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**FACTORS THAT AFFECT AFRICAN AMERICAN ENROLLMENT IN URBAN
AGRICULTURAL DEGREE PROGRAMS IN THE COMMONWEALTH OF VIRGINIA**

by

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B.S., December 1977, Virginia Polytechnic Institute

M.S., December 1979, Virginia Polytechnic Institute

**A Dissertation submitted to the faculty of
Old Dominion University in Partial Fulfillment of the
Requirement for the Degree of**

DOCTOR OF PHILOSOPHY

URBAN SERVICES - EDUCATION

OLD DOMINION UNIVERSITY

(May 1999)

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ABSTRACT

FACTORS THAT AFFECT AFRICAN AMERICAN ENROLLMENT IN URBAN AGRICULTURAL DEGREE PROGRAMS IN THE COMMONWEALTH OF VIRGINIA

**Thomas Earl Tracy
Old Dominion University
Chair: Raymond F. Morgan, Ph.D**

The purpose of this study was to determine reasons why few African Americans are in leadership positions in the urban agriculture industry. The lack of leaders will probably continue because there is a dearth of African Americans enrolled in agriculture programs at colleges and universities in the Commonwealth of Virginia.

Six research questions guided the study in its endeavor to determine perceptions about the urban agriculture industry. Data were collected through surveys and interviews. A background questionnaire, developed by the researcher collected data on age, academic interests, urban background, exposure to agriculture occupations, and factors that affected selection of college major. Questionnaires were distributed to agriculture students at Virginia State University, an Historically Black College and University

that is the primary source of agricultural training for African Americans in the Commonwealth of Virginia. An interview schedule was used with agriculture students, non-agriculture students, and agriculture department chairpersons at colleges and universities.

A profile of the typical agriculture student at Virginia State University was developed from the questionnaires. Analysis of interviews revealed African American perceptions about urban agriculture. Findings of the study can be used by institutions to increase their recruitment efforts for urban agricultural programs.

Dedicated to my wife who stood beside me throughout
this project.

ACKNOWLEDGMENTS

The effort required to complete surpassed all previous endeavors. I am indebted to my committee. Dr. Raymond F. Morgan encouraged me to enter the doctoral program. Dr. Donald Myers constantly directed me towards excellence. Dr. M. Lee Manning was a constant source of encouragement.

Finally, I thank my parents for teaching me standards of fairness and ethical behavior. The lessons I learned as a child will last a lifetime.

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CHAPTER 1

INTRODUCTION

This study was prompted by what was perceived as a dearth of research on African American occupation choice regarding agricultural careers, and by the low numbers of African Americans receiving agricultural degrees. The purpose of this study is to determine why few African Americans enroll in college programs that will prepare them for careers in urban agriculture. College degrees are significant because most professional positions in urban agriculture require at least a Bachelor of Science degree in Horticulture, Agronomy, or Environmental Science. Results of the study can be used to assist universities strengthen their urban agricultural programs to meet needs of urban students, target recruitment efforts, and match students to careers.

The purpose of this chapter is to present a brief overview of the research project. The chapter includes the following sections: rationale for the study, statement of the problem, need for the study, research questions, methodology, operational definition of terms, delimitations and limitations, and summary.

Rationale for the Study

Lack of adequate education prevents many African Americans from holding management positions in the urban agricultural industry. Employers such as municipal parks and forestry departments, golf courses, government agencies, and environmental control firms require managers to have at least a Bachelor of Science degree. Persons without college degrees work frequently for a minimum wage at entry level jobs and have few opportunities for advancement. Because the work is usually seasonal, many workers at entry level jobs are laid off every winter.

Degrees in agriculture are offered primarily at 1862 and 1890 Land-Grant Universities. The National Land-Grant Colleges Act of 1862 (First Morrill Act) authorized Congress to provide each state 30,000 acres of land for every member of Congress according to the representation based on the 1860 census. Donated land was sold and proceeds invested. Income derived from investments helped establish and maintain institutions that taught modern farming methodology and practical aspects of construction and engineering (Kinneer, 1972; National Research Council, 1996).

Congress passed a Second Morrill Act in 1890 that reinforced the 1862 legislation and established Land-Grant

institutions for African Americans in southern states because 1862 institutions funded by the first Morrill Act in southern states were not serving African Americans. The 1890 Act required all Land-Grant funds be divided equitably in states that maintained separate schools for races (Neyland, 1990). Instead of admitting African Americans into 1862 Institutions, many southern states decided to provide separate institutions for non-European Americans. Seventeen Historically Black Land-Grant Colleges and Universities are designated 1890 Institutions because they receive funds generated by the second Morrill Act. Table 1 presents information about the 1890 schools in the United States. Information used in the table came from the 1995 Digest of Educational Statistics. Enrollment information is from the fall, 1994 semester.

The Commonwealth of Virginia utilized funds from the First Morrill Act to fund a school for African Americans in addition to a school for European Americans. The two institutions designated Land-Grant facilities in the Commonwealth of Virginia in 1872 were Hampton Normal and Industrial Institute, now Hampton University (HU), and Virginia Agricultural and Mechanical College, now Virginia Polytechnic Institute (VT). The aid received by HU in 1872

bestowed upon it the character of an agricultural college (Armstrong, 1874). Therefore, HU also received funds provided

Table 1

1890 Historically Black Land-Grant Institutions

School	State	Students
Alabama A&M University	Alabama	5,543
Alcorn State University	Mississippi	2,742
University of Arkansas, Pine Bluff	Arkansas	3,823
Delaware State University	Delaware	3,381
Florida A&M University	Florida	10,084
Fort Valley State College	Georgia	2,823
Kentucky State University	Kentucky	2,563
Lincoln University	Missouri	3,512
Langston University	Oklahoma	3,408
University of Maryland, E. Shore	Maryland	2,925
North Carolina A&T University	North Carolina	8,136
Prairie View A&M University	Texas	5,849
South Carolina State University	South Carolina	4,693
Southern University	Louisiana	4,302
Tennessee State University	Tennessee	8,180
Tuskegee University	Alabama	3,322
Virginia State University	Virginia	4,007

by the 1890 legislation. In 1920, Land-Grant status transferred from HU, a private school, to a public school, Virginia Normal and Industrial Institute, now Virginia State University (VSU). Virginia State University is classified as

a 1890 Land-Grant Institution because it receives funds provided by the Second Morrill Act.

Land-Grant institutions were founded with the purpose of teaching farming and trade skills. Agricultural programs frequently were designed to assist farmers increase profit and improve production. To meet the needs of the urban environment, many Land-Grant Universities augment their rural agricultural programs with courses that prepare graduates for urban careers such as landscape design, municipal forestry, natural resource management, and turf maintenance. Each of the two Land-Grant Universities (1862 and 1890) in Alabama, Florida, and Texas has a strong urban emphasis. In states where the 1890 Land-Grant University does not have an urban agricultural program, the 1862 Land-Grant University is the only source for advanced degrees in urban agricultural programs.

Unlike Alabama, Florida, and Texas, the two Land-Grant Universities in the Commonwealth of Virginia have different emphases. Programs at VSU have not historically emphasized urban agriculture. The emphasis at VSU is on assisting farmers, not on preparing students to work in urban environments. For example, aquaculture, shittake mushroom production, and other innovative programs at VSU help small

farmers diversify their income. The College of Agriculture at VT offers programs in both traditional and urban agriculture.

Statement of the Problem

African Americans are under-represented as leaders in the urban agricultural industry. The purpose of this study is to determine why few African Americans enroll in college programs that will prepare them for careers in urban agriculture. In spite of years of effort to recruit minorities, most agriculture students at VT are European American. Fall enrollment at VT's College of Agriculture and Life Sciences is presented in Table 2. The 1991 and 1992 enrollment numbers include the Department of Forestry, which became the College of Forestry in 1993. In 1996, each department in the College of Agriculture at VT had less than five African American students. University records reveal that historically few African Americans have enrolled in VT's agricultural programs. Fall 1996 enrollment by program at VT's College of Agriculture is presented in Table 3.

The Task Force on Women, Minorities, and the Handicapped in Science and Technology's Final Report (1989) noted that by 2000, 85 percent of the new entrants to the nations's work force will be members of minority groups and

women. The need for college graduates with expertise in agriculture is also expected to increase but minority enrollment, especially African American enrollment, continues to be low (Mellion, 1995). The average annual employment opportunities for college graduates with expertise in the food and agricultural sciences during 1995-2000 are projected to be 47,918 (Employment Opportunities, 1995). Mellion reported that although minority populations have not historically had positive experiences in agriculture, the predicted shortage of trained employees should award employment opportunities to all persons who pursue careers in agriculture related disciplines.

African Americans received ten percent of all Bachelor degrees conferred in the United States in 1992. According to a national survey by Snyder (1994;1995), less than three percent of all students receiving Bachelor degrees in agriculture in 1991-92 were African Americans; the percentage was unchanged in 1992-93.

Historically Black Colleges and Universities (HBCU's) funded by the 1890 Morrill Land-Grant Act train most of the African Americans who study agriculture. Availability of scholarships and aggressive minority recruitment efforts by

Table 2

**Enrollment in Virginia Polytechnic Institute's College
of Agriculture and Life Sciences**

Undergraduate Students

Race	1991	1992	1993	1994	1995	1996
AfA	13	24	17	26	28	34
EA	1313	1435	1067	1148	1282	1388
Other	36	40	49	61	68	75
Total	1362	1499	1133	1235	1378	1497
% AfA	1	2	2	2	2	2
% EA	96	96	94	93	93	93

Graduate Students

Race	1991	1992	1993	1994	1995	1996
AfA	8	9	9	2	7	8
EA	283	286	199	190	159	173
Other	141	151	117	103	95	85
Total	432	446	325	295	261	266
% AfA	2	2	3	1	3	3
% EA	66	64	61	64	61	65

Total Students

Race	1991	1992	1993	1994	1995	1996
AfA	21	33	26	28	35	42
EA	1596	1721	1266	1338	1441	1561
Other	177	191	166	164	163	160
Total	1794	1945	1458	1530	1639	1763
% AfA	1	2	2	2	2	2
% EA	89	89	87	88	88	89

Note. AfA = African American; EA = European American.
From L. M. Moore, personal communication, April 1, 1997.

Table 3

Enrollment by Major in Virginia Polytechnic Institute's College of Agriculture and Life Sciences

Major	Total	AfA	EA	%AFA	%EA
Agricultural Economics	121	2	93	2	77
Agronomy	24	0	21	0	88
Animal Science	255	8	234	3	92
Animal Science, Dairy	86	1	80	1	93
Animal Science, Poultry	269	6	241	2	90
Agricultural Technology	131	5	125	4	95
Biochemistry and Nutrition	167	4	135	2	81
Crop and Soil Sciences	140	4	125	3	89
Environmental Sciences	303	0	280	0	92
Entomology	21	1	14	5	67
Genetics	5	0	4	0	80
Horticulture	150	1	141	1	94
Plant Pathology and Weed Science	31	3	15	10	48
OTHER	55	7	49	13	89
TOTAL	1763	42	1561	2	89

Note. AfA = African American; EA = European American.
 From L. M. Moore, personal communication, April 1, 1997.

1862 Land-Grant Universities indicate that reasons other than cost influence university choice.

Because most agriculture students at 1862 Institutions are European American, the 1890 HBCU's response to urban needs determines the numbers of African Americans trained for urban agricultural positions. If the HBCU does not offer urban agricultural programs, then the result may be that most of the persons trained for leadership positions will continue to be European Americans. Unless enrollment in urban agriculture increases, African Americans will remain an under-represented group as leaders in the agriculture profession and they will continue to be a wasted resource in fulfilling the predicted shortfall of college trained agriculturists.

Need for the Study

There are three indicators of the need for increasing the numbers of African Americans trained in urban agriculture.

1. Programs at 1890 Universities such as VSU were funded to raise the hopes and aspirations of a generation of children of former slaves and to provide quality higher

education to Americans of all races (National Center for Educational Statistics, 1996). Until the 1960's, African Americans were denied educational opportunities at 1862 Land-Grant institutions in southern states.

Despite decades of attempting to recruit a diverse student population, the Commonwealth of Virginia's two Land-Grant Universities remain racially divided. Student population at VT is more than 95 percent European American while VSU's student population is more than 95 percent African American.

Eight colleges and universities in the Commonwealth of Virginia offer degrees that prepare students for careers in urban agriculture: Christopher Newport University, J. Sargent Reynolds Community College, Lord Fairfax Community College, Northern Virginia Community College, Tidewater Community College, Virginia Polytechnic Institute, Virginia State University, and Virginia Western Community College. Community colleges offer Associate's degrees. Virginia Polytechnic Institute offers Associate's, Bachelor's, Master's, and Doctor's degrees in programs related to urban agriculture. Excluding VSU, less than one percent of all

horticulture students at Colleges and Universities in the Commonwealth of Virginia are African American. Results of the study could enable universities to increase their minority recruitment efforts for urban agricultural programs.

2. Most Land-Grant Universities have a student organization whose purpose is to help minorities in agriculture and science programs. The organization, Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), is committed to increasing the number of African Americans and other minorities enrolled in college programs related to agriculture and science because of the dearth of such students. There are more than fifty MANRRS chapters at colleges and universities in the United States. In addition to increasing student numbers, the objectives of MANRRS are to promote an understanding and appreciation of the fields of study representing food, human, and environmental sciences; and to meet the academic, professional, and social needs of African American, Latino/Latina, and other under-represented students within the college of agriculture (Minorities, 1977).

3. Previous works have indicated the need for more studies to understand the phenomenon of African American occupational choice (Mitchell, 1993; Peeler, 1995). In reference to African Americans entering the teaching profession, O'Bryant (1996) called for investigations of factors which influence career choice among African Americans.

Research Questions

The study attempts to answer six questions.

1. What is the role of cultural identity in the decision of African Americans to enroll in programs that are preparatory for careers in urban agriculture? While studies have demonstrated the importance of cultural identity in a person's occupational choice, its role regarding African American enrollment in agricultural programs has not been demonstrated (Parham & Austin, 1994). Because of the agricultural experience of African Americans, historical issues and institutional demographics might influence a student's career decision.

The agricultural heritage of African Americans includes slavery and decades of subsistence farming. Slaves were a

primary source of agricultural labor on southern plantations. After slavery was abolished, decades of legal segregation denied African American farmers equal access to loans, education, and other opportunities available to European American farmers. Access to credit is an important part of a farmer's existence that has been denied many African American farmers.

The number of African American farmers has declined since 1920 (Thurow, 1998). In 1920 African Americans owned fourteen percent of the nation's farms; by 1992, the proportion was down to one percent. By 2002, the numbers of African American farmers are predicted be a fraction of one percent. According to Thurow, the decline of African American farmers is attributed to "the same economic hardships and urban migrations that have imperiled all small family farms, plus one other thing: racism."

Institutional demographics are important because agriculture, especially urban agriculture, is taught in universities that have unequal numbers of African American and European American students. A student interested in agriculture but who does not desire to attend VSU might

pursue other majors at other universities to avoid being the only African American in class. Determining possible influences of institutional racial demographics on agricultural occupational choice is not possible in the present study because of the low numbers of African American agriculture students at colleges and universities other than VSU.

2. What is the role of family, friends, and mentors in an African American's decision to pursue a degree in urban agriculture? While issues related to career choice have prompted studies about how and why people make career decisions, the process by which a person arrives at mature and informed career choice is still unclear. The impact of family and friends was revealed in a study of minority agriculture students at The College of Agriculture and School of Natural Resources at the Ohio State University (Mitchell, 1993). Subjects in the study were influenced and assisted most in decisions about college by parents, grandmothers, friends, and contacts with individuals associated with the university.

The present study seeks to determine if mentors affect

African American career choice of urban agriculture. Mentors serve as friends, tutors, role models, and coaches. The importance of mentors to the teaching profession has been documented by several researchers (Darling-Hammond, 1992; Huling-Austin, 1990). In a study by Herbert (1990), mentoring was not evident among African American entrepreneurs. Herbert cited the lack of African American entrepreneurs as a possible explanation for his observations. The dearth of African American urban agriculture professionals might influence mentorship in a manner similar to Herbert's observations.

3. Are there differences in the backgrounds of African American urban agriculture students and African American college students studying other subjects? Vocational experiences, pre-collegiate exposure to careers, and family experiences are part of a student's background. The provision of vocational information has long been regarded a principal means of enhancing occupational choice (Super, 1957). Background is also important because individuals approaching career decision making from a greater variety of perspectives have advantages over those who have only a

limited number of considerations (Parr & Niemeyer, 1994).

If student background is found to be a factor, then there are two ways colleges and universities can benefit. One, programs can be developed that build background through developing student awareness of career opportunities in urban agriculture. African American urban youth have few mentors and little exposure to professional careers in this field. Two, recruitment efforts can be directed toward student populations that possess a characteristic background.

4. Are there demographic differences among freshman, sophomore, junior, and senior African American agriculture students? The purpose of this question is to determine if demographic factors are associated with student retention. Results can be used to assist universities develop appropriate intervention strategies. Studies have identified several factors associated with student retention. The most prevalent characteristic of persistence is full-time collegiate attendance (Feldman, 1993; Windham, 1994). The following factors decrease student persistence: full-time employment, low grade point average, being a member of a

minority group other than Asian, increased family obligations, and financial concerns (Bonham & Luckie, 1993). Gwendolyn Mitchell (1993) reported that attitude about agriculture was important in agriculture student retention at Ohio State University.

5. Are there demographic differences among African American students in the different agricultural programs at VSU? The five agricultural programs at VSU are Agricultural Business and Economics, Agricultural Education, Animal Science and Pre-Veterinary Medicine, Aquatic Science, and Plant and Soil Science. Graduates from the Plant and Soil Science program are trained for urban agriculture careers.

A study by Tarpley (1993) revealed few differences among students majoring in different types of agriculture when measured for grades, athletic participation, type of high school attended, financial status, participation in organizations, interest in technical activities, interest in art, interest in business, and gender. Question five seeks to determine if VSU agriculture students have a homogeneity similar to what Tarpley observed among agriculture students in Mississippi.

6. Are there different perceptions about urban agriculture between African American college students studying urban agriculture and African American college students studying other subjects? Question six seeks to discover perceptions African Americans have about urban agriculture. A number of studies point to the importance of career perception on an individual's occupational choice. The impact of individual perceptions on career interests and occupational choice was reported by Lent and Hackett (1986). Nan Hu (1996) found labor market perceptions combined with different personality orientation accounted for 77.5 percent of the total variance in student choice of majors. Ethnic differences in the perceptions of barriers to career development was reported by Luzzo (1995). In a later work by Luzzo (1996), the perception of occupational barriers was not found to necessarily negatively influence the career development process.

In summary, perceptions about labor market conditions and occupational barriers were found to vary and to impact occupational choice. The extent to which perception might affect agricultural career choice, especially among African

Americans, has yet to be determined. This study might help find answers to the questions of perceptual awareness in occupational choice.

Methodology

The study used quantitative and qualitative methodologies to collect and analyze data. A demographic questionnaire distributed to all agriculture students at VSU was used for the quantitative part of the study. Structured interviews were the qualitative part of the study. Using two methods allowed the study to expand on previous qualitative studies regarding career choice by minorities while also exploring potentially new perspectives of career selection.

A demographic survey examined differences among groups of African American agriculture students. The entire population of agriculture students was used in the study even though they do not all receive degrees in urban agriculture. A study by Tarpley (1993) provides precedence for including non-urban agriculture students in the present study.

The survey determined backgrounds of African American agriculture students in order to develop a profile of

students pursuing degrees related to urban agriculture. The survey, based on works by Collier (1993) and Berger (1990), was designed to elicit subject background relevant to career selection. Results of the survey should replicate findings of Mitchell (1993) and Talbert (1992) regarding characteristics of agriculture students at Ohio State University and in Texas public schools. In those studies, European American agriculture students tended to be from rural backgrounds and have agricultural experience prior to entering college. African American agriculture students tended to be from urban areas and have little previous agricultural experience.

A structured interview schedule was used with African American agriculture students at VSU. The interview schedule was designed to elicit information about occupational choice. The same interview schedule was used with African American non-agriculture students at VSU.

Department heads of colleges and universities offering agricultural degrees in the Commonwealth of Virginia were also interviewed. Each professional interviewed has at least a doctor's degree either in urban agriculture or a related

subject.

Operational Definition of Terms

For the purpose of this study, urban agriculture is operationally defined as those areas of agriculture that are practiced in urban areas. According to Hemp and Ethridge (1981), agriculture that is especially significant in urban settings include "ornamental horticulture, companion animals, food processing, conservation and ecology, agricultural marketing, and gardening." For the purposes of this study, urban forestry is also considered a part of urban agriculture.

Providers of agricultural research and education programs are shifting from a rural focus on farms to identifying consumers, particularly suburbanites as the ultimate consumer (Fite, 1986). The George Washington University's and Virginia Polytechnic Institute's Hampton Roads centers offer advanced studies in urban related agriculture. The George Washington University offers a certificate in landscape design. Virginia Polytechnic Institute offers a Master of Science degree in Horticulture. Both institutions have few African Americans enrolled in

their programs.

The United States Department of Agriculture (USDA) has a forestry division whose purpose includes developing and maintaining urban forests. A center for urban forestry has been established at the Morris Arboretum in Philadelphia. The center is in conjunction with the USDA and the University of Pennsylvania.

In the Commonwealth of Virginia, the State Department of Forestry administers the Urban and Community Forestry fund for the USDA. The fund is used to provide grants that will enhance the development or maintenance of the urban forest. Individuals, groups, and the cities of Fairfax, Norfolk, Richmond, and Virginia Beach are among the municipalities that received Urban and Community Forestry funds during 1997.

For the purpose of this study, African Americans will be operationally defined as persons having origins in any of the black racial groups of Africa ("Census," 1997). Immigrants from Haiti, Jamaica, and other non-African countries will be considered African Americans if their origin is from a black racial group of Africa.

For the purpose of this study, European Americans are persons having origins in any of the peoples of Europe, the Middle East, or North Africa. The definition of European American will be used in the United State's 2000 Census ("Census," 1997).

Delimitations and Limitations

Limitations are present in this study because of the absence of benchmark studies and because of the developing nature of the theoretical foundation for the subject of African American occupational choice of urban agriculture. While limitations affect the study's generalizability, information gained can be used to guide future research and to assist universities recruit African Americans to urban agricultural programs.

A limitation in the present study is that the survey does not specify urban agriculture majors. Virginia State University, like most Land-Grant universities, does not have a major titled urban agriculture. Instead, students enroll in programs such as ecology, forestry, horticulture, and plant science in order to prepare for agriculture related jobs in the urban environment. All agriculture students at

VSU were surveyed in the attempt to acquire data. Virginia State University students studying ecology earn a degree in biology with an emphasis in ecology. These students were attempted to be reached through interviews with biology students. The limitation is unavoidable because of the dearth of African American urban agriculture students at Colleges and Universities in the Commonwealth of Virginia.

The study does not examine races and ethnic groups other than African Americans. The lack of minorities other than African Americans as agriculture students or practicing professionals in the Commonwealth of Virginia limited the study to one racial group.

The study does not include high school agriculture students. While previous studies (Mitchell, 1993; Talbert, 1992) reported on the demographics of high school agriculture students, including such students is beyond the scope of the present study and is a topic for further research.

Summary

The dearth of African Americans trained as urban agricultural leaders is a phenomenon that has existed for

many years. The lack of training has resulted in a scarcity of urban agricultural leaders who are African American. Virginia Polytechnic Institute, the largest provider of agricultural programs in the Commonwealth of Virginia, had an agriculture student population that was averaged less than two percent from 1991 to 1996 (L. M. Moore, personal communication, April 1, 1997).

Virginia State University is the primary institution for training African American agriculturists. In 1997, VSU had less than 60 students enrolled in five agricultural programs. In 1996, VT had 1,763 students enrolled in similar programs.

Until legally mandated desegregation in the 1960's, VSU and VT operated separate programs. Agricultural enrollment patterns at the two universities in the decades after desegregation reveals a de-facto separation of races. If agricultural enrollment trends continue, then nearly all the African Americans trained in urban agriculture will be graduates of VSU. Because agricultural enrollment is decreasing at VSU, the numbers of African Americans receiving training in this field will also decrease.

This chapter has described the problems which prompted the study, the rationale for the study, and the basic parameters of the study. A review of literature relevant to the study is presented in chapter two. Research design and methodology, including the population, procedures, and data analysis, are summarized in chapter three. Main findings of the study are described in chapter four. Implications of the study and recommendations for further research are discussed in chapter five.

CHAPTER 2

REVIEW OF RELATED RESEARCH

There is precedence for associating agriculture with metropolitan areas. Urban agriculture normally refers to the practice of producing food within the confines of a city. According to Wasser (1997), production normally takes place "in backyards, on rooftops, in community vegetable and fruit gardens and in unused or public spaces." Such farming is perceived as an aid for developing countries and poor inner-city neighborhoods throughout the world in the battle against hunger and poverty. While urban farming has largely disappeared in the industrialized world, it has persisted in the developing world and is showing signs of increasing. Urban agriculture in industrialized nations, such as the United States of America, refers to activities related to establishing and maintaining plants in the city environment. Other than home gardening, food production is not a major part of urban agriculture in industrialized nations (Hemp & Ethridge, 1981).

The purpose of this chapter is to present a summary of research relevant to the study of why few African Americans

major in college programs that will prepare them for careers in urban agriculture. The chapter includes the following sections: agricultural careers, historical influences on African American career choice, and career development theory.

Agricultural Careers

Agricultural careers may be divided into two categories. One category includes traditional agricultural operations that are involved with the production or marketing of food or fiber. College students preparing for careers in traditional farm careers major in programs such as animal science or crop science. The second category includes non-traditional agricultural operations such as golf courses, production nurseries, landscaping companies, public and private botanic gardens, retail garden centers, and municipal parks and forestry departments.

This section on agricultural careers focuses on student perceptions, demographics of agriculture students, agricultural education and cooperative extension, cultural identity, and minority recruitment by universities.

Perceptions of Agricultural Careers

Collegiate agricultural programs have traditionally been poorly attended by African American college students. In 1900, Hampton Normal and Industrial Institute, now Hampton University (HU), had 656 students; four of the 656 were agricultural majors (Anderson, 1988; Armstrong & Ludlow, 1874). Until 1920, HU was the only Land-Grant institution in the Commonwealth of Virginia that African Americans could attend.

A study by Peeler (1995) of pre-college and freshmen African American and European American college students revealed that agriculture was not one of the students' top ten occupational choices. Students in Peeler's study selected accounting, architecture, art, athletics, business, law, physical therapy, medicine, psychology, and nursing as preferred occupations. Lorraine Peeler (1995) observed that African Americans in America's middle class are in occupations other than agriculture. Similar results were found in an eight year study of Historically Black Colleges and Universities by Gurin and Epps (1975). Agriculture was not among the twenty five jobs rated highest in desirability

by men and women.

Student perceptions of agriculture as a career are evident before college enrollment. David Zoldoske (1996) reported that high school juniors and seniors select agricultural careers because of a desire for autonomy in the workplace and for retirement programs. Jay Rojewski and Peihua Sheng (1993) reported that African American male students in grades 9-12 held negative perceptions toward vocational education programs, including agriculture. Neither Rojewski and Sheng nor Zoldoske isolated race as a variable in their studies. A study by Tarpley (1993) indicates that agriculture students in college generally decided on their major before the tenth grade.

Demographics of Agriculture Students

Gwendolyn Mitchell (1993) discovered common characteristics about minority students enrolled in the College of Agricultural and Natural Resources at The Ohio State University. The typical minority student lived in a small town or city prior to entering college and was a female between 18 and 21 years old. Career decision was influenced by academic advisors, spouse, friends,

stepmother, brochures, visits and conversations with faculty and other students, professors, and teaching assistants. Minority agriculture students also had more negative perceptions regarding agriculture and agricultural education than non-minority students. Non-minority students tended to be from farms or rural areas. According to Talbert (1992), minority agriculture students were less likely to recognize opportunities for themselves in agriculture or to perceive of the diversity of agricultural careers.

Agricultural Education and Cooperative Extension

Most African American agriculture professionals in the Commonwealth of Virginia work as either agricultural teachers in public schools or as agents with Virginia Cooperative Extension. Agricultural Education programs at VSU and VT are the two programs in the Commonwealth of Virginia that prepare students to teach agriculture at middle and secondary schools. Nationally, the total number of positions for agricultural teachers has dropped from 10,378 in 1964 to 10,176 in 1990 (Oliver & Camp, 1993). In the Commonwealth of Virginia, there are over 300 agricultural educators in public secondary schools (Henry,

1994). Most agricultural educators are trained at Land-Grant Universities (Key, 1995).

The disparity between African American and European American graduates is evidenced by 1989 agricultural education graduates. In that year, eight students graduated in agricultural education from VT and none graduated from VSU (Oliver & Camp, 1993).

Kirk Swartzel (1996) discovered that agricultural teacher education students in Ohio were Caucasian males from a traditional family in a small town environment. Students were involved with agricultural youth programs, such as Future Farmers of America or Four-H prior to entering college. Their reasons for choosing agricultural education as a career option did not include salary, but instead focused on a desire to be involved with the mission of agricultural education. College and university instructors of agriculture students were Caucasian males from traditional families and small town environments.

Land-Grant Universities, such as VSU and VT, have a three-part mission: instruction, extension, and research. Extension refers to any university sponsored education

taking place outside the traditional academic setting. The extension mission has four principal components: Cooperative Extension, off-campus credit instruction, non-credit continuing education, and administration of grants and contracts (Joint Legislative Audit and Review Commission, 1979). Cooperative Extension is a partnership among the federal government, states, and local communities that is designed to aid transfer of the information and research capabilities of Land-Grant Universities to the community. The United State's Department of Agriculture is the federal agency responsible for directing Cooperative Extension (National Research Council, 1996).

Cultural Identity

The role of cultural identity in occupational choice has been shown in minority groups (Peeler, 1995; Zoldoske, 1996). Cultural identity is developed by an individual's level of identification with his or her ethnic or racial group, level of self-exploration and self-awareness, and cross-cultural social experiences (Whaley, 1993).

A high cultural identity might lead individuals to behave in ways contrary to the norms of the majority

culture. For instance, African American youths who drop out of school might have a high cultural identity and a very high self-esteem (Whaley, 1993).

Models of understanding cultural identity

Identity formation in African American children is the product of interactions among cultural factors, cognitive developmental processes, and social experiences (Spencer, 1985). Cultural identity might influence the occupational choice of urban agriculture because of African American's agricultural heritage. Many African Americans in urban areas can trace their heritage to poor farms and plantations of the south (Rossides, 1991; Peeler, 1995).

Reactive, creative, and bicultural are three models of African American culture that propose to understand the substance of African American beliefs and behaviors in terms of cultural identity (Stevenson, 1994). The reactive model views racial oppression as the substance of developing a cultural identity. The creative model, also called the evolutionary model, emphasizes the commonality of African culture among African Americans. The bicultural model combines major tenets of the reactive and the creative

models.

There are four ways to measure each of the four models of cultural identity: developmental, Africentric, group-based, and racial stereotyping (Burlew & Smith, 1991). Developmental models seek to explain processes of cultural identity development. Africentric approaches seek to determine distinguishing characteristics of all Africans (e.g., reasoning process or world view) and to measure the levels of those characteristics in African Americans. Group-based approaches measure affiliation or allegiance to one's own racial group. Racial stereotyping is the measure of an individual's appraisal of his racial group.

Self-Concept

Brenda Betts (1995) reported that a major benefit of Historically Black Colleges and Universities is their ability to provide students an opportunity to develop a strong self-identity. Two major components of self-concept are self-identity and self-esteem. Self-identity is the totality of one's perceptions about self. Self-esteem is how one evaluates and feels about one's specific identity. Self-concept is an integrated, hierarchically organized set of

self-attributes or components that define how an individual perceives himself. Self-concept is formed and experienced in interaction with others (Peeler, 1995). African Americans have a unique self-concept that is composed of reference group orientation and personal identity (Cross, 1992).

Acculturation and assimilation are concepts that explain the role of the minority culture's influence on an individual's decisions while also considering the role of the majority culture. Acculturation is the measure of the extent of one's participation in the beliefs and practices of one's culture in relation to the dominant culture. Assimilation views the process of cultural change produced by contact with the dominant culture as linear and unidirectional while acculturation predicts nonlinear and multidirectional change.

The adaptability of immigrants to the dominant American culture has been examined. Studies have focused on acculturation of first and second generation Japanese, Chinese, and Latinos from specific South American countries, and persons from European countries. The acculturation of Blacks from Caribbean nations such as Jamaica has been

studied. Frederick Leong and Elayne Chou (1994) reported that Asian Americans with separationist identity (e.g., less acculturated) were more susceptible to occupational segregation such as might occur with urban agriculture, a profession dominated by European Americans. African Americans, largely unwilling immigrants to this country, have only recently been studied in terms of acculturation.

Effects of segregation

The lack of occupational success of African Americans is explained partially by their stratification status (Ogbu, 1978, 1981). African Americans are identified as being at different stages of awareness and growth, part of which is similar to that experienced by European Americans, and part of which is unique to the African American experience in America.

Ogbu classifies American minority groups into three categories: autonomous, immigrant, and caste-like minorities. African Americans are considered caste-like minorities because most migrated involuntarily, were relegated to menial jobs by legal and extralegal means, and were not allowed to rise economically or politically.

According to Hacker's (1992) review of the past 30 years, segregation is still very much a part of American life. He found that America can be considered at least two nations, African American and European American.

James Herbert (1990) studied adult African American entrepreneurs and discovered that racism experienced as children continued into the adult workplace. He concluded that a person's actions are greatly influenced by race and racism.

Minority Recruitment by Universities

Colleges of agriculture are finding it difficult to recruit and retain significant numbers of students from racial and ethnic minority groups (National Research Council, 1996). Racial separation continues at 1862 and 1890 universities in many southern states. For example, the Fifth U.S. Circuit Court of Appeals ruled that Mississippi's system of higher education has not shaken vestiges of segregation (Roach & Fields, 1997). The court decided that Mississippi encouraged maintaining Historically White Institutions in addition to Historically Black Colleges and Universities (Ayers v. Fordice, 1997).

Like Mississippi, VSU and VT have racially different agriculture student populations. Virginia Polytechnic Institute president, Paul Torgersen, admits VT has a racism problem. He planned to hire a vice president for minority affairs to deal with such matters ("Virginia Tech President," 1997). The Washington Post reports that fourteen years after the Commonwealth of Virginia and several other states were ordered to desegregate their colleges and universities, progress is "scattered and tenuous" (Southern Association of Colleges and Schools, 1988). Academic ability is important for recruitment of students to agricultural programs at universities. A study by Tarpley (1993) of Mississippi secondary students planning to enter collegiate agricultural programs revealed that potential agriculture students had lower grades in high school courses than other college bound students. She concluded that colleges should actively recruit minorities from small private schools and junior colleges in order to attract students with high academic ability into agricultural programs.

In addition to academic ability, Zoldoske (1996) concluded that effective recruitment of minorities depends

upon recognition of racial differences and perceptions towards agricultural careers. Similar differences between African Americans and European Americans were reported by Guran (1975). Differences might be attributable to African Americans perceiving their career options to be limited (Luzzo, 1992).

Virginia State University's Persistence Towards Excellence program is designed to recruit high school students to the agricultural sciences. The program has six goals: to provide mentoring and exposure regarding career opportunities in the food and agricultural sciences; to provide an opportunity for high school students to become acclimated to the college experience; to enhance basic skills in mathematics, computer literacy, communication skills, and science; to provide students with hands-on experiential learning with personnel within the food and agricultural science discipline areas via mentorships; to establish a bonding relationship among high school students, their parents, the community, and VSU; and to recruit additional students in under-represented disciplines (McClure, 1991).

Virginia Polytechnic Institute has a program with the Fairfax County School System that targets black seventh grade students for participation in an early intervention program. The need to market agricultural programs to middle school students is emphasized by Collier's (1993) report that African Americans tend to make college attendance decisions earlier than European Americans. Completers of the program are guaranteed admission to VT (Southern Association of Colleges and Schools, 1988). In addition to targeting seventh graders, VT's efforts to recruit minorities include: special mailings to black high school seniors, based on lists obtained from sources such as the National Achievement Program for Outstanding Negro Students and the College Entrance Examination Board; interview sessions sponsored by the National Scholarship Service and Fund for Negro Students and the Educational Opportunity Center of Washington, D.C.; campus orientation programs in the fall and the spring to which prospective minority students are invited; visits by University recruiters to high schools and college fairs; and the general distribution of a black student brochure, which highlights academic and social aspects of the University

from the perspective of the black student.

Historical Influences on African American Occupational Choice

Heritage is a factor in occupational choice because African American youth perceive the structure of opportunity differently from European Americans. They believe they face a job ceiling, inequality of treatment, and reduced wages compared to European Americans. The result of these perceptions may be less effort toward school work and often self-imposed limitations in terms of occupational choices (Peeler, 1995).

African Americans have historically used education as a primary avenue of increasing occupational, economic, and social mobility (Presley, 1995). African Americans tend to choose occupations such as education, social work, and government work that allow for helping others and working with people (Evans & Herr, 1994; Parham & Austin, 1994; Shipp, 1992).

This section on historical influences will examine factors that influence occupational choice of African Americans: cognitive complexity, occupational prestige, and

mentoring.

Cognitive Complexity

Jane Parr and Greg Niemeyer (1994) reported about the relationship between cognitive complexity and vocational decision making. They reported that individuals who approach career exploration and decision making from a greater variety of perspectives are likely to have advantages over those who bring only a limited number of considerations when evaluating the world of work.

Vocationalization and vocational construct system are two terms used to describe the ability to make an intelligent occupational choice. Vocationalization describes occupational socialization that leads to a person making an occupational choice (Borrow, 1984; Crites, 1969). Psychological, sociological, cultural, and economic factors influence vocationalization that result in self-career identity, decision-making ability, and career maturity (Herr & Cramer, 1992). Career maturity is defined as "having definite career choices, making consistent choices over time, and making choices that are realistic." Vocational differentiation can be increased by receiving negative

information about favorable careers and receiving positive information about unfavorable careers (Moore, Niemeyer, & Marmarosh, 1992).

Vocational construct system (VCS) is described as a network of bipolar constructs that enable individuals to interpret and systematize their vocational experiences. Individuals with a high VCS tend to make more appropriate career decisions than persons with a low VCS (Moore, et al., 1992).

Occupational Prestige

Frederick Leong and Elayne Chou (1994) defined occupational prestige as the honor or social esteem usually accorded to individuals working in an occupation. Occupational prestige is influenced by occupational segregation, stereotyping, discrimination, prestige, and mobility (Peeler, 1995). Education is more highly related to occupational prestige than to individual earnings (Dehkordi, 1994). Christine Faltz (1996) reported that for African American adolescents, poor academic achievement coexists with positive attitudes toward self and education. Underachievement of African American children is a paradox

to traditional motivational theory that reflects an European American perspective and proposes that expectations and aspirations predict educational outcomes. According to Whaley (1993), African American children's racial attitudes or preferences are not related to their self-esteem.

Mentoring

Mentors are an important factor in career selection, especially for persons without family or cultural ties to desired careers. Camille O'Bryant (1996) reported on the importance of mentors for African American women entering the teaching profession. According to O'Bryant, mentors should be role models who are of the same racial or ethnic group as the mentees. Cheryl Presley (1995) reported that African American participation and degree completion in graduate and professional schools lie in "the roles faculty and administrators assume towards encouraging, socializing, and involving African American students."

Career Development Theory

Issues related to career choice have prompted researchers to study how and why persons make career decisions. This effort has given rise to the field of career

development theory and practice. Career development is defined as "the total constellation of psychological, sociological, educational, physical, economic, and chance factors that combine to shape the career of any given individual over the life span" (National Occupational Information Coordination Committee, 1986). Personal identity, social-economic status, self-concept, ethnic identity, and self-efficacy influence the ability to identify and pursue desirable careers. Consistent with career development theories, Hu (1996) reported that personality and labor market perceptions are two major factors that affect occupational choice among college students.

Career development theory seeks to identify and understand factors that influence a free and informed occupational choice, the evolution of personal identity regarding work, and the transition, induction, and adjustment to work. The theory is still relatively fragmented and incomplete, particularly when addressing women and the socially disadvantaged (Brown & Brooks, 1991; Herr & Cramer, 1992). Most studies reflect a "white middle

class perspective, fail to account for the effects of race and social class, exaggerate the role of personality, and fail to account for social/cultural and environmental influences on individual choice" (Brown & Brooks). Arthur Wayley (1993) reported that previous studies either did not isolate race as a potentially confounding variable or focused on minority groups other than African Americans (Cheatham, 1990; June & Pringle, 1977; Parham & Austin, 1994; Smith, 1980).

There are three major problems with applying traditional career development theories to African Americans: implicit and explicit use of non-Black norms and samples as standards of comparison; failure to account for any within group variance among Blacks; and tendency to stereotype all African American people as a homogeneous group (Parham & Austin, 1994).

There are different methods of categorizing career development theories. The method espoused by Osipow (1983) described the theories as trait factor approaches, sociology and career choice, self-concept theory, and vocational choice and personalities. The two divisions utilized by

Crites (1969) are psychological and non-psychological theories. Psychological and organizational behavior perspectives are the two categories utilized by Hackett (1991). Psychological theories include developmentally based theories, trait and factor perspective theories, personality based theories, typological theories, and social learning theories. Non-psychological, or organizational behavior theories, include accident, economic, cultural, and sociological theories.

Social learning theory seeks to understand the role of environmental and sociological factors in career choice. A person's expectations of attaining a goal and the value placed on the goal determine the likelihood that a specific behavior will occur (Rotter, 1954). According to Rotter, a person believes outcomes are controlled by personal efforts (internal locus of control) or that events greatly influence what will happen (external locus of control). Albert Bandura's Social Learning Theory and Theory of Self-Efficacy are also social learning theories (Bandura, 1977). Self-efficacy differs according to the environment, the individual persona, and the expected outcome (Jespersion,

1996). Arthur Whaley (1993) reported that self-efficacy is affected by racial inequality. The social learning theory of Krumboltz emphasizes the role of a person's perceptions of occupations in the process of career selection. The Career Beliefs Inventory designed by Krumboltz attempts to determine what beliefs may prevent individuals from reaching their career goals (Conoley & Impara, 1995).

Social and economic influences of career selection include family status variables (e.g., family income, parental education, family structures), parenting variables (maternal support and restrictive controls), peer support, and neighborhood risk (Gonzales, Cauce, Friedman, & Mason, 1996). Percentages of high school graduates enrolled in college the October following graduation is an indication of family income's affect on college attendance. Approximately 45 percent of high school graduates from low income families were enrolled in college in 1994. Approximately 60 percent of high school graduates from middle income families and 75 percent of high school graduates from high income families enrolled in college during the same period (United States Department of Education, 1996). Gonzales, et al. (1996)

demonstrated that neighborhood risk can be a moderator of the effects of parenting and peer support.

Summary

The present study offers the promise of making significant contributions to the knowledge base of factors involved in the unexplored phenomenon of African American career choice of urban agriculture. Although reasons for the dearth of African Americans enrolling in collegiate programs of leading to careers in urban agriculture have not been documented, the importance of perception in occupational choice has been identified (Swanson, 1996).

Perception is influenced by exposure to career opportunities. The type of exposure and the type of information provided to students about careers is important (Moore, et al., 1992). Students, such as African Americans who live in urban areas, probably have little exposure to careers in urban agriculture. The lack of role models might also prevent students developing a positive perception about available careers.

Darrell Luzzo (1993) reported ethnic differences in types of barriers college students perceived to their career

development. Whether the negative perceptions African Americans have about agricultural careers applies to opportunities in urban areas has not been researched even though the majority of African Americans who are agricultural majors are from urban areas (Mitchell, 1993; Talbert, 1992). Five factors have been identified that might influence a student's perception about agricultural careers: exposure to agriculture at home, work, or school; cultural identity; historical influences; racial demographics of institutions offering agricultural programs; and influence of family, friends, and mentors.

One of the assumptions of the present study is that human behavior is integrally related to the context of lived experience and that understanding must be from the point of view of the person who lives it (Merriam, 1988; Miles & Huberman, 1994; Schwandt, 1994). Thus, the study reflects a phenomenological viewpoint which is in contrast to typical positivist approaches of investigating objective facts apart from the subjective viewpoints of individuals. According to Fetterman (1988), "phenomenologically oriented researchers seek to understand human behavior from the 'insider's'

perspective." This study will examine the phenomenon of African American enrollment in urban agricultural collegiate programs in the context of the participant's culture, environment, and experience.

The format and analytical framework for the study were derived from principles of inquiry into under-exploited areas of study. The study sought to provide insight and understanding from the perspective of those being studied. Thus, the study offers the promise of making contributions to the knowledge base of factors involved in under-explored phenomenon and providing depth and detail about a person's experience (Patton, 1990).

The research methodology is appropriate for this study given the lack of scientific theories about African American occupational choice of urban agriculture, the absence of benchmark studies, and the small population of African American agriculturists. Because of the study's limitations, hypotheses were not able to be formed prior to the study.

CHAPTER 3

METHODOLOGY

The purpose of this study was to explore factors that affect African American enrollment in degree programs that will prepare them for careers in urban agriculture. The purpose of this chapter is to discuss research methodology used in the study. The chapter includes the following sections: research questions, research location, population and sample, instrumentation, data collection, data analysis, and threats to validity.

Research Questions

Identifying factors that affect African American occupational choice of urban agriculture requires identifying and examining student perceptions. If perceptions are found to be negative and if they influence occupational choice, then institutions can take steps to develop positive perceptions in order to increase student enrollment.

Six research questions were formulated to guide the study. The questions seek to determine student perception by examining the effects race, family, friends, culture,

background, and experience.

1. What is the role of cultural identity in the decision of African Americans to enroll in collegiate programs that are preparatory for careers in urban agriculture?

2. What is the role of family, friends, and culture in an African American's decision to pursue a degree in urban agriculture?

3. Are there differences in the backgrounds of African American urban agriculture students and African American college students studying other subjects?

4. Are there demographic differences among freshman, sophomore, junior, and senior African American agriculture students?

5. Are there demographic differences among African American students in the different agricultural programs at VSU?

6. Are there different perceptions about urban agriculture between African American college students studying urban agriculture and African American college students studying other subjects?

A survey and structured interview schedule were used to answer the research questions. The survey, given to all students attending agricultural classes at VSU, had the following characteristics.

1. The study examined existing characteristics and attitudes in order to identify factors that affected enrollment. Subjects were not currently and purposefully manipulated, nor was a treatment given to a particular group. Intervention or manipulation of subjects was not possible, nor desirable for the purposes of the study.

2. The low population of African American agriculture students prevented randomization. Intact classes were surveyed in an attempt to sample the entire population.

3. The study did not determine causality, but sought to determine association. Possible associations among exposure to agriculture, cultural identity, historical influences, racial demographics of institutions, and the influence of family, friends, and mentors were examined.

4. There was no control group. Intact groups, (class units), were surveyed and were also used as the source of volunteers to be interviewed.

In addition to surveys of agriculture students, structured interviews were conducted with VSU students and department chairpersons. Subjects to be interviewed participated on a voluntary basis. Structured interviews were used to capture precise data in codable form "in order to explain behavior within preestablished categories" (Fontana & Frey, 1994).

Research Location

Surveys, student interviews, and one departmental chairperson interview took place at VSU, a state university located near Petersburg in Chesterfield County. The university is a four-year co-educational liberal arts university with a Master of Arts graduate program. Over 50 buildings are on the main 236-acre campus. There are 416 additional acres at VSU's research farm. Virginia State University is the first "four-year college in America to be established with substantial state support for the education of persons of color" (McClure, 1991).

Virginia State University is one of two Land-Grant Universities in the Commonwealth of Virginia. Virginia Polytechnic Institute, the other Land-Grant University, has

over 20,000 students; VSU has 4,000 students. The majority of African Americans receiving agricultural degrees in the Commonwealth of Virginia graduate from VSU.

Population and Sample

African American urban agriculturists were the target population for this study. The population includes professionals and college students. An extensive and exhaustive search identified five African American urban agriculture professionals in the Commonwealth of Virginia. All five work for either school districts or municipalities. Only two of the five were accessible for the purposes of the study. Because of the lack of subjects, the two professionals who were accessible were utilized to pilot test structured interviews. Their input helped to direct the study and provided expert input about the structured interview questionnaire.

The dearth of African American urban agriculture professionals is evident when comparisons are made with the numbers of non-African Americans. At least 32 full-time professors and instructors are employed at the eight colleges and universities in the Commonwealth of Virginia

that offer programs related to urban agriculture. Only two persons out of the 32 professors and instructors are African American. One of the African American urban agriculture professors is employed by Virginia State University, the other one is employed by Virginia Polytechnic Institute.

Excluding Virginia State University, few African Americans are enrolled in agricultural programs in the Commonwealth of Virginia. At least 700 students are enrolled in urban agriculture at the seven colleges and universities in the Commonwealth of Virginia that offer programs related to urban agriculture. Only ten persons out of the 700 students are African American. Eight of the ten African American students attend VSU.

To compensate for the low numbers of urban agriculture students, the study included all agriculture students at VSU. Non-agriculture students were included in order to compare responses. The accessible non-agriculture student population were students in biology classes. Biology is an appropriate comparison to agriculture since many of the same scientific principles are foundational to both disciplines.

Eight colleges and universities offer urban

agricultural programs in the Commonwealth of Virginia. Department chairs of four of them agreed to be interviewed for the study. Their input provided educational administrators' perspective about the study topic.

Instrumentation

The study used two instruments: a survey and a structured interview schedule (see Appendixes A and C for copies of instruments). This section describes each instrument along with pilot studies and appropriate validity and reliability issues. The survey was derived from similar instruments designed to solicit background information from subjects. Structured interviews were designed to solicit detailed information from subjects. Subjects were asked questions about background, reason for career selection, perspective about the low numbers of African Americans in urban agriculture, and opinions about ways to increase African American enrollment. Interviews solicited information not available from other sources and they determined the subject's viewpoint about the study topic.

Survey

This section describes pilot studies that were conducted in order to determine appropriateness of the survey instrument. Three pilot studies of survey were conducted. The first two established classroom administration procedure, determined question clarity, and determined the amount of time students took to complete the survey. The third pilot study modeled the instrument's use in a classroom setting while also determining test-retest reliability.

For each of the first two pilot studies, students in intact classes were asked to rate each question for clarity. All students in each class agreed to participate in the pilot study. Information about the study and instructions read to students were identical to information presented to VSU students who took the survey. Students were asked to rate each question for clarity. Potential responses were "extremely clear," "very clear," "clear," "may not be clear," and "unclear." A Likert scale was used with choices ranging from one ("unclear") to five ("extremely clear").

Subjects in the first pilot study were students in a

graduate level education class at Old Dominion University. All 26 students in the class took between ten and fifteen minutes to complete the instrument. All students marked "extremely clear" for eleven of the nineteen questions on the survey. Eighty-two percent of the students marked each of the remaining eight questions as "extremely clear." The eight survey questions that were marked as being less than "extremely clear" were rewritten prior to the second pilot study.

Subjects in the second pilot study were students in an undergraduate level horticulture class at a community college. The ten students in the class took between ten and fifteen minutes to complete the instrument. All questions, except number 20, were marked "extremely clear" by at least 90 percent of the students. Question 20, was marked "extremely clear" by 80 percent of the students, "mainly unclear" by ten percent of the students, and "very unclear" by ten percent of the students.

Test-retest reliability of the survey was determined in the third pilot study in order to determine the consistency or stability of scores obtained by the instrument (Ary,

Jacobs, & Razavieh, 1990). Subjects were first year agriculture students at The George Washington University's Plants and Design Program in the Hampton Roads area of Virginia. The researcher approached the only class of first year students that was in session during the spring of 1998 and asked for volunteers to participate in the pilot study. All students in the class agreed to participate. Students were given class time to complete the instrument.

Information about the study and instructions that was read to students was identical to information presented to VSU students who took the survey. Subjects required between ten and fifteen minutes to complete the instrument. Subjects placed completed surveys in envelopes and placed an identification mark on the outside of the envelope. Three weeks later, subjects were asked to complete an identical survey instrument. Completed surveys were placed in envelopes and an identification mark was placed on the outside of the envelope. Responses received by the two administrations of the instrument were analyzed for stability.

The survey had 20 questions; identical responses were

given for questions one through nineteen. A coefficient of stability was calculated for the six parts of question twenty and are presented in Table 4.

Table 4

Coefficient of Stability: Pilot Test Three

Question: What factors influenced the selection of your current major?

Choices	N	Pearson r
Financial Reasons	9	0.75
Job Prestige	9	0.92
Job Satisfaction	10	0.94
Encouragement by Friends	10	0.72
Encouragement by Family	10	0.26
Love of the Subject	10	0.77

Pilot studies revealed: instructions were clear and easily followed; time of completion of survey instrument was appropriate since subjects will complete the instrument during regularly scheduled classes; survey questions were clear; and test-retest reliability of the survey instrument was high. The survey instrument was considered reliable for

the use in the study.

A pilot study of the structured interview questionnaire was conducted using two African American urban agriculture professionals as subjects. The questionnaire was based on a study by Berger (1990). The purpose of the questionnaire was to solicit information about subject's perception of urban agriculture by asking questions about background, family, friends, heritage, and culture. In addition to perception, subjects were also asked to give their opinion about ways to increase African American enrollment in urban agricultural programs. Validity of the data was determined according to a procedure used by Berger whereby two outside experts reviewed and verified the research after the first few interviews had been conducted and the data compiled (Appendix B).

Data Collection

The study proceeded in four phases after analysis of the pilot studies was complete. Three phases took place at VSU: survey of agriculture students, interviews with agriculture students, and interviews with students enrolled in biology classes. Interviews with department chairpersons

on appropriate campuses was the fourth phase of the study.

Survey distribution and collection was conducted by VSU faculty. All classes that met on twelfth and thirteenth of March, 1998 were involved with the survey and all students present in the classes completed the survey. Students who were in more than one class were asked not to complete a second form.

Structured interviews were conducted with (a) African American agriculture students at VSU, (b) non-agriculture students African American students at VSU, (c) African American urban agriculture professionals, and (d) department heads at colleges and universities offering agricultural degrees. Interviews were conducted at the subject's office or other locations where the subject felt comfortable and relaxed (Chiarelott, Davidman, & Ryan, 1994). Notes were taken during the interview. A modified version of the interview guide with a space between each question was used to take notes. As far as possible, interviews were audiotaped.

Data Analysis

Data from the surveys were analyzed with descriptive statistics. Responses from students in each of the five programs of study at VSU were examined for homogeneity to validate using students from all agricultural majors when only the Plant and Soil Science curriculum trains for urban employment. Commonalities or differences among students were examined to provide information that might help prevent student attrition for the agricultural program at VSU.

Interview data were coded to categorize the responses. According to Coffey and Atkinson (1996), coding conceptualizes the data, raises questions, and provides provisional answers about relationships among and within the data.

Threats to Validity

The study has some intrinsic internal and external threats to validity because of the lack of randomization and the absence of a control group. Subject characteristic was the main internal threat to validity. Observed differences or relationships may be caused by extraneous variables associated with subject characteristics. For instance, VSU

students might possess commonalities or differences inherent to that school and not to other universities and not to other populations of African American students. The threat was minimized through the attempt to survey all VSU agriculture students and through interviewing department chairs at institutions throughout the Commonwealth of Virginia.

Interviewer reaction is also a potential threat to internal validity. The interviewer was European American and most of the subjects were African American. Such a threat was reported by (Herbert, 1990). The threat was minimized by collecting data from different sources: a survey of all agriculture students at VSU, interviews with biology students at VSU, interviews with non-agriculture students at VSU, and interviews with department chairpersons at institutions throughout the Commonwealth of Virginia. Surveys were administered by Virginia State University professors in their classrooms. Students receiving surveys were not informed of the researcher's race.

Interviews with agriculture and biology students occurred on March 25 and April 13, respectively. Interviews

with biology students were shorter than agriculture student interviews. Possible reasons include the stuffiness of the available room and student uneasiness with the researcher. The room where interviews were conducted was an unused student lounge that was uncomfortably warm on the day of the interviews. Other rooms were unavailable. Biology students interviewed answered many questions with simply phrases or one-word answers. In contrast, agriculture students elaborated on nearly every question. The observed difference might be due to the uncomfortable room or the ability of agriculture students to relate to the researcher's agriculture background.

External threats to validity affect the study's generalizability to other populations. The study contains two potential threats to external validity. One, experimentally accessible versus target population, is a potential threat with student interviews because students volunteered to participate in that part of the study. Two, there is a potential threat of treatment diffusion because Virginia State University is a small campus. Thus, students might have discussed the study with each other between

interviews.

Summary

Research methodology used in the study was discussed in this chapter. The dearth of African American agriculture students and agriculture professionals in the Commonwealth of Virginia necessitated attention to data collection and analysis. Pilot studies of the survey instrument and the structured interview schedule refined both instruments for data collection. The appropriateness of analyzing data through the use of descriptive statistics and interview coding was evidenced by the pilot studies.

CHAPTER 4

RESULTS OF THE STUDY

The present study focused on factors that influence African-Americans' choice of urban agriculture as a college major. The purpose for this study emerged from issues related to the dearth of African American agriculture students at institutions throughout the Commonwealth of Virginia. Data collection and analysis were organized around the study's six research questions.

This chapter contains the following sections: student surveys, interviews, and summary. Interviews are grouped into pilot study interviews, agriculture student interviews, non-agriculture student interviews, and department chair interviews.

Student Surveys

Surveys were administered to agriculture students at VSU by classroom instructors on March 12 and 13, 1998. All agricultural classes that met those two days participated in the survey and all students in each class completed the surveys. Aquatic Science students were not included in the survey because their class was unexpectedly cancelled. The

sample size of 36 is representative of the low numbers of students in classes and is consistent with the number of students observed by the researcher during classroom visits. Thirty-one of the respondents indicated they were African American. Four respondents indicated they were European American and one respondent indicated he was Hispanic. Since the study was not designed to examine differences among groups, non-African American responses were not included in data analysis.

The survey revealed unexpected differences in age and background between European Americans and African Americans. These differences are mentioned in order to guide university recruitment efforts. One hundred percent of the European American students who completed the survey were at least 24 years old. The mean age for European American students was 32. None of the African American students who completed the survey were over 24 years old. The mean age for African American students was 20 years old. Age differences between the two races indicates that university recruitment efforts should explore reasons why few older African Americans are enrolling in agricultural programs.

All of the European American students graduated from high schools that were in non-urban areas. In contrast, 67 percent of African Americans graduated from high schools in non-urban areas. All of the European American students were from the Commonwealth of Virginia; 16 percent of African American students were from other states.

Table 5 summarizes survey responses that refer to subject background. Because descriptive surveys do not typically require complex data analysis, information from is presented in terms of frequencies and percentages (Ary, et al., 1990).

Representativeness of Sample

Representativeness of the sample was explored by analyzing surveys for program enrollment and year in college. Twenty-six percent of the respondents were freshmen, 23 percent were sophomores, 32 percent were juniors, and 19 percent were seniors. No statistically significant differences were found among students based on their year in college.

Students responding to the survey were not equally distributed among the majors offered at Virginia State

University. Three percent of the respondents were Agricultural Education majors, 19 percent were Animal Science majors, 19 percent were Soil Science majors, and 26 percent were Agriculture Business 25.8 majors. The observed low numbers of students enrolled in Agricultural Education is consistent with the report by Oliver and Camp (1993). Students majoring in Aquatic Sciences were not included in the survey because their class was unexpectedly cancelled.

Agricultural Background

None of the respondents indicated their mothers worked in occupations related to agriculture. Thirteen percent indicated their fathers worked in occupations related to agriculture. Occupations of the fathers included farming, farm management, and grounds management.

Sixteen percent of the respondents reported being involved with Future Farmers of America (FFA) while in high school. Thirty-six percent took at least one year of agriculture while in high school. Ten percent took at least one year of agriculture while in middle school.

Table 5

Survey Results

Question	N	Percent
Year in College		
Freshman	8	26
Sophomore	7	23
Junior	10	32
Senior	6	19
Gender		
Female	13	42
Male	17	57
Age	31	
Program of Study		
Ag Business	8	26
Ag Education	1	4
Animal Science	6	19
Plant and Soil Science	6	19
Undeclared	10	32
High School State		
Virginia	26	84
Not Virginia	5	16
High School Location		
City	11	36
Suburb	9	29
Rural - Non farm	6	19
Rural - Farm	5	16
Raised on a Farm		
Yes	5	16
No	26	84
Plan to Work on a Farm		
Yes	5	16
No	26	84

College and Career Decision

Results of the survey about questions regarding the decision to attend college were consistent with Collier's report that African Americans make the decision to attend college by middle school (Collier, 1993). Twenty-nine percent of the students indicated they decided to attend college while in elementary school; 29 percent made the decision while in middle school; and 42 percent made the decision while in high school.

Eighty-two percent of the students made the decision to major in agriculture either during or after high school. Those who made the decision after high school were influenced by friends and instructors.

Seventy-four percent of the students received help in their career decision. That help came from friends (32 percent); relatives (23 percent); parents (32 percent); or from choices not mentioned on the survey (13 percent). High school teachers and personnel at VSU were the most commonly cited sources of help other than the choices provided on the survey. Reasons why students decided to major in agriculture are presented in Table 6.

Table 6

Reasons for Career Decision

Responses were a Likert Scale from very important (one) to not important (five)

Category	M	N	Percent
Financial Rewards	2.17		
One		10	33
Two		8	27
Three		10	33
Four		1	3
Five		1	3
Job Prestige	2.70		
One		5	17
Two		8	27
Three		9	30
Four		7	23
Five		1	3
Job Satisfaction	1.77		
One		15	50
Two		9	30
Three		5	17
Four		0	0
Five		1	3
Encouragement by Friends	3.83		
One		3	10
Two		1	3
Three		6	20
Four		8	27
Five		12	40
Encouragement by Family	3.21		
One		3	10
Two		2	7
Three		14	48
Four		6	21
Five		4	14
Love of the Subject	2.30		
One		8	27
Two		8	27
Three		12	40
Four		1	3
Five		1	3

Interviews

This section includes pilot study interviews plus interviews with agriculture students, biology students, and agricultural department chairs. Pilot study interviews were conducted during September 1997. Agriculture student were interviewed March 25, 1998 and were conducted in classrooms that were not in use on the VSU campus. Biology students were interviewed April 13, 1998 and were conducted in a vacant student activity lounge in the science building on VSU campus. Department chairs were interviewed March 10, 16, April 7, and May 12. They were conducted in the offices of each person interviewed. Summaries of interviews are from codes that were compiled according to guidelines suggested by Miles and Huberman (1994). Names of all persons mentioned in the study have been changed to preserve anonymity.

Pilot Study Interviews

The subject for the first interview is an urban agriculture professional who lives and works in an urban area. For the purposes of the study, his pseudonym will be Adam. The interview was conducted in Adam's office. Adam's professional responsibilities include assisting in the

training of horticulture volunteers, answering agriculture questions, and coordinating an urban agricultural program. He also works with youth and has many opportunities to present educational seminars in public schools. The interview lasted 45 minutes and was taped.

Adam became interested in agriculture when he was a youth growing up on a farm. He has fond memories of plowing behind a mule. His high school agriculture instructors were an inspiration to study agriculture in college. Adam was also inspired by instructors coming to his home to help him with Future Farmers of America projects.

Adam was influenced by family and friends in his occupational choice and career placement. One of his superiors strongly encouraged Adam to return to college and even provided flexible work time so he could attend classes while staying employed.

After graduation, his mother was influential in persuading a government agency to hire him. Adam personally did not express any racism experiences, but he mentioned the cultural factors that influenced his occupational choice. Adam said there is no denying the fact that African

Americans have had a negative experience with agriculture.

Increasing African American enrollment will be difficult because students are different today than they were twenty years ago. In the 1960's and 1970's, students were the driving force for societal change. White students were frequently in the forefront of the fight against racism. Now, students of all colors are more interested in money and successful careers.

Adam said many people consider farming to be an undesirable occupation. People need to be given meaningful exposure to agriculture so they will not just be thinking of monetary gain.

The subject for the second interview was raised in a large urban area. He had little exposure to urban agriculture as a youth. For the purposes of the study, his pseudonym will be Ben. Ben is an urban agriculture professional who lives and works in a collegiate atmosphere in a rural area. The interview was conducted in a conference room near Ben's office. Ben's professional responsibilities include teaching and training college students who are preparing to be urban agriculturists. The interview lasted

45 minutes and was not taped.

Ben became interested in agriculture because of a fourth grade science project that involved growing plants. Ben's fascination with watching seeds germinate convinced him to study plants for a career.

According to Ben, heritage and racial issues are major factors affecting enrollment of African Americans. He did not express much about the influence of family and friends nor did talk about personal experiences with racism.

When discussing the dearth of African Americans enrolled in urban agriculture classes, Ben mentioned that "perception becomes reality." The perception that few African Americans are in the field prevents young people from studying agriculture in college. The child who is raised in an urban environment perceives there is no future for him in agriculture. Economic issues are also important because students in urban areas only see black persons performing the low-economic jobs related to the agricultural industry.

Increasing African American enrollment in agricultural programs will depend upon education. Ben also stressed that

change will come slowly. Ben remains in education because he wants European American students to realize that African Americans can have positions of agricultural leadership responsibility.

The two African American professionals who participated in the pilot interviews revealed insights that helped guide the study in five ways. First, sensitivity of the topic was exhibited by the one subject who preferred not to be taped. Second, each interview lasted about 45 minutes. Knowing the time helped schedule appointments with subjects in the study. Third, both professionals developed an interest in plants before they entered high school. Fourth, both professionals mentioned that the race of the person affecting racial change in the agricultural realm is not important. Adam mentioned that "white students on college campuses in the 1960s were primary motivators behind ending discrimination." Fifth, both professionals said education is critical if change is to occur. According to Ben, education must be "by any means necessary." Teaching students about agricultural careers must begin in middle school and continue through high school.

Agriculture Students

Interviews with agriculture students were conducted when the subjects did not have classes. The first interview was at 10:00 a.m. and the last one was at 5:00 p.m. Charles and Ann were interviewed individually. Arna, Jean, Diane, and Countee were interviewed in groups of two. Individual interviews lasted 45 minutes; group interviews lasted 70 minutes. All students were less than 22 years old and they entered college the semester after their high school graduation. Responses for each person interviewed are summarized in three categories: background of interviewee, comments regarding perceptions of agricultural programs, and considerations about how to increase African American enrollment.

Charles

Charles is majoring in agricultural business. He is from a town in a rural area of the Commonwealth of Virginia. His childhood experiences on a relative's farm convinced him to be a farmer. Charles' parents sought to discourage his decision to major in agriculture, but they encouraged him to at least attend college. They told him that attending and

graduating from college was more important than a particular major.

A friend of Charles who is studying agriculture at Virginia Polytechnic Institute influenced his decision to major in agriculture. The friend has encouraged Charles to transfer to Virginia Polytechnic Institute during 1999.

Charles chose agriculture because he enjoys farming and he wants to enjoy what he is doing for a living. Salary is not that important to him because he does not intend to be wealthy.

Charles said that slavery is probably a factor in southern states in keeping African Americans out of agriculture. Personally, he has never had a problem with racism or any racially related stigma associated with agriculture.

According to Charles, educating potential students about the job market is the way to increase African American enrollment. The business aspect of agriculture needs to be emphasized along with the "word that agriculture does not always mean farm work." Middle school and high school students need to be exposed to agriculture during career

days.

Arna

Arna is majoring in Plant and Soil Science. Like all out-of-state students who participated in the study, Arna was raised in an urban environment. She had very little exposure to agriculture until she came to VSU. She is majoring in agriculture because she likes plants and she enjoys helping people appreciate plants. She knew very little about agricultural opportunities until she enrolled at VSU. She started in biology, but later switched to agriculture.

Arna mentioned that her fellow students frequently taunt her with phrases such as "So, are you going to be a farmer?" She believes the association of all types of agriculture with farming prevents students from choosing it as a major. She does not believe that heritage is a limiting factor for students.

According to Arna, exposing students to agricultural careers is essential if African American enrollment is going to increase. The middle school and secondary school Arna attended did not emphasize agriculture.

Jean

Jean is majoring in Plant and Soil Science. She is from a large urban area in Pennsylvania. She has no relatives who work in agriculture. Her family tried to discourage her choice of agriculture as a college major because they were concerned about the economic pitfalls of a person who is college educated but is still a farmer. They did not realize that not all agriculturists are farmers.

Jean's friends at VSU make negative comments about her wanting to be a farmer. She believes that the farming image of agriculture keeps potential students from enrolling.

Jean mentioned that middle school and secondary school counselors need to be better informed about agricultural careers. She did not know about agricultural opportunities until she was already at VSU as a biology major.

Ann

Ann is a junior majoring in Agricultural Business. Ann was raised in an urban environment in the northeastern part of the United States. Prior to college, Ann's exposure to agriculture was limited to attending flower shows. Because her agricultural experience was limited, Ann had little

understanding of farming. Her first exposure to a farm was during a VSU field trip. She recalls the humor of dressing in high heels and a dress to visit a place that raised pigs and cows.

She frequently hears her peers at VSU say "Are you studying farming?" Ann believes the common assumption among non-agriculture students is that VSU is training students to be farmers or meat inspectors. Her high school counselor tried to discourage Ann's career choice because he believed Ann was training to become a farmer.

Ann believes the way to increase African American enrollment is to "educate young people about agricultural careers." She said college recruiters from agricultural programs need to recruit students from predominantly African American schools in urban areas.

Diane

Diane is majoring in Plant and Soil Science. She is from a rural county in the Commonwealth of Virginia. Diane's grandfather was a farmer. He influenced her decision to major in agriculture because she wants to honor him and his profession.

Other people's perception of agriculture was exemplified by her mother who initially opposed Diane's decision to major in agriculture. Her mother decided to support Diane's career decision when VSU professors convinced her mother the advantages Diane had as a "double minority." Diane described the term "double minority" as the favorable employment prospects she has because she is a female and an African American. While she appreciates the benefits of her minority status, Diane does have feelings of being overwhelmed by European Americans.

Diane believes that education is the key to increasing African American enrollment. Scholarships are also essential to attract African Americans to agricultural programs. College personnel must go to high schools and tell students about career options. She attended VSU because she wanted to attend a Historically Black College. She wanted to experience racial homogeneity since her high school was mainly European Americans.

According to Diane, increasing African American enrollment in college agricultural programs will not occur overnight. The slow pace of change is because of two

reasons: there are no success stories of African American agriculturists, and there are no mentors for current and potential agriculture students.

Countee

Countee is majoring in Plant and Soil Science. She is from a large southern city. She was accepted at several large universities when she was a high school senior, but she decided to attend VSU because of a large scholarship offered to her at the end of her senior year. The scholarship information was sent to her home by the United States Department of Agriculture.

Countee believes that potential students "need to realize that majoring in agriculture does not mean going back to the farm." She frequently hears comments from fellow students that she is training to be a farmer.

Increasing African American enrollment will be a slow process. Scholarships and education are necessary for change to occur. She is at VSU only because of a scholarship offered by the United States Department of Agriculture. The purpose of the scholarship is to increase the numbers of African Americans studying agriculture at 1890 Land-Grant

Universities. While in high school, the only information she had about agriculture as a career was the vocational school option.

Her experience is that high school career days do not even mention agriculture. She believes college recruiters should not neglect going to high school science classes. Countee repeatedly mentioned that agriculture is a science.

Non-Agriculture Student Interviews

Student interviews occurred in a student lounge on the second floor of the science building. The lounge was not used while interviews were conducted. Lorraine, Mari, Claire, and Naomi were interviewed together. Gwendolyn and Margaret were interviewed together. Lucy and Phyllis were interviewed together. George was interviewed individually. Individual interviews lasted 30 minutes; group interviews lasted 50 minutes. All students were less than 22 years old and they entered college the semester after their high school graduation.

Background information and reasons for selecting VSU are summarized for each interviewee. Comments regarding perceptions of agricultural programs are presented as a

group summary because all of the responses were similar.

Biology students' comments about agriculture revealed a perception that was consistent with agriculture students comments about their classmates. Comments include "people don't know agriculture is a science," "people think agriculture is boring," and "people think agriculture is hot, dirty work." Biology students frequently asked the researcher, "What is agriculture in urban areas?" They appeared to equate all types of agriculture with farming.

Mari

Mari is majoring in biology with an emphasis in medicine. She wants to become a physician because she wants to help people. She is from Petersburg. Mari was a business major when she first entered VSU. She selected VSU instead of other universities because she wanted to be close to home. An internship at a local hospital convinced her to change career goals from business to medicine. Her parents responded to the career change by saying "Biology? That's going to be hard!"

Claire

Claire is from New York City. She decided to attend VSU

to get away from the city. Her major is biology with an emphasis in medicine. She decided to become a physician when she was about seven years old. Claire said that being a doctor is all she ever wanted to be. Salary was not a factor in her career decision.

Lorraine

Lorraine is from New York City. She is majoring in biology with an emphasis in medicine. She decided on present major when she was a high school freshman. Her parents endorsed her career choice but they stressed the difficulties of studying biology. She believes preparing to be a physician "is a sacrifice, but that it is worth it."

Naomi

Because Naomi's parents were in the military, she has not lived in one location for long periods of time. She has lived in different countries and states. Her major is biology with an emphasis in medicine. While Naomi decided on her current major when she was eight years old, her tenth grade biology teacher was instrumental in reinforcing her decision to become a physician.

George

George is from a large city in Pennsylvania. His father is a physician. George decided to become a physician when as a high school freshman he was part of a youth organization that visited hospitals. He chose VSU because it was the one institution that was quick to reply to his application.

He chose medicine because he wants to help people and to give back to the community. Salary was not a factor in his career decision.

Gwendolyn

Gwendolyn was born in the Caribbean. Her major is biology with an emphasis on medicine. Gwendolyn wants to be a pediatrician because she likes helping people and working with children. She also wants to enjoy what she does as a career. Salary was not a big factor in her career decision.

Gwendolyn transferred to VSU from another in-state university because of low tuition. Her family has been a constant source of support.

Margaret

Margaret is from Denver, Colorado. She is majoring in biology with plans to become a physician. She likes

medicine. Salary is not that important to her. She chose her career because nothing else interested her. There will always be a demand for medical professionals. Her family has been very supportive of her career goals. They focus on her potential salary, but she is not that concerned with money.

Lucy

Lucy is from New York City. Her major is biology. She plans to become a physician. Lucy chose VSU in order to get away from the city and to get away from her high school peers. She decided to attend college while she was a junior in high school. Her mother is a nurse. She always wanted to be in a professional field such as medicine or law. Her family is very encouraged and pleased at her career decision. Salary is a motivating factor because she wants to earn enough to be comfortable.

Phyllis

Phyllis is from New York City. She came to VSU because some of her friends attend here. She made the decision to attend VSU while she was a high school junior. She loves science. Her mother is a nurse. Her mother inspired her to set a medical career "higher than being a nurse." Phyllis

made the career choice to be a physician while she was very young.

Department Chair Interviews

Four department chairpersons were interviewed for the study. Interviews took place at Christopher Newport University, Northern Virginia Community College, Virginia State University, and Virginia Polytechnic Institute (Hampton Roads Agriculture and Research Center). Each interview was conducted in the subject's office on the university campus. Office doors were closed during the interview. All the institutions are in urban areas and offer courses in urban agriculture.

The need for anonymity was mentioned by more than one subject prior to the interview. One subject, who is an European American, mentioned that "people at universities are uneasy about the topic of your study."

Subject background is not reported in this study to preserve anonymity. Responses about perception and ideas for increasing African American enrollment are summarized for each subject.

Dr. Clarke

According to Dr. Clarke, there are historical reasons why few African Americans enroll in agricultural programs. He said, "There is still a connection between agriculture and slavery. Many African Americans equate agriculture to a dark period in their history."

The lack of role models is another reason why agricultural enrollment of African Americans is low. "Other than laborers, there are no African Americans in the golf course industry, botanical gardens and arboreta."

Dr. Clarke mentioned that recruiting African Americans to collegiate programs will need to focus on training for management positions. He said, "A few African Americans in upper ranks will help the industry's image." Training must also focus on math proficiency since math is a critical part of an agricultural manager's job. Recruitment needs to focus on three groups of African Americans: high school students, career changers, and career enhancers.

Dr. Baldwin

According to Dr. Baldwin, horticulture is perceived as a "vo-tech occupation that is certainly not seen as a

college prep type of program." Most persons do not realize that urban agriculture at the college level is a science. High school programs do not prepare students for the scientific aspect of urban agriculture.

The role of racism in the nursery industry was minimized by Dr. Baldwin. "I would think the nursery industry would not have the old-fashioned inherent discrimination that perhaps might be found in some of the more traditional crops because the nursery industry is a new and growing business. So many people in the business are young. They grew up, you know, in the post-segregation era."

Dr. Baldwin mentioned that young people must be self-motivated to study urban agriculture. "They certainly are not entering the field because of love of money." High salaries are possible if a person earns a Master of Business Administration after a Bachelor's Degree in urban agriculture. People have to want to study plants. Potential students must have an identifiable interest in working with plants and plant material.

Dr. Baldwin advocated internships as a way to expose one or two students at a time to urban agriculture.

Internships, probably conducted during the summer, would consist of meaningful employment in urban agriculture.

Dr. Davis

According to Dr. Davis, there is a strong historical element that keeps African Americans away from agricultural majors. "The South has a tradition of using African American yard men, or as they are frequently called, yard boys.' Being a yard man, or yard boy, is not seen as a distinguished career because it is not too distantly removed from slavery."

The use of prisoners to maintain state or city property is another problem that presents a poor image of urban agriculture to potential students. In the city where Dr. Davis lives and works, most of the prisoners who are on landscape work crews are African American. The heritage of yard workers and prisoners cutting grass means there are few positive role models in agriculture when compared to social sciences, music, and sports.

Increasing African American enrollment in urban agricultural programs will take many years. Education, mentorship, and meaningful employment must be a part of the

solution. Education is critical because African Americans believe working in urban agriculture is similar to becoming one of the yard workers employed throughout the South. Mentors are necessary because there are very few role models for students. African American urban agriculture professionals need to speak with middle and high school students. Teenagers should be given meaningful employment. Such employment should not include traditional agriculture work such as corn or livestock farms. The value of work experience is demonstrated by the large number of his current students who worked in some form of urban agriculture prior to enrolling at his institution.

Dr. Hughes

Dr. Hughes believes that students have already decided against studying agriculture by the time they reach high school. Students are not aware that agriculture is a science. Students also do not realize the tremendous need for scientists in the agriculture realm.

Dr. Hughes has many students who major in urban agriculture because of a love for plants. The desire for high salaries does not appear to be a prime motivator for

his students. Education is critical if more African Americans are going to enroll in urban agricultural programs. He said there is a tremendous information gap about agricultural careers. The gap separates student perception from realistic appraisal of career opportunities that are available in the many areas of agriculture. Change will be slow and will take three or four generations. Dr. Hughes emphasized that potential students need to know that agriculture is glamorous and exciting.

Summary

Findings of the study are presented in this section. Results are organized according the six research questions that guided the study.

Research Question One

What is the role of cultural identity in the decision of African Americans to enroll in collegiate programs that are preparatory for careers in urban agriculture? Results of the study indicate that cultural identity influenced students' occupational choice of agriculture.

The African American agricultural heritage includes slavery and subsistence farming. All agriculture students

interviewed who were from southern states acknowledged that societal association of slavery with farming influenced their career choices. Students from northern states did not indicate career decisions were influenced by the agricultural heritage of African Americans.

Cultural identity's influence was manifest through the students' desire to help the African American community and by not allowing financial considerations to dictate career choice. For example, one interviewee mentioned that the teachings of Elijah Muhammad and Louis Farrakhan inspired him to major in agriculture because there were many African American doctors and lawyers but few agriculturists.

All of the agriculture students interviewed indicated they chose their major out of a love for the subject or because they had a desire to help others. While selecting a career based on a personal interest in the subject is characteristic of European American occupational choice, being influenced by a desire to help the community is typical of African American occupational choice characteristics.

The importance of anticipated salaries cannot be

overlooked in the process of career selection. Although most students indicate salary is not a factor, many students mentioned their parents were opposed to agricultural careers because of low wages. In contrast to the students interviewed, all department chairs mentioned that salary is a major reason so few African Americans enroll in agricultural programs.

Students deciding to major in agriculture have to overcome obstacles, including parental bias against agriculture, low salaries paid to most African Americans who work as agricultural laborers, few role models, few mentors, and the de-facto segregation of universities that offer agriculture. Several agriculture students identified the advantages of being minorities in a field dominated by European Americans. Biology students did not mention similar advantages. Government programs and other incentives give agriculture students a competitive advantage in job placement.

Research Question Two

What is the role of family, friends, and mentors in an African American's decision to pursue a degree in urban

agriculture? Survey results indicate that agriculture students did not regard their families and friends as being a major influence of their career decision. In fact, many students enrolled in agriculture against parental advice. At least one parent's opinion against agriculture was changed when he realized the economic rewards his child could earn from majoring in a career where employers were actively seeking minorities.

Potential students who were dissuaded by their parents from majoring in agriculture were not included in the survey. Thus, survey results regarding parental influence might reflect a subject characteristic and not be indicative of the importance of parents in the career decision process. More reliable data might be obtained by surveying all students at VSU to determine the influence of their parents.

While agriculture students interviewed reported their families were supportive of college attendance, their parents were reluctant to encourage them to major in agriculture because of the stigma of farming. All of the students interviewed who were from non-urban areas in Virginia mentioned their parents were against careers in

agriculture. The close association many of the parents had with agriculture either through owning small farms or having relatives who were farmers might be a factor in their biases against agricultural careers. According to all of the agriculture students interviewed, families were concerned their children were going to be farmers. Their families associated all types of agriculture with farming.

In contrast with agriculture students' experiences, parents of biology students strongly endorsed their career decision. Salary and prestige of physicians were primary reasons biology students gave for their parents' endorsement of the medical profession.

Mentors were not a factor in any of the subject's decision to major in agriculture. The reason may be the dearth of African American urban agriculture professionals.

Research Question Three

Are there differences in the backgrounds of African American urban agriculture students and African American college students studying other subjects? The main difference is when students made their career decision. Most biology students interviewed made their career decisions

before graduating from high school. Interviews with agriculture students revealed that the decision to major in agriculture usually was made after high school graduation. Analysis of the survey results supported the agriculture students' tendency to decide on their major after high school.

Survey results reveal that most African Americans studying agriculture at VSU are from urban areas and do not intend to work on a farm after graduation. Thirty-two percent of students who completed the survey indicated they worked at agricultural jobs prior to attending VSU. One department chair interviewed for the study mentioned that over half of his students are exposed to urban agriculture through jobs they had while in high school. Another department chair mentioned the importance of student internships. Such internships would include summer employment. Over one-half of the agriculture students interviewed were participating in internships sponsored by the United States Department of Agriculture. The internships were providing the agriculture exposure students did not receive prior to attending college. Internships or work-

study experiences need to be sensitive to cultural needs of the participants. A study of interns in Nebraska revealed a lack of agricultural background among African Americans participating in the United States Department of Agriculture Summer Internship Programs. The study also found that supervisors lacked cultural sensitivity (Case, 1997).

Research Question Four

Are there demographic differences among freshman, sophomore, junior, and senior African American agriculture students? Analysis of survey results revealed no significant differences among the different levels of students. Thus, characteristics common to Virginia State University agriculture students were identified from the survey.

The typical student entered college the fall semester immediately after high school graduation. The typical student took four years to reach the senior level. Thus, he spent one year at each level. The typical student is enrolled in a declared agricultural major; agricultural business is the most popular curriculum.

The typical student does not have parents involved with farming and is as likely to be from either an urban or a

rural area. The typical student did not have agricultural-related work experience prior to entering college and did not plan to work on a farm after graduation. Interviews revealed that students seek to work in government or industry positions that are related to agriculture but do not involve farm work.

The typical student chose to attend college in either middle school or high school but did not decide to major in agriculture until high school or later. Exceptions were students receiving United States Department of Agriculture scholarships. Those students made career choices during their senior year of high school.

The typical student received help in deciding to major in agriculture from friends or relatives. In addition to family and friends, the typical students' decision to major in agriculture was influenced by anticipated financial rewards and job satisfaction. Job prestige did not affect the typical students' career decision.

The lack of statistical differences among levels of students does not provide insight about student retention. There is a need for a study to compare characteristics of

agriculture students with students who discontinued their agricultural studies at Virginia State University in order to assist universities increase student retention.

Research Question Five

Are there demographic differences among African American students in the different agricultural programs at VSU? Analysis of the surveys revealed no significant differences among students enrolled in different agricultural programs. Statistical homogeneity supports the study's use of all agriculture students even though urban agriculture students were only enrolled in one of the five programs offered at VSU.

Research Question Six

Are there different perceptions about urban agriculture between African American college students studying urban agriculture and African American college students studying other subjects? A common perception expressed by biology students was that students studying agriculture at Virginia State University were training to be farmers. Farm work was expressed as a negative career goal because it involved low pay and dirty work.

Agriculture students who were interviewed for the study did not have a different view of farm work than biology students. The difference between the two groups of students was in their perception of careers available to graduates of agriculture programs. Biology students indicated they did not realize agriculture careers existed other than farm work.

CHAPTER 5

IMPLICATIONS AND RECOMMENDATIONS

The present study revealed that cultural identification, historical factors, racial demographics of institutions, and family and friends affect student enrollment in programs that lead to careers in urban agriculture. Cultural identification's role was revealed by data that indicated all types of agriculture, including urban agriculture, were associated with farming. Farming was repeatedly identified as an undesirable occupation for African Americans. Historical factors that affect student enrollment appear to be related to student demographics. Students from southern states mentioned they were not encouraged to enroll in programs related to agriculture because their ancestors were agricultural slaves or subsistence farmers. Students from northern states did not identify the importance of historical factors in their occupational choice.

In the Commonwealth of Virginia, training for careers in urban agriculture occurs at Christopher Newport University, J. Sargent Reynolds Community College, Lord

Fairfax Community College, Northern Virginia Community College, Tidewater Community College, Virginia Polytechnic Institute, Virginia State University, and Virginia Western Community College. Data from student interviews revealed that many students chose to attend VSU because it is a Historically Black College and University.

According to survey and interview data, family and friends did not encourage student enrollment in programs related to urban agriculture. In some cases, family and friends attempted to prevent students from enrolling in these programs.

The purpose of this chapter is to discuss findings of the study. The chapter contains two sections: implications for the urban environment and recommendations for future research.

Implications for the Urban Environment

Results of the study indicate that the low numbers of African Americans enrolled in urban agricultural programs will continue to be an urban issue because of the urban background of African American agriculture students and the lack of exposure of urban students to urban agricultural

careers.

The study has urban implications because of the need to increase African American attendance at the Commonwealth's two Land-Grant Universities, Virginia State University and Virginia Polytechnic Institute. Because of the Land-Grant status, both universities will continue to be the primary training providers for urban agriculturists. Neither university is located in one of the three major urban areas in the Commonwealth of Virginia. Petersburg, the city where VSU is located, is fifty miles south of Richmond. Blacksburg, the city where VT is located, is in the western part of the Commonwealth, away from the major urban centers. Virginia State University will probably remain the school of choice for most African Americans studying agriculture because it is a Historically Black College and University. Virginia State University also recognizes that its student population will continue to be low-income students from families not having college background (McClure, 1988). Unless enrollment patterns change, VT will continue to attract predominantly non-African American students.

Presently, the agriculture student population at VSU is

approximately equally divided between students with urban background and those from non-urban areas. The Commonwealth of Virginia, like most states, is becoming increasingly urban. Thus, the numbers of African American agriculture students who are from urban areas is likely to increase.

Agriculture students from urban areas are exposed to agricultural career opportunities through information provided by schools and through work experiences. Because of a lack of work experience and the absence of role models, African Americans in urban areas learn about career possibilities from their schools. Education is essential if African American enrollment in urban agricultural programs is to increase. Half of the agriculture students interviewed recalled their own high school career days either did not mention agriculture or else mentioning it in the context of a vocational career. None of the biology students interviewed knew that agriculture involved anything except farming. The information supplied by schools needs to communicate to students that urban agriculture neither means working on a farm, nor does it always require manual labor.

Internships and meaningful work experiences are

required to enhance information provided by schools. All of the agriculture students interviewed at VSU were involved with work-study or internship programs. Their experiences were limited to government agencies and involved duties such as research laboratory technicians and agricultural inspectors. None of the students' work experiences were at botanical gardens or private businesses, two areas where there is a dearth of African American professionals.

The present study revealed that increasing African American enrollment in programs related to urban agriculture needs to be considered from two perspectives: short term and long term. Short term enrollment increases can be achieved by offering scholarships to African American high school students and by marketing programs to potential students who are older than the traditional student. Several students indicated they selected agriculture and Virginia State University because of scholarships offered by the United States Department of Agriculture. According to students interviewed, the scholarships were not well publicized. Research data indicated that every African American student at VSU entered college in the fall semester after high

school graduation. The dearth of older students may indicate the need for universities to market programs to career changers, military retirees, and other potential students who do not enter college directly after high school.

Long term increases in African American enrollment must involve a change of perception. Data from the present study indicated that perception about agriculture influenced enrollment in college programs related to urban agriculture.

Recommendations for Further Research

The study was important because it identified characteristics of African American agriculture students at VSU, identified reasons for agricultural career selection, and provided direction for further research. The study was also important because of the absence of benchmark studies and the developing nature of the theoretical foundation for the subject of African American occupational choice.

Results of the present study revealed that students equate all types of agriculture with farming, which is considered undesirable work because farmers work with dirt and are not well paid. Future studies should explore possible interventions that will enable potential students

to have an accurate perception about urban agriculture.

Interviews with students and department chairpersons revealed that students who enroll in agriculture are choosing a direction different from their culture. The African American cultural bias against careers in agriculture seem to derived from a historical negative experience with agriculture and perceived low wages paid to all agricultural workers.

Future studies should explore potential effects of degree-granting institutions. In the Commonwealth of Virginia, Virginia State University, the 1890 Land-Grant University, has a disproportionate number of African American agriculture students when compared to Virginia Polytechnic Institute, the 1862 Land-Grant University. Jonathan Kozol (1991), examined the disproportionate distribution of resources between urban and suburban public schools. According to Kozol, most of the students in under funded minority schools were minorities. Potential differences in resources allocated between the two Land-Grant Universities should be examined to determine if disparities observed by Kozol also apply to higher

education.

Studies have not examined the relationship between cultural identity and perceived prestige level of occupations as they relate to the low numbers of African Americans entering college programs of study that will prepare them for careers. The present study indicates that such a relationship exists for African Americans and agricultural occupations.

The study of minorities in urban agriculture leadership positions should not be limited to African Americans. The population of Hispanic Americans is increasing in the Commonwealth of Virginia. In urban areas, such as Northern Virginia and Richmond, Hispanic Americans are replacing African Americans as laborers in urban agriculture. The present study revealed a possible dearth of Hispanic Americans as urban agriculture professionals and as agriculture students.

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APPENDIX A

STRUCTURED INTERVIEW SCHEDULE

Structured interview schedule for persons who are urban agriculturalists. Questions will be modified for students and department heads.

Introduction

1. Explain the purpose of the study and how the individual was selected.
2. Assure anonymity
3. Indicate that there are no right or wrong answers.
4. Individuals should feel free to interrupt, ask for clarification.
5. Explain reasons for note-taking. Ask permission to tape. Explain what will be done with notes, tapes.

Main Body of Interview

I was wondering if you could begin by telling me a little about yourself. Where did you grow up? Do you have a family? Where do you currently live and work?

I understand that you are a _____.
Is that correct? How did you become interested in this occupation/profession?

Can you tell me when you first decided to enter this area?

Why did you choose _____ over other careers? Could you elaborate on the experience(s) that led you into this profession?

Why did you choose _____ over higher paying careers?

Did you have any exposure to urban agriculture as a youth?

Tell me how you prepared to be a _____ ?

Do you think you will encounter any obstacles in becoming a _____ ?

Did anyone help you in your preparation to be a _____
_____ Who? Why?

What type(s) of reaction(s) did you get from family or friends when you decided to become a _____ ?

What would you do to inspire young people to become a _____ ?

What experiences (if any) did you have with racism in college or your profession?

What racial/ethnic group(s) do you identify with?

What would you do to inspire young African Americans to become a
_____ ?

Is there anything you wish to add about your experiences as a
_____ which has not been asked?

The Structured Interview Schedule was modified from Berger (1990) and
O'Bryant (1996)

Notes After Interview

- A. Observations by Interviewer
- B. Personal Feelings/Observations

Demographic Information

1. Age _____
2. Gender Male _____ Female _____
3. Ethnic Background
African American _____
European American _____
Other (specify) _____
4. Highest level of education completed _____
5. Occupation/Job Title _____

APPENDIX B

VALIDATING STRUCTURED INTERVIEW CODING

The following materials from one interview will be provided to two outside experts for review and verification (Berger, 1990) :

1. A copy of interview notes, including interviewer's observations and personal reactions to the interview.
2. A copy of the transcript of the interview.
3. A copy of the interview transcript summary for the interview.
4. A preliminary categorization of the data with explanatory description as appropriate.
5. A brief written description of the system to be used for data organization and retrieval.

Appendix C

Survey of Agricultural Students

01. What is your year in college?
 Freshman
 Sophomore
 Junior
 Senior
 Other
02. What is your gender? Female Male
03. What is your race or ethnicity ?
 American Indian or Alaska Native
 Asian
 Black or African American
 Hispanic or Latino
 Native Hawaiian or other Pacific Islander
 White
 Other: _____
04. What is your age?: _____
05. Are you currently enrolled in a certificate or degree program?
Check One Yes No
If yes, then what is the program?
Program: _____
Institution: _____
06. What is your mother's occupation?
07. What is your father's occupation?
08. When did you graduate from high school?
19 _____
09. Where is the high school you graduated from located?
State _____
City or County _____
10. Do you plan to work on a farm after graduation?
Check One Yes No

11. Were you raised on a farm?
Check One Yes No
12. Were you a member of the Future Farmers of America (FFA) while in high school?
Check One Yes No
13. Which of the following areas best describes where you were raised.
 City
 Suburb
 Rural, not on a farm
 Rural, on a farm
14. Did you have a job related to agriculture while you were in high school?
Check One Yes No
If yes, then please check the type of job you had.
 City or county parks department
 Farm work
 Golf course
 Greenhouse production
 Landscaping
 Nursery production
 Retail sales
 Other: _____
15. When did you first decide to attend college?
 Elementary school
 Middle school
 High school
 Other: _____
16. When did you first decide on your current major?
 Elementary school
 Middle school
 High school
 Other: _____

17. Did anyone help you in your selection of your current major?
 Check One Yes No
 If yes, then which of the following best describes this person?
 Friend
 Relative (not a parent)
 Parent
 Other _____

18. Did you take agriculture in high school?
 Check One Yes No
 If yes, then please check the number of years you took agriculture.
 One year
 Two years
 Three years
 Four or more years

19. Did you take agriculture in middle school or junior high school?
 Check One Yes No
 If yes, then please check the number of years you took agriculture.
 One year
 Two years
 Three years

20. Why did you select your current major? If you have not yet selected a major, then what factors will influence your choice? (1-very important; 5-not important)

	very important			not important	
Financial reasons.....	1	2	3	4	5
Job prestige.....	1	2	3	4	5
Job satisfaction.....	1	2	3	4	5
Encouragement by friends.....	1	2	3	4	5
Encouragement by family.....	1	2	3	4	5
Love of the Subject.....	1	2	3	4	5

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- 1999 - Doctor of Philosophy (Urban Services - Education)
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- 1979 - Master of Science (Horticulture)
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- 1977 - Bachelor of Science (Horticulture)
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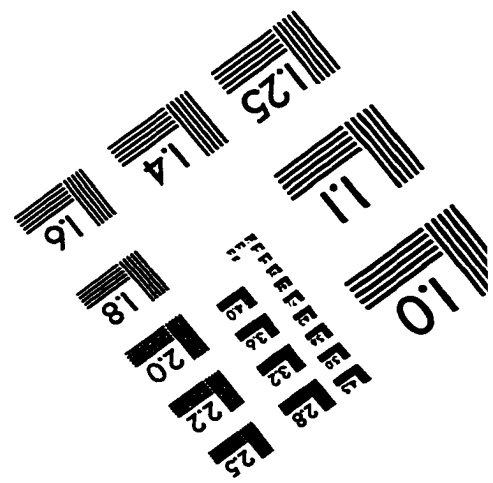
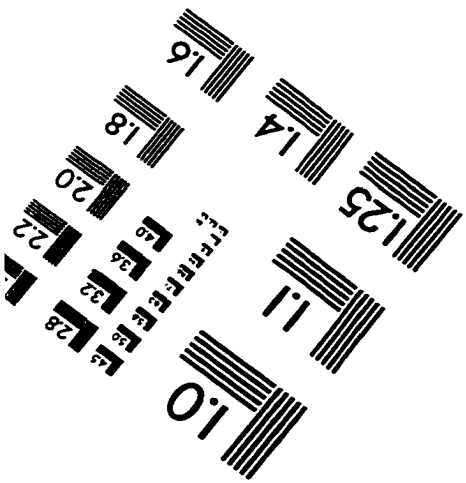
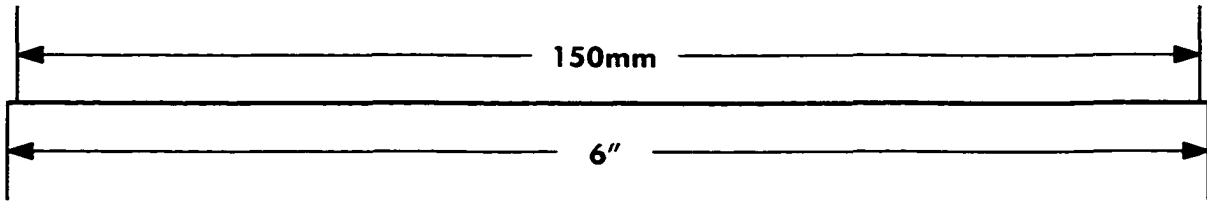
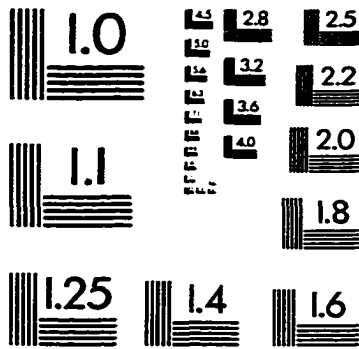
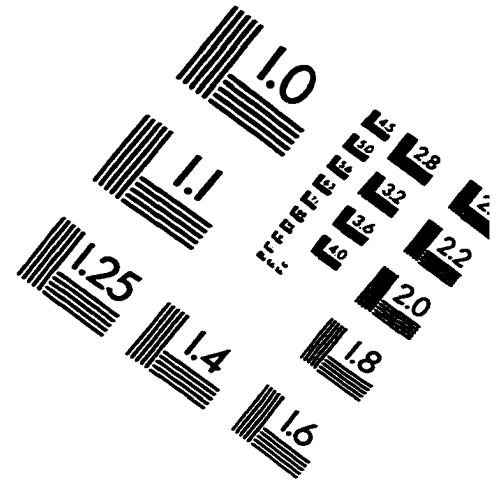
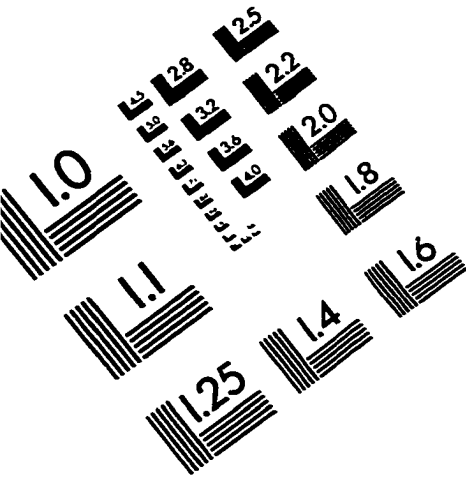
PROFESSIONAL EXPERIENCE

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- Graduate Teaching Assistant; Old Dominion University (1995 - 1998)
- Program Director, The Professional Horticulture Conference of Virginia (1993 - present)
- Adjunct Faculty, Landscape Specialist; The George Washington University (1990 -1995)
- Horticulture Director and Teacher; P.D. Pruden Vocational-Technical Center (Suffolk, VA) (1989 - 1995)
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PUBLICATIONS

Tracy, T.E., & Lewis, A.J. (1981). Effects of antitranspirants on Hydrangea. HortScience, 16.

IMAGE EVALUATION TEST TARGET (QA-3)



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