Total Loans	\$2,164,312	\$2,206,323	\$2,233,083	\$2,118,103	\$1,833,332
Net Income/(Loss)	30,826	21,977	16,474	7,168	(56,860)
Net Charge-offs As a Percent of Average Loans	.004%	.01%	(Percent) .10%	.21%	.02%

-----Federal Intermediate Credit Bank of Baltimore and District PCA's-----

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
			(Thousands of Dollars)		
Total Loans	\$812,340	\$798,640	\$793,290	\$793,011	\$744,390
Net Income/(Loss)	11,616	7,325	9,420	4,342	(868)
Net Charge-offs as a Percent of Average Loans	.17%	.20%	(Percent) .40%	.55%	.23%

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Source: Farm Credit Banks of Baltimore. Annual Reports, various editions.  
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all Baltimore District FICB and PCA loans over the 4 year period, while over one-half of all 1986 Baltimore Bank for Cooperatives loans were made in Virginia.

Within Virginia, FLB reported the largest number of loans serviced to be in the Richmond Association as of December 31, 1986. However, the largest monetary amount was serviced by Federal Land Bank in the Warrenton Association. (Table 12) Virginia FLBA's have seen a decline of 2,500 loans since 1984. (Farm Credit Banks of Baltimore)

The Roanoke PCA reported the largest number of loans serviced in 1986 within the state, with the Staunton Association reporting the largest total loan value. (Table 13) Virginia PCA's have seen a decrease of approximately 1,975 customers since 1984. (Farm Credit Banks of Baltimore)

Table 12. LOANS SERVICED IN VIRGINIA, Federal Land Bank of Baltimore

<u>Association</u>	<u>12/31/84</u>		<u>12/31/85</u>		<u>12/31/86</u>	
	<u>Number</u>	<u>Amount</u> (1,000's)	<u>Number</u>	<u>Amount</u> (1,000's)	<u>Number</u>	<u>Amount</u> (1,000's)
Central valley	1,079	\$ 57,771	1,036	\$ 55,263	856	\$ 46,206
Farmville	1,490	53,681	1,400	49,045	1,209	41,043
Richmond	2,569	138,390	2,497	134,040	2,149	115,363
Roanoke	1,871	74,085	1,791	71,494	1,580	60,885
Waverly	1,796	91,628	1,738	84,972	1,553	74,398
Southwest	1,626	63,469	1,558	59,037	1,381	48,554
Staunton	2,482	175,191	2,430	169,650	2,065	148,154
Warrenton	2,360	174,983	2,287	169,193	1,983	150,790
<b>Total</b>	<b>15,273</b>	<b>\$829,198</b>	<b>14,737</b>	<b>\$792,694</b>	<b>12,776</b>	<b>\$685,393</b>

Source: Farm Credit Banks of Baltimore. Annual Report, various editions.



Table 13. PCA LOANS SERVICED IN VIRGINIA, Baltimore FICB and District Production Credit Associations

Association	12/31/84		12/31/85		12/31/86	
	Number	Amount (1,000's)	Number	Amount (1,000's)	Number	Amount (1,000's)
Central Valley	830	\$17,153	816	\$17,200	671	\$14,931
Farmville	1,394	14,332	1,236	13,184	951	10,990
Richmond	1,428	32,387	1,500	35,152	1,458	44,705
Roanoke	2,070	26,460	2,015	24,358	1,739	23,411
Southside	1,440	25,449	1,391	28,258	1,218	26,893
Southwest	2,030	23,068	1,872	21,030	1,635	21,607
Staunton	1,760	40,835	1,647	45,160	1,556	45,766
Warrenton	1,293	29,649	1,170	28,545	1,043	27,912
Total	12,245	\$209,333	11,647	\$212,887	10,271	\$216,215

Source: Farm Credit Banks of Baltimore. Annual Report, various editions.

## SUMMARY OF TRENDS AFFECTING VIRGINIA AGRICULTURE

1. Virginia benefits from seven strong economic sectors. Manufacturing continues to be very important to the state's economy.
2. Northern Virginia and Hampton Roads continue to be the center for employment and population growth as well as for high-tech industries.

However, rural employment growth is catching up with urban growth rates.

3. Virginia farmers' financial condition was found to be better than that of the nation in general.
4. Off-farm income continues to be critical to Virginia's agricultural sector.
5. The total number of farms in the state was found to be declining, with the majority of Virginia farms being individual/family farm operations with sales less than \$40,000.
6. Virginia has strong economic support for land values.
7. Dairy, cattle and calves, and poultry were the largest contributors to total cash receipts in 1985.
8. Federal Land Bank was found to dominate Virginia real estate debt, while FmHA was found to have become more important in real and nonreal estate debt markets. Baltimore District Farm Credit will remain a serious competitor in the agricultural credit market in Virginia.

9. Virginia agricultural production, especially of row crops, is relatively unimportant as compared to production nationwide. Notable exceptions are peanuts, tobacco, broilers, turkey, apples, and tomatoes.
10. Since 1976, little shift has been observed in the production areas of major Virginia commodities. Of those that have shifted, the shift has not generally been away from eastern and north central Virginia. Thus, failing to indicate that agricultural production has yet been crowded out by urbanization, as many experts feel is imminent.

**Chapter 3**

**1987 VIRGINIA AGRICULTURAL CREDIT USE AND NEEDS SURVEY**

The Virginia Agricultural Credit Use and Needs Survey was conducted via mail in the summer and fall of 1987. Four separate survey groups were contacted, a statewide group as well as a group of customers from each of three cooperating Virginia banks.

The usable statewide survey response rate was 31.3%. (Table 14) The response rate for each bank survey group was higher, ranging from 48.3% for Bank A to 37.2% for Bank B to 30.9% for Bank C.

#### Representativeness of Sample

The representativeness of the sample was found to be good in most demographic areas except for annual gross farm income. Thus, the results can provide valuable information with respect to the use of credit by Virginia farmers.

State survey respondents were approximately five years older than the 52.9 year average age of Virginia farmers. (US-State Ag Data) With respect to farm organization, partnerships and corporations were over represented in the state sample, while individual farmers were under represented. Farms of less than 500 acres were slightly under represented in the state sample, while farms of 500 to 999 acres and of over 2,000 acres were slightly over represented. (US-State Ag Data, pp. 94- 95)

Gross farm income appeared to be the area with the greatest variation. The state survey group had higher annual gross farm income than the total population of Virginia farmers. Twice as

Table 14. SURVEY RESPONSE RATE  
1987 Virginia Agricultural Credit Use and Needs Survey

	Survey Group			
	Bank A	Bank B	Bank C	State
Number of responses	57	35	30	151
Responses as a percent of successful mailings	48.3%	37.2%	30.9%	31.3%

many state survey respondents reported annual gross farm income in excess of \$40,000 than was indicated to be present in the total population of Virginia farmers. (US-State Ag Data, pp. 94-95)

### DEMOGRAPHICS

#### Location of Operation

Over one-half of the total statewide respondents farmed in the Northern or in the Southwestern crop reporting district. (Table 15) Bank A responses were dispersed comparably to those of the state sample. Two-thirds of Bank B customers' operations were concentrated in the Southern, Southeastern, or Central crop reporting districts. Bank C customers were located in the Central, Southwestern, or Southern crop reporting districts. (See Appendix 3 for map of crop reporting district.)

#### Age of Principal Operator

The average age of principal farm operators was 57.53 years. (Table 16) Approximately eight out of ten principal operators were over 45 years of age, with over one-half being over 55 years of age.

The average age of principal farm operators for each bank customer group was somewhat younger, with Bank A having the youngest average age and the most customers under 35 years of age. The average age of Bank B customers was 50.51, while the average Bank C customer was about one year older at 51.63 years of age.

Table 15. LOCATION OF FARM OPERATION  
1987 Virginia Agricultural Credit Use and Needs Survey

Crop Reporting District	Survey Group			
	Bank A	Bank B	Bank C	State
(Percent of Respondents)				
1. Central	5.3	20.0	36.7	13.9
2. Eastern	0.0	17.1	0.0	4.0
3. Northern	38.6	8.6	3.3	27.2
4. Southeastern	1.8	22.9	3.3	9.3
5. Southern	1.8	20.0	26.7	10.6
6. Southwestern	31.6	5.7	30.0	25.8
7. Western	17.5	2.9	0.0	8.6
8. Other	3.5	2.9	0.0	0.7
TOTAL	100.1*	100.1*	100	100.1*
Number of Responses	57	35	30	151

\*Error due to rounding



Table 16. AGE OF PRINCIPAL OPERATOR  
1987 Virginia Agricultural Credit Use and Needs Survey

Years of Age	Survey Group			
	Bank A	Bank B	Bank C	State
(Percent of Respondents)				
1. Less than 25 years	1.8	5.7	3.3	2.0
2. 26 to 35 years	22.8	5.7	6.7	2.7
3. 36 to 45 years	19.3	20.0	23.3	15.3
4. 46 to 55 years	35.1	34.3	30.0	23.3
5. 56 to 65 years	19.3	28.6	16.7	28.0
6. More than 65 years	1.8	5.7	20.0	28.7
TOTAL	100.1*	100.0	100.0	100.0
(Years)				
Mean	46.38	50.51	51.63	57.53
Standard Deviation	11.14	12.41	13.25	12.92
Maximum Value	66.00	77.00	74.00	86.00
Minimum Value	25.00	15.00	24.00	18.00
Number of Responses	57	35	30	150

\*Error due to rounding

### Educational Level

Almost one-half of all respondents to the statewide survey reported at least some college education. (Table 17) While, twenty-seven percent did not graduate from high school.

Each bank customer group revealed a higher general level of education than did the state group. Bank C had the highest percentage of college graduates and the lowest percentage of respondents without a high school education. The lowest general level of education was found among Bank A customers, with almost one out of every five Bank A respondents having no high school diploma. Bank B customers were most likely to have at least some college education.

Of state respondents who had completed a college degree program, only 3 out of 10 majored in an agriculture-related area. Over one-half of all college graduates in each of the respective bank groups was determined to have a degree in an agriculture-related field. Bank A's customers had the highest percentage of agriculture-related degrees among college graduates.

### Annual Nonfarm Income

Almost one out of every ten respondents to the statewide survey cited no nonfarm income, while approximately 25% had annual nonfarm incomes greater than \$35,000. (Table 18)

Higher percentages of customers from each cooperating bank reported no nonfarm income than did state respondents. Bank C

Table 17. EDUCATIONAL LEVEL  
1987 Virginia Agricultural Credit Use and Needs Survey

Level of Education	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Some high school	17.5	5.7	3.3	27.0
2. High school graduate	29.8	31.4	40.0	25.0
3. Some college	17.5	22.9	13.3	12.8
4. College graduate	35.1	40.0	43.3	35.1
	-----	-----	-----	-----
TOTAL	99.9*	100.0	99.9*	99.9*
Number of Responses	57	35	30	148
<u>Degree Area of College Graduates</u>				
	(Percent of Respondents)			
1. Agriculture-related	70	61.5	53.8	31.6
2. Non-agriculture	30	38.5	46.2	68.4
	-----	-----	-----	-----
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	20	13	13	57

\*Error due to rounding

Table 18. ANNUAL NON FARM INCOME  
1987 Virginia Agricultural Credit Use and Needs Survey

Amount of Annual Non-Farm Income	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. \$0	23.6	15.2	20.0	9.8
2. \$1 to \$7,500	23.6	30.3	6.7	23.1
3. \$7,501 to \$20,000	9.1	21.2	23.3	24.5
4. \$20,001 to \$35,000	21.8	24.2	30.0	17.5
5. \$35,001 to \$50,000	12.7	6.1	10.0	9.8
6. Over \$50,000	9.1	3.0	10.0	15.4
TOTAL	99.9*	100.0	100.0	100.1*
Number of Responses	55	33	30	143

\*Error due to rounding

had the highest percentage of customers indicating more than \$20,000 nonfarm income, while Bank B had fewer customers in the top two income categories. Bank A respondents were most likely to have no nonfarm income.

#### Tenure of Farm Operation

The majority (87.8%) of respondents to the statewide survey reported that they had operated their farm for more than 10 years. (Table 19) Bank B and Bank C customers indicated comparable results. Bank A, however, was found to have customers with somewhat less experience on the farm operation, with more than one in four customers having less than 10 years of tenure.

#### Farm Organization

Eight out of every ten state survey respondents operated their farms as a sole proprietorship, while less than 10% operated their farm as a corporation. (Table 20) Each respective bank group was determined to have more corporate farm operations and fewer individual/family farms than the state survey group. Bank B customers were most likely to be organized as a partnership, whereas Bank A and Bank C respondents indicated higher proportions of corporations.

#### Acreage Farmed

Approximately nine out of ten state respondents farmed less than 500 acres in a typical year. (Table 21) Only two percent farmed more than 1,000 acres.

Table 19. TENURE OF FARM OPERATION  
1987 Virginia Agricultural Credit Use and Needs Survey

Number of Years of Operation	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 0 to 5 years	12.3	0	6.7	5.4
2. 6 to 10 years	15.8	14.3	0.0	6.8
3. 11 to 20 years	38.6	11.4	36.7	29.7
4. Over 20 years	33.3	74.3	56.7	58.1
	-----	-----	-----	-----
TOTAL	100.0	100.0	100.1*	100.0
	(Years)			
Mean	19.35	28.22	26.7	26.72
Standard Deviation	12.74	13.36	13.97	14.51
Maximum Value	67.00	57.00	60.00	90.00
Minimum Value	1.00	6.00	2.00	1.00
Number of Responses	57	35	30	148

\*Error due to rounding

Table 20. FARM ORGANIZATION  
1987 Virginia Agricultural Credit Use and Needs Survey

Type of Organization	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Individual/ Family Farm	69.6	61.8	73.3	80.1
2. Partnership	16.1	26.5	10.0	13.2
3. Corporation	14.3	11.8	16.7	6.6
TOTAL	100.0	100.1*	100.0	99.9*
Number of Responses	56	35	30	151

\*Error due to rounding

Table 21. ACRES FARMED IN A TYPICAL YEAR  
 1987 Virginia Agricultural Credit Use and Needs Survey

Number of Acres	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 1 to 99 acres	21.1	2.9	6.7	42.3
2. 100 to 499 acres	40.4	48.6	46.7	46.3
3. 500 to 999 acres	21.1	40.0	30.0	9.4
4. 1,000 to 1,999 acres	10.5	5.7	13.3	1.3
5. Over 2,000 acres	7.0	2.9	3.3	.7
TOTAL	100.1*	100.1*	100	100.0
Number of Responses	57	35	30	149

\*Error due to rounding



The majority of all three bank customer groups also farmed less than 500 acres. However, bank customers revealed more larger farms, ranging from 17.5% of Bank A customers farming over 1,000 acres to 8.6% of Bank B customers farming over 1,000 acres. Approximately one out of every six (16.6%) of Bank C customers farmed over 1,000 acres in a typical year.

#### Percentage of Farmed Acreage Owned

One-third of all state survey respondents indicated that they owned all of the land that they farmed. Only 4% revealed leasing all of their farmed acreage. (Table 22)

Bank A and Bank C customers were found to own and farm larger proportions of the land than were Bank B customers.

#### Annual Gross Farm Income

Two-thirds of the state survey respondents cited annual gross farm incomes less than \$40,000 in a typical year. (Table 23) Less than 1% revealed typical annual gross farm income over \$500,000.

The majority of each respective bank customer group reported annual gross farm income of at least \$100,000. Bank B had the fewest customers in the lowest income category and the most customers in the highest income category. Bank A and Bank C each had about two-thirds of their respective customers with gross farm incomes in excess of \$100,000 per year.

Table 22. PERCENTAGE OF FARMED ACRES OWNED BY RESPONDENT  
1987 Virginia Agricultural Credit Use and Needs Survey

Percentage of Acres Owned	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 0%	3.7	6.1	0.0	3.6
2. 1 to 25%	16.7	21.2	10.3	10.1
3. 26 to 50%	13.0	24.2	20.7	22.3
4. 51 to 75%	14.8	12.1	20.7	14.4
5. 76 to 99%	22.2	9.1	27.6	15.8
6. 100%	29.6	27.3	20.7	33.8
TOTAL	100.0	100.0	100.0	100.0
Number of Respondents	54	33	29	139

Table 23. ANNUAL GROSS FARM INCOME  
1987 Virginia Agricultural Credit Use and Needs Survey

Amount of Annual Gross Farm Income	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Less than \$40,000	14.0	5.9	10.0	68.0
2. \$40,000 to \$99,999	17.5	14.7	23.3	17.3
3. \$100,000 to \$499,999	59.6	58.8	53.3	14.0
4. Over \$500,000	8.8	20.6	13.3	0.7
TOTAL	99.9*	100.0	99.9*	100.0
Number of Responses	57	34	30	150

\*Error due to rounding

When gross farm income was considered in relation to the amount of annual nonfarm income indicated, it was generally found that farmers with higher annual gross farm incomes reported lower nonfarm incomes. (Table 24) Two-thirds of farmers with gross farm incomes of \$100,000 to \$499,999 cited nonfarm income of less than \$7,500. Approximately 25% of those state respondents reporting gross farm income in each of the two lowest gross farm income categories had nonfarm incomes less than \$7,500.

#### Enterprises

Approximately one out of every two respondents to the state survey indicated some contribution to their farm's total gross farm income from a commercial cow/calf enterprise. (Table 25) Horticultural products, orchards, vegetables, peanuts, and purebred cow/calf enterprises were reported to contribute to total gross farm income by less than 5% of all state respondents.

Bank A customers frequently reported contributions to gross farm income from commercial cow/calf, dairy, and stockers/feeders. Bank B customers cited small grain, soybeans, and tobacco as sources of gross farm income. Important enterprises to customers of Bank C included commercial cow/calf, dairy, and tobacco.

Table 24. GROSS FARM INCOME OF STATE SURVEY RESPONDENTS BY NON-FARM INCOME CLASSIFICATION  
1987 Virginia Agricultural Credit Use and Needs Survey

Amount of Annual Gross Farm Income	Annual Non-Farm Income						Total
	\$0	\$1 to \$7,500	\$7,501 to \$20,000	\$20,001 to \$35,000	\$35,001 to \$50,000	Over \$50,000	
	(Percent of Respondents)						
Less than \$40,000	8.3	19.6	29.9	16.5	11.3	14.4	100.0
\$40,000 to \$99,999	4.0	20.0	12.0	28.0	8.0	28.0	100.0
\$100,000 to \$499,999	23.8	42.9	14.3	9.5	4.8	4.8	100.1*
Over \$500,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of Responses:	143						

\*Error due to rounding.

Table 25. FARM ENTERPRISES  
1987 Virginia Agricultural Credit Use and Needs Survey

Enterprise	Survey Group			
	Bank A	Bank B	Bank C	State
(Percent of Respondents Reporting Any Participation in Each Respective Enterprise)*				
1. Commercial cow/calf	45.6	22.2	36.7	47.0
2. Purebred cow/calf	7.0	2.9	3.3	4.6
3. Stockers/Feeders	26.3	11.4	23.3	7.3
4. Swine	14.0	11.4	10.0	6.0
5. Dairy	36.8	23.5	36.7	12.6
6. Poultry	21.0	2.9	6.7	6.6
7. Sheep	14.0	5.7	6.7	13.2
8. Peanuts	1.8	5.7	0.0	4.6
9. Corn	15.8	20.0	10.0	13.2
10. Soybeans	7.0	31.4	6.7	12.6
11. Small Grain	10.5	37.1	16.7	10.6
12. Vegetables	1.8	17.1	3.3	0.7
13. Orchards	7.0	5.7	0.0	2.6
14. Tobacco	3.5	28.6	46.7	12.6
15. Horticultural Products	3.5	5.7	3.3	2.0
16. Other	17.5	22.9	10.0	17.2
Number of Responses	57	35	30	151

\*Will not add to 100%

Survey results indicated that when a purebred cow/calf, dairy, or orchard enterprise was part of a farm operation, over one-half of the time that enterprise was the source of at least \$0.75 out of every \$1.00 of gross farm income. (Table 26)

Enterprises which were reported to make relatively small contributions to gross farm income in state respondents' operations included swine, sheep, corn, soybeans, small grain, vegetables, and horticultural products.

### CREDIT HISTORY AND HABITS

#### Past and Present Loan Sources

Farmers were asked to identify all current and past sources of credit used. Respondents indicated decreased patronage of all institutions except for statewide/regional banks and leasing companies. (Table 27)

Almost one-half (46.1%) of all respondents to the state survey revealed some current borrowing from a bank, either a hometown or a statewide/regional institution. However, this figure is down from two-thirds of state respondents citing bank borrowing in the past. Hometown banks were patronized by more respondents than were statewide/regional banks; however, some respondents may not have clearly understood the distinction.

About one out of every four respondents revealed current borrowing from the Farm Credit System, while only 7% cited any current borrowing from FmHA or machinery/equipment dealers.

Each bank survey group had a higher percentage of total

Table 26. ENTERPRISE COMPOSITION OF STATE SURVEY RESPONDENTS' FARM OPERATIONS  
1987 Virginia Agricultural Credit Use and Needs Survey

Enterprise	Percent of Gross Farm Income				Number of Respondents Per Enterprise
	0% to 25%	26% to 50%	51% to 75%	76% to 100%	
(Percent of respondents reporting any participation in each respective enterprise)					
1. Commercial cow/calf	25.4	21.1	5.6	47.9	71
2. Purebred cow/calf	0.0	28.6	14.3	57.1	7
3. Stockers/ Feeders	27.3	36.4	9.1	27.3	11
4. Swine	77.8	11.1	0.0	11.1	9
5. Dairy	0.0	5.3	10.5	84.2	19
6. Poultry	40.0	30.0	20.0	10.0	10
7. Sheep	60.0	25.0	0.0	15.0	20
8. Peanuts	0.0	28.6	42.9	28.6	7
9. Corn	70.0	25.0	0.0	5.0	20
10. Soybeans	63.2	26.3	5.3	5.3	19
11. Small Grain	75.0	18.8	0.0	6.3	16
12. Vegetables	100.0	0.0	0.0	0.0	1
13. Orchards	25.0	0.0	0.0	75.0	4
14. Tobacco	21.1	15.8	21.1	42.1	19
15. Horticultural Products	66.7	0.0	33.3	0.0	3
16. Other	30.8	15.4	15.4	38.5	26



Table 27. PAST AND PRESENT LOAN SOURCES  
1987 Virginia Agricultural Credit Use and Needs Survey

Loan Source	Survey Group							
	Bank A		Bank B		Bank C		State	
	Past	Present	Past	Present	Past	Present	Past	Present
	(Percent of Total Respondents Reporting Any Loans From Each Respective Source, Past and Present)*							
1. Hometown Bank	43.6	32.7	37.1	14.3	33.3	36.7	53.0	30.4
2. Statewide/ Regional Bank	40.0	67.3	54.3	65.7	60.0	86.7	15.7	15.7
3. Farm Credit	43.6	21.8	45.7	22.9	46.7	50.0	29.6	26.1
4. Farmers Home Administration	14.5	10.9	25.7	17.1	16.7	10.0	11.3	7.0
5. Life Insurance Companies	3.6	7.3	11.4	5.7	6.7	6.7	5.2	2.6
6. Individual	18.2	20.0	5.7	11.4	6.7	3.3	9.6	6.1
7. Machinery/ Equipment Dealer	21.8	20.0	22.9	14.3	26.7	26.7	13.0	7.0
8. Agribusiness	7.3	3.6	8.6	5.7	6.7	10.0	4.3	3.5
9. Leasing Companies	5.5	9.1	5.7	0.0	3.3	6.7	1.8	1.8
Number of Responses	55		35		30		115	

\*Will not add to 100%

bank borrowings than did the state group; however, such a result is to be expected based on the source of samples used.

Past borrowing from the Farm Credit System was higher for all bank groups than for the state respondents; however, Bank A and Bank B customers had sharply decreased their Farm Credit borrowing. Bank C customers had increased their patronage of the Farm Credit System.

Each bank group had higher percentages of respondents indicating some borrowing, both past and present, from FmHA than did the state group. Bank B had the largest proportion of customers with some current FmHA borrowing. Bank A customers were most likely to have some current borrowing from individuals and leasing companies, whereas Bank C customers were found to be most likely to have some current borrowing from machinery/equipment dealers or from agribusinesses.

State survey respondents with a commercial or purebred cow/calf enterprise or with a sheep enterprise had the largest share of borrowing from a hometown bank. (Table 28) The Farm Credit System extended the largest share of financing to farmers with stocker/feeder, dairy, poultry, or corn enterprises. An equal number of farmers with swine enterprises reported some borrowings from the Farm Credit System and FmHA.

FmHA was reported to be a source of current borrowing for at least one out of every four farmers with swine, peanut, or vegetable enterprises. The use of life insurance companies to

Table 28. STATE SURVEY RESPONDENTS' ENTERPRISES BY PRESENT LOAN SOURCES  
1987 Virginia Agricultural Credit Use and Needs Survey

Enterprise	Loan Source				
	Hometown Bank	Statewide/ Regional Bank	Farm Credit	Farmers Home Administration	Life Insurance Co.
(Percent of respondents reporting any current borrowing from each respective source)					
1. Commercial cow/calf	43.9	17.1	24.4	2.4	0.0
2. Purebred cow/calf	42.9	14.3	28.6	0.0	14.3
3. Stockers/ Feeders	20.0	30.0	40.0	0.0	0.0
4. Swine	12.5	12.5	25.0	25.5	0.0
5. Dairy	27.3	18.2	31.8	9.1	0.0
6. Poultry	7.7	23.1	53.8	0.0	7.7
7. Sheep	31.6	15.8	21.1	0.0	5.3
8. Peanuts	25.0	0.0	25.0	25.0	0.0
9. Corn	10.5	21.1	36.8	0.0	0.0
10. Soybeans	16.7	11.1	22.2	11.1	0.0
11. Small Grain	13.3	26.7	20.0	6.7	0.0
12. Vegetables	33.3	0.0	0.0	33.3	0.0
13. Orchards	40.0	20.0	20.0	0.0	20.0
14. Tobacco	33.3	11.1	33.3	22.2	0.0
15. Horticultural Products	33.3	0.0	33.3	0.0	0.0
16. Other	35.0	10.0	20.0	15.0	5.0

\*Error due to rounding

Table 28. Continued.

Enterprise	Loan Source				Total
	Individual	Machinery/ Equipment Dealer	Agri- Business	Leasing Corp.	
(Percent of respondents reporting any current borrowing from each respective source)					
1. Commercial cow/calf	2.4	7.3	2.4	0.0	99.9*
2. Purebred cow/calf	0.0	0.0	0.0	0.0	100.1*
3. Stockers/Feeders	10.0	0.0	0.0	0.0	100.0
4. Swine	12.5	12.5	0.0	0.0	100.0
5. Dairy	4.5	4.5	4.5	0.0	99.9*
6. Poultry	7.7	0.0	0.0	0.0	100.0
7. Sheep	10.5	10.5	5.3	0.0	100.1*
8. Peanuts	0.0	25.0	0.0	0.0	100.0
9. Corn	10.5	15.8	0.0	5.3	100.0
10. Soybeans	5.6	22.2	5.6	5.6	100.1*
11. Small Grain	6.7	13.3	6.7	6.7	100.1*
12. Vegetables	0.0	33.3	0.0	0.0	99.9*
13. Orchards	0.0	0.0	0.0	0.0	100.0
14. Tobacco	0.0	0.0	0.0	0.0	99.9*
15. Horticultural Products	33.3	0.0	0.0	0.0	99.9*
16. Other	0.0	5.0	10.0	0.0	100.0

\*Error due to rounding

obtain borrowed capital was most apparent among farmers with purebred cow/calf, poultry, sheep, and orchard enterprises. Individual financing was utilized by at least 10% of farmers reporting stockers/feeders, sheep, swine, corn, and horticultural product enterprises.

Machinery/equipment dealer credit was most prevalent among farmers reporting peanuts, soybeans, and vegetables. Agribusiness and leasing company financing were utilized by relatively few farmers.

When the use of the various sources of credit was considered on a geographical basis, banks were found to be the source of funds for the majority of respondents in the Southern and Southwestern crop reporting districts. (Table 29)

Approximately 41% of state farmer respondents in the Northern crop reporting district reported the Farm Credit System as a source of some current borrowing, while the Farm Credit System was also found to be a popular source of current borrowing for respondents in the Central, Southeastern, Southwestern, and Western crop reporting districts.

Both FmHA and machinery/equipment dealers were more commonly cited sources of credit in the Southeastern crop reporting district than in other areas.

Table 29. STATE SURVEY RESPONDENTS' REPORTING OF PRESENT LENDERS BY CROP REPORTING DISTRICT  
1987 Virginia Agricultural Credit Use and Needs Survey

Crop Reporting District**	Loan Source				
	Hometown Bank	Statewide/ Regional Bank	Farm Credit	Farmers Home Administration	Life Insurance Co.
(Percent of respondents reporting any current borrowing from each respective loan source)					
1. Central	11.1	33.3	22.2	0.0	0.0
2. Eastern	0.0	0.0	0.0	0.0	0.0
3. Northern	23.5	0.0	41.2	5.9	5.9
4. Southeastern	20.0	0.0	20.0	20.0	0.0
5. Southern	37.5	25.0	12.5	12.5	0.0
6. Southwestern	42.9	21.4	28.6	0.0	0.0
7. Western	0.0	33.3	33.3	0.0	33.3

\*Error due to rounding

\*\*See Appendix 3 for map of crop reporting districts.

Table 29. Continued.

Crop Report- ing District**	Loan Source				Total
	Individual	Machinery/ Equipment Dealer	Agri- Business	Leasing Corp.	
(Percent of respondents reporting any current borrowing from each respective source)					
1. Central	11.1	11.1	11.1	0.0	99.9*
2. Eastern	0.0	0.0	50.0	50.0	100.0
3. Northern	11.8	5.9	5.9	0.0	100.1*
4. Southeastern	0.0	40.0	0.0	0.0	100.0
5. Southern	0.0	0.0	0.0	12.5	100.0
6. Southwestern	7.1	0.0	0.0	0.0	100.0
7. Western	0.0	0.0	0.0	0.0	99.9*

\*Error due to rounding

\*\*See Appendix 3 for map of crop reporting districts.

### Consumer versus Agricultural Credit

More state survey respondents indicated seeking comparable term consumer loan needs and agricultural loan needs from the same source than from different sources. (Table 30)

The majority of respondents from each bank group sought consumer and agricultural loans from the same lender, this finding being most apparent among customer respondents from Bank C.

More than one out of three (37.1%) respondents to the state survey reported use of credit cards for short-term consumer credit needs (Table 31), while only 6.7% indicated that they currently used credit cards for agricultural credit needs. (Table 32) Almost one-half of all respondents to the state survey had no credit cards.

More bank customer respondents revealed actively using credit cards for both consumer and agricultural credit needs than did statewide respondents. The use of credit cards to meet consumer credit needs was much more prevalent than to meet agricultural credit needs.

### Credit Policies of Agricultural Suppliers

Respondents were asked to judge the strictness of credit policies of agricultural suppliers compared to five years ago. A somewhat smaller percentage of state respondents indicated stricter credit policies than indicated no tightening of credit. (Table 33)



Table 30. CONSUMER VS. AGRICULTURAL LOAN SOURCES  
1987 Virginia Agricultural Credit Use and Needs Survey

Consumer and Agri- cultural Credit Habits	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Seek from same lender	57.1	65.7	96.7	39.7
2. Do not seek from same lender	21.4	14.3	0.0	29.0
3. Not applicable	21.4	20.0	3.3	31.3
TOTAL	99.9*	100.0	100.0	100.0
Number of Responses	56	35	30	131

\*Error due to rounding

Table 31. CREDIT CARD USE FOR SHORT-TERM CONSUMER CREDIT NEEDS  
1987 Virginia Agricultural Credit Use and Needs Survey

Consumer Credit Card Use	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Currently use for short-term consumer credit needs	55.4	55.9	56.7	37.1
2. Do not currently use for short-term consumer credit needs	16.1	35.3	16.7	17.9
3. Have no credit cards	28.6	8.8	26.7	45.0
TOTAL	100.1*	100	100.1*	100.0
Number of Responses	56	34	30	140

\*Error due to rounding

Table 32. CREDIT CARD USE FOR SHORT-TERM AGRICULTURAL CREDIT NEEDS  
1987 Virginia Agricultural Credit Use and Needs Survey

Agricultural Credit Card Use	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Currently use for short-term agricultural credit needs	16.1	11.4	10.0	6.7
2. Do not currently use for short-term agricultural credit needs	55.4	71.4	56.7	44.0
3. Have no credit cards	28.6	17.1	33.3	49.3
TOTAL	100.1*	99.9*	100.0	100.0
Number of Responses	56	35	30	134

\*Error due to rounding

Table 33. CREDIT POLICIES OF AGRICULTURAL SUPPLIERS  
1987 Virginia Agricultural Credit Use and Needs Survey

Current Status of Agricultural Supplier Credit Policies Versus 5 Years Ago	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Credit policies are stricter than 5 years ago	42.9	66.7	53.3	24.8
2. Credit policies are not stricter than 5 years ago	30.4	18.2	40.0	31.6
3. Not applicable	26.8	15.2	6.7	43.6
TOTAL	100.1*	100.1*	100.0	100.0
Number of Responses	56	33	30	133

\*Error due to rounding

A higher percentage of each bank customer group reported stricter policies than indicated policies which were not as strict as five years ago. A larger proportion of Bank B customers revealed stricter credit policies than other institutions' customers. Bank C customers were most likely not to have experienced stricter policies.

#### Short-term Debt

A large majority of state survey respondents were determined to have no outstanding short-term operating debt. (Table 34) The average amount of short-term debt was about \$3,500 per respondent. Less than one percent reported short-term borrowing in excess of \$50,000.

Bank A had the largest percentage of customer respondents with no short-term debt. Bank C had the highest proportion of customer respondents with short-term debt of over \$50,000 and the highest average short-term debt per respondent. Bank B had the lowest average level of short-term debt among all bank groups.

The largest share of state respondents cited some borrowing from hometown banks. (Table 35) One-third indicated some short-term borrowing from Production Credit Associations.

Statewide/regional banks were the most frequently identified source of short-term borrowing among each bank customer group.

Table 34. AMOUNT OF OUTSTANDING SHORT-TERM DEBT  
1987 Virginia Agricultural Credit Use and Needs Survey

Approximate Dollar Amount of Short-Term Debt	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. \$0	47.2	39.4	13.0	82.1
2. \$1 to \$5,000	5.7	3.0	13.0	6.7
3. \$5,001 to \$10,000	3.8	3.0	0	3.0
4. \$10,001 to \$25,000	13.2	15.2	26.1	3.7
5. \$25,001 to \$50,000	15.1	21.2	13.0	3.7
6. \$50,001 to \$100,000	5.7	12.1	17.4	0.0
7. Over \$100,000	9.4	6.1	17.4	0.7
	-----	-----	-----	-----
TOTAL	100.1*	100.0	99.9*	99.9*
	(Dollars)			
Mean	42,556.60	31,624.55	49,500.00	3,537.61
Standard Deviation	111,580.70	49,972.17	57,784.67	14,892.07
Maximum Value	625,000.00	232,000.00	200,000.00	150,000.00
Minimum Value	0	0	0	0.0
Number of Responses	53	33	23	134

\*Error due to rounding

Table 35. SHORT-TERM DEBT SOURCES  
1987 Virginia Agricultural Credit Use and Needs Survey

Debt Source	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents Reporting Each Respective Source)*			
1. Production Credit Association	3.6	9.5	23.8	29.2
2. Farmers Home Administration	0.0	4.8	0.0	0.0
3. Hometown Bank	25.0	19.0	4.8	37.5
4. State-Wide/Regional Bank	57.1	71.4	81.0	20.8
5. Agribusiness/Supplier	28.6	9.5	14.3	20.8
6. Individual	7.1	4.8	4.8	0.0
7. Other	3.6	0.0	0.0	0.0
Number of Responses	28	21	21	24

\*Will not add to 100%

### Intermediate-Term Debt

The majority of state respondents indicated that they currently had no outstanding intermediate-term debt. (Table 36) The average intermediate term debt among state respondents was approximately \$6,200.

All three bank survey groups had substantially higher average intermediate-term debt loads than did the state group. Bank A customers responding to the survey were slightly less likely than Bank B or Bank C customers to have outstanding intermediate-term debt. Bank B customer respondents had the highest average amount of intermediate-term debt.

Equal proportions of state respondents with intermediate debt outstanding revealed some borrowing from PCA and from hometown banks. (Table 37) The largest share of respondents in each bank survey group indicated that they borrowed some intermediate-term funds from statewide/regional banks. Approximately one out of every four Bank B respondents also reported some intermediate-term borrowing from Farmers Home Administration.

### Long Term Debt

Seven out of every ten state survey respondents indicated that they currently had no outstanding long term debt. (Table 38) Less than 5% reported long-term debt in excess of \$100,000. State respondents were found to have an average long-term debt load of approximately \$22,200.



Table 36. AMOUNT OF OUTSTANDING INTERMEDIATE-TERM DEBT  
1987 Virginia Agricultural Credit Use and Needs Survey

Approximate Dollar Amount of Inter- mediate-Term Debt	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. \$0	34.6	31.3	18.5	79.7
2. \$1 to \$5,000	9.6	3.1	7.4	1.4
3. \$5,001 to \$10,000	3.8	0.0	7.4	4.3
4. \$10,001 to \$25,000	11.5	15.6	11.1	5.1
5. \$25,001 to \$50,000	5.8	18.8	7.4	6.5
6. \$50,001 to \$100,000	21.2	9.4	25.9	2.9
7. Over \$100,000	13.5	21.9	22.2	0.0
TOTAL	100.0	100.1*	99.9*	99.9*
	(Dollars)			
Mean	47,611.29	70,893.44	58,764.63	6,203.56
Standard Deviation	79,155.51	103,728.24	63,004.30	16,918.94
Maximum Value	450,000.00	400,000.00	240,000.00	100,000.00
Minimum Value	0	0	0	0
Number of Responses	52	32	27	138

\*Error due to rounding

Table 37. INTERMEDIATE-TERM DEBT SOURCES  
1987 Virginia Agricultural Credit Use and Needs Survey

Debt Source	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents Reporting Each Respective Source)*			
1. Production Credit Association	14.7	30.4	26.1	32.1
2. Farmers Home Administration	0.0	26.1	13.0	14.3
3. Hometown Bank	17.6	8.7	4.3	32.1
4. Statewide/Regional Bank	64.7	43.5	69.6	14.3
5. Machinery/Equipment Dealer	29.4	21.7	21.7	17.9
6. Individual	14.7	4.3	8.7	3.6
7. Leasing Company	8.8	13.0	4.3	3.6
8. Other	2.9	4.3	0.0	0.0
Number of Responses	34	23	23	28

\*Will not add to 100%

Table 38. AMOUNT OF OUTSTANDING LONG-TERM DEBT  
1987 Virginia Agricultural Credit Use and Needs Survey

Approximate Dollar Amount of Long-Term Debt	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. \$0	34.6	46.9	38.5	70.1
2. \$1 to \$20,000	9.6	3.1	0.0	5.1
3. \$20,001 to \$50,000	13.5	12.5	26.9	12.4
4. \$50,001 to \$100,000	9.6	12.5	7.7	8.0
5. \$100,001 to \$250,000	11.5	6.3	11.5	2.9
6. Over \$250,000	21.2	18.8	15.4	1.5
TOTAL	100.0	100.1*	100.0	100.0
	(Dollars)			
Mean	145,397.23	119,792.74	119,839.84	22,175.33
Standard Deviation	300,383.65	202,479.68	202,156.14	58,194.57
Maximum Value	2,000,000.00	800,000.00	800,000.00	430,000.00
Minimum Value	0	0	0	0
Number of Responses	52	32	26	137

\*Error due to rounding

Results show more long term debt among bank customer respondents than among state respondents. Bank A customers reported the largest average long-term debt load and also reported the largest proportion of customers with long-term outstanding debt in excess of \$100,000. The average Bank B and Bank C customer respondent carried approximately the same level of long-term debt.

One-half of state respondents carrying long-term debt borrowed at least a portion of their long-term capital from Federal Land Bank. (Table 39) Statewide/regional banks again were the most frequently cited source of a portion of long-term capital requirements among bank customer respondents. Other important lenders varied among bank groups, with FmHA providing some long-term funds to at least one out of every five Bank A and Bank B customers.

#### Total Debt of Respondents

Over 80% of all state respondents reported total debt (short-, intermediate-, and long-term) of less than \$50,000. Over one-half indicated no outstanding debt. (Table 40) Average total borrowing was found to be approximately \$32,400 per state respondent.

Bank A customers reported the highest average debt load as well as the largest total debt load. The average total debt load of Bank B and Bank C customers were similar, with Bank B

Table 39. LONG-TERM DEBT SOURCES  
1987 Virginia Agricultural Credit Use and Needs Survey

Debt Source	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents Reporting (Each Respective Source))*			
1. Federal Land Bank	25.7	27.8	46.7	51.2
2. Farmers Home Administration	20.0	22.2	13.3	12.2
3. Hometown Bank	17.1	11.1	6.7	12.2
4. Statewide/Regional Bank	42.9	33.3	66.7	9.8
5. Insurance Company	0.0	5.6	0.0	0.0
6. Individual	31.4	11.1	6.7	12.2
7. Other	2.9	5.6	0.0	12.2
Number of Responses	35	18	15	41

\*Will not add to 100%

Table 40. AMOUNT OF TOTAL OUTSTANDING DEBT  
1987 Virginia Agricultural Credit Use and Needs Survey

Dollar Amount of Total Debt	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. \$0	12.0	9.4	0.0	56.4
2. \$1 to \$50,000	24.0	18.8	16.7	25.6
3. \$50,001 to \$100,000	16.0	18.8	29.2	9.8
4. \$100,001 to \$250,000	16.0	15.6	29.2	6.0
5. \$250,001 to \$500,000	18.0	28.1	8.3	1.5
7. Over \$500,000	14.0	9.4	16.7	0.8
TOTAL	100.0	100.1*	100.1*	100.1*
	(Dollars)			
Mean	242,697.46	230,548.99	233,790.87	32,384.60
Standard Deviation	422,746.24	259,919.09	261,181.60	78,284.71
Maximum Value	2,750,000.00	1,100,000.00	910,000.00	655,000.00
Minimum Value	0	0	10,000.00	0
Number of Responses	50	32	24	133

\*Error due to rounding

customers having a slightly lower average. A larger percentage of Bank B customers, however, reported debt in excess of \$250,000.

On a geographical basis, the majority of state respondents in the Western, Southwestern, Southern, Central, and Northern crop reporting districts were found to have no outstanding debt. (Table 41) Respondents with heavier debt loads were located in the Southeastern, Eastern, and Northern crop reporting districts.

State respondents with less than 5 years experience operating their farms carried the smallest total debt load. (Table 42) Respondents with 6 to 10 years experience operating their farm had the largest proportion of total debt in excess of \$100,000. Two-thirds of all respondents with over 20 years tenure reported no debt.

The majority of state respondents over 55 years of age had no debt, while farmers between 26 and 35 years of age reported the highest percentage of debt in excess of \$100,000 (Table 43)

Farms organized as partnerships were more likely to have no debt compared to individual or corporate farm operations. (Table 44) Over 10% of all individual farms reported total debt in excess of \$100,000, whereas no partnership or corporate respondents indicated total debt in excess of \$100,000.

The largest proportion of all farm respondents with less than \$100,000 in annual gross farm income revealed no debt.

Table 41. STATE SURVEY RESPONDENT TOTAL DEBT BY CROP REPORTING DISTRICT  
1987 Virginia Agricultural Credit Use and Needs Survey

Crop Reporting District**	Level of Debt						Total
	\$0	\$1 to \$50,000	\$50,001 to \$100,000	\$100,001 to \$250,000	\$250,001 to \$500,000	Over \$500,000	
(Percent of Respondents)							
1. Central	68.4	26.3	5.3	0.0	0.0	0.0	100.0
2. Eastern	40.0	20.0	20.0	20.0	0.0	0.0	100.0
3. Northern	51.4	22.9	11.4	5.7	5.7	2.9	100.0
4. Southeastern	41.7	25.0	8.3	25.0	0.0	0.0	100.0
5. Southern	53.3	33.3	0.0	13.3	0.0	0.0	99.9*
6. Southwestern	60.6	24.2	15.2	0.0	0.0	0.0	100.0
7. Western	61.5	30.8	7.7	0.0	0.0	0.0	100.0
8. Other	100.0	0.0	0.0	0.0	0.0	0.0	100.0

Number of Responses: 133

\*Error due to rounding

\*\*Refer to Appendix 3 for map of crop reporting districts.



Table 42. STATE SURVEY RESPONDENT TOTAL DEBT BY TENURE OF OPERATION  
1987 Virginia Agricultural Credit Use and Needs Survey

Number of Years of Operation	Level of Debt						Total
	\$1 to \$50,000	\$50,001 to \$100,000	\$100,001 to \$250,000	\$250,001 to \$500,000	Over \$500,000		
	(Percent of Respondents)						
1. 0 to 5 years	57.1	42.9	0.0	0.0	0.0	0.0	100.0
2. 6 to 10 years	10.0	60.0	10.0	10.0	0.0	10.0	100.0
3. 11 to 20 years	45.0	32.5	10.0	10.0	2.5	0.0	100.0
4. Over 20 years	68.5	16.4	11.0	2.7	1.4	0.0	100.0
Number of Responses: 130							

Table 43. STATE SURVEY RESPONDENT TOTAL DEBT BY AGE  
1987 Virginia Agricultural Credit Use and Needs Survey

Years of Age	Level of Debt						Total
	\$0	\$1 to \$50,000	\$50,001 to \$100,000	\$100,001 to \$250,000	\$250,001 to \$500,000	Over \$500,000	
(Percent of Respondents)							
1. Less than 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. 26 to 35	25.0	25.0	25.0	25.0	0.0	0.0	100.0
3. 36 to 45	31.6	36.8	15.8	5.3	5.3	5.3	100.1*
4. 46 to 55	41.2	44.1	8.8	2.9	2.9	0.0	99.9*
5. 56 to 65	71.4	14.3	2.9	11.4	0.0	0.0	100.0
6. Over 65	71.1	15.8	13.2	0.0	0.0	0.0	100.1*
Number of Responses: 130							

\*Error due to rounding

Table 44. STATE SURVEY RESPONDENT TOTAL DEBT BY ORGANIZATIONAL TYPE  
1987 Virginia Agricultural Credit Use and Needs Survey

Type of Organization	Level of Total Debt						Total
	\$0	\$1 to \$50,000	\$50,001 to \$100,000	\$100,001 to \$250,000	\$250,001 to \$500,000	Over \$500,000	
	(Percent of Respondents)						
1. Individual/ Family Farm	55.7	28.3	5.7	7.6	1.9	0.9	100.1*
2. Partnership	68.4	15.8	15.8	0.0	0.0	0.0	100.0
3. Corporation	37.5	12.5	50.0	0.0	0.0	0.0	100.0
Number of Responses: 133							

\*Error due to rounding

(Table 45) Conversely, approximately one out of every three state respondents indicating annual gross farm income over \$100,000 carried total debt in excess of \$100,000.

The majority of state respondents with annual nonfarm incomes between \$1 and \$50,000 reported no debt. However, one out of every four state respondents citing no annual non-farm income were found to have total outstanding debt in excess of \$100,000. More than 10% of respondents in the \$1 to \$7,500 nonfarm income category and in the over \$50,000 nonfarm income category were determined to have debt in excess of \$100,000. (Table 46)

#### AGRILENDERS AND CREDIT NEEDS

##### Lender Farm Visits

Over one-half of the state respondents, who considered the question applicable, had not been visited by any of their present farm lenders. (Table 47) Approximately twenty-five percent of the remaining respondents indicated that the last visit of a current lender was over one year ago.

Overall, bank customers reported being visited more than state survey respondents. Bank A customers were most likely to have been visited within the last six months, while Bank C customers were least likely among the bank groups to have been visited within the last six months. Bank B customers were slightly less likely to have ever been visited by a present lender.

Table 45. STATE SURVEY RESPONDENT TOTAL DEBT BY ANNUAL GROSS FARM INCOME  
1987 Virginia Agricultural Credit Use and Needs Survey

Amount of Annual Gross Farm Income	Level of Total Debt						Total
	\$0	\$1 to \$50,000	\$50,001 to \$100,000	\$100,001 to \$250,000	\$250,001 to \$500,000	Over \$500,000	
	(Percent of Respondents)						
1. Less than \$40,000	67.0	27.5	4.4	1.1	0.0	0.0	100.0
2. \$40,000 to \$99,999	55.0	20.0	10.0	15.0	0.0	0.0	100.0
3. \$100,000 to \$499,999	9.5	23.8	33.3	19.1	9.5	4.8	100.0
4. Over \$500,000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of Responses: 132							

Table 46. STATE SURVEY RESPONDENT TOTAL DEBT BY ANNUAL NON FARM INCOME  
1987 Virginia Agricultural Credit Use and Needs Survey

Annual Non-Farm Income	Level of Total Debt						Total
	\$0	\$1 to \$50,000	\$50,001 to \$100,000	\$100,001 to \$250,000	\$250,001 to \$500,000	Over \$500,000	
	(Percent of Respondents)						
1. \$0	41.7	33.3	0.0	16.7	8.3	0.0	100.0
2. \$1 to \$7,500	60.0	10.0	20.0	6.7	3.3	0.0	100.0
3. \$7,501 to \$20,000	53.1	34.4	9.4	3.1	0.0	0.0	100.0
4. \$20,001 to \$35,000	60.9	26.1	8.7	4.4	0.0	0.0	100.1*
5. \$35,001 to \$50,000	61.5	30.8	0.0	7.7	0.0	0.0	100.0
6. Over \$50,000	47.4	31.6	10.6	5.3	0.0	5.3	100.2*
Number of Responses: 129							

\*Error due to rounding

Table 47. LAST FARM VISIT OF A CURRENT LENDER  
1987 Virginia Agricultural Credit Use and Needs Survey

Last Visit	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Within the last month	12.5	0.0	3.7	4.3
2. Within the last 6 months	16.1	23.5	14.8	3.6
3. Within the last year	23.2	29.4	29.6	3.6
4. Over one year ago	25.0	20.6	33.3	12.9
5. None of present lenders have ever visited	14.3	17.6	14.8	29.5
6. Not applicable	8.9	8.8	3.7	46.0
TOTAL	100.0	99.9*	99.9*	99.9*
Number of Responses	56	34	27	139

\*Error due to rounding

### Future Productivity

More than three out of four respondents to the state survey cited no anticipated change in their farm's productive capacity in the future. (Table 48) Twice as many of the remaining respondents planned to increase productive capacity as planned to decrease productive capacity.

Among all bank groups, more respondents planned to increase productive capacity and less anticipated no change than in the state survey group. However, a greater percentage of Bank A customers planned to decrease productive capacity than did the state group or any other bank group. More Bank B customers anticipated increases in productive capacity and more Bank C customers projected no change in productive capacity, respectively, than did other bank groups.

Of state respondents planning to increase productive capacity in the future, over one-half projected an increase of less than 25%. (Table 49)

Bank customers, in general, planned to increase productive capacity by a smaller magnitude than the state respondents. However, approximately one out of every ten of Bank A and Bank C customers did anticipate increases in excess of 75%. All anticipated Bank B productive capacity increases were of 50% or less.

Among state respondents projecting a decrease in future productive capacity, three out of four respondents planned



Table 48. FUTURE PRODUCTIVE CAPACITY  
1987 Virginia Agricultural Credit Use and Needs Survey

Anticipated Future Trend in Productive Capacity	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. No change in productive capacity anticipated	54.5	52.9	63.3	78.0
2. Plan to increase productive capacity	38.2	41.2	30.0	14.9
3. Plan to decrease productive capacity	7.3	5.9	6.7	7.1
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	55	34	30	141

Table 49. MAGNITUDE OF ANTICIPATED FUTURE PRODUCTIVE CAPACITY INCREASES.  
1987 Virginia Agricultural Credit Use and Needs Survey

Anticipated Increase in Productive Capacity	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 0 to 25%	65.0	78.6	77.8	55.0
2. 26 to 50%	25.0	21.4	11.1	25.0
3. 51 to 75%	0.0	0.0	0.0	0.0
4. 76 to 100%	5.0	0.0	11.1	20.0
5. Over 100%	5.0	0.0	0.0	0.0
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	20	14	9	20

decreases of less than 50%. (Table 50) An additional one out of every five state respondents expected to decrease productive capacity by 76 to 100%, implying liquidation in some situations.

The anticipated decreases reported by bank customer groups were less than those projected by the state group. All Bank C customers planning to decrease productive capacity anticipated decreases of less than 25%, while all Bank A customers anticipated decreases of less than 50%. Bank B customers were evenly divided among the less than 25% decrease category and the 51 to 75% decrease category.

#### Future Borrowing Needs

A large majority of all state respondents anticipated no change in the amount of future borrowing needs. (Table 51) The remaining respondents were almost evenly divided among those projecting increases and those expecting decreases in future borrowing needs.

A smaller proportion of each bank customer group anticipated no change in future borrowing needs than did the state group. However, more of the remaining Bank A and Bank C customers responding to the survey expected a decrease in the amount borrowed than foresaw an increase in the amount borrowed. More Bank B customers anticipated an increase in future borrowing needs than any other group.

Table 50. MAGNITUDE OF ANTICIPATED FUTURE PRODUCTIVE CAPACITY DECREASES  
1987 Virginia Agricultural Credit Use and Needs Survey

Anticipated Decrease in Productive Capacity	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 0 to 25%	75.0	50.0	100.0	55.6
2. 26 to 50%	25.0	0.0	0.0	22.2
3. 51 to 75%	0.0	50.0	0.0	0.0
4. 76 to 100%	0.0	0.0	0.0	22.2
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	4	2	2	9

Table 51. FUTURE BORROWING NEEDS  
1987 Virginia Agricultural Credit Use and Needs Survey

Anticipated Future Trend in Borrowing Needs	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. No change in amount borrowed anticipated	56.4	47.1	56.7	85.2
2. Plan to increase amount borrowed	20.0	29.4	10.0	6.6
3. Plan to decrease amount borrowed	23.6	23.5	33.3	8.2
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	55	34	30	122

Of state respondents anticipating an increase in the amount of future borrowing needs, two-thirds expected an increase of less than 25%. (Table 52)

All Bank B and Bank C customer respondents anticipated future borrowing need increases of less than 50%. Over one-tenth of Bank A customers anticipated at least a doubling of future borrowing needs.

One-half of state respondents anticipating a decrease in the amount of future borrowing needs expected a decrease of less than 25%. (Table 53) Remaining state respondents were equally divided among expected decreases of 26 to 50% and of 76 to 100%.

Bank customer groups, in general, anticipated decreases of larger magnitudes than did the state group. One-fifth of Bank A and one-third of Bank B customer respondents predicting future borrowing need decreases of 76 to 100%. All Bank C customer respondents anticipated decreases of less than 75%.

#### Purpose of Future Borrowing

State respondents were almost evenly divided as to the type of debt -- operating, intermediate, or long-term -- which would command the largest dollar volume share of their future borrowing. (Table 54) However, the ranking of the second greatest need was more conclusive, with approximately two-thirds of all state respondents indicating intermediate capital to be

Table 52. MAGNITUDE OF ANTICIPATED FUTURE BORROWING NEED INCREASES  
1987 Virginia Agricultural Credit Use and Needs Survey

Anticipated Increase in Borrowing Needs	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 0 to 25%	44.4	80.0	33.3	66.7
2. 26 to 50%	44.4	20.0	66.7	16.7
3. 51 to 75%	0.0	0.0	0.0	0.0
4. 76 to 100%	0.0	0.0	0.0	16.7
5. Over 100%	11.1	0.0	0.0	0.0
TOTAL	99.9*	100.0	100.0	100.1*
Number of Responses	9	10	3	6

\*Error due to rounding

Table 53. MAGNITUDE OF ANTICIPATED FUTURE BORROWING NEED DECREASES  
1987 Virginia Agricultural Credit Use and Needs Survey

Anticipated Decrease in Borrowing Needs	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. 0 to 25%	30.0	50.0	37.5	50.0
2. 26 to 50%	50.0	16.7	37.5	25.0
3. 51 to 75%	0.0	0.0	25.0	0.0
4. 76 to 100%	20.0	33.3	0.0	25.0
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	10	6	8	8



Table 54. RANK OF FUTURE BORROWING NEEDS  
1987 Virginia Agricultural Credit Use and Needs Survey

Survey Group	Purpose of Future Farm Borrowing			Total
	Operating Capital	Intermediate Capital	Long-Term Capital	
(Percent of Respondents)				
Bank A:				
% who ranked as #1	43.75	25.00	31.25	100.00
% who ranked as #2	37.90	55.20	6.90	100.00
% who ranked as #3	15.00	15.00	70.00	100.00
Bank B:				
% who ranked as #1	73.30	6.70	20.00	100.00
% who ranked as #2	0	80.95	19.05	100.00
% who ranked as #3	27.30	9.10	63.60	100.00
Bank C:				
% who ranked as #1	76.92	11.54	11.54	100.00
% who ranked as #2	21.43	50.00	28.57	100.00
% who ranked as #3	0	22.22	77.78	100.00
State:				
% who ranked as #1	37.93	32.76	29.31	100.00
% who ranked as #2	18.75	65.63	15.63	100.01*
% who ranked as #3	55.56	0.00	44.44	100.00

\*Error due to rounding

second. Over one-half of state respondents ranked operating capital third, with an additional four out of ten respondents ranked long-term capital third.

Bank A, B, and C customers ranked operating capital as the greatest need, intermediate capital as the second largest need, and long-term capital as the third greatest need.

#### Change of Agricultural Lenders in Past 3 Years

A large majority of state respondents, who considered the question applicable, had not changed agricultural lenders in the past three years. (Table 55) Each bank customer group, however, indicated a higher incidence of switching. Approximately one-third of Bank B and Bank C customers, who considered the question applicable, had switched lenders, and about one out of every four Bank A customer respondents had switched.

Among reasons for switching agricultural lenders, non-competitive loan rates, solicitation by another lender, "refused credit by previous lender," "slow service," and "other" were frequently cited reasons. (Table 56) Also mentioned were the service charges and discourteous personnel.

#### Expected Change of Lenders

State respondents generally had no plans to switch farm lenders when obtaining next year's operating capital or with the next major purchase. (Table 57)

This attitude was reflected in bank customer responses. No Bank A customers anticipated switching lenders, while only a

Table 55. RESPONDENTS WHO HAVE SWITCHED LENDERS OVER PAST 3 YEARS  
1987 Virginia Agricultural Credit Use and Needs Survey

Change in Lenders Over Past 3 Years	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Changed lenders over past 3 years	22.8	26.5	29.6	6.1
2. Have not changed lenders over past 3 years	75.4	64.7	66.7	55.7
3. Not applicable	1.8	8.8	3.7	38.2
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	56	34	27	131

Table 56. REASON FOR SWITCHING LENDERS  
1987 Virginia Agricultural Credit Use and Needs Survey

Rationale for Change	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents Indicating Each Respective Reason)			
1. Moved to another locality	0.0	0.0	0.0	0.0
2. Switched to a lender with more convenient location	0.0	0.0	0.0	0.0
3. Loan rates not competitive	46.2	11.1	14.3	28.6
4. Solicited by another lender	7.7	11.1	42.9	0.0
5. Refused credit by previous lender	7.7	11.1	0.0	14.3
6. Service charges	0.0	0.0	14.3	0.0
7. Bank errors	0.0	0.0	0.0	0.0
8. Discourteous personnel	0.0	0.0	28.6	0.0
9. Slow service	15.4	33.3	0.0	14.3
10. Other	23.1	33.3	0.0	42.9
TOTAL	100.1*	99.9*	100.1*	100.1*
Number of Responses	13	9	7	7

\*Error due to rounding

Table 57. RESPONDENTS WHO PLAN TO SWITCH LENDERS  
1987 Virginia Agricultural Credit Use and Needs Survey

Financing Plans for Next Year's Operating Capital or for Next Major Purchase	Survey Group			
	Bank A	Bank B	Bank C	State
	(Percent of Respondents)			
1. Plan to switch lenders	0.0	5.9	3.6	3.9
2. Do not plan to switch lenders	96.4	79.4	85.7	44.9
3. Not applicable	3.6	14.7	10.7	51.2
TOTAL	100.0	100.0	100.0	100.0
Number of Responses	57	34	28	127

very small minority of Bank B or Bank C customers planned to change lenders. Bank B had the highest proportion of customer respondents expecting to switch lenders.

#### Most Important Lender Characteristics

Respondents were asked to rate each of fourteen agricultural lender characteristics as to their relative importance when selecting an agricultural lender. A rating of "1" indicated very little importance to the decision, while a rating of "5" indicated a characteristic very important to the decision process.

"Favorable interest rates on loans" was rated to be the most important characteristic in the borrowing decision by all survey groups. (Table 58) The state survey respondents rated "financially sound institution" as the second most important characteristic, and "friendly and quick service" ranked third.

Bank A customer respondents cited "financially sound institution" as the second most important characteristic. Bank B customers rated "stability of loan officers" to be second, while Bank C customers considered "friendly and quick service" to be second.

"Stability of loan officers" was rated third most important by Bank A and Bank C customer respondents, while Bank B customers deemed "financially sound institution" to be third.

Relatively unimportant characteristics among respondents were found to be "upfront fees and/or stock requirements,"

Table 58. IMPORTANCE RATING OF LENDER CHARACTERISTICS  
1987 Virginia Agricultural Credit Use and Needs Survey

Characteristic	Survey Group			
	Bank A	Bank B	Bank C	State
	(Weighted Average Importance Rating)			
1. Friendly and quick service	4.60	4.42	4.79	4.49
2. Personal interest in farm business and customer	4.43	4.24	4.34	4.16
3. Financially-sound institution	4.69	4.48	4.66	4.53
4. Conveniently located offices	3.90	3.46	3.93	3.67
5. Convenient hours	3.71	3.40	3.89	3.81
6. Favorable interest rates on loans	4.82	4.80	4.86	4.70
7. Availability of fixed interest rates	4.00	4.03	4.44	4.15
8. Variable interest rates with set maximum increases	3.84	3.70	3.83	3.11
9. Upfront fees and/or stock requirements	3.39	3.45	3.12	3.05
10. Minimum paperwork requirements	4.11	4.03	4.14	3.94
11. Availability of other services	3.13	3.12	3.86	3.25
12. Up-to-date and innovative services	3.64	3.69	3.93	3.61
13. Personnel with up-to-date knowledge of agriculture	4.47	4.40	4.35	4.19
14. Stability of loan officers	4.63	4.58	4.72	4.16

"variable interest rates with set maximum increases," "availability of other services," and "convenient hours."

#### Priority of Future Services

Respondents were asked to rank as to priority each of twelve services that might potentially be offered by agricultural lenders in the future. A rating of "1" indicated very low priority services, while a rating of "5" indicated a very high priority service.

Among state respondents, "tax planning" was found to be the highest priority service. (Table 59) Financial management seminars were rated second, and estate planning was rated third.

Bank A and Bank B customer respondents rated financial management seminars as the number one priority, whereas Bank C customers placed highest priority on farm management services.

Bank A customers rated tax planning as the second highest priority, Bank B customers rated marketing seminars as second, and Bank C customers considered production seminars to be second.

The third priority among Bank A customers was farm management services, among Bank B customers was financial recordkeeping, and among Bank C customers was overall personal financial planning.

Services considered to be of relatively low priority included credit cards for farm operating needs and futures brokerage services.



Table 59. PRIORITY RATING OF FUTURE SERVICES  
1987 Virginia Agricultural Credit Use and Needs Survey

Service	Survey Group			
	Bank A	Bank B	Bank C	State
	(Weight Average Priority Rating)			
1. Credit cards for farm operating needs	1.79	1.72	2.04	1.92
2. Futures brokerage services	2.20	2.55	2.42	2.26
3. Estate planning	2.71	2.91	2.69	3.02
4. Financial record-keeping	3.12	3.25	2.79	2.86
5. Tax planning	3.22	3.06	2.88	3.09
6. Tax preparation	2.79	2.88	2.68	2.67
7. Marketing seminars	2.92	3.27	2.58	3.01
8. Financial management seminars	3.29	3.50	2.96	3.03
9. Production seminars	2.85	2.94	3.07	2.86
10. Expanded hours	2.81	2.79	2.68	2.63
11. Overall personal financial planning	3.06	3.00	3.04	2.70
12. Farm management service	3.17	3.00	3.72	2.81

### Other Comments of Respondents

All survey groups were invited to make any other comments regarding agricultural credit and agricultural lenders in Virginia. These comments are presented in Appendix 4.

### STATISTICAL ANALYSIS

All samples used in these analyses were composed of at least thirty responses. Therefore, under the Central Limit Theorem, the data can be assumed to be normally distributed for analytical purposes.

Because of the presence of unbalanced data, stipulations may need to be attached to the results of statistical tests performed and any such stipulations will be presented where applicable. Unbalanced data relates to situations in which each possible answer to a question was not selected by the same number of respondents and/or in which some possible answers to a question were not selected by any respondents.

### Impact of Demographic Characteristics on Lender Choice

The first analysis was designed to determine if a statistically significant difference existed between the age, education, or annual gross farm income of respondents with respect to the lenders that they chose to borrow from. Or, more precisely, this test was conducted to determine if knowledge of a respondent's age, education, or annual gross farm income would help to predict the lender chosen by that respondent:

The null and alternative hypotheses were as follows:

- (1)  $H_0$ : Age of respondent and lender chosen are statistically independent  
 $H_1$ : Age of respondent and lender chosen are not statistically independent
  
- (2)  $H_0$ : Education of respondent and lender chosen are statistically independent  
 $H_1$ : Education of respondent and lender chosen are not statistically independent
  
- (3)  $H_0$ : Annual gross farm income of respondent and lender chosen are statistically independent  
 $H_1$ : Annual gross farm income of respondent and lender chosen are not statistically independent

Chi-square analysis was used to test the categorical data. Only state survey responses were used in this analysis. Present lenders as identified in survey question number 1 in section B, "Credit History and Habits," were used. However, due to the small number of respondents indicating certain lenders, this analysis was limited to state respondents who indicated that they currently borrowed from hometown banks, statewide/regional banks, the Farm Credit System, or FmHA.

The ages of respondents were grouped into two categories for analysis purposes, those 52 years of age or younger and those over 52 years of age. Fifty-two years of age was chosen as the break point because that is approximately the average age of Virginia farmers. (U.S.-State Ag Data, pp. 94-95)

Educational level was categorized as to respondents with a high school diploma or less education and respondents with at least some college. Annual gross farm income was similarly grouped for analysis purposes. Respondents with less than \$100,000 in annual gross farm income composed one category, while those with annual gross farm income of \$100,000 or more made up the second category.

The analysis yielded results that failed to reject the null hypothesis in each of the three scenarios, (Table 60) thus implying that no relationship exists between the age, education, and/or annual gross farm income of a state respondent and the lender chosen by a respondent.

However, as noted on Table 60, sample size may have been insufficient with respect to the analysis of age and education to place complete reliance on test results.

#### Significantly Important Lender Characteristics

The importance ratings of fourteen lender characteristics were analyzed to determine if the average rating for any characteristic or group of characteristics was significantly different from the average rating of other characteristics.

The null and alternative hypotheses were as follows:

$$H_0: \alpha_k = 0 \text{ for all characteristics}$$

$$H_1: \alpha_k \neq 0 \text{ for all characteristics}$$

where:  $\alpha_k$  = effect of the rating for characteristic k on the overall mean of all characteristic rating populations

Table 60. RESULTS OF CHI-SQUARE ANALYSIS FOR STATISTICAL INDEPENDENCE BETWEEN STATE RESPONDENT AGE, EDUCATION, OR ANNUAL GROSS FARM INCOME AND LENDER CHOSEN,  $\alpha=.05$

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<u>Variable</u>	<u>Sample Size</u>	<u>Degrees of Freedom</u>	<u>Chi-Square Value (Calculated)</u>	<u>Probability*</u>
Age**	91	3	0.841	.840
Educational Level**	91	3	5.224	.156
Annual Gross Farm Income	91	3	2.582	.461

---

\* Probability that critical chi-square value is greater than calculated chi-square value. The probability must be less than or equal to .05 to reject the null hypothesis. The critical chi-square value for  $\alpha=.05$  and  $df=3$  is approximately 7.81.

\*\*25% of the cells in the 4X2 tables of lender by age and in the 4X2 table of lender by educational level had expected counts less than five. Therefore, chi-square analysis may not be a valid test.

Therefore, if the null hypothesis is not rejected, it can be concluded that the average importance rating for all fourteen characteristics are statistically equal.

The fourteen characteristics were evaluated by each person. Therefore, randomized block design, two-way analysis of variance (ANOVA) was used. Each person was considered to be a block and each of the fourteen characteristics were considered to be a treatment. The linear equation for a one-factor randomized block design is (Kazmier, p. 285-286):

$$X_{ij} = \mu + \alpha_j + \beta_k + \epsilon_{jk}$$

where  $\mu$  = overall mean of all treatment populations  
 $\alpha_j$  = effect of block  $j$   
 $\beta_k$  = effect of treatment  $k$   
 $\epsilon_{jk}$  = random error associated with the process of sampling

Basic assumptions of the ANOVA test in general are that the populations being tested are each normally distributed and that they have equal variances. (Kazmier, p. 278)

Pair-wise t-test comparisons of the least squares mean of each characteristic were conducted to determine which characteristics, if any, had significantly different ratings when the ANOVA model indicated statistical significance. Least squares means are the expected value of class or subclass means that you would expect for a balanced design involving the class variable. (SAS Statistics Manual, p. 483)

The null hypothesis was tested by the F-test. Because of the presence of unbalanced data, either Type III or Type IV sums

of squares could be applicable. Type I and Type II sums of squares are generally not considered applicable.

Therefore, for purposes of this study, if the F-statistic for Type III or Type IV sums of squares resulted in the same conclusion as to acceptance or rejection of the null hypothesis, that conclusion can be accepted as the best available. However, where the individual F-statistic associated with Type III and Type IV sums of squares led to differing conclusions, additional measures were undertaken.

Type III sums of squares result from the computer program's attempt to test the stated hypothesis, as is, in the presence of unbalanced data. Therefore, the conclusion from the actual hypothesis that resulted in Type III sums of squares might have been:

$$\mu_1 = \mu_2 \text{ and } \mu_3 = \mu_4$$

instead of:

$$\mu_1 = \mu_2 = \mu_3 = \mu_4$$

Type IV sums of squares, conversely, result from the computer program's attempt to correct the hypothesis to reflect the unbalance in the data. Therefore, the conclusion from the hypothesis being tested might have been:

$$8/9\mu_1 = 5/6\mu_2 = \dots = \mu_{14}$$

Instead of:

$$\mu_1 = \mu_2 = \mu_3 = \mu_4$$

The actual hypotheses being tested under Type III and Type IV sums of squares can be calculated. However, this exercise is highly theoretical and would have little application in this situation. A more practical approach is to eliminate insignificant interactions from any model in which inconclusive results were originally found. By eliminating insignificant interactions, some of the imbalance in the data is eliminated, thus causing the Type III and Type IV sums of squares to converge. This approach was used in this study.

Only state responses to question number five in Section C of the survey were used in this analysis. Missing values were not used.

The two-way ANOVA to test for equality of the average importance rating of lender characteristics resulted in the rejection of the null hypothesis and provided for the conclusion that all average scores were not equal. (Table 61) Significant differences were found both between responses given by each person and between importance ratings given to each characteristic.

Analysis of the pair-wise t-test comparisons of the least squares mean importance ratings resulted in some overlap of groupings of characteristics with statistically equivalent means and, thus, some difficulty in interpretation. The mean importance rating for "favorable interest rates on loans" was found to be statistically higher than that of some other



Table 61. RESULTS OF TWO-WAY ANOVA TO TEST FOR EQUALITY OF AVERAGE IMPORTANCE RATING OF LENDER CHARACTERISTICS,  $\alpha=.05$

<u>Source</u>	<u>Degrees of Freedom</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F-Statistic (Calculated)</u>	<u>Probability*</u>
Model	106	856.80	8.08	7.02	.0001
Error	1084	1248.99	1.15		
Corrected Total	1190	2105.79			

<u>Source</u>	<u>Degrees of Freedom</u>	<u>F-Statistic (Calculated) Type III SS</u>	<u>Prob*</u>	<u>F-Statistic (Calculated) Type IV SS</u>	<u>Prob*</u>
Person	93	5.20	.0001	5.20	.0001
Lender Characteristics	13	19.20	.0001	19.20	.0001

\*Probability that critical F is greater than the calculated F. The probability must be less than or equal to .05 to reject the null hypothesis.

characteristics, even though its mean rating was found to be no different than that of "financially sound institution" and "friendly and quick service." (Table 62)

Conversely, the mean importance rating of "availability of other services, such as checking and savings," "upfront fees and/or stock requirements," and "variable interest rates with set maximum increases" were found to be statistically equal and less than those of all other characteristics.

#### Significantly High Priority Future Services

The priority ratings given to twelve potential services by state survey respondents were analyzed to determine if the priority rating given any service or group of services was significantly different from the ratings given other services.

The same linear equation, methods, and unbalanced data implications applied to this analysis as to the analysis of importance ratings for characteristics.

The applicable hypotheses were as follow:

$$H_0: \alpha_k = 0 \text{ for all services}$$

$$H_1: \alpha_k \neq 0 \text{ for all services}$$

where  $\alpha_k$  = effect of the mean rating for service k  
on the overall mean of the ratings of all service  
populations

Results of two-way ANOVA indicate rejection of the null hypothesis and allow for the conclusion that priority ratings given each service were not equal. (Table 63) Significant

Table 62. RESULTS OF PAIRWISE T-TEST COMPARISON OF LEAST SQUARES MEAN IMPORTANCE RATINGS FOR LENDER CHARACTERISTICS, alpha = .05

<u>Characteristic</u>	<u>Least Squares</u>	
	<u>Grouping</u>	<u>Mean</u>
# 6. Favorable interest rates	A	4.67
# 3. Financially sound institution	A B	4.51
# 1. Friendly and quick service	A B C	4.48
#14. Stability of loan officers	B C D	4.20
#13. Personnel with up-to-date knowledge of agriculture	C D	4.17
# 7. Availability of fixed interest rates	C D	
# 2. Personal interest in farm business and customer	D	4.16
#10. Minimum paperwork requirements (Financial statements & documentation)	D	4.14
# 5. Convenient hours	D E	3.92
# 4. Conveniently located offices	D E	
#12. Up-to-date and innovative services	E	3.81
#11. Availability of other services such as checking and savings	E	3.67
# 8. Variable interest rates with set maximum increases	E	3.61
# 9. Upfront fees and/or stock requirements	F	3.22
	F	3.13
	F	3.06

\*Means with the same letter are not significantly different.

Table 63. RESULTS OF TWO-WAY ANOVA TO TEST FOR EQUALITY OF AVERAGE PRIORITY RATING OF POTENTIAL SERVICES,  $\alpha=.05$

<u>Source</u>	<u>Degrees of Freedom</u>	<u>Sum of Squares</u>	<u>Mean Square</u>	<u>F-Statistic (Calculated)</u>	<u>Probability*</u>
Model	102	999.94	9.80	7.93	.0001
Error	885	1094.44	1.24		
Corrected Total	987	2094.38			

<u>Source</u>	<u>Degrees of Freedom</u>	<u>F-Statistic (Calculated)</u>		<u>F-Statistic (Calculated)</u>	
		<u>Type III SS</u>	<u>Prob*</u>	<u>Type IV SS</u>	<u>Prob*</u>
Person	91	7.89	.0001	7.89	.0001
Services	11	8.70	.0001	8.70	.0001

\*Probability that critical F is greater than the calculated F. The probability must be less than or equal to .05 to reject the null hypothesis.

differences both between responses given by each respondent as expected and between priority ratings given each service were found.

The overlap in service groupings by statistical equivalence of least squares means causes some confusion in interpretation. (Table 64) The mean priority rating given tax planning was found to be significantly higher than some services, even though the mean rating given to tax planning was determined to be statistically equal to that of several other services (services #3, #4, #7, #8, #9, and #12).

However, "credit cards for farm operating needs" and "futures brokerage services" were found to be of conclusively lower priority than all other services.

Demographic Impact on Importance Rating of Lender  
Characteristics

The importance rating of each of fourteen lender characteristics was tested to determine if the average importance rating of a characteristic varied statistically with the age, the educational level, or the annual gross farm income of a respondent.

Table 64. RESULTS OF PAIRWISE T-TEST COMPARISON OF LEAST SQUARES MEAN PRIORITY RATINGS FOR FUTURE BANK SERVICES,  $\alpha=.05$

Service	Least Squares	
	Grouping	Mean
* 5. Tax planning	A	3.17
* 8. Financial management oriented educational seminars	A B	3.14
* 7. Marketing oriented educational seminars	A B	3.11
* 3. Estate planning	A B C	3.07
* 9. Production oriented educational seminars	A B C	2.97
* 4. Financial recordkeeping	A B C	2.97
*12. Farm management service	A B C	2.93
*11. Overall personal financial planning	B C	2.83
* 6. Tax preparation	C	2.76
*10. Expanded hours	C	2.75
* 2. Futures brokerage services	D	2.31
* 1. Credit cards for farm operating needs	E	1.95

\*Means with the same letter are not significantly different.

Three-factor completely randomized design (three-way) ANOVA was used to conduct this analysis. The applicable linear model is:

$$X_{ijkl} = \mu + \alpha_j + \beta_k + \delta_l + \gamma_{jk} + \gamma_{kl} + \gamma_{jl} + \gamma_{jkl} + \epsilon_{ijkl}$$

where:

- $\mu$  = overall mean of all treatment populations
- $\alpha_j$  = effect of treatment j in the B dimension
- $\beta_k$  = effect of treatment k in the A dimension
- $\delta_l$  = effect of treatment l in the C dimension
- $\gamma_{jk}$  = effect of the interaction between treatments j and k
- $\gamma_{kl}$  = effect of the interaction between treatments k and l
- $\gamma_{jl}$  = effect of the interaction between treatments j and l
- $\gamma_{jkl}$  = effect of the interaction between treatments j, k, and l
- $\epsilon_{ijkl}$  = random error associated with the process of sampling

The null hypothesis under this linear equation tests to determine if the effect of any treatment group or combination of treatment groups is large enough to statistically alter the average rating of a characteristic. Seven different hypotheses were tested for each characteristic.

- $H_0: \alpha_j = 0$  (Effect because of age = 0)
- $H_0: \beta_k = 0$  (Effect because of education = 0)
- $H_0: \delta_l = 0$  (Effect because of gross farm income = 0)
- $H_0: \gamma_{jk} = 0$  (Effect from age \* education interaction = 0)
- $H_0: \gamma_{kl} = 0$  (Effect from education \* gross farm income interaction = 0)
- $H_0: \gamma_{jl} = 0$  (Effect from age \* gross farm income interaction = 0)
- $H_0: \gamma_{jkl} = 0$  (Effect from age \* education \* gross farm income interaction = 0)

The alternative hypothesis in each case would be that the effect was not zero.

Again, the issue of unbalanced data arises and must be taken into consideration with respect to the actual hypothesis being tested and the appropriate type of sums of squares. Refer to the previous discussion of these issues.

Only state responses were used in this analysis. Responses to question #5 in Section C and questions #3, #5a, and #7 in survey section A were the sources of data.

In most situations, results failed to reject the null hypothesis. (Table 65) However, some notable exceptions were found. The level of a respondent's gross farm income was found to be highly significant to the rating given to "friendly and quick service." (Characteristic #1) The rating for this characteristic was found to decrease as a respondent's gross farm income increased, with the over \$500,000 income level rating friendly and quick service statistically less important than other income levels. However, only one respondent rating in this highest annual gross farm income category was usable in the analysis. The interaction between age and education and the interaction between education and gross farm income were both found to be significant factors in the rating given "financially sound institution" (Characteristic #3).

Age was found to be a significant factor and gross farm income was found to be inconclusive with respect to the rating for this characteristic; however, since interactions involving



Table 65. RESULTS OF THREE-WAY ANOVA TO DETERMINE DEMOGRAPHIC EFFECTS ON LENDER CHARACTERISTIC IMPORTANCE RATINGS, alpha=.05

<u>Variable</u>	<u>Degrees of Freedom</u>	<u>F-Statistic (Calculated)</u>		<u>F-Statistic (Calculated)</u>	
		<u>Type III SS</u>	<u>Prob*</u>	<u>Type IV SS</u>	<u>Prob*</u>
-----Characteristic #1-----					
Age	5	0.45	.8094	0.27	.9264
Education	3	1.33	.2753	1.53	.2168
GFI	3	4.92	.0044	4.73	.0055
Age*	8	0.31	.9578	0.68	.7107
Education					
Age*GFI	7	1.12	.3671	1.38	.2329
Education*	5	0.30	.9097	0.38	.8583
GFI					
Age*	4	0.62	.6478	0.62	.6478
Education*GFI					
-----Characteristic #2-----					
Age	5	1.02	.4169	1.18	.3327
Education	3	1.50	.2261	1.46	.2374
GFI	2	2.59	.0853	0.53	.5907
Age*	8	0.90	.5207	0.86	.5596
Education					
Age*GFI	7	0.86	.5425	0.98	.4573
Education*	5	1.28	.2865	1.40	.2416
GFI					
Age*	4	0.84	.5081	0.84	.5081
Education*GFI					
-----Characteristic #3-----					
Age	5	6.68	.0001	6.02	.0001
Education	3	1.80	.1563	1.74	.1686
GFI	2	2.66	.0777	3.47	.0372
Age*	10	2.15	.0334	2.15	.0334
Education					
Age*GFI	5	2.96	.0186	2.96	.0186

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.

Table 65 - Continued.

Variable	Degrees of Freedom	F-Statistic (Calculated)		F-Statistic (Calculated)	
		Type III SS	Prob*	Type IV SS	Prob*
-----Characteristic #4 -----					
Age	5	0.65	.6615	0.18	.9692
Education	3	1.33	.2744	1.68	.1824
GFI	3	1.26	.2984	1.27	.2955
Age*	8	0.50	.8511	1.16	.3391
Education					
Age*GFI	7	0.92	.5022	1.75	.1185
Education*	5	1.28	.2891	1.47	.2155
GFI					
Age*	4	1.91	.1240	1.91	.1240
Education*GFI					
-----Characteristic #5-----					
Age	5	0.05	.9980	0.17	.9708
Education	3	1.47	.2357	1.61	.1983
GFI	3	1.45	.2388	1.27	.2967
Age*	8	0.45	.8843	0.83	.5841
Education					
Age*GFI	7	1.13	.3585	1.58	.1637
Education*	5	1.05	.3997	1.04	.4032
GFI					
Age*	4	1.75	.1537	1.75	.1537
Education*GFI					
-----Characteristic #6-----					
Age	5	0.51	.7692	0.43	.8289
Education	3	0.66	.5821	0.56	.6466
GFI	2	1.21	.3054	1.32	.2756
Age*	7	0.70	.6743	0.81	.5814
Education					
Age*GFI	7	0.47	.8519	0.66	.7072
Education*	5	1.29	.2849	1.32	.2716
GFI					
Age*	4	0.68	.6111	0.68	.6111
Education*GFI					

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.

Table 65 - Continued.

<u>Variable</u>	<u>Degrees of Freedom</u>	<u>F-Statistic (Calculated)</u>		<u>F-Statistic (Calculated)</u>	
		<u>Type III SS</u>	<u>Prob*</u>	<u>Type IV SS</u>	<u>Prob*</u>
-----Characteristic #7-----					
Age	5	1.32	.2730	1.09	.3779
Education	3	0.75	.5288	0.80	.5028
GFI	2	0.15	.8595	0.30	.7388
Age* Education	7	1.19	.3277	0.88	.5293
Age*GFI	5	0.62	.6866	0.85	.5201
Education* GFI	4	0.19	.9415	0.31	.8725
Age* Education*GFI	3	0.66	.5828	0.66	.5828
-----Characteristic #8-----					
Age	5	0.40	.8430	0.64	.6670
Education	3	2.21	.1024	2.21	.1013
GFI	2	0.55	.5818	0.51	.6070
Age* Education	7	1.55	.1789	1.93	.0896
Age*GFI	5	0.86	.5131	0.21	.9578
Education* GFI	4	0.81	.5266	0.93	.4562
Age* Education*GFI	4	1.43	.2430	1.43	.2430
-----Characteristic #9-----					
Age	5	0.66	.6539	0.55	.7352
Education	3	1.90	.1439	1.61	.2002
GFI	2	0.03	.9670	0.34	.7103
Age* Education	7	1.09	.3860	0.59	.7588
Age*GFI	6	0.82	.5607	0.73	.6247
Education* GFI	4	0.22	.9280	0.41	.8028
Age* Education*GFI	4	1.27	.2962	1.27	.2962

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.

Table 65 - Continued.

<u>Variable</u>	<u>Degrees of Freedom</u>	<u>F-Statistic (Calculated)</u>		<u>F-Statistic (Calculated)</u>	
		<u>Type III SS</u>	<u>Prob*</u>	<u>Type IV SS</u>	<u>Prob*</u>
-----Characteristic #10-----					
Age	5	1.13	.3586	1.06	.3933
Education	3	0.30	.8227	0.50	.6818
GFI	2	1.83	.1714	1.72	.1899
Age*	6	0.90	.5029	0.55	.7709
Education					
Age*GFI	6	0.80	.5773	0.89	.5090
Education*	3	0.11	.9527	0.27	.8474
GFI					
Age*	4	1.18	.3294	1.18	.3294
Education*GFI					
-----Characteristic #11-----					
Age	5	0.44	.8204	0.44	.8204
Education	3	1.55	.2096	1.55	.2096
GFI	2	1.30	.2789	1.30	.2789
-----Characteristic #12-----					
Age	5	0.53	.7500	0.53	.7500
Education	3	2.42	.0729	2.42	.0729
GFI	2	2.18	.1207	2.18	.1207
-----Characteristic #13-----					
Age	5	1.12	.3613	1.59	.1819
Education	3	0.75	.5273	1.00	.4002
GFI	2	0.43	.6505	0.40	.6757
Age*	7	0.66	.7032	0.73	.6481
Education					
Age*GFI	5	0.67	.6448	0.60	.7005
Education*	4	0.47	.7548	0.56	.6913
GFI					
Age*	4	0.09	.9854	0.09	.9854
Education*GFI					

\*Probability that critical-F is greater than calculated-F.  
 \*\*\*GFI=gross farm income.

Table 65 - Continued.

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<u>Variable</u>	<u>Degrees of Freedom</u>	<u>F-Statistic (Calculated)</u>		<u>F-Statistic (Calculated)</u>	
		<u>Type III SS</u>	<u>Prob*</u>	<u>Type IV SS</u>	<u>Prob*</u>
-----Characteristic #14-----					
Age	5	1.28	.2889	1.12	.3643
Education	3	0.96	.4188	0.69	.5621
GFI	3	2.23	.0965	2.10	.1115
Age*	7	0.37	.9153	0.24	.9723
Education					
Age*GFI	5	0.67	.6512	0.68	.6386
Education*	4	0.16	.9552	0.20	.9391
GFI					
Age*	4	0.65	.6317	0.65	.6317
Education*GFI					

---

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.

these variables were found to be significant, the interactions should be given more consideration.

Demographic Impact on Priority Rating of Future Services

The priority rating of each of twelve future services was tested to determine if the average priority rating of a service was statistically different with respect to the age group, the educational level, or the annual gross farm income of a respondent.

The same linear equation and methods apply to this analysis as were used to test the impact of demographic variables on the average importance rating given lender characteristics.

The null hypothesis under this linear equation tests to determine if any treatment or combination of treatments has a statistical effect on the average priority rating of a service.

Seven different hypotheses were tested for each service.

- $H_0: \alpha_j = 0$  (Effect because of age = 0)  
 $H_0: \beta_k = 0$  (Effect because of education = 0)  
 $H_0: \delta_l = 0$  (Effect because of gross farm income = 0)  
 $H_0: \gamma_{jk} = 0$  (Effect from age \* education interaction = 0)  
 $H_0: \gamma_{kl} = 0$  (Effect from education \* gross farm income interaction = 0)  
 $H_0: \gamma_{jl} = 0$  (Effect from age \* gross farm income interaction = 0)  
 $H_0: \gamma_{jkl} = 0$  (Effect from age \* education \* gross farm income interaction = 0)

The alternative hypothesis in each case would be that the effect of the treatment on the average priority rating of a service was not zero.

In reference to most services, results failed to reject the null hypotheses (Table 66). However, some important differences were found.

The priority of tax planning (Service #5) was found to differ when educational level and gross farm income of respondents were considered together. Similarly, the priority of tax preparation (Service #6) was determined to vary significantly when educational level and gross farm income were considered together.

The effect of gross farm income, considered individually, was also found to be significant with respect to tax preparation; however, the impact of the interaction should be given more consideration.

The priority rating of financial management oriented educational seminars (Service #8) was found to differ significantly when age and education were considered together.

Because of relatively few or no responses present in some interaction cells, difficulty was incurred in attempting to definitively identify the exact nature of these significant interactions.

Table 66. RESULTS OF THREE-WAY ANOVA TO DETERMINE DEMOGRAPHIC EFFECTS ON FUTURE BANK SERVICE PRIORITY RATINGS,  $\alpha=.05$

Variable	Degrees of Freedom	F-Statistic (Calculated) Type III SS	Prob*	F-Statistic (Calculated) Type IV SS	Prob*
-----Service #1-----					
Age	5	0.68	.6376	0.21	.9562
Education	3	1.61	.1990	0.74	.5320
GFI	2	0.67	.5185	0.60	.5556
Age*	7	0.76	.6212	0.73	.6441
Education					
Age*GFI	6	0.21	.9730	0.22	.9677
Education*	5	0.74	.5957	0.74	.5963
GFI					
Age*	4	0.70	.5946	0.70	.5946
Education*GFI					
-----Service #2-----					
Age	5	0.93	.4710	1.42	.2366
Education	3	0.56	.6431	0.33	.8051
GFI	2	1.70	.1946	1.54	.2263
Age*	7	0.71	.6644	0.98	.4562
Education					
Age*GFI	6	1.46	.2158	1.17	.3409
Education*	5	1.12	.3639	1.72	.1506
GFI					
Age*	4	1.70	.1662	1.70	.1662
Education*GFI					
-----Service #3-----					
Age	5	1.39	.2455	0.99	.4317
Education	3	0.52	.6698	0.20	.8979
GFI	2	2.32	.1097	3.17	.0514
Age*	7	0.94	.4883	0.75	.6328
Education					
Age*GFI	6	1.17	.3392	0.60	.7251
Education*	5	1.18	.3342	1.23	.3113
GFI					
Age*	4	0.74	.5708	0.74	.5708
Education*GFI					

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.



Table 66 - Continued.

Variable	Degrees of Freedom	F-Statistic (Calculated) Type III SS	Prob*	F-Statistic (Calculated) Type IV SS	Prob*
-----Service #4-----					
Age	5	0.89	.4978	1.38	.2495
Education	3	0.38	.7669	0.43	.7324
GFI	2	2.72	.0763	2.77	.0728
Age*	7	0.72	.6552	1.48	.1992
Education					
Age*GFI	6	0.83	.5508	0.70	.6535
Education*	5	1.91	.1111	2.01	.0949
GFI					
Age*	4	2.48	.0568	2.48	.0568
Education*GFI					
-----Service #5-----					
Age	5	1.52	.2014	1.22	.3132
Education	3	0.10	.9569	0.47	.7063
GFI	2	2.82	.0700	2.66	.0804
Age*	7	0.79	.6023	0.54	.8005
Education					
Age*GFI	6	0.61	.7206	0.60	.7304
Education*	5	2.49	.0447	2.43	.0487
GFI					
Age*	4	0.44	.7797	0.44	.7797
Education*GFI					
-----Service #6-----					
Age	5	1.04	.4045	1.25	.3028
Education	3	0.19	.8996	0.40	.7504
GFI	2	3.77	.0307	4.21	.0211
Age*	7	1.23	.3054	1.20	.3249
Education					
Age*GFI	5	0.31	.9060	0.40	.8443
Education*	5	2.62	.0369	2.61	.0377
GFI					
Age*	4	1.16	.3432	1.16	.3432
Education*GFI					

\*Probability that critical-F is greater than calculated-F.  
 \*\*\*GFI=gross farm income.

Table 66 - Continued.

Variable	Degrees of Freedom	F-Statistic (Calculated) Type III SS	Prob*	F-Statistic (Calculated) Type IV SS	Prob*
-----Service #7-----					
Age	5	0.90	.4896	0.43	.8234
Education	3	0.85	.4715	0.64	.5945
GFI	2	1.06	.3531	1.39	.2586
Age*	7	1.31	.2683	1.52	.1827
Education					
Age*GFI	5	0.54	.7460	0.85	.5234
Education*	5	1.79	.1327	1.83	.1247
GFI					
Age*	4	0.57	.6879	0.57	.6879
Education*GFI					
-----Service #8-----					
Age	5	0.34	.8883	1.09	.3742
Education	3	2.00	.1244	1.63	.1929
GFI	2	2.53	.0884	2.53	.0884
Age*	9	2.95	.0061	2.95	.0061
Education					
-----Service #9-----					
Age	5	0.59	.7040	0.24	.9405
Education	3	0.43	.7321	0.65	.5872
GFI	2	0.58	.5663	0.86	.4314
Age*	7	0.91	.5081	1.03	.4197
Education					
Age*GFI	5	0.12	.9885	0.43	.8231
Education*	5	1.37	.2536	1.46	.2220
GFI					
Age*	4	0.72	.5821	0.72	.5821
Education*GFI					

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.

Table 66 - Continued.

Variable	Degrees of Freedom	F-Statistic (Calculated) Type III SS	Prob*	F-Statistic (Calculated) Type IV SS	Prob*
-----Service #10-----					
Age	5	0.50	.7711	0.35	.8778
Education	3	0.18	.9101	0.76	.5223
GFI	2	0.68	.5119	1.73	.1887
Age*	7	1.30	.2736	1.65	.1462
Education					
Age*GFI	6	0.98	.4518	0.61	.7219
Education*	6	1.35	.2556	1.60	.1705
GFI					
Age*	4	1.08	.3775	1.08	.3775
Education*GFI					
-----Service #11-----					
Age	5	0.19	.9634	0.19	.9653
Education	3	0.75	.5273	0.21	.8859
GFI	2	2.18	.1249	1.91	.1588
Age*	7	1.09	.3876	0.68	.6845
Education					
Age*GFI	5	0.51	.7653	0.09	.9934
Education*	5	1.01	.4248	0.99	.4312
GFI					
Age*	4	0.76	.5593	0.76	.5593
Education*GFI					
-----Service #12-----					
Age	5	0.82	.5427	0.57	.7240
Education	3	1.33	.2763	1.30	.2848
GFI	2	0.63	.5381	0.33	.7236
Age*	7	0.68	.6910	0.52	.8158
Education					
Age*GFI	6	0.91	.4946	0.33	.9167
Education*	6	0.68	.6655	0.72	.6366
GFI					
Age*	4	1.28	.2908	1.28	.2908
Education*GFI					

\*Probability that critical-F is greater than calculated-F.

\*\*\*GFI=gross farm income.

## SUMMARY OF STATE AND BANK CUSTOMER SURVEY RESULTS

1. The majority of state survey respondents owed no agricultural debt. Heavier debt loads were found among farmers with operations in the Southern, Southeastern, Eastern, or Northern crop reporting districts. State respondents who had started farming within the past five years were least likely to carry any agricultural debt, while middle-aged farmers were found to carry heavier debt loads than were younger or older farmers.

Farmers with no nonfarm income carried heavier debt loads, in general, than other farmers. Larger debt loads also generally came with higher annual gross farm incomes and individual/family farms.

2. Demographic issues appeared to be influential to the choice of lenders by state respondents. Lenders patronized by state respondents varied geographically and by customer enterprise.

Statistical analysis failed to reveal a significant relationship between the lender chosen and age, educational level, or gross farm income of state respondents.

3. The majority of Virginia farmers had never been visited by any of their current agricultural lenders; however, this did not appear to affect loyalty to their lenders as a large majority had not changed lenders in the past three years and very few planned to switch in the next year either.

4. The majority of state respondents anticipated neither a change in productive capacity nor in future borrowing needs. Operating capital and intermediate-term capital were found to be the greatest areas of anticipated future borrowing needs among state survey respondents.
5. "Favorable interest rates on loans" was determined to be statistically most important, under a liberal interpretation, to state farmers when they chose lenders. Variable interest rates, fees and/or stock requirements, and availability of other services were found to be statistically insignificant to the choice of lenders.

The rating given financially sound institutions was found to be lower among younger people with no more than a high school education and among older farmers (55 to 64 years of age) with some college education.

- Annual gross farm income was found to be a significant factor in the importance of friendly and quick service, with lower ratings being found among farmers with higher incomes.
6. Tax planning was determined to have been rated statistically highest in priority, from a liberal viewpoint, by state respondents. Credit cards for farm operating needs and futures brokerage services were found to be statistically lowest in priority among potential future services.

State respondents with moderate gross farm income and a high school education rated tax planning and tax preparation to be of higher priority than any other group of farmers.

Farmers fifty-five to sixty-four years of age who also had a high school education were found to rate financial management educational seminars higher than any other group of farmers.

7. Bank customer respondents were determined to be heavily concentrated with respect to enterprise and geographical location. Bank customers were generally younger, better educated, and more likely to operate as a corporation than were state respondents. Bank customer respondents also farmed larger acreages and had higher annual gross farm incomes.
8. Overall, bank customer groups had substantially higher debt than state respondents. Surveyed bank customers were also more likely to borrow consumer and agricultural funds from the same source and to have and to use credit cards for short-term consumer and agricultural credit needs than were state survey respondents.
9. Bank customers were more likely to anticipate future productive capacity increases and future borrowing need decreases than were state respondents. Importance ratings on characteristics and priority ratings for services were very similar to those of the state respondents.

10. Bank customers were found to be more likely to have changed agricultural lenders over the past three years but much less likely to plan to switch lenders within the next year.

## SUMMARY OF BANK A CUSTOMER SURVEY RESULTS

1. The average Bank A customer who responded to this survey was:

Age: 46 years

Location: Northern and Western Virginia

Education: Post-high school

Tenure of Operation: 19 years

Annual Gross Farm Income: \$100,000 to \$499,999

Enterprises: Commercial cow/calf, Dairy

2. Bank A's customer respondents were younger and had less experience operating their farm than any other survey group. Bank A's customers were also more likely to have less than a high school education. However, more of Bank A's college graduates had agriculture-related degrees.
3. Bank A had more very small acreage operations and more very large operations than did other banks. Accordingly, Bank A had a larger proportion of customers with annual gross farm incomes less than \$40,000.

Bank A's customers were also most likely to own all or almost all of the land that they farmed.



4. Bank A customers were found to be increasing use of statewide/regional banks, life insurance companies, individual lenders and leasing companies for agricultural credit. Conversely, hometown banks, Farm Credit, FmHA, machinery/equipment dealers, and agribusinesses were found to be experiencing decreased utilization by Bank A customers.
5. Bank A customers were least likely among the three bank groups to seek consumer and agricultural loans from the same source; however, this result may be a function of the different organizational structures of the banks in question. More Bank A customers used credit cards for short-term agricultural credit than those of other banks.
6. Bank A customers reported the highest average level of total debt among bank groups as well as the highest total amount of debt by an individual respondent. Statewide/regional banks, hometown banks, and agribusiness/suppliers were important sources of short-term debt to Bank A customers. Statewide/regional banks, hometown banks, machinery/equipment dealers, PCA's, and individuals were important sources of intermediate term debt. And, FLB, FmHA, hometown banks, statewide/regional banks and individuals were major sources of long-term capital.

7. Bank A customers were more likely to have been visited by a current lender in the past six months than any other bank customer group. However, over 10% reported never having been visited.
8. More than one-third of Bank A customers planned an increase in productive capacity, while 20% anticipated an increase in future borrowing needs. Bank A customers concurred with other bank groups in ranking operating capital as the greatest future borrowing need.
9. Fewer Bank A customers reported changing lenders over the past few years than any other bank group. Also, no Bank A respondents planned to switch lenders with the next year's operating capital or the next major purchase. Non-competitive loan rates were the major reason current Bank A customers reported for changing lenders within the past three years.
10. Bank A customers considered favorable interest rates to be most important in lender selection. Financial management seminars were considered to be the highest priority future service by Bank A customers.

## SUMMARY OF BANK B CUSTOMER RESULTS

1. The average Bank B customer who responded to this survey was:

Age: 50.5 years

Location: Central Virginia to Eastern Shore

Education: Post-high school

Tenure of Operation: 28 years

Annual gross farm income: \$100,000 to \$499,999

Enterprises: Soybeans, small grain, tobacco

2. Bank B customers reported more experience operating their farms than any other survey group. Bank B also had the largest proportion of customer respondents with at least some college education.

3. Bank B's customers were most likely to have less than \$20,000 annual nonfarm income but also most likely to have over \$100,000 in annual gross farm income.

Bank B customers were most apt to be organized as a partnership and least likely to be organized as an individual/family farm. Their customers were also determined to be least likely to operate either very small acreage farms or very large acreage farms.

4. Bank B customers were found to be increasing patronage of statewide/regional banks and individual lenders. Conversely, patronage of hometown banks, Farm Credit, FmHA, life insurance companies, machinery/equipment dealers, agribusinesses, and leasing companies had decreased, often sharply.
5. Bank B customers were most likely to have credit cards; however, very few reported using credit cards to meet short-term agricultural credit needs. Bank B customers were also most likely to have incurred stricter agribusiness credit policies over the past five years than were other bank customer groups.
6. Bank B customer respondents reported the lowest average debt load among bank groups. In addition to statewide/regional banks, hometown banks were found to be a popular source of short-term debt for Bank B respondents. PCA's, FmHA, and machinery/equipment dealers as well as statewide/regional banks were indicated to be important sources of intermediate-term capital. FLB, FmHA, and statewide/regional banks were important to Bank B customers in the market for long-term financing.
7. Bank B customers were least likely to ever have been visited by a current agricultural lender, among all bank groups.

8. More Bank B customers planned to increase future productive capacity and anticipated an increase in future borrowing needs than any other bank group. Bank B customers decisively rated operating capital as the greatest future borrowing need.
9. About one-third of all Bank B customers who considered the issue relevant had switched lenders over the past three years. Slow service was cited as a major reason for change. A higher proportion of Bank B customers than any other bank group planned to switch lenders with the next major purchase or for next year's operating capital.
10. Bank B customers considered favorable interest rates to be most important in lender selection, while financial management seminars were considered the highest priority future service.

## SUMMARY OF BANK C CUSTOMER RESULTS

1. The average Bank C farmer who responded to this survey was:

Age: 52 years

Location: Central to Southwestern Virginia

Education: Post-high school

Tenure of Operation: 27 years

Annual gross farm income: \$100,000 to \$499,999

Enterprises: Commercial cow/calf, dairy, tobacco

2. Bank C's customer respondents were identified as being slightly older, on average, than any other bank group and as having a larger proportion of college graduates. However, Bank C's college graduate respondents were least likely to have an agriculture-related degree.
3. Bank C's customers were most likely to have annual nonfarm income in excess of \$20,000 and slightly least likely to have annual gross farm income over \$100,000, as compared to other participating banks.

Bank C's customers also cited higher proportions of individual/family farms and corporations than other bank survey groups.

4. Bank C customers who responded to the survey were found to be increasing patronage of hometown banks, statewide/regional banks, Farm Credit, agribusinesses, and leasing companies. However, FmHA and individual lenders were being used as a source of agricultural credit less than in the past.
5. Bank C customers, by a large margin, were determined to seek agriculture and consumer credit from the same source. Slightly over one-half of all Bank C respondents used credit cards for consumer credit needs, while only 10% used credit cards for agricultural credit needs.

Bank C customers were also slightly less likely to have experienced stricter agricultural supplier credit policies over the past 5 years than other bank groups.

6. Bank C had the smallest proportion of customer respondents with total debt in excess of \$250,000, but had the largest proportion in the highest debt category (over \$500,000).

PCA's and agribusiness/suppliers, in addition to statewide/regional banks, were important sources of short-term debt and intermediate-term debt for Bank C customers. Popular sources of long-term debt for Bank C customers included FLB and FmHA.

7. Bank C customers, who considered the question applicable, were most likely to have been visited by a current agricultural lender, among bank groups. However, they were least likely to have been visited within the last six months.
8. Fewer Bank C customers plan to increase future productive capacity or anticipate an increase in future borrowing needs than any other bank group. Operating capital was considered to be the greatest area of future borrowing need.
9. A slightly higher percent of Bank C customers, among those who considered the issue applicable, had changed lenders over the past three years. Solicitation by another lender and discourteous personnel were major reasons for these changes.

A very small minority indicated that they expected to switch lenders with the next major purchase or for next year's operating capital.

10. "Favorable interest rates on loans" was considered most important to Bank C customer selection of agricultural lenders, whereas Bank C customers placed highest priority on farm management services in the future.



Chapter 4

CONCLUSIONS AND IMPLICATIONS

The relative prosperity of American agriculture in the 1970's subsided into virtual farm sector crisis in the 1980's. Transitional pressures have mandated adjustments be made by agricultural producers, agricultural lenders, rural communities, and agribusinesses. Farm sector transition at the national level has had an impact on Virginia agriculture as well.

Agricultural lenders, both nationally and within Virginia, have realized that meeting the financing needs of American agriculture in the future will require new considerations in view of a changing primary producer sector. New competitors, loan losses, and less loyal customers are challenges facing agricultural lenders.

This study was designed to explore the utilization of credit among Virginia farmers and to provide market intelligence to executives of commercial banks serving Virginia agriculture. Specific objectives of this market analysis were to provide information on trends in the agricultural environment of the U.S., the South, and Virginia, to assess past and future trends in agricultural credit delivery systems in Virginia, to project products, services, and programs to meet the needs of the evolving Virginia agricultural sector, and to draw implications to Virginia banks from an integration of this information.

The first study objective was satisfied by the evaluation of the agricultural environment in the U.S., the South, and Virginia and by the identification of trends affecting

agriculture. These findings provided perspective of the current position and future direction of agriculture in Virginia. A review of documents revealed agriculture at all geographic levels of interest to be in a transitional phase. Nationally, technological advancements are expected to have a substantial direct impact on agriculture production and shaping the overall future structure of American agriculture.

A bi-modal producer sector was found to be evolving, with complimentary adjustments occurring in rural communities, agribusinesses, and agricultural lenders. Among existing rural communities, some are expected to become area trade centers while the remainder will face economic distress. Off-farm employment opportunities remain critical to part-time farmers and to rural areas and are extremely important to Virginian and other Southern farmers.

Agricultural businesses are expected to become more regionally based; however, small farms will remain important purchasers of equipment/machinery, capital, and other inputs. Traditional agricultural lenders will face new competition and will be introduced to new financial instruments to serve the needs of agricultural clients.

External forces will continue to be an important player in the agricultural arena, especially in view of the international scope of general and agricultural economies. Taxation, government commodity programs, and other domestic policies also

promise to be influential into the future.

An Office of Technology and Assessment study indicated the potential for large-scale agriculture in the South. However, such operations would be the exception, with the majority of Southern farms expected to be small operations. The viability of the Southern farm sector will also be greatly influenced by the South's general economy and by the ability of rural areas to join in the economic success of Southern urban centers.

Within the South, Virginia was found to be a very strong state, benefiting from a healthy and diverse general economy. Even though employment and population growth are concentrated in Northern Virginia and Hampton Roads, rural employment growth rates have recently been approaching urban rates.

Virginia's farmers were found to be in better financial condition than U.S. farmers in general. The number of farms in the state was determined to be declining, with most Virginia farms being family operations generating annual farm sales of less than \$40,000. The state's strong general economy also serves to support land prices.

Commodity production is diverse across the state; yet, little shift has been observed in the production areas of Virginia commodities over the past decade.

The second objective was fulfilled by examining past and current marketshare of agricultural lenders in Virginia and by assessing potential adjustments that will affect the state's agricultural credit delivery systems in the future.

The Virginia farm real estate debt market was found to be dominated by Federal Land Bank. No dominant lender was identified in nonreal estate debt; however, Farmers Home Administration has become more important in both real and nonreal estate financing.

Innovative financial tools which will allow banks and other lenders to better compete with Baltimore District Federal Land Banks in the Virginia farm real estate debt market have been proposed. The abandonment of direct FmHA loans to farmers in favor of guaranteed loans will provide opportunities for agricultural lenders in Virginia to acquire some of FmHA's marketshare and with 90% guaranteed loans.

Amid the problems experienced by the Farm Credit System nationally, Farm Credit Banks of Baltimore remain one of the system's strongest districts and will likely remain a viable competitor for agricultural loans in Virginia, subject to the degree of federal government intervention in the System.

The 1987 Virginia Agricultural Credit Use and Needs Survey revealed a decline in the utilization of all sources of credit by Virginia farmers except for statewide/regional banks and leasing companies which remained stable. Hometown banks, and

PCA's were indicated to be the most popular sources of short and intermediate term debt among Virginia farmers surveyed. Federal Land Bank was a source of long-term debt for more than one-half of all Virginia farmers responding.

Credit use was also revealed to vary geographically and with the enterprise of a farmer. Hometown banks were frequented by farmers in the Southern and Southeastern crop reporting districts, statewide/regional banks in the Central and Western districts, Farm Credit in the Northern and Western districts, FmHA in the Southeastern district, and life insurance companies in the Western crop reporting district. Agribusiness and leasing company credit was extensively employed in the Eastern district and machinery/equipment dealer credit in the Southeastern crop reporting district.

Commercial and purebred cow/calf, sheep, vegetable, tobacco, orchard and horticultural product producers were frequent users of loans from hometown banks. Farm Credit was revealed to be a popular financial backer of poultry, dairy, corn, stocker/feeder, soybean, tobacco, and horticultural enterprises. FmHA was a common source of loans for swine and vegetable producers.

In order to achieve the third objective, results of statewide and bank customer surveys were compiled. The Virginia Agricultural Credit Use and Needs survey found the majority of Virginia farmers to have no outstanding agricultural debt. Chi-

square analysis failed to reveal a relationship between age, education, or gross farm income and the lender chosen.

Debt loads were found to be somewhat concentrated within the state. Those who had been farming for less than five years and older farmers had lower levels of debt. Full-time farmers were found to carry heavier debt loads.

Most Virginia farmers planned no change in productive capacity; however, twice as many of the remaining farmers planned increases as anticipated decreases in productive capacity. Conversely, more Virginia farmers expected decreases than anticipated increases in the amount of borrowed capital required in the future. Thus, some expansion may be financed by equity capital, implying possible contraction in potential markets for agricultural credit in Virginia.

Virginia farmers were somewhat divided as to the type of capital most needed in the future. Operating debt appeared to have the greatest market potential followed by intermediate-term and long-term capital. The frequency of lender visits to Virginia farmers was much lower than that of J.I. Case survey respondents who reported being visited .9 times a year. Over three-fourths of Virginia farmers had not been visited within the last year and over one-half had never been visited. The lack of lender visits had no apparent impact of customer loyalty, however, as very few Virginia farmers had switched or planned to switch lenders.

Interest rates were considered most important to lender selection. The importance of competent personnel was also emphasized as was projecting an image of trustworthiness and financial soundness. These findings concur with Cox and Lasley's study which found that customers expect banks to provide service, safety, and competitive market rates as well as convenience. The J.I. Case study also found that farmers in the South considered providing the lowest interest rate the most important attribute.

The statistically low importance afforded availability of a complete line of financial services and upfront fees and/or stock requirements indicated that banks cannot effectively differentiate themselves from Farm Credit or other lenders on these grounds. The low rating for availability of other services differs from the findings of a J.I. Case study of U.S. and Canadian farmers in which providing all of a farmer's credit needs was considered very important.

Analysis of variance revealed that the importance of friendly and quick service declined statistically as gross farm income increased. The importance of the financial soundness of an institution was determined to vary statistically when age and education and when education and gross farm income of a respondent were considered together. However, lack of sufficient responses in some categories hampered efforts to identify the exact nature of significant interactions.



The lack of any of 12 potential financial services having an average priority rating greater than 3.09 on a 5.00 scale reinforces a J.I. Case survey result that almost one-half of Case respondents could not identify a service that they would like to have that was not currently available.

Virginia farmers, in general, preferred services such as tax planning, estate planning, and financial management seminars. Implementation of such services could allow agricultural lenders to gain business of Virginia farmers who do not use borrowed capital. The implementation of such services could utilize existing financial institution resources and would also benefit the institution with better educated farmers. The relatively high preference for financial management and marketing seminars was also revealed in the J.I. Case study.

Services statistically lowest in priority, as identified by analysis of variance, were credit cards for farm operating expenses and futures brokerage services. The rating for credit cards was expected to have been relatively higher drawing on a J.I. Case finding that farmers desire more financial alternatives.

Tax planning and tax preparation service priority ratings were indicated to vary statistically when the interaction between education and gross farm income was considered, as evaluated by analysis of variance. Age and education, jointly considered, were significant factors in the rating of financial

management seminars. Again, lack of sufficient responses in some categories hampered efforts to identify the exact nature of significant interactions.

Results of bank customer surveys revealed differences in responses between bank customer and statewide respondents and between bank customers of Bank A, Bank B, and Bank C. Variation in customer characteristics, credit use, and lender selection criteria imply different marketing strategies for different banks.

Bank A customers were the youngest, least experienced, and carried the highest average level of debt among all bank groups. Bank A customers tend to operate in Northern and Western Virginia. Commercial cow/calf, dairy, poultry, and stockers/feeders were important sources of gross farm income. One out of every five Bank A customers planned to expand in the future. Slightly fewer, one-fifth, anticipated increased future borrowing needs.

Statewide/regional banks, life insurance companies, individual lenders, and leasing companies were identified as increasingly popular sources of credit for Bank A customers. Bank A customers were found to be loyal, as no customers planned to switch lenders in the near future. More Bank A customers had been visited within the past six months than customers of other financial institutions studied.

Bank A customers agreed with Virginia farmers in general that interest rates were most important when choosing a lender. The soundness of a financial institution and stability of loan officers were also major concerns of Bank A customers. Relatively unimportant to Bank A customers were availability of a full line of financial services, upfront fees and/or stock requirements, and convenient hours.

Highest ranked future services included financial management seminars. Implementation of this service could take advantage of skills of Bank A personnel highly trained in this area. Tax planning and farm management services were also high priorities. Legal implications of a financial institution offering farm management services should be carefully explored.

As with state respondents, credit cards for farm operating needs and futures brokerage services were given low priority by Bank A customers. Actual preparation of taxes was also determined low priority.

Bank B boasted the most experienced customers of all bank groups. Bank B had the largest proportion of full-time operations, based on corresponding gross farm and nonfarm income levels. Bank B respondents tended to operate from Central to Eastern Virginia and to produce soybeans, small grains, and tobacco.

Bank B customers were found to be increasingly patronizing statewide/regional banks and individual sources of credit. Bank

B customers were identified as having the lowest average debt load among bank groups. More Bank B producers also planned to expand and to increase borrowing in the future. However, more Bank B customers planned to switch lenders with next year's operating capital or with the next major purchase.

Bank B customers, along with Virginia farmers in general, were most concerned with interest rates when they shopped for agricultural credit. Bank B customers also looked for low loan officer turnover and institutional financial stability. Not important were availability of a full line of financial services, conveniently located offices, and convenient hours.

Concerning future services, Bank B customers were most interested in financial management seminars, marketing seminars, and financial recordkeeping. At least two of the three services could potentially be offered with existing resources of Bank B. Credit cards for farm operating needs were considered least desirable. Interestingly, futures brokerage services were considered second lowest priority by Bank B customers. Expanded hours were also not a priority.

Bank C customers were generally older and better educated than other bank groups. Their customers also tend to be concentrated in Central to Southwestern Virginia and to have commercial cow/calf, dairy, and tobacco enterprises.

Hometown banks, Farm Credit, agribusinesses, leasing companies and statewide/regional banks were identified as

popular sources of agricultural credit for Bank C customers. Bank C customers were identified as seeking consumer and agricultural credit from the same source more than customers of other banks analyzed.

Bank C customers, generally, did not plan to expand and did not expect an increase in the need for borrowed capital in the future. Operating capital was considered the number one future borrowing need by Bank C customers.

Interest rates were the most important consideration in choosing a lender among Bank C customers as well as Virginia farmers in general. Competent personnel and low loan officer turnover were also determined to be very important attributes to Bank C customers. Upfront fees and/or stock requirements, availability of a full line of financial services, variable interest rates with set maximum increases, and convenient offices and hours were not cited as important in lender selection.

Bank C customers differed from the average Virginia farmer in rating farm management services most desirable. Legal issues concerning such management services being offered by a financial institution should be examined. Other services that Bank C might consider offering include production seminars and overall personal financial planning, the latter of which could utilize existing bank resources. Credit cards for farm operating needs and futures brokerage services were rated very low by Bank C

customers as they were by Virginia farmers in general. Marketing seminars were also afforded low preference.

Overall, the findings of this rather broad study indicate a strong market for agricultural credit in Virginia, addressing objective four. The American agricultural environment is definitely in a transitional period, and Virginia farmers will not escape without consequence. Some major implications to agricultural lenders in Virginia were exposed.

The majority of Virginia farmers are small with less than \$40,000 in annual gross farm income and some nonfarm income. Most have no outstanding agricultural debt. Some areas of Virginia may face local economic declines which could adversely affect local agriculture. Agricultural credit marketing decisions must be carefully evaluated in such situations. Credit marketing decisions concerning heavily subsidized commodities should be made with some consideration to the effect of potentially major changes in government farm programs. Bank A, Bank B, and Bank C customers all could be faced with volatile incomes in light of such changes, thus affecting the quality of financial institution portfolios.

Interest rates are still the key to attracting Virginia farmers. Friendly and quick service and an image of financial soundness are also characteristic of favored agricultural lenders. Loan officers with a knowledge of agriculture are an additional asset. Implementation of services most desired by

Virginia farmers could utilize existing financial institution resources. High priority services may, in fact, already be available, only requiring marketing efforts directed at agricultural credit customers.

Equity financing was identified to be a factor in the size of the future market for agricultural credit in the U.S. and in Virginia. New farming operations among survey respondents were found to carry very low debt loads. The market for agricultural credit in Virginia may be contracting.

The presence of significant market segmentation variables with respect to tax planning, tax preparation, and financial management seminars were discovered. However, additional research is required to determine if these potential market segments meet the criteria of being measurable, substantial, and accessible. If so, market segmentation could be pursued.

The lower importance afforded friendly and quick service by farmers with higher gross farm income reflects a more business-like attitude among this group of farmers. Statistical results showing the financial soundness of an institution to significantly vary with age and education and with education and gross farm income imply room for new sources, established or not, in the Virginia agricultural credit market.

Agricultural lenders in Virginia will have to meet the challenges of the new agricultural environment and adapt to the changing needs of a modified customer base in order to remain competitive in the future.



Chapter 5  
FUTURE RESEARCH

The role of bank marketing in a highly competitive environment is relatively new, especially with respect to agricultural customers. Numerous research fields remain unexplored in regard to this topic. Several areas in which additional research would be desirable were revealed in this study.

With respect to the review of the agricultural environment, continued study at the national, regional, and state level as to the future direction of agriculture are imperative to a better understanding of the total impact and magnitude of transitions currently underway. Projecting and preparing for the future are always important, especially for an economic sector so vital to human existence.

Evaluation of the financial condition of farmers in the state of Virginia would be greatly enhanced and of more value if figures such as debt-to-asset ratio were available for the various geographic areas of the state, for the state's various enterprise groups, and/or for part-time versus full-time farmers.

As always seems to be the case with survey data, this study would have benefited from larger data bases, both with regard to the statewide sample and the bank customer samples. Larger data bases would have alleviated some of the problems incurred because of the presence of unbalanced data, as well. More definite conclusions might also have been rendered in situations

where a variable or a subgroup of a variable was found to be significant but where there were only a very few responses associated with the significant variable.

Cooperating banks, too, are encouraged to continue to analyze the market for agricultural credit, as well as other economic sectors and industries that are served, periodically. Marketing is an on-going function, not something to be done one time. As part of on-going marketing research, customer surveys are recommended to indicate when the demographic distribution of the customer base shifts, to stay abreast of customer needs, and to track debt levels and overall financial condition of customers. The agricultural credit needs of potential customers should also be assessed as resources and opportunities permit.

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Appendix I

1987 VIRGINIA AGRICULTURAL CREDIT USE AND NEEDS SURVEY FORM

AND

RELATED CORRESPONDENCE

VIRGINIA AGRICULTURAL CREDIT USE AND NEEDS SURVEY  
 Department of Agricultural Economics  
 Virginia Tech

CONFIDENTIAL

A. GENERAL INFORMATION

1. In what county is your operation located? \_\_\_\_\_
2. How many years have you operated your farm? \_\_\_\_\_ years
3. How many years of age is the principal operator of your farm?  
 \_\_\_\_\_ years
4. How is your farm organized? (Check one)

\_\_\_\_ Individual/family farm      \_\_\_\_ Corporation  
 \_\_\_\_ Partnership\*

\*A husband and wife partnership is considered to be an individual/family farm for purposes of this survey.

5. Please indicate the highest level of education achieved by the farm's principal operator. (Check one)

\_\_\_\_ Some high school                      \_\_\_\_ Some college  
 \_\_\_\_ High school graduate                  \_\_\_\_ College graduate

if a college graduate, is your degree in an agriculture-related field? \_\_\_\_ yes      \_\_\_\_ no

6. How many acres do you farm in a typical year? (Check one)  
And, please indicate the percentage of the total acres farmed by you that you own.

\_\_\_\_ 1 to 99 acres                              \_\_\_\_ 1,000 to 1,999 acres  
 \_\_\_\_ 100 to 499 acres                          \_\_\_\_ More than 2,000 acres  
 \_\_\_\_ 500 to 999 acres

Percentage of acres farmed that you own: \_\_\_\_\_%

7. How much gross farm income\* is generated by your farm operation in a typical year? (Check one)

\_\_\_\_ Less than \$40,000                      \_\_\_\_ \$100,000 to \$499,999  
 \_\_\_\_ \$40,001 to \$99,999                      \_\_\_\_ More than \$500,000

\*Gross farm income includes all sales of farm products, all government payments (including PIK), and all other farm-related income (i.e.-custom harvesting, sale of hunting rights on your farm, etc) before any expenses are deducted.

8. How much is your annual non-farm income (including spouse, where applicable)? (Check one)

- |  |   |
|--|---|
| <input type="checkbox"/> \$0                 | <input type="checkbox"/> \$20,001 to \$35,000 |
| <input type="checkbox"/> \$1 to \$7,500      | <input type="checkbox"/> \$35,001 to \$50,000 |
| <input type="checkbox"/> \$7,501 to \$20,000 | <input type="checkbox"/> Over \$50,000        |

9. Of the enterprises listed below, what percent of your total gross farm income comes from each enterprise? (Indicate the percentage of gross income from an enterprise in the blank to the left of that enterprise.) Please make sure that your responses total 100%.

Example: A poultry and tree fruit operation might respond --  
75% poultry      25% orchards

- |  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> % Commercial cow/calf         | <input type="checkbox"/> % Poultry  | <input type="checkbox"/> % Small grain            |
| <input type="checkbox"/> % Purebred cow/calf           | <input type="checkbox"/> % Sheep    | <input type="checkbox"/> % Vegetables             |
| <input type="checkbox"/> % Stockers/Feeders            | <input type="checkbox"/> % Peanuts  | <input type="checkbox"/> % Orchards               |
| <input type="checkbox"/> % Swine                       | <input type="checkbox"/> % Corn     | <input type="checkbox"/> % Tobacco                |
| <input type="checkbox"/> % Dairy                       | <input type="checkbox"/> % Soybeans | <input type="checkbox"/> % Horticultural products |
| <input type="checkbox"/> % Other, please specify _____ |                                     |   |

**B. CREDIT HISTORY AND HABITS**

1. Which of the following agricultural lenders do you presently borrow from and which have you borrowed from in the past? (Check all that apply)

- |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|
| <u>Past</u>              | <u>Present</u>           | <u>Past</u>              | <u>Present</u>           |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

\*A hometown bank for purposes of this survey is a single-unit bank or a bank with a few branches operating in a one-county area or operating in a few adjacent counties. A statewide or regional bank is a bank having many branches and operating all over a state or in more than one state.

2. Do you usually seek comparable term consumer loan needs (cars, homes, educational funds) and agricultural loan needs from the same lender?  yes  no  not applicable
3. Do you currently use credit cards for short-term consumer credit needs?  yes  no  I have no credit cards
- Do you currently use credit cards for short-term agricultural credit needs?  yes  no  I have no credit cards
4. Are the credit policies of agricultural suppliers from which you have short-term borrowing (seasonal, seed, fertilizer, feed, etc.) currently stricter than they were 5 years ago?  yes  no  not applicable

5. How much short-term operating debt financed for less than one year (i.e.-cropping, feeder cattle purchases, etc.) do you currently have outstanding and from what source(s)?

<p><u>Approximate Amount</u> (Indicate the amount in the blank below, \$0 if you have none)</p> <p>\$ _____</p>	<p><u>Source</u> (Check all that apply)</p> <p><input type="checkbox"/> Production Credit Association</p> <p><input type="checkbox"/> Farmers Home Administration</p> <p><input type="checkbox"/> Bank - Hometown</p> <p><input type="checkbox"/> Bank - Statewide/Regional</p> <p><input type="checkbox"/> Agribusiness/Supplier</p> <p><input type="checkbox"/> Individual</p> <p><input type="checkbox"/> Other, specify: _____</p>
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6. How much intermediate-term debt financed for from one to 10 years (i.e.- breeding stock, machinery/equipment, etc) do you currently have outstanding and from what source(s)?

<p><u>Approximate Amount</u> (Indicate the amount in the blank below, \$0 if none)</p> <p>\$ _____</p>	<p><u>Source</u>(Check all that apply)</p> <p><input type="checkbox"/> Production Credit Association</p> <p><input type="checkbox"/> Farmers Home Administration</p> <p><input type="checkbox"/> Bank - Hometown</p> <p><input type="checkbox"/> Bank - Statewide/Regional</p> <p><input type="checkbox"/> Machinery/Equipment Dealer</p> <p><input type="checkbox"/> Individual</p> <p><input type="checkbox"/> Leasing company</p> <p><input type="checkbox"/> Other, specify: _____</p>
--	--

7. How much long-term debt financed for more than 10 years, (i.e.-real estate, permanent improvements, etc.) do you currently have outstanding and from what source(s)?

<p><u>Approximate Amount</u> (Indicate the amount in the blank below, \$0 if none)</p> <p>\$ _____</p>	<p><u>Source</u>(Check all that apply)</p> <p><input type="checkbox"/> Federal Land Bank</p> <p><input type="checkbox"/> Farmers Home Administration</p> <p><input type="checkbox"/> Bank - Hometown</p> <p><input type="checkbox"/> Bank - Statewide/Regional</p> <p><input type="checkbox"/> Insurance Company</p> <p><input type="checkbox"/> Individual</p> <p><input type="checkbox"/> Other, specify: _____</p>
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C. AGRILENDERS AND CREDIT NEEDS

1. When was the last time any of your operation's present lenders visited your farm operation? (Check one)
- |   |   |
|---|---|
| <input type="checkbox"/> Within the last month    | <input type="checkbox"/> Over one year ago                                    |
| <input type="checkbox"/> Within the last 6 months | <input type="checkbox"/> None of my present lenders have ever visited my farm |
| <input type="checkbox"/> Within the last year     | <input type="checkbox"/> Not applicable                                       |
2. What are your plans for your farm's future productive capacity? (i.e.-# of cows, # of acres cropped, etc) (Check one answer and fill in the blank with the anticipated percent change, where applicable)

No change in productive capacity anticipated

I plan to increase productive capacity by \_\_\_\_\_%

I plan to decrease productive capacity by \_\_\_\_\_%

3. How do you anticipate that the amount of your future borrowing needs will change? (Check one answer and fill in the blank with the anticipated percent change, where applicable)

No change in amount borrowed anticipated  
 I plan to increase the amount borrowed by \_\_\_\_\_%  
 I plan to decrease the amount borrowed by \_\_\_\_\_%

4. For what purpose will your future farm borrowing be? (Rank in order of dollar volume to be borrowed for each general purpose listed below. "1" would indicate the purpose of the largest share of future borrowings, "2" would indicate the second largest share, etc.)

Operating capital  
 Intermediate capital--Breeding stock/Machinery/Equipment  
 Long-term capital--Real estate/permanent improvements

5. Which of the following characteristics of agricultural lenders are most important in your selection of an agricultural lender? (Rate each characteristic from 1 to 5 as to their relative importance to you when you are deciding who to borrow agricultural capital from. Circle one rating for each characteristic. "1" would indicate not very important while a rating of "5" would indicate very important.)

<u>Characteristic</u>	<u>Importance Rating</u>				
	Not Very Important				Very Important
	←-----→				
1. Friendly and quick service	1	2	3	4	5
2. Personal interest in farm business and customer	1	2	3	4	5
3. Financially sound institution	1	2	3	4	5
4. Conveniently located offices	1	2	3	4	5
5. Convenient hours	1	2	3	4	5
6. Favorable interest rates on loans	1	2	3	4	5
7. Availability of fixed interest rates	1	2	3	4	5
8. Variable interest rates with set maximum increases	1	2	3	4	5
9. Upfront fees and/or stock requirements	1	2	3	4	5
10. Minimum paperwork requirements (Financial statements & documentation)	1	2	3	4	5
11. Availability of other services such as checking and savings	1	2	3	4	5
12. Up-to-date and innovative services	1	2	3	4	5
13. Personnel with up-to-date knowledge of agriculture	1	2	3	4	5
14. Stability of loan officers	1	2	3	4	5

6. Do you plan to switch farm lenders when obtaining next year's operating capital or with your next major purchase?

yes  no  not applicable

7. Have you changed agricultural lenders in the past 3 years?  
 yes  no  not applicable

If yes, why? (Check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Moved to another locality                          | <input type="checkbox"/> Service charges              |
| <input type="checkbox"/> Switched to a lender with more convenient location | <input type="checkbox"/> Bank errors                  |
| <input type="checkbox"/> Loan rates not competitive                         | <input type="checkbox"/> Discourteous personnel       |
| <input type="checkbox"/> Solicited by another lender                        | <input type="checkbox"/> Slow service                 |
| <input type="checkbox"/> Refused credit by previous lender                  | <input type="checkbox"/> Other reason, specify: _____ |

8. Which of the following services would you like to see from agricultural lenders in the future? (Circle one priority rating for each potential service below. "1" would indicate a very low priority service while "5" would indicate a very high priority service.)

<u>Service</u>	<u>Priority Rating</u>				
	Low Priority			High Priority	
	←-----→				
1. Credit cards for farm operating needs	1	2	3	4	5
2. Futures brokerage services	1	2	3	4	5
3. Estate planning	1	2	3	4	5
4. Financial recordkeeping	1	2	3	4	5
5. Tax planning	1	2	3	4	5
6. Tax preparation	1	2	3	4	5
7. Marketing oriented educational seminars	1	2	3	4	5
8. Financial management oriented educational seminars	1	2	3	4	5
9. Production oriented educational seminars	1	2	3	4	5
10. Expanded hours (i.e.- evenings and Saturdays)	1	2	3	4	5
11. Overall personal financial planning	1	2	3	4	5
12. Farm management service	1	2	3	4	5

9. Do you have other comments on agricultural credit and agricultural lenders in Virginia? If so, we would like to hear them. Please feel free to comment on any aspect of the agricultural credit process including the way credit is extended to farmers currently and how you feel it should be extended in the future.

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THANKS FOR TAKING THE TIME TO HELP US (AND YOURSELF) OUT!!!!

Now, just return your completed survey in the envelope provided.



COLLEGE OF AGRICULTURE AND LIFE SCIENCES

## VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF AGRICULTURAL ECONOMICS

September 1, 1987

Dear

We are seeking information from Central Fidelity Bank agricultural loan customers all over Virginia concerning how they choose lenders to satisfy their farm borrowing needs and how they view their future credit and financial service needs. This survey is part of a larger survey project in which Virginia producers in general, not necessarily Central Fidelity Bank farm customers, are being asked the same questions. (Should you happen to receive both surveys, please fill both out identically and return.) The survey results will be shared with Central Fidelity Bank in an attempt to allow them to better meet your farm credit needs. And, articles drawing on this study are planned in various Virginia farm publications.

The enclosed survey is divided into three sections. Some questions necessarily address potentially sensitive financial areas of Virginia farm operations. However, this information is essential to understanding the state's agricultural credit market. Please be assured that all responses will be completely confidential. The surveys are not numbered or in any other way identifiable.

We know that this can be a very busy time of the year for Virginia's farmers; however, the survey has been pretested with other Virginia farmers and should take only about 20 minutes of your time. Please return your completed survey by September 18. A self-addressed, stamped envelope is enclosed for your convenience.

Keep in mind that Central Fidelity Bank wants to serve you better; but, in order to meet that goal, they must better understand the needs of their farm customers, farmers like yourself. Ultimately, you will benefit!

Sincerely,

Mary Tabor  
Graduate Research Assistant  
Department of Agricultural  
Economics  
Virginia Tech

Dr. David M. Kohl  
Visiting Professor  
Agricultural Finance  
Cornell University - Virginia Tech



COLLEGE OF AGRICULTURE AND LIFE SCIENCES

## VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF AGRICULTURAL ECONOMICS

August 24, 1987

Dear

We are seeking information from Dominion Farm Loan customers all over Virginia concerning how they choose lenders to satisfy their farm borrowing needs and how they view their future credit and financial service needs. This survey is part of a larger survey project in which Virginia producers in general, not necessarily Dominion Farm Loan customers, are being asked the same questions. (Should you happen to receive both surveys, please fill both out identically and return.) The survey results will be shared with Dominion Farm Loan in an attempt to allow them to better meet your farm credit needs. And, articles drawing on this study are planned in various Virginia farm publications.

The enclosed survey is divided into three sections. Some questions necessarily address potentially sensitive financial areas of Virginia farm operations. However, this information is essential to understanding the state's agricultural credit market. Please be assured that all responses will be completely confidential. The surveys are not numbered or in any other way identifiable.

We know that this can be a very busy time of the year for Virginia's farmers; however, the survey has been pretested with other Virginia farmers and should take only about 20 minutes of your time. Please return your completed survey by September 15. A self-addressed, stamped envelope is enclosed for your convenience.

Keep in mind that Dominion Farm Loan Corporation wants to serve you better; but, in order to meet that goal, they must better understand the needs of their farm customers, farmers like yourself. Ultimately, you will benefit!

Sincerely,

Mary Tabor  
Graduate Research Assistant  
Department of Agricultural  
Economics  
Virginia Tech

Dr. David M. Kohl  
Visiting Professor  
Agricultural Finance  
Cornell University - Virginia Tech





COLLEGE OF AGRICULTURE AND LIFE SCIENCES

## VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF AGRICULTURAL ECONOMICS

September 11, 1987

Dear

We are seeking information from Sovran Bank's agricultural loan customers all over Virginia concerning how they choose lenders to satisfy their farm borrowing needs and how they view their future credit and financial service needs. This survey is part of a larger survey project in which Virginia producers in general, not necessarily Sovran Bank farm customers, are being asked the same questions. (Should you happen to receive both surveys, please fill both out identically and return.) The survey results will be shared with Sovran Bank in an attempt to allow them to better meet your farm credit needs. And, articles drawing on this study are planned in various Virginia farm publications.

The enclosed survey is divided into three sections. Some questions necessarily address potentially sensitive financial areas of Virginia farm operations. However, this information is essential to understanding the state's agricultural credit market. Please be assured that all responses will be completely confidential. The surveys are not numbered or in any other way identifiable.

We know that this can be a very busy time of the year for Virginia's farmers; however, the survey has been pretested with other Virginia farmers and should take only about 20 minutes of your time. Please return your completed survey by September 23. A self-addressed, stamped envelope is enclosed for your convenience.

Keep in mind that Sovran Bank wants to serve you better; but, in order to meet that goal, they must better understand the needs of their farm customers, farmers like yourself. Ultimately, you will benefit!

Sincerely,

Mary Tabor  
Graduate Research Assistant  
Department of Agricultural  
Economics  
Virginia Tech

Dr. David M. Kohl  
Visiting Professor  
Agricultural Finance  
Cornell University - Virginia Tech



COLLEGE OF AGRICULTURE AND LIFE SCIENCES

## VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF AGRICULTURAL ECONOMICS

September 21, 1987

Dear Virginia Farmer:

We are seeking information from agricultural producers all over Virginia concerning how they choose lenders to satisfy their farm borrowing needs and how they view their future credit and financial service needs. The survey results will be shared with Virginia agricultural lenders in an attempt to allow them to better meet farmers' credit needs. Articles drawing on this study are planned in various Virginia farm publications.

The enclosed survey is divided into three sections. Some questions necessarily address potentially sensitive financial areas of Virginia farm operations. However, this information is essential to understanding the state's agricultural credit market. Please be assured that all responses will be completely confidential.

We know that this can be a very busy time of the year for Virginia's farmers; however, the survey has been pretested with other Virginia farmers and should take only about 10 minutes of your time. Please return your completed survey by October 1. A self-addressed, postage paid envelope to the Virginia Agricultural Statistics Service, which is conducting the survey for us, is enclosed for your convenience. To maintain the confidentiality of their farm lists, they will forward your questionnaire to us without your name and address.

Keep in mind that this survey is meant to help lenders better understand the needs of farmers who are in the market for agricultural loans. Ultimately, you will benefit!

Sincerely,

Mary Tabor  
Graduate Research Assistant  
Department of Agricultural  
Economics  
Virginia Tech

Dr. David M. Kohl  
Visiting Professor  
Agricultural Finance  
Cornell University - Virginia Tech

REMINDER

VIRGINIA AGRICULTURAL CREDIT USE AND NEEDS SURVEY

Thanks to those of you who have already returned the survey we mailed you concerning your use of and opinions about agricultural credit in Virginia. We appreciate your promptness.

However, if you have not returned your survey yet, this is a reminder to do so as soon as possible.

Your Input is very Important!

Sincerely,

Mary D. Tabor  
Graduate Assistant

Dr. David M. Kohl  
Visiting Professor  
Va Tech - Cornell

Appendix II

VIRGINIA COMMODITY PRODUCTION

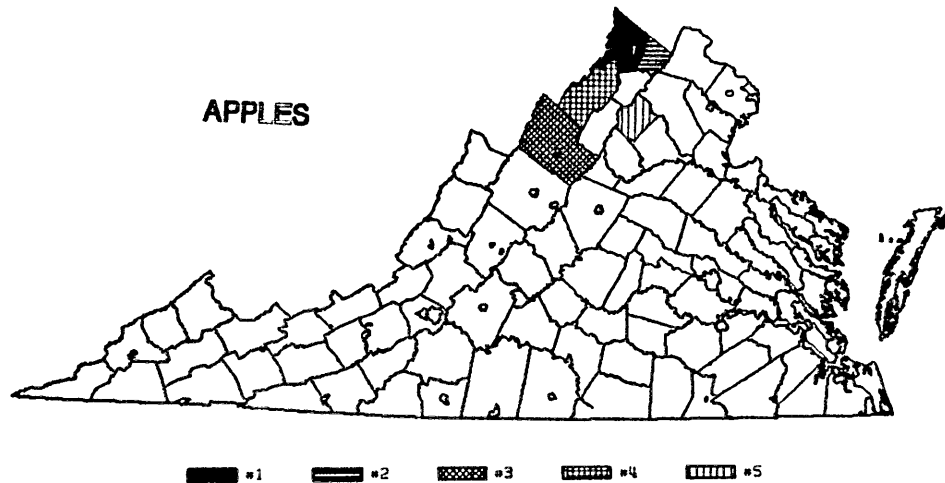


Figure 12.  
Top Five Producing Counties, 1985 Total Production

Table 67.  
APPLES  
Percent of Annual Production in Virginia by Region

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
	(Percent of Production)								
Shen Valley	64.6	62.4	69.1	63.7	63.7	66.2	67.7	64.2	76.6
Piedmont	12.9	18.5	14.8	16.3	17.8	15.7	15.9	18.7	10.1
Roanoke	11.1	9.5	7.9	8.7	9.0	9.7	8.5	9.0	4.4
Southwest	10.7	9.0	8.0	10.9	8.9	7.7	7.4	7.6	8.5
Other	<u>0.7</u>	<u>0.6</u>	<u>0.3</u>	<u>0.4</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.5</u>	<u>0.6</u>
Total*	100	100	100.1	100	100	99.9	100.1	100	100.1

\*Error due to rounding

Source: Virginia Agricultural Statistics, various annual editions.

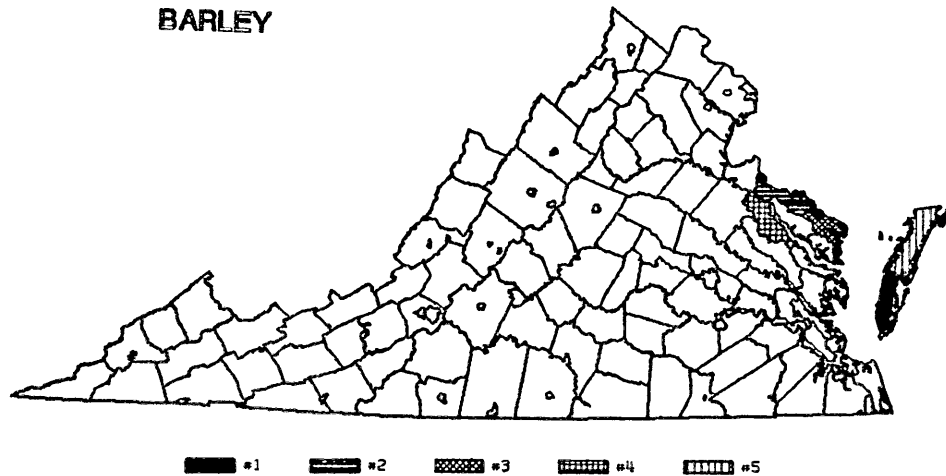


Figure 13.  
Top Five Producing Counties, 1985 Total Production

Table 68.

**BARLEY**

Percent of Annual Production in Virginia by Region

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
	(Percent of Production)									
Northern	17.2	11.5	14.6	13.4	15.4	15.9	15.1	14.9	10.3	8.7
Western	5.7	2.8	3.6	3.0	3.2	3.0	3.3	3.0	2.5	2.9
Central	26.4	25.7	25.4	26.4	27.7	27.0	25.1	21.9	20.4	10.1
Eastern	39.0	47.3	47.0	48.2	44.1	45.2	46.4	51.1	59.1	65.5
Southwestern	.7	.5	.6	.3	.8	.6	.6	.4	.2	.2
Southern	7.3	8.3	5.4	5.3	5.6	4.9	4.5	4.0	3.3	2.1
Southeastern	<u>3.8</u>	<u>4.0</u>	<u>3.5</u>	<u>3.4</u>	<u>3.2</u>	<u>3.3</u>	<u>5.0</u>	<u>4.7</u>	<u>4.2</u>	<u>10.6</u>
Total*	100.1	100.1	100.1	100.0	100.0	99.9	100.0	100.0	100.0	100.1
	(Bushels Per Acre)									
Average Yield										
Virginia	48	44	50	52	51	61	57	59	60	48
US	45.4	44	49.2	50.9	49.7	52.4	57.2	52.3	53.4	51.0
	(Million Bushels)									
Total Production**										
Virginia	4.4	4.4	5.1	5.2	4.6	5.9	5.7	5.9	4.8	4.8
US	383.0	427.8	454.8	383.2	361.1	473.5	515.9	508.9	599.2	589.2
VA as % of US	1.1%	1.0%	1.1%	1.4%	1.3%	1.2%	1.1%	1.2%	.80%	.81%

\*Error due to rounding.

\*\*Rounded to nearest hundred thousand.

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics.

Table 69.  
 VIRGINIA CATTLE NUMBERS BY COUNTY, TOP 25 COUNTIES  
 All cattle and calves as of January 1, 198x

<u>County</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
1. Rockingham	124,000	121,000	118,000
2. Augusta	107,000	101,000	100,000
3. Fauquier	68,000	62,000	64,000
4. Washington	66,000	57,200	63,000
5. Bedford	59,000	54,000	60,000
6. Franklin	57,000	51,000	55,000
7. Wythe	58,000	55,000	54,100
8. Loudon	57,000	50,000	51,000
9. Orange	41,000	45,000	43,500
10. Shenandoah	44,000	46,000	43,000
11. Pittsylvania	40,000	37,000	38,700
12. Carroll	39,000	35,000	38,200
13. Madison	41,000	35,000	37,000
14. Grayson	36,000	31,000	36,700
15. Albemarle	43,000	38,600	36,200
16. Russell	38,000	31,000	34,500
17. Floyd	36,000	33,000	34,500
18. Culpeper	39,000	32,000	34,000
19. Smyth	36,000	31,000	31,500
20. Lee	32,000	28,000	30,500
21. Pulaski	30,000	24,000	28,300
22. Campbell	28,600	24,500	27,500
23. Mecklenburg	30,000	28,000	27,000
24. Halifax	26,400	23,000	26,200
25. Montgomery	26,000	22,000	24,000
26. Frederick	23,000	22,800	24,000

Source: 1987-1988 Virginia Livestock Marketing Directory.  
 Virginia Cattle Industry Board, p. 28. From Virginia Agricultural Statistics.

Table 70.  
COMMERCIAL SLAUGHTER AND RED MEAT PRODUCTION

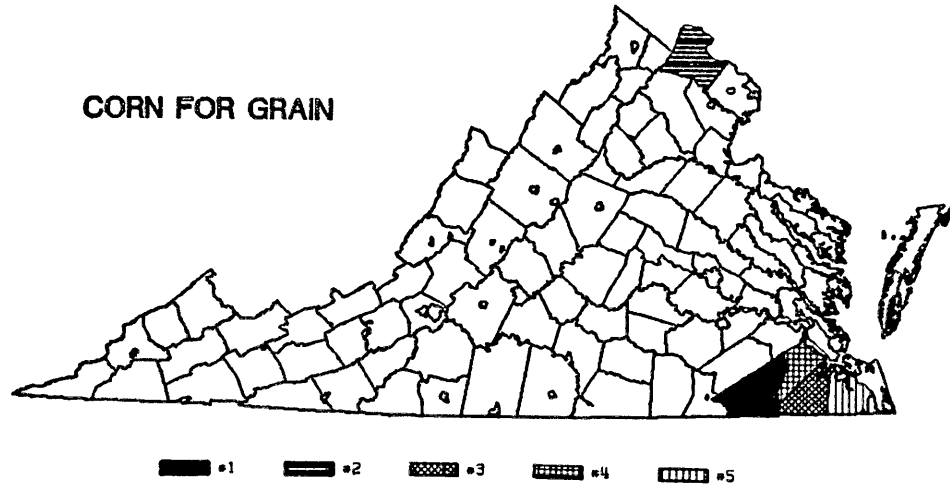
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	<u>Cattle</u>	<u>Calves</u>	<u>Hogs</u>	<u>Sheep and</u>	<u>Lambs</u>
	(Live weight total, 1,000 pounds)				
1977	163,713	62,866	639,968		261
1978	136,237	27,798	639,277		316
1979	80,101	5,840	729,924		280
1980	107,860	6,155	764,062		524
1981	137,701	8,703	741,794		503
1982	156,051	7,060	808,478		474
1983	101,647	1,724	903,059		571
1984	132,802	3,917	914,019		659
1985	99,444	1,615	967,206		5,015

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Source: Virginia Agricultural Statistics.





**Figure 14.**  
**Top Five Producing Counties, 1985 Total Production**

**Table 71.**  
**CORN FOR GRAIN**  
 Percent of Annual Production by Region in Virginia

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
	(Percent of Production)									
Northern	17.1	14.7	21.8	22.6	26.8	23.6	22.2	21.0	20.8	20.2
Western	2.2	1.7	3.2	3.5	2.8	3.5	3.4	3.6	3.8	3.3
Central	10.2	8.9	14.1	13.2	11.1	14.8	14.1	11.1	13.7	12.8
Eastern	25.3	23.1	21.1	23.7	20.0	19.8	21.8	24.3	26.1	22.5
Southwestern	5.0	6.7	4.0	4.7	7.3	5.5	4.6	6.4	4.5	4.3
Southern	4.8	5.2	5.8	6.4	7.1	6.3	6.1	4.8	4.6	4.8
Southeastern	<u>35.4</u>	<u>39.8</u>	<u>30.0</u>	<u>25.9</u>	<u>24.8</u>	<u>26.6</u>	<u>27.9</u>	<u>28.8</u>	<u>26.5</u>	<u>32.1</u>
Total*	100	100.1	100	100	99.9	100.1	100.1	100	100	100
	(Bushels Per Acre)									
<u>Average Yield</u>										
Virginia	78.0	66.0	83.0	83.0	66.0	90.0	101.0	48.0	104.0	99.0
US	88.0	90.8	101.0	109.5	91.0	108.9	113.2	81.1	106.7	118.0
	(Million Bushels)									
<u>Total Production**</u>										
Virginia	50.3	33.3	62.3	61.0	32.7	56.3	62.6	16.3	56.2	54.5
US	6289.2	6505.0	7267.9	7928.1	6639.4	8118.7	8235.1	4174.7	7674.0	8866.0
VA as % of US	.80%	.51%	.72%	.64%	.49%	.69%	.76%	.39%	.73%	.61%

\*Error due to Rounding.

\*\*Rounded to nearest hundred thousand

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics.

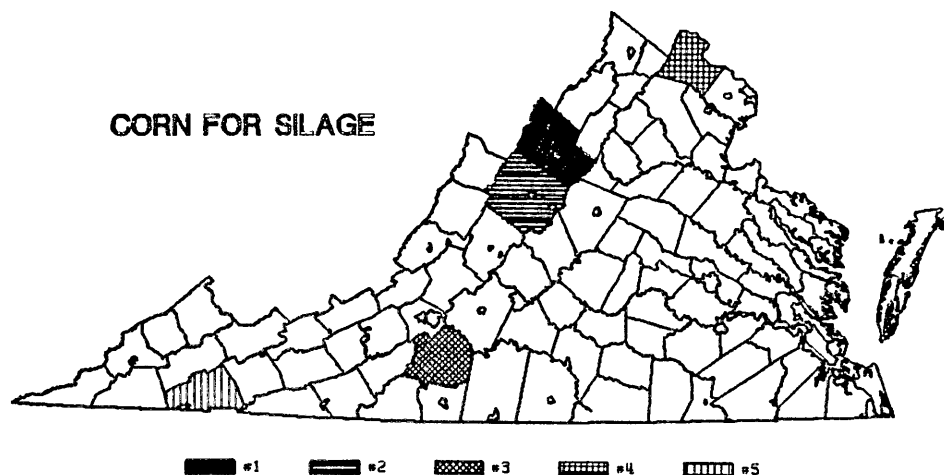


Figure 15.  
Top Five Producing Counties, 1985 Total Production

Table 72.  
CORN FOR SILAGE  
Percent of Annual Production by Region in Virginia

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
	(Percent of Production)									
Northern	30.5	31.0	30.3	31.8	32.3	33.6	32.6	37.7	32.8	28.6
Western	11.4	9.5	9.8	9.4	9.4	9.5	10.2	8.2	8.1	11.2
Central	17.2	22.9	19.4	18.7	17.2	16.7	18.4	18.5	21.7	19.9
Eastern	4.0	2.1	2.1	2.6	1.4	2.7	2.3	2.2	1.3	1.8
Southwestern	19.9	19.2	23.4	21.1	22.6	20.3	22.1	18.4	19.7	20.4
Southern	10.1	11.7	11.0	11.7	12.2	11.8	10.5	9.3	13.2	14.7
Southeastern	<u>6.9</u>	<u>3.6</u>	<u>4.0</u>	<u>4.7</u>	<u>4.8</u>	<u>5.4</u>	<u>4.0</u>	<u>5.7</u>	<u>3.2</u>	<u>3.4</u>
Total*	100	100	100	100	99.8	100	100.1	100	100	100
	(Tons Per Acre)									
<u>Average Yield</u>										
Virginia	13.0	9.5	15.0	16.0	11.5	15.0	16.0	10.0	15.0	15.0
US	10.5	12.6	13.7	14.4	12.0	14.2	14.3	12.3	13.9	14.4
	(Million Tons)									
<u>Total Production**</u>										
Virginia	2.8	2.7	3.4	2.7	2.6	2.9	3.4	2.6	3.0	2.7
US	118.5	117.7	118.1	114.8	112.0	117.9	117.8	96.3	104.6	102.6
VA as % of US	2.4%	2.3%	2.9%	2.4%	2.2%	2.5%	2.9%	2.7%	2.9%	2.6%

\*Error due to rounding

\*\*Rounded to nearest hundred thousand.

Source: Virginia Agricultural Statistics, various annual editions.

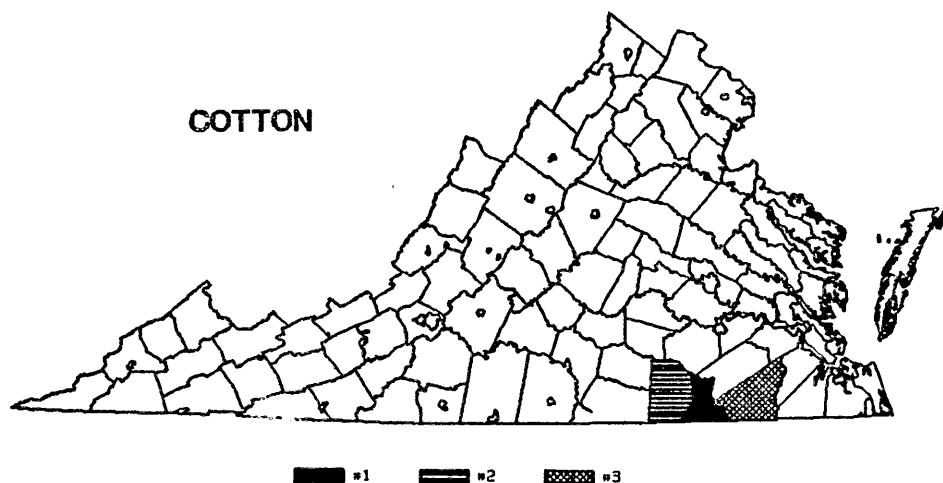


Figure 16.  
Top Five Producing Counties, 1985 Total Production

Table 73.  
COTTON  
Percent of Annual Production by Region in Virginia

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
	(Percent of Production)						
Brunswick	10.5	17.6	13.3	19.0	11.7	14.1	11.3
Greensville	68.0	60.0	70.0	68.0	88.3	82.7	83.3
Southampton	21.5	22.5	16.7	13.0	--	--	3.3
Sussex	--	--	--	--	3.2	--	--
Other	--	--	--	--	--	--	<u>2.1</u>
Total*	100	100.1	100	100	100	100	100
	(Pounds per acre)						
<u>Average Yield</u>							
Virginia	320	320	480	640	360	528	443
US	547	404	542	690	508	600	630
	(Thousands of 480 Pound Net Weight Bales)						
<u>Total Production**</u>							
Virginia	.2	.2	.3	.4	.3	1.1	1.2
US	14.6	11.1	15.6	12.0	7.8	13.0	13.4
VA as % US	1.4%	1.8%	1.9%	3.3%	3.8%	8.5%	9.0%

\*Error due to rounding.

\*\*Rounded to nearest hundred.

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics.

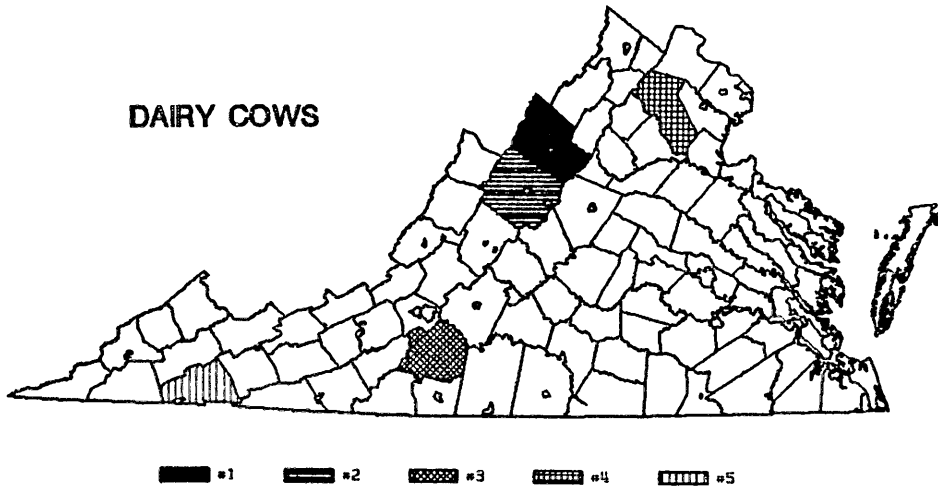


Figure 17.  
Top Five Counties, By Number of Animals, 1985

Table 74.  
MILK COWS AND HEIFERS THAT HAVE CALVED  
Percent of Total Animal Numbers by Region in Virginia  
As of 1/1/xx

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986*
	(Percent of Total Number of Cows on Farms)									
Northern	27.6	28.4	29.4	29.4	29.2	30.0	30.8	30.4	30.9	31.5
Western	8.2	8.0	8.9	9.2	9.0	9.5	9.6	9.8	10.1	10.3
Central	20.6	19.4	18.4	18.9	19.0	18.7	18.8	18.8	18.4	19.0
Eastern	1.9	1.9	1.8	2.4	2.4	2.4	2.5	2.5	2.2	1.9
Southwestern	25.1	25.6	24.5	24.0	23.7	22.6	21.7	20.7	20.6	20.6
Southern	12.1	12.3	11.9	14.1	12.6	12.6	12.3	13.6	13.6	12.7
Southeastern	<u>4.5</u>	<u>4.4</u>	<u>5.1</u>	<u>4.06</u>	<u>4.1</u>	<u>4.3</u>	<u>4.2</u>	<u>4.3</u>	<u>4.2</u>	<u>4.1</u>
Total**	100	100	100	100	100.1	100	100	100.1	100	100

\*1986 preliminary.

\*\*Error due to rounding.

Source: Virginia Agricultural Statistics, various annual editions.

Table 75.  
VALUE OF VIRGINIA GREENHOUSE AND NURSERY PRODUCTION

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	<u>Value</u> (1,000 Dollars)
1976	\$21,506
1977	21,531
1978	25,404
1979	28,712
1980	29,229
1981	40,000
1982	43,858
1983	44,000
1984	44,429
1985	50,507

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Source: Virginia Agricultural Statistics.

Table 76.  
VIRGINIA HAY PRODUCTION

	<u>Production</u> (1,000 Tons)	<u>Cash Receipts</u> (1,000 Dollars)	<u>Yield Per Harvested Acre</u> (Tons)	
			<u>Virginia</u>	<u>U.S.</u>
1976	1247	6620	1.32	1.99
1977	1093	7200	1.17	2.17
1978	1640	7837	1.73	2.32
1979	1779	8934	1.82	2.40
1980	1626	10009	1.68	2.22
1981	1640	10828	1.68	2.39
1982	1677	11364	1.66	2.50
1983	1546	12432	1.49	2.36
1984	1816	11985	1.72	2.45
1985	1693	11043	1.63	2.46

Source: Virginia Agricultural Statistics and Agricultural Statistics.

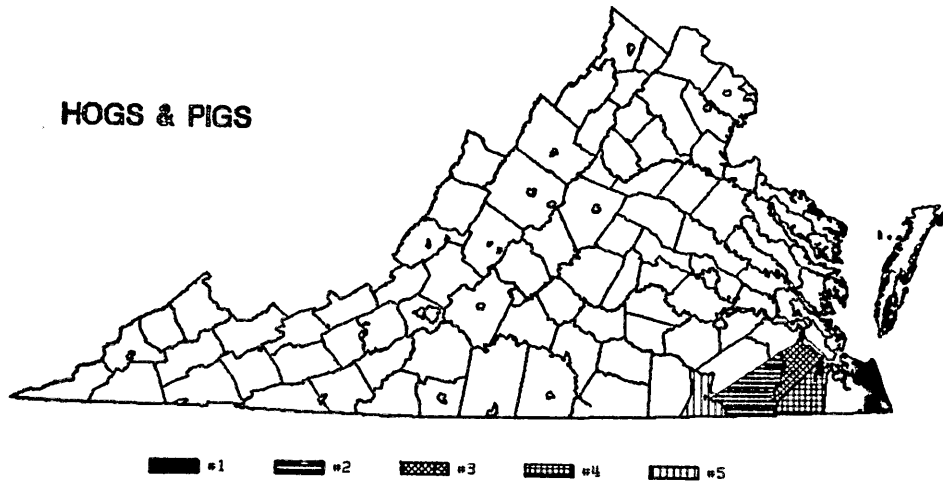


Figure 18.  
Top Five Counties, By Number of Animals, 1985

Table 77.  
HOGS AND PIGS  
Percent of Total Animal Numbers by Region in Virginia  
As of 12/31/xx

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	(Percent of Total Number on Farms)									
Northern	14.4	14.9	14.5	14.0	13.9	14.4	13.9	13.7	14.1	13.3
Western	3.8	3.8	3.7	4.0	3.8	3.6	3.5	4.1	4.2	4.5
Central	14.2	14.6	15.1	14.9	14.9	14.4	14.9	14.5	13.8	13.7
Eastern	8.1	8.2	8.6	8.1	8.1	7.6	7.4	7.2	5.9	6.2
Southwestern	5.6	5.7	5.8	6.6	6.3	5.7	5.7	5.6	5.8	5.9
Southern	6.2	6.6	6.8	6.9	6.7	6.4	6.2	6.3	5.7	5.8
Southeastern	<u>47.7</u>	<u>46.1</u>	<u>45.4</u>	<u>45.7</u>	<u>46.3</u>	<u>48.0</u>	<u>48.3</u>	<u>48.5</u>	<u>50.5</u>	<u>50.6</u>
Total*	100.0	99.9	99.9	100.2	100.0	100.1	99.9	99.9	100	100

\*Error due to rounding.

Source: Virginia Agricultural Statistics, various annual editions.

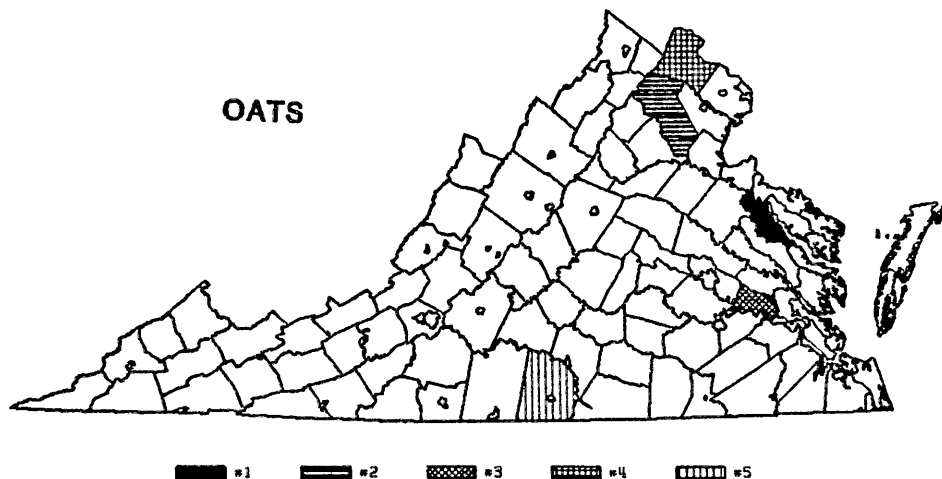


Figure 19.

Top Five Producing Counties, 1985 Total Production

Table 78.  
OATS  
Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	(Percent of Production)									
Northern	24.1	24.6	22.5	23.0	26.8	21.7	23.7	18.8	14.3	22.0
Western	7.0	10.5	6.8	8.2	8.9	6.7	6.1	6.6	7.2	8.1
Central	18.5	19.5	21.4	16.7	16.3	17.9	16.4	22.0	16.7	14.6
Eastern	12.5	6.4	10.2	9.7	12.5	13.2	16.5	18.2	24.4	26.4
Southwestern	14.8	14.3	11.9	17.0	10.9	9.6	14.3	13.9	11.5	11.3
Southern	13.3	15.0	16.7	15.0	13.7	18.9	13.3	11.5	14.5	8.1
Southeastern	<u>9.8</u>	<u>9.6</u>	<u>10.4</u>	<u>10.4</u>	<u>10.9</u>	<u>12.0</u>	<u>9.7</u>	<u>8.9</u>	<u>11.4</u>	<u>9.4</u>
Total*	100	99.9	99.9	100	100	100	100	99.9	100	99.9
	(Bushels Per Acre)									
Average Yield										
Virginia	48.0	44.0	45.0	49.0	45.0	47.0	48.0	50.0	47.0	47.0
US	45.7	65.8	52.3	54.4	53.0	54.2	57.8	52.6	58.0	63.6
	(Million Bushels)									
Total Production**										
Virginia	1.2	1.3	1.1	1.2	.9	.9	.8	1.1	.6	.7
US	540.4	752.8	561.7	525.7	458.8	509.5	592.6	477.0	473.7	518.6
VA as % of US	.22%	.17%	.19%	.23%	.20%	.18%	.13%	.23%	.13%	.13%

\*Error due to rounding

\*\*Rounded to nearest hundred thousand

Source: Virginia Agricultural Statistics, various annual editions.



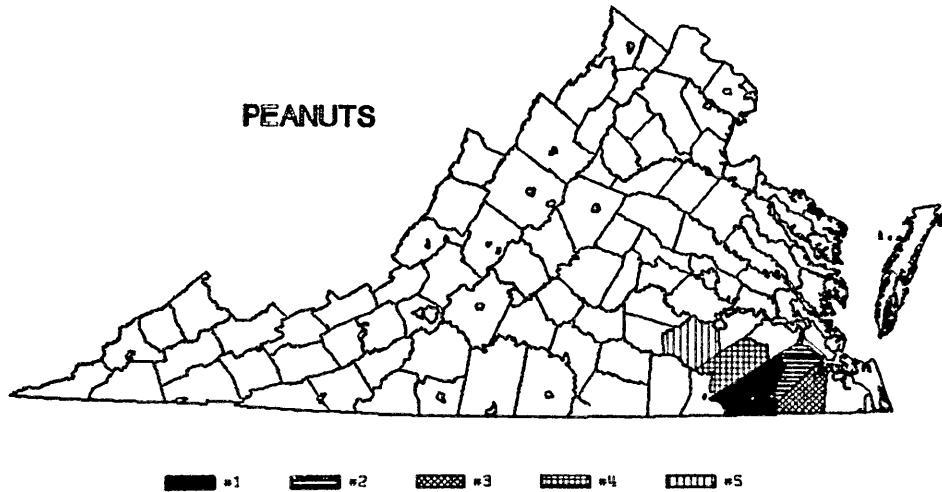


Figure 20.  
Top Five Producing Counties, 1985 Total Production

Table 79.  
PEANUTS  
Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
(Percent of Production)										
Central	.01	.02	.01	.01	--	--	--	--	--	--
Eastern	.2	.2	.2	.2	.2	--	--	.13	0.0	.2
Southeastern	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8
Other	--	--	--	--	--	.2	.2	.09	.16	.06
Total*	100.01	100.02	100.01	100.01	100	100	100	100.02	99.96	100.06
(Pounds Per Acre)										
Average Yield										
Virginia	3000	2845	3025	2510	1285	3150	2900	2090	2780	2955
US	2464	2456	2619	2611	1645	2675	2693	2399	2878	2810
(Million Pounds)										
Total Production**										
Virginia	309.0	293.0	311.6	253.5	129.8	330.7	275.5	198.6	269.7	283.7
US	3739.2	3715.1	3952.4	3968.6	2302.8	3981.9	3440.3	3295.5	4405.7	4122.8
VA as % of US	8.3%	7.9%	7.9%	6.4%	5.6%	8.3%	8.0%	6.0%	6.1%	6.9%

\*Error due to rounding.  
\*\*Rounded to nearest hundred thousand.

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics.

Table 80.  
POULTRY AND EGGS: GROSS INCOME  
In Virginia

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	<u>Broilers</u>	Farm <u>Chickens</u>	Chicken <u>Eggs</u>	<u>Turkeys</u>	<u>Total</u>
		(1,000 Dollars)			
1981	157,395	2,472	63,213	66,600	289,680
1982	150,017	1,968	53,650	71,555	277,190
1983	170,328	3,057	47,613	82,449	303,447
1984	212,948	3,760	56,692	101,300	374,700
1985	206,797	2,626*	47,317	123,944	380,684

\*Does not include home consumption.

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Source: Virginia Agricultural Statistics.

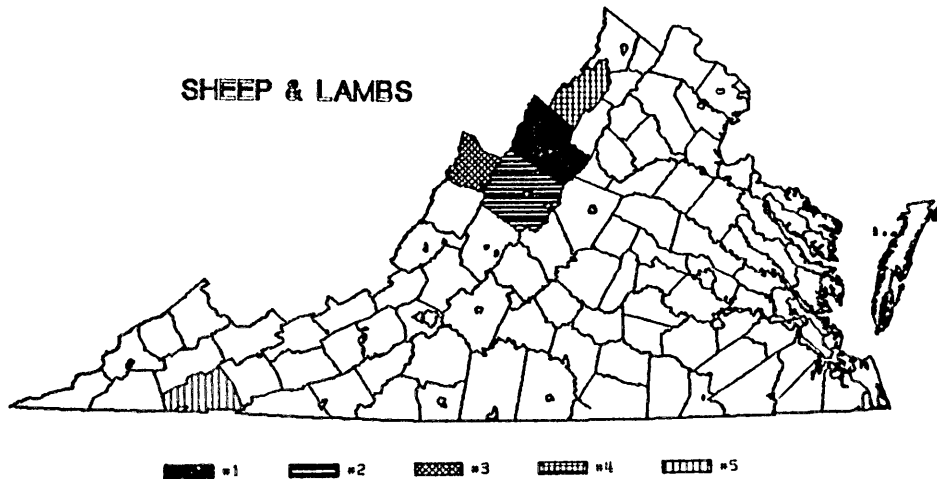


Figure 21.  
Top Five Producing Counties, 1985 Total Production

Table 81.  
SHEEP AND LAMBS OVER 3 MONTHS  
Percent of Total Animal Numbers by Region in Virginia  
As of 1/1/xx

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986*
	(Percent of Total Number on Farms)									
Northern	27.0	27.2	28.5	28.8	28.7	29.3	29.3	29.6	29.1	41.6
Western	33.2	33.1	32.4	33.4	32.7	33.2	32.8	33.7	33.3	26.0
Central	4.8	4.9	4.8	4.6	4.7	4.7	4.9	6.6	7.1	6.5
Eastern	0.5	0.4	0.5	.8	.8	0.8	0.7	.4	.3	.3
Southwestern	30.7	30.3	29.9	29.3	30.1	28.4	28.3	26.2	26.2	22.3
Southern	1.1	1.2	1.2	1.6	1.6	1.6	1.7	1.8	1.7	1.2
Southeastern	1.4	1.3	1.4	1.4	1.5	2.0	2.2	2.4	2.2	2.1
Other	1.4	1.5	1.3	--	--	--	--	--	--	--
Total**	100.1	99.9	100	99.9	100	100	99.9	99.6	99.9	100

\*1986 preliminary.

\*\*Error due to rounding.

Source: Virginia Agricultural Statistics, various annual editions.

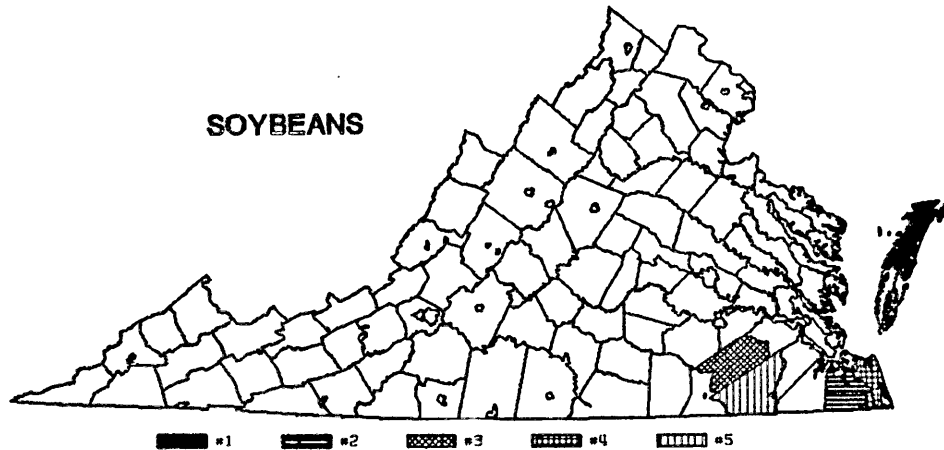


Figure 22.  
Top Five Producing Counties, 1985 Total Production

Table 82.  
SOYBEANS  
Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
(Percent of Production)										
Northern	1.5	1.7	1.8	2.1	2.1	2.7	3.3	3.6	3.2	3.3
Western	.1	.05	.02	.02	.04	.03	.04	.06	.07	.07
Central	10.9	11.9	13.4	12.4	11.6	11.6	13.5	11.1	13.6	13.2
Eastern	47.9	38.4	47.6	47.0	44.2	46.1	45.4	43.5	38.4	41.1
Southwestern	.02	.02	.01	.04	.1	.07	.06	.1	.09	.07
Southern	5.5	6.6	3.9	5.3	5.3	5.3	4.9	4.0	6.4	5.5
Southeastern	<u>34.1</u>	<u>41.4</u>	<u>33.3</u>	<u>33.2</u>	<u>36.6</u>	<u>34.3</u>	<u>32.8</u>	<u>37.6</u>	<u>38.3</u>	<u>36.7</u>
Total*	100.02	100.07	100.03	100.06	99.94	100.1	100.0	99.96	100.06	99.94
Average Yield (Bushels Per Acre)										
Virginia	20.5	19.0	28.0	28.5	15.0	28.0	29.0	16.0	29.5	25.0
US	26.1	30.6	29.4	32.1	26.5	30.1	31.5	26.2	28.1	34.1
Total Production** (Million Bushels)										
Virginia	8.2	8.4	13.3	15.3	9.2	17.8	19.3	9.8	21.5	17.4
US	1288.6	1767.3	1868.7	2260.7	1797.5	1989.1	2190.3	1636.8	1860.9	2098.5
VA as % of US	.64%	.48%	.71%	.68%	.51%	.89%	.88%	.60%	1.16%	.83%

\*Error due to rounding.

\*\*Rounded to nearest hundred thousand.

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics.

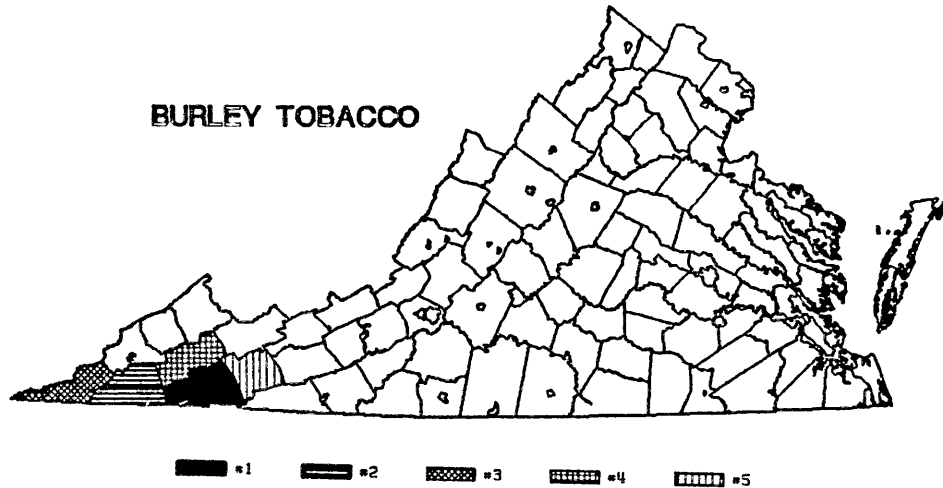


Figure 23.  
Top Five Producing Counties, 1985 Total Production

Table 83.  
BURLEY TOBACCO  
Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
(Percent of Production)										
Central	1.3	1.2	1.2	2.1	1.5	1.3	1.3	1.3	1.7	1.4
Southwestern	98.5	98.6	98.6	97.3	98.2	98.3	98.5	98.4	98.0	98.2
Southern	0.1	0.1	0.2	0.4	0.2	0.2	0.1	0.1	0.2	0.1
Southeastern	0.04	0.04	0.03	0.1	0.06	0.07	0.05	0.03	0.04	0.0
Other	0.12	0.06	0.06	0.05	0.07	0.09	0.08	0.07	0.15	0.28
Total*	100.06	100.0	99.99	99.95	100.03	99.96	100.03	99.9	100.09	99.98
(Pounds Per Acre)										
Virginia	2150	2380	2318	1350	1860	2355	2295	2040	2090	2240
US	2376	2298	2398	1873	2027	2203	2374	1645	2256	2301
(Million Pounds)										
Virginia	23.2	25.5	23.8	13.4	18.6	31.3	32.8	24.5	22.6	21.3
US	679	617.3	626.3	445.8	560.8	729.8	821.9	481.4	712.2	610.4
VA as % of US	3.4%	4.1%	3.8%	3.0%	3.3%	4.3%	4.0%	5.1%	3.2%	3.5%

\*Error due to rounding  
\*\*Rounded to nearest hundred thousand

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics

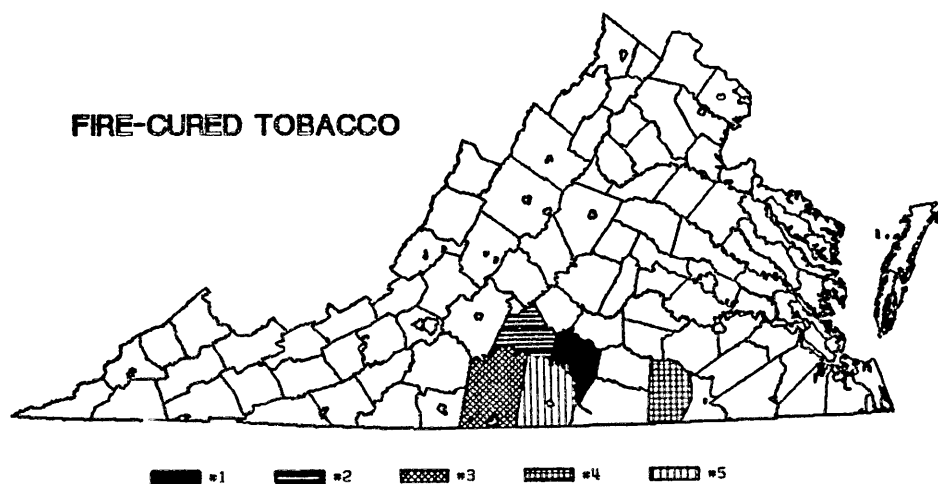


Figure 24.

Top Five Producing Counties, 1985 Total Production

Table 84.  
FIRE-CURED TOBACCO, Type 21  
Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	(Percent of Production)									
Central	59.9	49.0	47.3	47.5	46.7	46.7	40.4	36.9	36.5	35.4
Southern	30.3	38.2	38.0	39.6	40.9	40.2	45.2	48.5	49.6	51.0
Southeastern	9.7	12.8	14.7	12.9	12.4	13.0	14.4	14.4	13.7	13.4
Other	0.1	--	--	--	--	--	--	0.2	0.3	0.2
Total*	100	100	100	100	100	99.9	100	100	100.1	100
	(Pounds Per Acre)									
<u>Average Yield</u>										
Virginia	1000	1000	1120	1135	935	1265	1150	955	1325	1245
US**	1453	1598	1755	1674	1559	1526	1881	1417	2001	1895
	(Million Pounds)									
<u>Total Production***</u>										
Virginia	5.3	7.2	6.8	5.4	3.6	5.2	5.5	4.6	6.1	4.5
US	38.5	52.4	58.3	45.0	36.3	37.6	53.3	37.1	56.6	48.3
VA as % of US	13.8%	13.7%	11.7%	12.0%	9.9%	13.8%	10.3%	12.4%	10.8%	9.3%

\*Error due to rounding

\*\*Total US fire-cured types 21-23.

\*\*\*Rounded to nearest hundred thousand

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics

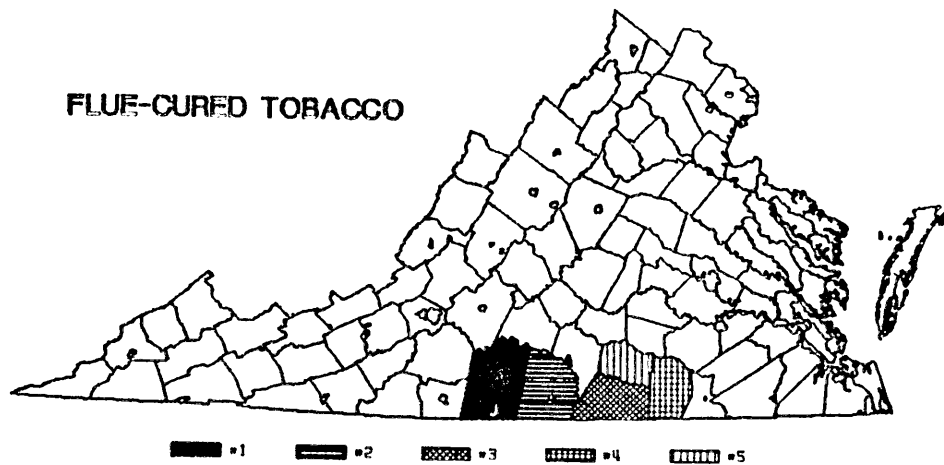


Figure 25.

## Top Five Producing Counties, 1985 Total Production

Table 85.

## FLUE-CURED TOBACCO, Type 11

## Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
(Percent of Production)										
Central	5.9	6.4	6.2	6.5	5.9	6.3	6.3	6.2	6.3	6.0
Southwestern	.02	.05	.04	.05	.04	.04	.05	.04	.05	0.0
Southern	64.8	66.3	66.8	66.3	68.2	65.8	65.9	66.2	67.4	66.4
Southeastern	29.4	27.3	27.0	27.1	25.9	27.9	27.8	27.4	26.2	27.4
Other	--	--	--	--	--	--	--	.1	.06	.25
Total*	100.12	100.06	100.04	99.95	100.04	100.04	100.05	99.94	100.01	100.05
(Pounds Per Acre)										
Average Yield										
Virginia	1760	1796	1850	1735	1850	2200	2055	1880	2280	2170
US**	1974	1899	2046	1881	1957	2164	2131	2004	2208	2235
(Million Pounds)										
Total Production***										
Virginia	124.6	109.5	103.6	90.2	84.2	121.0	86.3	69.6	86.8	65.1
US	1316.3	1130.5	1231.6	945.8	1086.1	1169.7	1006.5	821.3	864.8	800.4
VA as % US	9.5%	9.7%	8.4%	9.5%	7.8%	10.3%	8.6%	8.5%	10.0%	8.1%

\*Error due to rounding

\*\*Total flue-cured, types 11-14.

\*\*\*Rounded to Nearest hundred thousand.

Source: Virginia Agricultural Statistics, various annual editions.

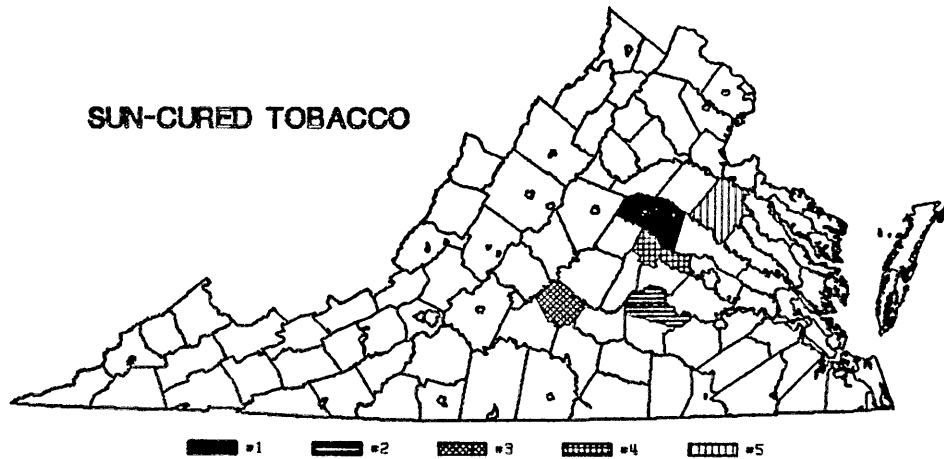


Figure 26.

**Top Five Producing Counties, 1985 Total Production**

Table 66.

**SUN-CURED TOBACCO, Type 37**

**Percent of Annual Production by Region in Virginia**

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	(Percent of Production)									
Western	--	--	--	--	.05	--	--	--	--	--
Central	94.6	91.2	92.9	90.5	90.2	89.8	86.3	86.8	89.1	96.0
Eastern	2.4	1.9	2.3	2.5	3.0	2.9	1.0	.5	.6	0.0
Southern	2.1	5.4	3.6	5.9	5.2	4.3	9.0	6.7	6.3	2.0
Southeastern	.6	1.2	1.2	1.1	1.5	1.0	.8	1.3	1.8	0.0
Other	.3	.3	--	--	1.9	2.9	4.8	2.2	1.9	
Total*	100	100	100	100	99.95	99.9	100	100.1	100	99.9
	(Pounds Per Acre)									
Average Yield										
Virginia	1115	1030	1205	1055	1010	1320	1290	780	1340	1150
US**	1595	1772	1923	1633	1716	1599	1916	1597	2118	1963
	(Thousand Pounds)									
Total Production***										
Virginia	758	824	880	570	394	673	735	382	590	230
US	15836	21180	23034	16717	16624	16330	20636	14673	19569	15901
VA as % of US	4.8%	3.9%	3.8%	3.4%	2.4%	4.1%	3.6%	2.6%	3.0%	1.4%

\*Error due to rounding

\*\*Total dark air-cured types 36-37.

\*\*\*Rounded to nearest thousand.

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics



Table 87.  
 COMMERCIAL VEGETABLE PRODUCTION  
 Principal Producing Counties or Areas in Virginia

<u>Commodity</u>	<u>Production Area(s)</u>
Asparagus	Northampton
Lima Beans	Accomack, Northampton
Snap Beans (Summer)	Accomack, Northampton, City of Chesapeake, City of Va Beach, Carroll, Floyd, Washington
Snap Beans (Fall)	Accomack, Northampton, City of Chesapeake, City of Va Beach
Cabbage (Summer)	Accomack, Carroll, Northampton, Wythe, James City, City of Chesapeake, City of Va Beach
Cabbage (Fall)	Accomack, Northampton, City of Chesapeake, City of Va Beach
Sweet Corn	Northampton, Hanover, City of Chesapeake, City of Va Beach
Cucumbers (Summer)	Accomack, Northampton, City of Chesapeake, City of Va Beach
Cucumbers (Fall)	Accomack, Northampton, City of Chesapeake, City of Va Beach
Green Peas	Accomack
Spinach (Spring)	Accomack, Northampton, City of Suffolk, City of Chesapeake, City of Va Beach
Spinach (Fall)	Accomack, Northampton, City of Suffolk, City of Chesapeake, City of Va Beach
Tomatoes	Accomack, Northampton, Lancaster, Northumberland, Richmond, Westmoreland

Source: 1986 Virginia Agricultural Statistics.

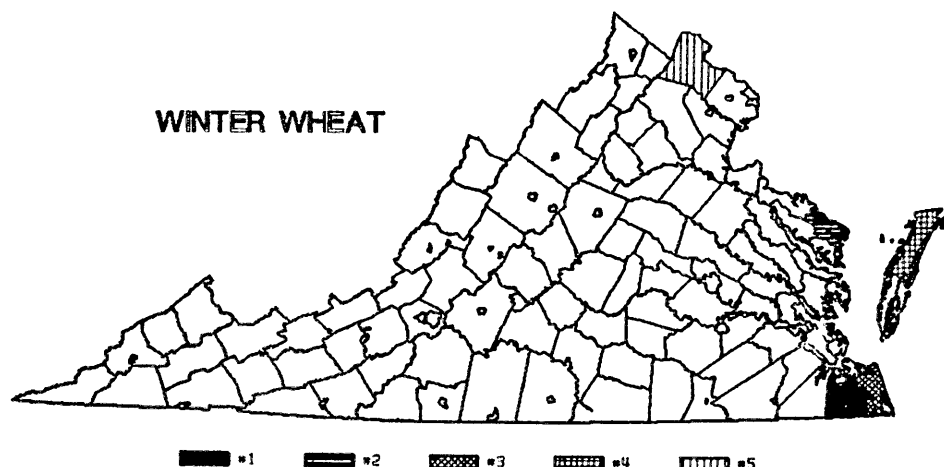


Figure 27.

## Top Five Producing Counties, 1985 Total Production

Table 88.  
WINTER WHEAT  
Percent of Annual Production by Region in Virginia

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
(Percent of Production)										
Northern	10.3	10.3	13.9	8.7	7.4	9.4	9.1	10.2	9.8	13.0
Western	2.8	1.5	2.9	1.3	1.0	.9	1.1	1.0	1.2	1.1
Central	19.9	17.2	17.7	20.3	16.3	16.6	15.3	15.5	16.5	15.0
Eastern	35.4	38.7	34.2	33.1	37.4	37.5	39.6	40.4	34.2	35.9
Southwestern	1.1	1.0	1.6	.6	1.1	.4	.6	.7	.6	.7
Southern	11.2	11.5	10.1	13.3	12.9	11.1	9.2	9.5	11.6	7.8
Southeastern	<u>19.2</u>	<u>19.6</u>	<u>19.7</u>	<u>22.7</u>	<u>23.8</u>	<u>24.1</u>	<u>25.2</u>	<u>22.7</u>	<u>26.0</u>	<u>26.5</u>
Total*	99.9	100	100.1	100	99.9	100	100.1	100	99.9	100
(Bushels Per Acre)										
Average Yield										
Virginia	32.0	31.0	35.0	35.0	37.0	44.0	38.0	42.0	45.0	37.0
US	31.5	31.6	31.8	36.9	36.8	35.9	36.0	41.8	40.0	38.1
(Million Bushels)										
Total Production**										
Virginia	7.7	6.2	4.7	6.3	10.6	17.2	13.3	14.3	12.4	10.5
US	1564.1	1540.4	1222.4	1601.2	1902.0	2097.1	2073.6	1988.3	2060.3	1827.2
VA as % of US	.49%	.40%	.38%	.39%	.56%	.82%	.64%	.72%	.60%	.57%

\*Error due to rounding

\*\*Rounded to nearest hundred thousand.

Source: Virginia Agricultural Statistics, various annual editions and Agricultural Statistics.

Appendix III

VIRGINIA CROP REPORTING DISTRICTS

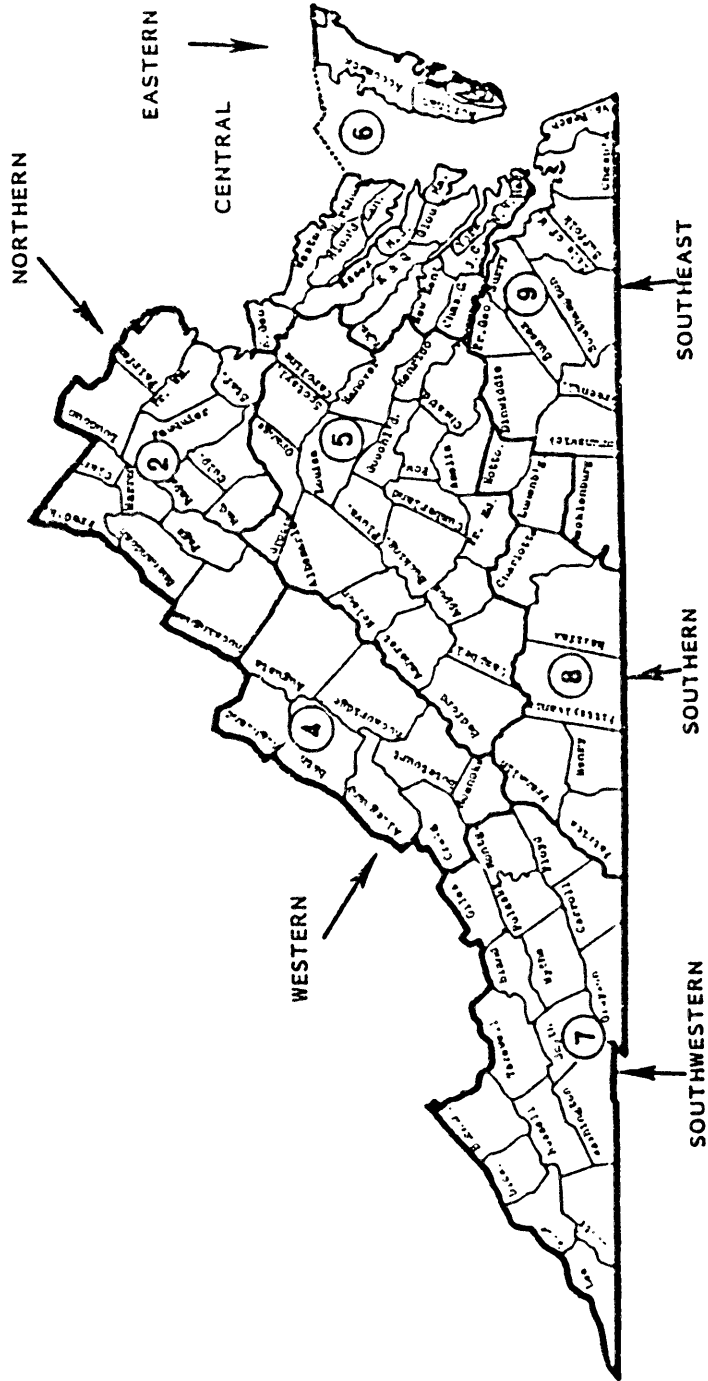


Figure 28.  
Virginia Crop Reporting Districts

Appendix IV

1987 VIRGINIA AGRICULTURAL CREDIT USE AND NEEDS SURVEY

COMMENTS

(Responses to survey section C, question #9)

VIRGINIA FARMER SURVEY COMMENTS  
1987 Virginia Agricultural Credit Use and Needs Survey

1. Prompt with low interest rates and time to pay according to the profit.
2. A farmer should be able to establish a need before credit is rendered. A lot of time credit is too easy.
3. A lot of local banks will not let farmers have loans but they don't refuse to take their deposits.
4. We need access to a better purchasing market or suppliers of farm needs.
5. We have made effort to stay out of debt.
6. Fixed loans are when commodity loaned on is mature and ready for market. Your part farmers fared much better when commodities raised was used for collateral, large equipment loans should be no less than 7 years payable annually, this is the only way a family farmer can survive.
7. Farm Credit is too restricted in the purchase of livestock.
8. It is important for farmers to know the true financial condition of the lender and its credit principles.
9. Keep credit need low.
10. A "one-account" banking system could be of great benefit to farmers and all other bank customers. Yet, curiously this system, which is much better, simpler, more fair, and well justified, is said (by bankers) to be prohibited. You would do well to look into this type of system -- in the farmer's best interest. Call me if bankers profess ignorance or offer objections. Just trying to help!!  
{Phone number.}
11. I have only had one loan. FLB loan to purchase my farm. I have been making it without borrowing or living on credit.
12. I feel that plenty [of] credit is available to all farmers \_\_\_\_\_. If a farmer needs to borrow more than the financial institutions will lend he should not be farming.
13. The last money I borrowed [was] in 78-80. Did not need that. Farmer should prove he has knowledge of farming before any institution lends him money.

14. The greatest improvement in long term financing would be the establishment of a secondary market in farm land mortgages, as it would bring in a host of new lenders.  
  
I feel uneasy about our local PCA, which made some disastrous banking decisions recently and lost money last year. Am very hesitant to continue dealing with such a weak organization, particularly when I have to hold their stock.
15. I feel that a great deal of the farmers problem was generated by the Federal Land Bank. I know at one time they could not lend you enough. When times got tough and payments difficult they tightened up like a clam. I laugh every time I see a newspaper story about their hard times. They pay outrageous salaries to top management which could not plan for the future. I could have done as well as they, at half the cost. My local bank on the other hand has been absolutely superlative in their treatment of me. Years from now I hope to be able to repay their kindness.
16. I have not borrowed from any source and don't plan to.
17. Patience and perservance to listen and help you with your problems instead of trying to see how fast they can run you through.
18. Bankers in general need to be better informed on farmers needs (credit).
19. What I look for in a lender is primarily price. If they give best rates and nothing else (unless they appear to be "shaky" financially) I'd use them. Other services are available somewhere else.
20. Part-time farmer and have been able to stay out of debt.
21. All government loans are too high interest. They are not designed to help the farmer.
22. All banks and government discourage farmers and business from over extending their operations.
23. The disaster low interest loans from Farmers Home Admin. is a big come along. If a farmer can borrow at any interest rate then he is not eligible. A farmer with no credit and owning nothing can be approved for a low interest loan. This policy is no help to the average farmer.

24. Agriculture would be better off if government agency (FmHA) was liquidated. Let commercial interest do the job. If private industry won't make loan it shouldn't be made.
25. Lender institutions should not be part of the farm management community. I do not approve of an all-purpose integrated institution that tries to be all things to all people.
26. I feel that the private banks can do a better job of lending money to farmers than a government agency can. I would like the government to get out of farming completely except to perhaps to change some of the tax laws to aid farmers.



BANK A CUSTOMER COMMENTS  
1987 Virginia Agricultural Credit Use and Needs Survey

1. I have been a borrower of FHA in past and I do not feel that all of their practices are fair.
2. Most lenders have well educated people in that capacity, but they have no experience which makes it very difficult for young farmers.
3. More recognition of efficient operations.
4. I think too many poor operations are over extended credit. I would also like to see lower interest rates to good credit risks.
5. I would like to see agricultural credit institutions become more innovative or flexible in financing real estate purchases particularly for younger farmers. It is very difficult to avoid major disruptions in the farming program when depending extensively on rented land particularly when landlords in the area are very reluctant to rent land for more than a year or two at a time.
6. I am fortunate to have a bank loan officer who is a farmer also and he can understand a farmer's particular need more easily than someone without a farm background. No complaints with Bank A.
7. As I have found, I have no use for Farm Credit or Federal Land Bank. They have no advantage over number 1 Bank A and George Bailey at Bridgewater Office. {Signature}
8. The loan officer makes the big difference. He or she must be knowledgeable of agriculture crop and livestock production. Personality means everything. You must be able to work and communicate with loan officer.
9. We enjoy the knowledge of our lender to not talk us into big debt we can't get out. He is most helpful and we try hard to hear him out. No quick money for hasty moves to regret later. Helpful opinions are welcome.
10. A booklet on why farm lending? What to expect? Who can benefit? -- made available to prospective or borrower. Financial planning for customers.

11. I now have a line of credit so if I need money to do a deal quick, I don't have to wait several weeks for a loan committee to meet to approve rates, and deal[ing] with the same loan officer are important to me.
12. There should be a greater number of sources of credit with more innovative loans. The lenders should be less "conservative" that is they should NOT discourage buying when prices are low ("they will never stop going down") and encourage it when they are high ("they will never stop going up"). Specifically, they should stick to banking and leave agriculture to the farmer, within their credit judgements (the bank's) Current practices limit growth and largely require that you do it the banks way and their record of operations successes, as opposed to banking, is certainly no better than the farmers themselves and forces everyone into the same mold.
13. I think in the past lending agencies have been too eager to lend to marginal operators. In doing so, they have gotten a lot of farmers in deeper than they should have. I think lending agencies have an obligation to advise the farmer of the consequences of borrowing too much.
14. Do not want to use any more credit than we possibly have to. I do not like paying interest. It works 24 hours a day for 365 days a year.
15. Have had good service and people to deal with at Bank A.
16. Most farmers are long-time family farmers with considerable assets and I think when they come to a bank that they've been dealing with they should be given money without alot of hassle and killing time giving financial statements every time they turn around.

BANK B CUSTOMER COMMENTS  
1987 Virginia Agricultural Credit Use and Needs Survey

1. It seems with the margin (profit) shrinking on farm production products it is more important than ever to have leaders that understand farming - the high degree of Mother Nature that plays into the end product - as well as we are now in a world market.
2. Credit is important in a time of four years of drought.
3. In the past 30 years the only interest any bank showed was to insure the loan was adequately covered by assets. More effort should be made by lenders as to the proper timing of loan and repayment, i.e.-- when sale prices of fertilizer are lower loan not due until after crops are marketed - not harvested.
4. Securing a loan is very expensive and time consuming. For those with excellent pay-back history and credit references, it would be nice to have an unsecured line of credit.
5. Agricultural lenders should be more involved with their farm customers. A team effort goes a long way toward winning the game.
6. In 1985, we applied for and received a loan for \$166,000. At that time with our previous record and assets at hand, we were told we would have no problem borrowing more money if needed. Unfortunately 1986 was a terrible year in farming in our area. Contradictory to what we were told, Bank B took the position of wanting no agricultural loans. We were very upset with [this] position, which forced us to look to other lending institutions. For years our farm had an excellent record with Bank B and we feel they let us down in our time of need!!
7. #1 - A more realistic look at the payback ability of the borrower.  
#2 - More supervision of the loan officer of the loan to the farm.  
#3 - Take more time and effort trying to get a better price to the farmer for his or her product, local sales, imports, exports.

8. I don't think enough is extended to well established farmers and FHA-PCA extended to much to beginners in the 1970 and not enough now. I don't think statewide banks are interested in ag loans at present time and they don't understand what we need.
9. I have dealt on commercial and personal basis with Bank B, Bank A, and Bank C. I find that Bank A and Bank B have the better rates and service. Bank C would be my lowest choice due to rates and processing time. This may be due in large part to their relatively recent expansion into western Virginia. I also have had some disagreement with Bank C's ag loan manager for the western part of the state. {Signature}
10. If a bank is going to be an agricultural lender, it must be committed to it 100%. By this I mean, the loan officers must understand all segments of farming. They must understand such things as the futures market and the government programs. They should take the time to visit the borrower on his farm at least twice a year. It must be a working relationship for everyone to come out on top. There are many bankers around that feel they are always right and the farmer is always wrong when ever there is a problem with a loan. This is not always the case.
11. Left farm 1982. Will start new operation next year. Banks are terrible. Farm Credit impossible. Savings and Loans "way out in left field", FHA will not talk. It will be a private lender again and it will be a long way back. Blacksburg is no help at all, and government the same way. Will have to do it on my own again. If I had a whole lot of money in my pocket I wouldn't have to do farming to live.
12. All lenders have been extremely interested and cooperative in our needs. Have given the best interest rates possible.

BANK C CUSTOMER COMMENTS  
1987 Virginia Agricultural Credit Use And Needs Survey

1. I would like to see agribusinesses get out of crop financing and see more banks, PCA, etc. financing - P.S. Maybe this is where the credit cards could fit in.
2. Credit to farmers is bogged down in red tape. It is harder to obtain credit, more requirements. Ex: Tax returns, etc.
3. I don't think the lending institutions of Virginia are sympathetic to any farmer when it comes to taking into consideration the income of a farm during the year, especially when it comes to droughts, floods, etc. I know we have experienced two floods and 2 drought years since 1985 and this was not taken into consideration when payment was due. They just wanted their money even if meant borrowing elsewhere. No farmer that I know likes to be late with a payment, but at times it can't be helped and would really be appreciated if the payments could be deferred for a short period, even [if] just paying the interest would be acceptable to the lender.
4. Assistance in marketing and selling in large quantities - finding and expanding markets.
5. I think the interest rate should stabilize at about 7.5%.
6. Unfortunately, most people you have to deal with at the local or regional banks [are] just plain and simple [and] don't know a cow's ass from her head.
7. I feel that most banks in my area are reluctant to become involved in the agribusiness. The Federal Land Bank seemed to be the most active in my area. {Signature.} P.S. Young farmers should be encouraged.
8. I have experienced lines of credit at other banks and this is a very helpful service to farmers - keeping them from paying the 18% interest rates often incurred.
9. I have answered this questionnaire on my personal basis as far as credit and on a farm basis as far as production. The farm is a large dairy and is owned by my father. My family and I own about \_\_\_\_\_ registered Holstein cows and heifers. (Note the \$50,000 indebtedness.) We farm together and basically use the same lending institutions. Dr. Kohl has had at least one of my daughters in his class and they rate him as tops.

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