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IMPACT OF THE MINORITY APPRENTICESHIP PROGRAM EXPERIENCE ON  
SELECTION OF A MAJOR PREFERENCE IN THE COLLEGE OF  
AGRICULTURE AND NATURAL RESOURCES BY MINORITY FRESHMEN AT  
MICHIGAN STATE UNIVERSITY

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EXPERIENCE ON SELECTION OF A MAJOR PREFERENCE IN THE  
COLLEGE OF AGRICULTURE AND NATURAL RESOURCES  
BY MINORITY FRESHMEN AT MICHIGAN STATE  
UNIVERSITY

by  
Donald Robert Wallace

A DISSERTATION

Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

Department of Agricultural and Extension Education

1986

## ABSTRACT

# IMPACT OF THE MINORITY APPRENTICESHIP PROGRAM EXPERIENCE ON SELECTION OF A MAJOR PREFERENCE IN THE COLLEGE OF AGRICULTURE AND NATURAL RESOURCES BY MINORITY FRESHMEN AT MICHIGAN STATE UNIVERSITY

By

Donald Robert Wallace

Purpose.--To identify the impact that participation in the Minority Apprenticeship Program (MAP) had on minority youth and their choice of a major preference when enrolling at Michigan State University, as well as providing information to outside interests that might facilitate development of similar programs. Emphasis is given to the students' choice of a major prior to MAP participation and the changes in their choice after MAP participation, if any. The objectives of the study were to: (1) develop an historical background of minority participation in agricultural education opportunities within the post-secondary agricultural system; (2) determine the impact participation in the Minority Apprenticeship Program had on the selection of a major preference of those MAP participants entering college during Fall 1985; and (3) determine the impact participation in MAP had on the selection of a major preference of those MAP participants who returned to high school and would be entering college Fall 1986.



Method--Over two hundred Junior and senior, male and female, minority high school students applied for the 1985 MAP Program by February 1, 1985. One-hundred seventy-eight were selected for interviews and were included in the study. They were divided into two groups: (1) minority students selected to participate in the 1985 MAP Program; and (2) minority students selected to serve as alternates to replace any student chosen as a participant but who did not accept. The students were classified as "Participant" or "Alternate" based on actual completion of the 1985 MAP experience. Data for the study was gathered during the initial interview and post-MAP survey. The two groups were compared by use of the chi-square technique.

Findings--Over forty percent of the minority students who participated in the 1985 Minority Apprenticeship Program chose a major preference in agriculture and natural resources by the end of their second term at Michigan State University or selected a major preference in agriculture and natural resources when applying for admission for Fall Term 1986. The percentages are similar for males, females, high school Juniors, or high school seniors. The MAP experience appears to provide an awareness of agricultural and natural resource careers and generate an interest in pursuing a major within the programs available in the

College of Agriculture and Natural Resources, Michigan State University.

Students in the Alternate Group indicate no interest in pursuing agricultural and natural resource careers. The interest does not vary in either the case of sex or the year in school.

Students in both the Participant Group and the Alternate Group have similar backgrounds. Academic achievement, sex, year in school, community, or ethnic background were not factors in the students selection into the Participant Group nor were they factors in the students choice of a major preference.

## ACKNOWLEDGEMENTS

The writer wishes to express his sincere appreciation to all those assisting in the completion of this study.

Deep gratitude is expressed to Dr. Harrison Gardner, Chairman of his Guidance Committee, for his constant support, encouragement, hours of assistance, and guidance in planning and conducting this study.

Appreciation is also expressed to Dr. Fred Peabody, Dr. Carroll Wamhoff, and Dr. Marylee Davis who served as members of the Guidance committee.

Appreciation is expressed to Dr. James Jay, Assistant Director for Academic and Student Affairs, College of Agriculture and Natural Resources, Michigan State University and Mr. Bob LaPrad, Director of the MAP Program, for their faith and encouragement in the development of this study.

The writer is indebted to the students and parents who participated in this study. To Mr. Roosevelt Wilson who provided encouragement, support, and valuable assistance in making this study possible.

Finally, grateful appreciation is expressed to the writer's family. To his wife, Linda; mother, Doris; daughter, Jayne; and father, Donald, without whose belief, faith and encouragement this study could never have been completed.

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## Chapter One

### Introduction

As the the year 2000 approaches, the demands placed on the agricultural community are greater than ever before. A potential severe shortage of professionals with the necessary skills and backgrounds to enter agricultural careers currently exists. Since the beginning of the American experience, there has been a strong agrarian community; one that developed into the envy of the entire world. For centuries, scientists have continually led the struggle of mankind to feed itself. This was evident in the development of the Land-Grant System, national network of agricultural experiment stations, and the creation of the Cooperative Extension Service. But the agricultural scene had changed dramatically. It became a national concern in the 80's.

The national news service constantly depicted a declining farm economy and an eroding of the traditional farm community and way of life. These two national trends impacted agriculture in many ways, including the preparation and availability of agricultural professionals. In a brochure published by the USDA, "Human Shortages: A Threat to American Agriculture", the message was clear: "American Agriculture--some 20 percent of our nation's gross

national product-is seriously threatened by deepening shortages of highly qualified scientists, managers, and technical professionals." (1983, p.3)

Agricultural industry recruiters indicated that they were interviewing non-agricultural majors to fill agricultural jobs because of a lack of competitive candidates from majors in agriculture. During an interview, Craig Robinson, College Recruiter for PPG Industries, stated that he was seeing fewer and fewer candidates capable of entering into the professional ranks within agricultural chemical sales. (January, 1986) David Ambrose, College Recruiter for General Mills, indicated a shortage of candidates possessing the needed skills and backgrounds exists in the Food Industry. (February 1986)

This shortage was quite apparent when enrollments in agriculture schools were studied. In "Human Shortages: A Threat to American Agriculture", the problem was clearly stated as follows: "Some 25 percent fewer individuals will constitute the traditional college-age population during the coming decade." (1983, p. 4) In an article for "The Chronicle of Higher Education" Kim McDonald wrote ". . . the country's agricultural enterprise could be seriously threatened if colleges and universities are not able to attract more highly qualified students. . ." (1984, p.



15) Dr. T. E. Hartung, Dean of the Agriculture College at the University of Nebraska stated ". . .there is a shortage of Ph.D candidates in the pipeline. . .". (1983, p.18)

With an obvious shortage of future agriculturalists in general, the traditional lack of a strong representation of minorities in agriculture made the status of minorities even more precarious. As minorities struggled to become an integral part of the nation's professional work force, colleges and universities offering agricultural programs needed to find effective ways to attract, retain, and graduate competitive minorities. Yet, history indicated that such attempts had been difficult and as yet had been only minimally successful.

To appreciate the situation facing those attempting to increase minority participation in the agricultural experience, one must have a clear understanding about past minority experiences in agriculture. Unfortunately, it can be stated that minorities had not been actively involved in agriculture at any level, from owning farms or holding positions in the agricultural labor market to pursuing college and professional careers. Mr. Craig Richardson, College Recruiter for PPG Industries, indicated that ". . . minorities are often hired at entry level positions but

are rarely able to move into upper level positions, other than those in community and human relations." (January, 1986) Yet, most agricultural recruiters wanted to interview minority candidates who possess the knowledge and personal skills to become managers and executives. Where were they and why weren't the agricultural colleges preparing them for such opportunities?

College recruiters, counselors, students, and parents often did not understand agriculture and thus did not see it as a viable career choice for those minority students who were highly motivated and leadership oriented. When asked about minorities and the lack of students pursuing careers in agriculture, recruiters and counselors discussed the lack of student interest, poor salaries, lack of challenging and meaningful jobs, the low demand for employees, and other similar type remarks. It appeared that students were misinformed about agriculture and the careers available and their parents, counselors, and some college recruiters had a distorted view of agriculture. Dr. James Jay, Assistant Director of Academic and Student Affairs for the College of Agriculture and Natural Resources at Michigan State University, indicated that "...the task of attracting minorities into agriculture was compounded by misunderstandings

and misconceptions by parents, schools, and the community. . ." (September, 1982)

Current career and employment information detailed a different story. There were thousands of employment opportunities for minorities throughout the entire agricultural community. It was this discrepancy between truth and distortion that poised the greatest obstacle in gaining the participation of dynamic and highly competitive minorities in the agricultural experience.

If agriculture was going to become attractive to highly motivated and competitive minorities and begin influencing them to select one of the many opportunities afforded to those educated and trained in agriculture, it would need to begin to create an image that depicted its true nature in the 80's, 90's, and beyond to tell the agricultural story in a clearer and more accurate way.

The problem swirling around the involvement or lack of involvement of minorities within agriculture can be approached first by looking briefly at the history of agriculture in the United States. The roots of agricultural education and the development of Extension were firmly found in a discontent and demand for some form of education for the average farmer. According to Scott (1970) in The Reluctant Farmer,

" . . . farmers realized that education beyond the elementary level was not to be ridiculed but rather was to be embraced with growing enthusiasm." and " . . . the Grangers and other groups forced the colleges to seek means by which they might improve their standing with farmers". (p 37) The Federal Government recognized the role agricultural education would play in the growth of our country when they passed the 1862 Morrill Act that established the Land-Grant System. It steadily expanded and improved agricultural education by establishing the Agricultural Experiment Station system in 1887 and the Cooperative Extension Service in 1914. Both have become integral parts of the total Land-Grant System and firmly established the value of agriculture to the healthy future of America. Yet, what role was played by minorities in this process of agricultural growth?

History tells us that minorities have been a part of the agricultural scene from the beginning. They were the Indians that practiced agriculture long before the settlers arrived; the slaves that made the early plantation owners productive; the migrant workers who picked the fruits and vegetables of the orchards and fields of vegetables; and the small farmers of other countries who had come to America for refuge. When the Morrill Act of 1862 established the Land-Grant System

of agricultural colleges, minorities were to be a part of this grass roots approach to agricultural education. Yet, the system totally neglected them. According to Jencks and Reisman (1969):

"Thus, in the mid-nineteenth century, the country missed a great opportunity when it allowed the land-grant institutions to exclude blacks and Indians." (p. 422)

The result of such action meant that minority Americans had to attend the non-white, predominately black institutions depriving them of most of the progress being made in agricultural education and research.

The situation became so severe that a second Morrill Act had to be passed to establish a system solely for them, the 1890 Land-Grant System. Even though the two Systems were to be equal, it was not practical or possible for the 1890 schools to compete with the original 1862 schools. Although they had to attend "lesser" institutions, many blacks became leaders and giants within the agricultural community. The inequality in the two Systems did contribute to the image of agriculture as a hard labor unrewarding career area in the minds of the minority community and, in particular, those of the young minorities.

When looking back, it is apparent that the agricultural community has not responded to the employment and educational needs of our nation's

minority youth. With the year 2000 fast approaching, only a few highly competitive minority youth are participating in the agricultural experience, whether it be researcher, educator, Extension Agent, product manager, corporate executive, or any of the other multitude of careers. Although few have talked about remedies for this ailment, Samuel Proctor (1976) suggested the following:

In order to succeed with larger black enrollments, the Land-Grant schools must do the following:

(a) Recruit black faculty and staff in numbers and volume approaching the proportion of blacks in the population.

(b) Distribute blacks up and down the entire staffing pattern, giving clear evidence of open and fair employment and an eagerness to correct previous abuses.

(c) Devise methods of determining the readiness of minority students to cope with the challenge of college and graduate study. This involves going beyond traditional testing programs that have failed to discover potentially excellent black students because they reveal more about one's past opportunity than about one's present potential.

(d) Expand the school's program, formal and informal to include opportunities for black students to authenticate their own intellectual growth and to share in the knowledge and experience of the black world here and in Africa.

(e) Relate the research and extension activities of the university to the needs of the total population of the state including the urban blacks, Puerto Ricans, Chicanos, Indians, and poor whites. Somehow the notion that this public benefaction known as a

university must serve all of the people has to be reinforced. (p. 196)

Although we should have begun to address these apparent needs, finding solutions presented several problems. Without the highly competitive minority students enrolled in agricultural programs, it would be impractical to expect agricultural education, research, and industry concerns to increase their minority participation. It also would be impractical to expect the Land-Grant Institutions to increase minority enrollments without an effective method of attracting, retaining, and graduating competitive minority students. Unless effective efforts were developed progress would be severely limited. Because of the continuing increase of minorities in the population, a genuine commitment was needed to upgrade the role minorities play in the educational and professional ranks of agriculture. Otherwise, there was evidence that agriculture would continue to be viewed as a second class industry by minority groups. Such a perception of agriculture, by the fastest growing segment of our population, would further the recent decline of agriculture as our nation's leading industry in the eyes of the common citizen. Such a situation would have a major negative impact on America's role as the world's leader in food production.

According to Dr. Overton Johnson (1977) Land-Grant Insitutions could improve minority representation if they would:

- (1) Develop programs which will give continuous opportunity for minorities to remain academically involved and identified with agriculture from year to year, summer to summer, and move toward gainful employment.
- (2) Remove the common obstacles (social, academic, financial, psychological, aspirational, and racial) which tend to stop or preclude academic programs of minority groups.
- (3) Emphasize, to the nation, the economic importance of one of our greatest natural resources (minorities).
- (4) Develop an awareness and understanding among all faculty and administrators in agricultural schools of the cultural differences involved when recruiting, educating, assisting, and encouraging minority students.
- (5) Offer strong tutorial programs, preferably on a one-on-one basis.
- (6) Provide opportunities for minority students to be integrated into social and cultural activities without calling special attention to them.
- (7) Develop an active and effective minority recruiting program at the college level. Develop a strong support program for minority students prior to the initiating of the recruitment effort.
- (8) Develop a career awareness program for minority students that highlights career opportunities in agriculture. Special attention also is needed to acquaint minority students with the selection of relevant courses of study.



(9) Provide guidance to minority students to achieve a better distribution in agricultural areas of study. (pp. 138-39)

The literature, experts on minority needs in college, and minority students seemed to confirm Dr. Johnson's perceptions and observations. Although these ideas seemed simple to implement, barriers and obstacles existed when institutions began the implementation process.

In support of a strong agricultural industry, agricultural institutions would need to begin to seek ways to change the perception that agriculture offers minorities few genuine opportunities and that minority students "won't" actively pursue agriculture as a career choice.

#### Statement of the Problem

This study involved the examination of the Minority Apprenticeship Program (MAP), an experiential program sponsored by the Michigan State University College of Agriculture and Natural Resources. This study focused on the impact of minority student preference of a major in the College of Agriculture and Natural Resources programs after being involved in directed experiences in agriculture and natural resources, MAP.

For the past four years, the researcher had focused on planning, implementing, and coordinating the MAP program for the College of Agriculture and Natural Resources, Michigan State University. MAP was aimed at indentifying, recruiting, and giving experiential learning experiences in agriculture and natural resources to highly motivated and leadership oriented secondary Junior and senior minority students. Prior to being involved with MAP, the researcher had worked for 14 years with minority youth in a predominately black high school in East St. Louis, Illinois.

The historical review pointed out that agriculture and natural resources had not attempted to attract minorities by providing additional resources to clarify their perceptions or make them aware of the career opportunities in agriculture. Neither the industry nor the educational community had responded to the needs of America's minority youth. Although many highly competitive and motivated minority students had indicated an interest in the challenges and opportunities afforded a person with an agricultural education and career, they expressed the concerns of the minority community and themselves about "what" agriculture is and where it can "take" a minority. From personal interviews the researcher found that regardless of background, academic achievement, ethnic

group, year in school, or sex minority students expressed difficulty in visualizing agriculture in a way that would:

- (1) inspire them to actively pursue college careers with a major preference in agriculture,
- (2) encourage the development of a new and more modern perception of agriculture,
- (3) generate an active interest in seeking out challenges and rewards of agriculture, or
- (4) create a sincere and lasting commitment to a career in agriculture.

After talking with Deans and Recruitment Directors for agricultural programs at such institutions as North Carolina A & T, University of Illinois, Lincoln University and others, it was clear that there was considerable debate among the Land-Grant Institutions concerning the feasibility of recruiting, retaining, and placing highly competitive minority students into schools with a major preference in agriculture. The purpose of this study was to review the historical development of agricultural education; to review the efforts made by agricultural schools to address this problem; and investigate whether or not the MAP

program would significantly influence minority students to select a major preference and enroll in the College of Agriculture and Natural Resources as freshmen.

In response to the need to increase the participation of highly competitive and motivated minority students in the programs in the Michigan State University College of Agriculture and Natural Resources, the Office of Academic and Student Affairs developed and implemented a summer program, the Minority Apprenticeship Program (MAP). The MAP program was initiated in the summer of 1982 and had continued each succeeding summer. The program operated for seven weeks. Pre-professional work experience, corporate leadership workshops, guest speakers, and week-end activities were all a part of the program. The MAP program was based on the theory that when made aware of agriculture and natural resources, minorities will enroll as freshmen with major preferences that will lead to careers in agriculture and natural resources.

#### Significance of the Problem

As the 1980's and 90's approached, the demand for professional agriculturalists had increased. The demand for highly motivated and competitive minorities with a background in agriculture to fill professional positions in agri-business, agri-education, and

agri-research far exceeded that for non-minorities. This demand had not been met. Throughout the agricultural education institutions a severe shortage of agricultural career minded young minorities existed.

This problem was a paradox. There were a significant number of minority students searching for college and career opportunities that would provide them with challenges and opportunities for excellence. Why were college bound minorities bypassing career opportunities in agriculture? Why did agriculture need minority students? How could a shortage of minorities in agriculture be labeled a crisis?

A study of the problem provided some answers. To take us into the 1990's and beyond, agriculture would require people who were innovative, dynamic, highly motivated, visionaries who possessed a high level of leadership competence. The courses needed to conquer these challenges would center around science, business, communications, and agriculture. These fields would have to be interwoven to produce graduates with the skills necessary to deal with technology, people, and an uncertain future. It would not have been possible for the agriculturalists of tomorrow to effectively provide for the world's needs without this unique combination of skills.

Throughout the history of agriculture in the United States, minorities have provided valuable contributions to the advancement of our nation as a world leader. To continue as the world's leader in agriculture it would be necessary to once again call on minorities to participate in the challenges of agriculture.

### Objectives

The primary purpose of this study was to identify the impact that participation in the Minority Apprenticeship Program would have on minority youth and their choice of a major preference when enrolling at Michigan State University. A second purpose was to provide information to outside interests that would facilitate the development of other similar programs.

The major objectives of the study were as follows:

1. To develop an historical background of minority participation in agricultural education opportunities within the post-secondary agricultural education system.
2. To determine the impact participation in the Minority Apprenticeship Program had on the selection of a major preference of those Minority Apprenticeship Program

participants entering college during Fall 1985.

3. To determine the impact participation in the Minority Apprenticeship Program had on the selection of a major preference of those MAP participants who returned to high school and would be entering college during Fall 1986.

The results of this study would:

1. Reveal empirically based information for the Office of Academic and Student Affairs, Dean and Vice Provost for the the College of Agriculture and Natural Resources, agricultural and natural resources industry, Michigan State University personnel, other Land-Grant Institutions, and the general public regarding the potential merits of the Minority Apprenticeship Program as a motivational tool resulting in the increased enrollment of minority students with a major preference in the College of Agricultural and Natural Resources.
2. Provide empirically based information which the agricultural and natural

resource industry, Federal and state governmental agencies, and Land-Grant Institutions could use to plan for the recruitment, retention, and placement of minority students into similar agricultural and natural resource programs.

3. Provide empirically based information which the Office of Academic and Student Affairs could use as support when seeking resources for modification and expansion of the Minority Apprenticeship Program.

#### Relationships to be Explored

This study was descriptive and exploratory in nature rather than prescriptive. The intent was to determine the impact participation in an experiential learning program would have in the selection of a major preference when the minority student attended college. The specific descriptive data gathered and analyzed included:

1. Background information about the participants: high school attended, Grade Point Average (GPA), year in



school, and leadership activities.

2. The reasons the participants had wanted to be in the Minority Apprenticeship Program.
3. The participants' pre-program major preference choice when entering college. This included the choice of college and the desired future career.
4. The participants' post-program major preference choice either when entering college during the 1985 Fall Term or when entering college the following year. This included the choice of college and the desired future career.
5. The participants' post-program impressions of the Minority Apprenticeship Program experience, including both the positive and negative aspects of MAP and what the student would do differently in future MAP programs.

### Assumptions

The basic assumptions underlying this research were:

1. Experiential Learning theory is applicable to the Minority Apprenticeship Program experience.
2. The concept of impacting major preference choice can be studied and analyzed.
3. This analysis can reveal trends in the choice of a major preference by minority students after being given an innovative experiential learning program in agriculture and natural resources.
4. Nominal and ordinal data form a basis from which descriptive statements can be made.
5. This study is capable of inspiring further research regarding the factors in the Minority Apprenticeship Program that influence minority students to select major preferences in agriculture and natural resources.

### Research Questions

The purpose of this study was to answer the following questions:

1. What impact did the Michigan State University College of Agriculture and Natural Resources Minority Apprenticeship Program (MAP) have on 1985 participants who entered the university during Fall 1985, and their selection of a major preference in agriculture and natural resources?
2. What impact did the Michigan State University College of Agriculture and Natural Resources Minority Apprenticeship Program have on 1985 MAP participants who returned to finish their senior year in high school and their selection of a university and a major preference in agriculture and natural resources?

### Hypotheses

This study was designed to determine if high school junior and senior students who had an opportunity to participate in the Minority Apprenticeship Program (MAP) had changed their

preference for a college major from any major outside the College of Agriculture and Natural Resources to a major within the College of Agriculture and Natural Resources, and if so, whether the reasons were attributed to the Minority Apprenticeship Program.

The following hypotheses were tested:

- H<sub>1</sub>: For either secondary male or female senior students, there is a significant difference between the percentage of MAP participants and the percentage of those interviewed, but who did not participate in MAP, in their enrollment at Michigan State University with a major preference in the College of Agriculture and Natural Resources.
- H<sub>2</sub>: There is a significant difference between the percentage of the secondary senior students who participated in the MAP Program and the percentage of those interviewed, but who did not participate in MAP, in their attendance at a post-secondary institution.
- H<sub>3</sub>: For either secondary male or female junior students, there is a significant difference between the percentage of MAP participants and the percentage of those interviewed, but who did not participate in MAP, in their

choice of Michigan State University as the university they would attend in the Fall of 1986 with a major preference in the College of Agriculture and Natural Resources.

### Definition of Terms

Certain terms relating to minorities and agriculture and natural resources will be used often in this study. To clarify the research design and make the meanings clear and concise to the reader, the following definitions will be used:

1. Experiential Learning: Consists of learning attained through structured work experiences before or during, but not as a formal part of an individual's academic career. (1977)
2. Experiential Education: Consists of learning activities outside the normal classroom environment, the objectives of which are planned and articulated prior to undertaking the experience. The involving activity is meaningful and real and the learner has the assistance of another person (most often a faculty advisor) in expanding the learning taking place in non-classroom environments (1977).
3. Minority: A student from a black, hispanic,

Chicano, Native American, or Asian background (Michigan State University admission status).

4. Minority Apprenticeship Program (MAP): A program for ethnic minority high school Junior and senior students offered by the Office of Academic and Student Affairs of the College of Agriculture and Natural Resources at Michigan State University. It is used as a vehicle to give minority students professional experiences in agriculture and natural resource careers; exposure to the entire agriculture and natural resource industry--public, private, and institutional; awareness of the needs and demands of Corporate America; and experiences with campus life.

#### Limitations of the Study

1. The study will be limited to the 1985 student applicants of the Minority Apprenticeship Program who respond to the survey.
2. The findings of this study will be generalized only to students who fit the criteria used for selection.
3. The findings of this study will be generalized only to students selected for interviews for the 1985 MAP Program.

4. The findings of this study will focus only on the enrollment status of students during their freshman year.

## Chapter Two

### REVIEW OF RELATED LITERATURE

The literature relating to minority participation in agricultural programs at Land-Grant Institutions has been reported in the following sections:

(1) Identifying and Defining the Land-Grant System;  
(2) Establishing the Historical Background of Minority Participation in Agricultural Programs at Land-Grant Institutions; (3) Determining the Efforts Made to Recruit, Retain, and Graduate Minorities From the Agricultural Programs; (4) Assessing the Current Demand for Professionals with an Agricultural Education by the Agricultural Industry; and (5) Assessing the Current Efforts and Ability of Land-Grant Institutions to meet the Demand for Employable Minority Professionals by the Agricultural Industry.

#### Identifying and Defining the Land-Grant System

The Land-Grant System was the result of a struggle by individuals and organizations to bring knowledge to farmers tilling to produce food for America. Men such as George Washington and Thomas Jefferson were early American agricultural innovators. (Brown, pp 173-187, 1939) C. M. Allmond (1957) and Avery Craven (1928) document the efforts of such men as John Taylor, Thomas Randolph, and Edmund Ruffin. All were early



agricultural innovators. Many Agricultural Societies, both national and local, were formed. Alfred C. True writes of these societies in A History of Agricultural Education in the United States, 1785-1923. (1929) Such organizations as the South Carolina Society represented wealthy landholders, while the Madison County Agricultural Society consisted of small landowners. In either case, agriculture was on display.

Whether it was individuals or organizations promoting agriculture, events were set into motion that would lead to the establishment of the Land-Grant System. Its development would take four distinct phases: (1) The original Morrill Act of 1862; (2) The Hatch Act of 1887; (3) The second Morrill Act of 1890; and (4) The Smith-Lever Act of 1914.

Agricultural Education would be based on what has become known as "The Land-Grant Philosophy". G. Lester Anderson (1976) in Land-Grant Universities and Their Continuing Challenge summarizes the basic Land-Grant idea as:

. . . land-grant idea: democratization of education applied or mission orientated research conducted to benefit the people of the states; and service rendered directly to these people through extension agents, short courses, and continuing education (p. 1)

C. Austin Vines and Marvin Anderson (1976)

describe the Land-Grant philosophy in the following way:

"Common Man" philosophy---the practical view that knowledge should be applied to improve the human condition, notably in production; the growing belief that man could in fact better his lot and make progress; and the American commitment to democratic goals of opportunity for the common man, the industrial class, and open-minded upward mobility. (p. 13)

The Land-Grant System was established by the Federal Government to offer educational opportunities to common Americans, primarily in the areas of agriculture and mechanical arts. Munsen (1976) defined the purpose of the 1862 Morrill Act as ". . .promoting the liberal and practical education of the industrial classes in the several pursuits and professions of life." Prior to the 1862 Morrill Act post-secondary education was primarily for those with money. Little thought was given to either the education of the everyday citizen or how to deliver such an education. Limited numbers of institutions were ". . .designed to furnish the agriculturalist, the manufacturer, the mechanic, or the merchant with educational opportunities." (Brubacher and Rudy, 1968)

The Morrill Act of 1862 was the first in a series of historical moves by the Federal Government to make education an option for the working class. One major

flaw in the 1862 Morrill Act was the loop-hole that allowed minorities to be excluded from the opportunities presented by the Act. Proctor (1976) points out that:

. . .this denial of opportunity to blacks by the land-grant schools in the 1860's and 1870's was consistent with the attitudes of the majority toward blacks at that time. . .It is therefore, little wonder that educators, never known for iconoclastic activity, allowed themselves to become party to the scheme that denied black citizens a right to the training offered by the agricultural, industrial, and mechanical colleges. (p. 191)

To address this concern, the Morrill Act of 1890 was enacted. Anderson and Vines (1976) point out that the 1890 Morrill Act was to provide for:

. . .the application of a portion of the proceeds from the previous public land grants to each state and territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and mechanic arts now established, which are herein after established. (p. 17)

Seals (1977) indicated that ". . .the Act provided additional funds for the First Morrill Act Colleges as well as funds for the new colleges." The 1890 Morrill Act reads as follows: "That no money shall be paid. . .under the act. . .where a distinction of race or color is made in the admission of students." The 1862 and 1890 Morrill Acts completed the classroom phase of the Land-Grant System.

The dispensing of agricultural knowledge required more than a classroom education. Because of the

interdependence of knowledge, innovation, research, and people, a network capable of handling the uniqueness of agriculture was necessitated. The establishment of experiment stations would represent the research arm of the system. Although they were started in 1875 and supported by legislation in 1882, the Hatch Act did not become law until 1887. The Hatch Act would establish ". . .the agricultural experiment stations and provided federal grants to states for agricultural research in co-operation with colleges established by the Morrill Act of 1862." (Fortmann, Pasto, and King, 1976, p. 50) According to Vines and Anderson (1976) with the passage of the Hatch Act "Research was now firmly established as a recognized function of the land-grant colleges and universities." Fortmann, Pasto, and King (1976) observed that:

. . .since the passage of the Hatch Act, the colleges of agriculture in the land-grant universities have achieved tripartite intergration of curriculum, research, and extension." (p. 50)

People were the one true ingredient that separated agriculture from all other disciplines. Without the relationship between people and the land, agriculture would not have been the dynamic force it was. Research and knowledge, education, alone were not enough to make the Land-Grant System the international model for development and dissimination of knowledge that it had

become. It was the three pronged approach of education, research, and extension, that made the Land-Grant System so unique.

Extension agents were in existence long before Federal funds were provided for them. They could be found early in the 1900's. Vines and Anderson (1976) reported that:

According to True, Smith County, Texas, in 1906, became the nation's first county to hire a full-time county agent. His name was W. C. Stallings. The first black agents also were hired in that same year--John B. Pierce at the Hampton Institute, Virginia; Thomas M. Campbell at the Tuskegee Institute, Alabama. (p. 6)

It was not until 1914 that the Federal Government recognized the need for a national network of extension agents. Like so many things, it was compromise that brought one unified extension service to be developed within the Land-Grant Institutions. As late as 1911, some college officials were adamantly opposed to the idea of an extension service. Lloyd (1924) quotes Dean Eugene Davenport of the University of Illinois (1911) "I do not agree with the proposition that the colleges or any other public agency should now, or ever, take the message to every individual. . . ." (p. 1) Although it was a struggle, the Smith-Lever Act was passed in 1914. The Act:

. . . authorized extension work to "aid in diffusing among the people of the United States useful and practical information on subjects

relating to agriculture and home economics, and to encourage the application of the same." Partners in this venture were the Department of Agriculture and the state agricultural colleges. (Vines and Anderson, 1976, p. 40)

The Smith-Lever Act provided for ". . . mutual cooperation of USDA and land-grant colleges in conducting agricultural Extension work." (Vines and Anderson, 1976) The Act also stated that:

. . . work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting such persons information on said subjects through field demonstrations, publications and otherwise. . . (p. 7)

These elements, 1862 Morrill Act, 1887 Hatch Act, 1890 Morrill Act, and the 1914 Smith-Lever Act, composed the Land-Grant System. Regardless of the flaws of the system, it had provided opportunities for the sons and daughters of the average citizen to achieve educational goals. It was with the development of this unique and dynamic system that the American agricultural education system had become the envy of the international community. The Land-Grant Institutions, through the integration of classroom, research, and extension, had brought American agriculture to its place as world leader. It included a network of knowledge, farms, laboratories, and people

all working toward a common goal: more efficient agriculture for America.

Establishing the Historical Background of Minority Participation in Agricultural Programs at Land-Grant Institutions

When the Morrill Act of 1862 became law, education and training opportunities were to be made available to all of America's citizens. The system of schools, the Land-Grant Institutions, were established to deliver these services to the common man. They were to have included minorities as well as non-minorities in their enrollments. Yet, the intent of the law was not carried out. Minorities were left out of the process, thus prompting the second Morrill Act of 1890. Because of the need for a second act, in 1986 there were two separate Land-Grant Systems. Because of concerns for equality in the classroom, research laboratory, and career development, the Land-Grant System was to be held accountable.

Many believed that blacks were left out of the 1862 Land-Grant Institutions by design. Proctor (1976) pointed out the conditions that lead to the deliberate exclusion of blacks:

. . .not only were blacks barred from these institutions of higher education, but in 1878 there had begun a deliberate attempt to define the blacks as inferior and deny them the citizenship that the Constitution guaranteed them. . .a

rampage of vengeance and hatred was released on blacks that virtually cancelled out all their gains from the preceeding decade. (p. 191)

After discovering the flaw in the 1862 Morrill Act, Congress passed the 1890 Morrill Act as a mechanism to bring minorities, predominately blacks, into the Land-Grant System. It was to provide ". . .the legal basis for the seventeen separate land-grant colleges for negroes. . ." (Schor, 1982, p.122) Schor (1982) also stated that:

The 1890 Morrill Act was so written to accomodate the parties to the struggle by accepting segregation while providing a basis upon which discrimination in the distribution of funds could be legally resisted. (pp. 122-23)

Schor (1982) continued by stating the following:

The Morrill Acts (1862/1890), Hatch Act (1887), Smith-Lever Act (1914) brought blacks only token state and federal resources, and in the case of Hatch, research resources, nothing in comparison to the non-minority 1862 schools. (p. 5-6)

Brubacher and Ruby (1968) state:

"In 1890, the Morrill Act was revised to provide paltry sums for black schools, but the major benefits of land-grant college growth bypassed blacks." (p. 79)

Jencks and Riesman (1969) point out that:

. . .In the mid-nineteenth century, the country missed a great opportunity when it allowed the land-grant institutions to exclude blacks and indians. Today, a century later, attempts are being made to correct this error after its effects have accumulated for a hundred years. (p. 422)

According to Joel Schor (1985) ". . .blacks would obtain some Morrill funds, little or none for research,



and the new federal extension service. . .". (p. 5)  
 He also stated that "With minor exceptions and changes, this system functioned into the 1960's." Although the 1890 institutions were entitled to federal funds under the Morrill Act, Schor (1982) points out that:

Although these schools were beneficiaries of Morrill funds, under both acts in some cases, the supplemental federal bequests in furthering land-grant education should be taken into account in assessing the relative progress of black versus white land-grant institutions...as late as 1930, not one of the states which supported a segregated black land-grant college provided it with an experiment station program. Hatch funds were almost non-existent for the black colleges. (p. 154)

As the country entered the 20th century, the administrators in the 1890 Land-Grant System hoped for more success in its struggle for "equality". According to Davis (1934), several factors were crucial for the poor educational status of the early days of the 1890 schools:

Firstly, the indignity of having to perform manual labor was communicated to the first and second generation who generalized the attitude to practical educations. Secondly, for years black youths were imbued with the notion that college education was cultural instruction in the liberal arts and sciences, and thus they developed a prejudice against the practical type of agricultural education which was the principal objective of the newly established institutions. Thirdly, older black private and denominational colleges...had won over blacks to their cultural curricular offerings. Fourthly, there were not enough high schools in the areas of the seventeen schools to prepare blacks for agricultural and other curricula of the land-grant schools. (p.22)

The stated purpose of the 1890 Morrill Act was to provide an equal educational system to the one formed in 1862. The facts indicate that as late as the 1930's the 1890 schools were woefully underfunded. (Table 1 and Table 2) The result was the ability to provide only a small portion of the educational and research opportunities available to students at the white 1862 schools. Still the 1890 institutions were able to make significant contributions to both its students and the nation. Davis (1934) indicated that:

A new challenge was accepted in the face of the older persistent problems of poor public and private high school facilities in the Southern states...these land-grant schools contained 2,595 elementary level students, 2,268 secondary and twelve college level students in 1916. Thus land-grant college meant in reality a land-grant school. (p. 23)

Schor (1982) advanced the idea that:

The greatest contribution of the system, then lay in the development of capable leadership which familiarized the Southern mind with the notion of first vocational and then higher education for blacks and facilitated a shift in opinion away from the idea that Negro education was a philanthropic and missionary enterprise and toward one that was a public obligation. (p. 160)

He also writes:

In spite of these enumerated handicaps, the black land-grant system began to move ahead, after 1910, from teacher-training in agriculture, teaching in agriculture, the mechanic arts, home economics, and the applied sciences, to extension work and general uplift of the people in the region. (p. 154)

TABLE 1

Total and percentage distribution of expenditures in White and Negro Land-Grant Colleges in 17 States, by purpose and by item of expenditure, 1935-36.

Purpose and item expenditure	Total expenditures		Percentage distribution of expenditures	
	White	Negro	White	Negro
Total	\$46,907,146	\$4,095,459	100.0	100.0
Educational and general purposes	32,958,626	2,167,632	70.3	52.9
General administration.....	1,825,970	281,799	3.9	6.9
Resident instruction.....	11,809,228	1,239,053	25.2	30.2
Organized research.....	4,055,098	13,758	8.6	.3
Extension.....	12,435,320	51,571	26.5	1.3
Libraries.....	634,296	73,514	1.4	1.8
Operation and maintenance..	2,198,714	507,937	4.7	12.4
Other purposes.....	13,948,520	1,927,827	29.7	47.1
Auxiliary enterprises.....	5,116,356	956,623	10.9	23.4
Noneducational expense.....	948,463	132,530	2.0	3.2
Capital outlays.....	7,883,701	838,674	16.8	20.5

Source: Wilkerson, Doxey, Special Problems in Negro Education. 1939, p. 84.

TABLE 2

Sources of Funds Allotted for Cooperative Extension Work in the States Where There are Separate Land-Grant Colleges for Negroes for Fiscal Year Ending June 30, 1933, and Estimate of the Division and Use of Such Funds for and in Behalf of Negroes in the States

State	Grand Total	Total From Federal Funds	Total From State Sources	Federal Funds to Yr. 31-32	Percentage of Negroes in States for Census of 1930 on Basis of				Estimate of Amount of Money for Extension Work Which Should Go to Negroes on Basis of Rural %
					Total Farm Pop.	Total Rural Pop.	Total No. of Farmers	Total Pop.	
Alabama.....	\$ 661,898	\$309,565	\$352,333	\$22,676	37.1%	35.6%	36.4%	35.7%	\$235,635
Arkansas.....	522,654	263,137	259,517	16,136	29.0	26.5	32.8	25.8	138,503
Delaware.....	60,929	46,714	14,215	10,650	14.6	15.2	8.3	13.7	9,261
Florida.....	366,405	152,640	213,765	27,368	27.4	31.2	18.7	29.4	114,318
Georgia.....	734,889	354,684	380,205	27,499	39.3	37.4	33.9	36.8	274,848
Kentucky.....	538,105	297,800	240,305	11,005	4.0	6.0	3.6	8.6	32,286
Louisiana.....	513,290	232,445	280,845	23,265	45.0	40.8	45.7	36.9	209,322
Maryland.....	388,620	139,283	249,337	10,000	18.7	17.8	12.2	16.9	69,174
Mississippi.....	564,391	286,050	278,341	43,953	56.0	52.4	58.5	50.2	295,740
Missouri.....	491,360	266,780	224,580	3,125	2.6	3.1	0.2	6.2	15,232
North Carolina...	666,977	363,314	303,663	21,500	31.1	28.4	27.5	29.0	189,421
Oklahoma.....	595,496	264,791	330,705	7,592	7.8	6.6	11.3	7.2	39,302
South Carolina...	465,062	264,390	218,672	64,364	54.3	47.8	49.0	45.6	221,299
Tennessee.....	541,719	296,364	245,355	19,690	13.5	13.8	14.3	18.3	74,757
Texas.....	1,232,205	537,833	694,372	19,000	17.4	15.2	17.3	14.7	187,295
Virginia.....	590,341	283,395	306,946	38,753	27.3	26.7	21.8	26.8	159,621
West Virginia....	405,269	199,314	205,955	11,419	0.8	6.8	0.6	6.6	27,558
Total.....	\$9,339,610	\$4,558,499	\$4,799,111						\$2,293,572

Source: Davis, John W., Land-Grant Colleges for Negroes, p. 29, 1934.

From the proceedings of the American Association of Land-Grant Colleges and State Universities (1927) it is stated that "These colleges also extended on a firmer basis the economic footing of the Negro and finally these institutions also serve as apostles on inter-racial goodwill."

In spite of some successes, the 1890 schools continued to struggle for recognition. Other than the apparent lack of funds, other obstacles faced the 1890 institutions. As indicated in Table 3, enrollments were one of these problems. It was pointed out by Davis (1934):

. . .in 1928 there were only 338, or 9.1 percent, of the total enrollment in the Land-Grant Colleges for Negroes enrolled in agriculture; 225 or 6 percent in Mechanic Arts; 457 or 12 percent in Home Economics. . .(pp. 33-34)

Schor (1982) states that:

The high school enrollment in the land-grant schools became less than the college enrollment in 1929-30, and had decreased yearly since 1923-24. The collegiate enrollment in 1930-31, in these schools was more than one-fourth of the total collegiate enrollment in all colleges. (p. 159)

It would be 1968 before any significant change in black enrollment would take place. "The Chronicle of Higher Education" states "In 1968, blacks represented about 4 percent of the college-going population, one half of which is in black colleges." (1968, p. 5) In 1862 the Federal Government attempted to bring

TABLE 3

## EARLY ENROLLMENT OF 1890 LAND-GRANT INSTITUTIONS

School	Year	Elementary	Secondary	College	Agriculture	Total
Lincoln	1913-14	132	132	na	na	264
	1920	na	na	na	1	na
Alcorn State	1911-12	na	na	13	na	na
	1927	na	na	88	na	na
Arkansas Pine Bluff	1926-27	60	225	21	na	306
Langston	1927	na	na	247(voc)	na	na
Alabama A&M	na	na	na	na	na	na
Prarie View	1922-23	na	na	na	28	na
	1926-27	na	na	na	51	na
Southern Maryland-Eastern Shore	1926-27	na	na	107	12	na
	1905	na	na	na	na	159
Kentucky State	1901	na	na	na	7	na
	1902	na	na	na	22	na
Florida A&M	1926-27	na	na	na	11	na
Hampton	1926-27	na	na	382	na	na
Virginia State						
Tuskegee	1926-27	na	na	97	na	na
Fort Valley	1927-28	na	na	na	na	53
Delaware State	1926-27	na	na	19	na	na
North Carolina A&T	1926-27	na	na	na	na	101
South Carolina State	1927	na	na	na	27	na
1890 System	1890-1935	na	na	na	71 (graduates)	
	1916	2595	2268	20	na	na

Source: Schor, Joel, Agriculture in the Black Land-Grant System to 1930, pp. 176, 1982.

educational opportunity to the "common" man. In 1890, it tried to provide two "equal" systems so the black youth could become partners in the opportunities afforded by the 1862 Morrill Act. As late as 1968, it was clearly apparent that minorities were not a significant part of the 1862 Land-Grant Institutions, especially the agricultural programs. (Table 4)

During the past 125 years, the role of minorities in either the 1862 Land-Grant schools or the agricultural industry has been minimal at best. Although agriculture leads the nation and the world in the use and development of high technology, highly motivated and competitive minorities continue to be hard to find in agriculture.

Determining the Efforts Made to Recruit, Retain, and Graduate Minorities From the Agricultural Programs

The concern over the lack of significant participation by minorities in agricultural programs is not new. The 1862 Land-Grant Institutions have attempted to address this problem in recent years. Dr. Overton Johnson (1977) stated that "There is little doubt that institutions, business and government are concerned about the shortage of professionally trained minorities in agriculture and natural resources." (p. 121) In order to have significant numbers of highly motivated and competitive graduates, an

Table 4

**STUDENT ENROLLMENT AT THE BACCALUREATE AND HIGHER LEVELS  
IN FOOD AND AGRICULTURAL SPECIALIZATIONS  
BY MINORITY STATUS IN 1980**

**Enrollment by Degree Level**

Degree Specialization	Baccalaureate		Master's		Doctoral	
	Minority Percent	Non-Minority Percent	Minority Percent	Non-Minority Percent	Minority Percent	Non-Minority Percent
Agriculture, general	5.2	94.8	4.4	95.6	0.0	100
Agriculture, business	4.4	95.6	12.1	87.9	2.6	97.4
Agriculture, economics	2.8	97.2	0.0	100	0.0	100
Agriculture, education	1.5	98.5	4.8	95.2	6.2	93.8
Agriculture, engineering	2.6	97.4	5.1	94.9	3.9	96.1
Agronomy	2.8	97.2	6.7	92.3	3.9	96.1
Animal Science	2.3	97.7	2.0	98.0	1.5	98.5
Dairy Science	2.8	97.2	7.5	92.5	8.6	91.4
Fish and Wildlife	1.3	98.3	1.9	98.1	0.0	100
Food Science & Technology	4.1	95.9	5.4	94.6	8.4	91.6
Forestry	1.7	98.3	3.3	96.7	2.1	97.9
Horticulture, Fruit & Veg.	2.4	97.6	4.1	95.9	4.1	95.9
Horticulture, ornamental	3.2	96.8	0.9	99.1	10.3	89.7
Natural Resources Management	2.6	97.4	1.5	98.5	0.0	100
Parks and Recreation	0.7	99.3	0.0	100	0.0	100
Plant pathology	1.2	98.8	2.9	97.1	4.3	95.7
Plant physiology	0.0	100	0.0	100	2.5	97.5
Soil science	5.8	94.2	3.0	97.0	1.9	98.1

Based on the 1979/80 Clemson University Survey of U.S. Students and Faculty in Higher Education in Food and Agriculture

Source: Graduates of Higher Education in the Food and Agricultural Sciences, USDA, 1980, p. 40



institution must first get students to enroll, then they must retain those students through graduation. As late as 1985, both the 1862 and 1890 Land-Grant Institutions were trying to find a way to attract minority students, who possessed the credentials, leadership skills, motivation, and personalities, to pursue majors in agriculture and natural resources.

Dr. Overton Johnson (1977) observes:

Prestigious white colleges and universities all over this nation are developing great impetus with their minority recruiting programs. Major efforts have been made to assist minorities in not only enrolling but also retention programs are becoming more and more important. (p. 133)

Dr. R. Grant Seals (1978) writes that:

. . .the idea advanced a few years ago by the Agriculture Science Council of the Southern Region Education Board concerning a concentrated effort to attract blacks in larger numbers for doctoral degrees in agriculture should be further pursued. (p. 20)

Statistics indicated that in 1968 ". . .blacks represented about 4 percent of the college-going population, one half of it going to black colleges."

(Proctor, 1976, p. 194) Proctor also stated that:

. . .land-grant institutions tried to reach such increases. . .by the time school opened in 1968, the numbers of black students had increased significantly on most campuses. (p.125)

With all the activity to increase enrollments of minorities in the 1862 institutions, it was not agriculturally specific. Rather, minorities were

recruited to attend the institution, not pursue major preferences in agriculture. Specific recruitment efforts were made for such programs as engineering, pre-medicine, and pre-law. An example of such a program is FAME (Forum to Advance Minorities in Engineering). FAME was a pre-college engineering program found in the Wilmington, Delaware area. The basic elements of FAME included tutorial programs, test awareness, and college courses. (Appendix I.)

In reviewing the literature on minorities in agriculture, little evidence of recruitment efforts for programs in agriculture was found. This was especially true for the 1862 schools. Attempts at finding information about specific programs or efforts developed to attract minorities was fruitless. Such a literature review led the researcher to agree with Dr. Overton Johnson's (1977) observation that:

. . . It appears that the job of determining the impact of minority enrollment on programs in agriculture will inevitably lead us to consider new design and delivery systems. It seems that here is a job of equal importance of the white colleges with a Black, American Indian, or other ethnic minority enrollment and the predominately black college with a majority white enrollment, or a predominately Spanish Surname college with a majority white enrollment. To this end then, it is hoped that the following recommendations will assist with this important educational task. (p. 137)

The success of the 1862 schools to increase the participation of minorities in their agricultural

programs was clearly depicted by Dr. R. Grant Seals (1978) when he observed that:

. . .it was a concentrated effort when two black graduate students and one black faculty member were in one agricultural department in the late sixties at one 1862 institution. (p. 19)

At Michigan State University (Fall 1985), the number of minorities enrolled in agriculture was less than 190, from freshman to doctoral student, and the number of black faculty numbered three for all fourteen departments. (Table 5)

Although progress had been made during the past decade, it was minimal at best. The problem of how to recruit the highly motivated and competitive minority student appeared to be just as difficult as in prior years. Without the student, the questions: what is needed to retain minority students in agricultural programs and what must be done to graduate minority students who are employable in the agricultural industry; were mute.

Assessing the Current Demand for Professionals with an Agricultural Education by the Agricultural Industry

Increased enrollments of minority students with major preferences in programs in agriculture and natural resources serve no purpose unless there is a demand for their talents. During the 1980's, the national news media covered the agricultural topic to

TABLE 5

Michigan State University, College of  
Agriculture and Natural Resources Office  
of Academic and Student Affairs

Fall Term 1985 CANR Undergraduate Enrollments  
Minority and Total

Dept/Major	Freshman*			Sophomore			Junior			Senior			Total		
	Min	Tot	%Min	Min	Tot	%Min	Min	Tot	%Min	Min	Tot	%Min	Min	Tot	%Min
Agr. Ed.	2	15	13%	2	13	15%	2	32	6%	2	44	4.5%	8	104	7.7%
Agr. Econ	2	7	28.6%	4	27	14.8%	26	114	22.8%	26	107	24%	58	255	22.7%
Agr. Eng	7	25	28%	0	35	0.0%	6	91	6.6%	7	94	7.4%	20	245	8.2%
Animal Science	2	27	7.4%	0	40	0.0%	3	96	3.1%	4	69	5.8%	9	232	3.9%
Ag. Bio. Chem.	1	4	25%	0	1	0.0%	0	6	0.0%	0	4	0.0%	1	15	6.7%
Crop & Soils	1	12	8.3%	0	8	0.0%	1	26	3.8%	3	38	7.9%	5	84	6.0%
Fish & Wildlife	0	20	0.0%	0	19	0.0%	1	49	2.0%	2	60	3.3%	3	148	2.0%
Food Science	1	2	50.0%	0	4	0.0%	2	20	10.0%	7	29	24.1%	10	55	18.1%
Forestry	2	14	14.3%	3	13	23.1%	0	15	0.0%	2	22	9.1%	7	64	10.9%
Horticulture	0	8	0.0%	0	20	0.0%	2	54	3.7%	1	56	1.8%	3	138	2.2%
Packaging	2	21	9.5%	3	63	4.8%	22	176	12.5%	14	164	8.5%	41	424	9.7%
Parks & Rec.	0	8	0.0%	1	19	5.3%	5	31	16.1%	1	35	2.8%	7	93	7.5%
Resource Dev.	0	0	0.0%	1	4	25.0%	2	24	8.3%	0	27	0.0%	3	55	5.4%
Agr. Tech.	1	278	0.4%	5	147	3.4%	0	4	0.0%	0	0	0.0%	6	429	1.4%
Agr. No-Pref	6	38	15.8%	2	31	6.4%							8	69	11.6%
COLLEGE TOTAL	27	479	5.6%	21	444	4.7%	72	738	9.8%	69	749	9.2%	189	2410	7.8%

\*Freshman totals include first term freshman as well as students with less than 45 credits

Source: Dr. Rick Brandenburg, report prepared for Office of Academic and Student Affairs

such an extent that it was clear that a shortage of agricultural professionals existed and would exist into the foreseeable future. "The Chronicle of Higher Education" (1983) stated that:

To meet the future needs of industry. . . colleges and universities must train more agricultural scientists with expertise in molecular biology, physiology, biochemistry, nutrition, and agricultural engineering. (p. 15)

Dale Wolf, Vice-President of the DuPont Company, (1983) stated to the National Academy of Sciences that: "There isn't a crisis now, but there certainly will be a problem in the future. . .".

The Vice-President for Agricultural Administration at Ohio State University, Dr. A. Max Lennonn (1983) warned:

If we do not invest and invest quickly in programs that will, in fact train the kind of people who will be needed, then colleges of agriculture and agriculture industries will experience the same problems that have been experienced in the engineering community. (p. 15)

Dr. R. Grant Seals (1978) stated:

When I first entered agricultural administration as a Dean in 1969, it did not take long to discern the tremendous demand by industry, government, and education for minority students. (p. 19)

Dr. Seals (1978) concluded that "Today job opportunities for blacks in agriculture are good. . .". (p. 17)

The researcher spent a great deal of time visiting with agricultural recruiters when they visited the Michigan State University campus. During a visit in January, 1986, Ms. Sharon Mills, college recruiter for Land O' Lakes, stated ". . .it is difficult to find minorities, with an interest or background, to interview for marketing or sales positions. . .". Mr. Craig Richardson (1986) of PPG Industries clearly indicated that ". . .a competitive minority in agriculture can name the company he/she wants to work for. . .". Dan Davis (1986) of McDonald Corporation stated ". . .we want to give minorities management opportunities, but we have a difficult finding them with a foods background. . .".

The desire to interview minority candidates for internship and full-time employment positions in all majors in agriculture and natural resources had increased since the researcher first had been employed at Michigan State University in 1982. While the agriculture industry had gone through hard times in the past two years, the demand for highly motivated and competitive minority graduates in agriculture and natural resources was greater in 1986 than in previous years. Craig Richardson (1986) of PPG Industries stated it best when he said "The need for minorities with agriculture training, who possess the abilities

and skills needed for promotions, will continue to be in demand into the foreseeable future."

An assessment of the demand in the 1980's for minority students with agricultural backgrounds and promotable skills, clearly pointed out an outlook that had grown brighter with each year.

Assessing the Current Ability of Land-Grant  
Institutions to Meet the Demand for Employable Minority  
Professionals by the Agricultural Industry

In 1985, the status of minority enrollment in agricultural programs at both the 1890 and 1862 Land-Grant Institutions was not very encouraging. Table 6 clearly indicates that enrollments in agricultural programs, from a cross-section of Universities from 1982 to 1983, were on a decline throughout the country. After the researcher contacted institutions, such as Penn State University, University of Illinois, and Ohio State University and confirmed the fact that minority enrollment was normally less than one or two percent of the total agricultural enrollment and decreasing, it was concluded that the current trends indicated that if demand was in fact rising at the same time as enrollment was declining, then the ability to meet the need was not possible. The question of the ability of the institutions to meet

TABLE 6  
UNDERGRADUATE ENROLLMENTS IN AGRICULTURE

<u>University</u>	<u>1982</u>	<u>1983</u>	<u>% Change</u>
North Dakota State	970	1016	+ 4.7
Illinois	2315	2270	- 2.0
Iowa State	2947	2892	- 3.9
Wisconsin	2577	2432	- 5.6
South Dakota State	1371	1293	- 5.7
Kansas State	1959	1822	- 7.0
Missouri	2354	2175	- 7.6
Nebraska	1864	1719	- 7.8
Purdue	2709	2476	- 8.6
Michigan State	2695	2307	-14.0
Minnesota	1523	1293	-15.1
Ohio State	2612	2181	-16.5
Southern Illinois	864	696	-19.4

\*Information presented by Dr. James Jay, Assistant Director of Academic and Student Affairs, Michigan State University, College of Agriculture and Natural Resources to staff meeting on declining enrollments across the nation in agriculture.



the need was researched with two major questions in mind: (1) Are there sufficient numbers of minority students, who possess the necessary credentials, in the system to meet the demand? and (2) Do the institutions have the personnel, programs, and commitment that gives them the ability to meet the demand?

Dr. A. Lee Coleman (1979) raised the following question:

Is there a chance that American blacks will take a renewed interest in agriculture and agricultural occupations and can black graduates influence such a movement? (p. 24)

Dr. Joan Wallace (1979) stated that ". . . student motivation and enrollment are related to the realities of the marketplace." It was clear that neither the numbers were present to address the need nor the knowledge of how to recruit, retain, and graduate minorities in numbers that would approach satisfying the need. The researcher did discover some of the keys necessary to develop the ability to begin addressing the problem of recruitment, retention, and graduation.

Proctor (1976) suggested that if Land-Grant Institutions wanted to increase minority representation in their agricultural programs they would have to:

(a) Recruit black faculty and staff in numbers and volume approaching the proportion of blacks in the population.

(b) Distribute blacks up and down the entire staffing pattern, giving clear evidence of open

and fair employment and an eagerness to correct previous abuses.

(c) Devise methods of determining the readiness of minority students to cope with the challenge of college and graduate study.

(d) Expand the school's program, formal and informal, to include opportunities for black students to authenticate their own intellectual growth.

(e) Somehow the notion that this public benefaction known as a university must serve all the people has to be reinforced. (p. 197)

Dr. Johnson (1977) recommended that they must:

(a) Promote career counseling from K through 12.

(b) Emphasize the economic importance to the nation of one of our greatest natural resources--minorities.

(c) Develop an awareness and understanding among all faculty and administrators in agriculture schools of the cultural differences to recruit, educate, assist, and encourage minority students.

(d) Develop an active and effective minority recruiting program at the college level. Develop a strong support program for minority students prior to launching recruiting.

(e) Minority students must be made aware of career opportunities in agriculture and natural resources. Special attention is needed to also acquaint minority students with the selection of major courses of study.

(f) Establish cooperative education programs as a means of enhancing opportunities for minorities and women. (pp. 138-39)

Our post-secondary institutions were market places and the colleges and departments within them had to successfully compete for the student or their enrollments would suffer. Agriculture and natural

resources was no different than other colleges. Flske (1980) made it clear that marketing practices were key to filling classrooms when he commented,

"With a decreasing student population . . . colleges and universities must use the proven techniques of marketing and sales to fill their classrooms." (p. 25)

Caren and Kemerer (1979) reported that Murphy and McGarrity found that "Almost 90 percent of all respondents believed marketing to be synonymous with promotion" (p. 173).

A key factor/component of the marketing was communication. Communication and timing made the marketing process effective. A study by Inhlantfeldt (1975) at Northwestern University discovered that the best time to discuss college opportunities with high school students and their parents was during the summer months prior to their senior year. But the marketing process is much more than simply informing the student about the school.

Caren and Kemerer (1979) concluded that a successful recruiting program must have:

. . . a functional relationship between such offices as admissions, institutional research, placement, financial aids, alumni office, and student services. (p. 174)

A study done by Dominick et al. (1980) indicated that the number one activity in recruiting students was visiting the high school. This was followed by campus

visits by students and parents. Mailing to students was another important aspect of recruitment. Mailings should address specific curricular needs; must be direct, thorough and colorful; and first class mailing was preferable. (pp. 19-24)

Recruitment was only one phase of the marketing system. Retention was another. Institutions had to become more concerned and effective at retaining students already enrolled. Pacific Luthern University tried to correct the retention problem on its campus. Some of the key recommendations about retention included: advising, financial aids, research and evaluation, faculty/instructional improvement, policies and procedures, and developmental personal concerns. After implementation of changes, PLU experienced an increase in the retention rate from 69% in 1976-77 to 75% in 1977-78. (Beal, 1979, pp. 9-16) Muskat (1979), in his study, found that academic counseling was probably the single most important factor in retention. (pp. 17-22)

The researcher found that institutions, and the colleges and departments within them, were capable of increasing enrollments. Although a lack of literature on recruitment and retention efforts in agriculture existed, key factors in recruitment and retention were evident and they make it practical for agricultural

colleges and programs to recruit and retain highly motivated and competitive minorities.

In 1985, did the Land-Grant Institutions possess the ability to meet the demand of the agricultural industry for minority candidates for employment? According to Dr. Johnson (1977), Dr. Proctor (1976), and Dr. Seals (1978), the answer was "no" at their current enrollment levels. Yet it was evident that Dr. Johnson (1977), Dr. Proctor (1976), and Dr. Seals (1978) were convinced that the Land-Grant Institutions possessed the ability to change the enrollment trends, if they would commit themselves to the development of programs that were well designed and implemented with excellence in mind.

## Chapter Three

### RESEARCH PROCEDURES

#### Introduction

This section of the study was designed to impart to the reader those things that were accomplished in preparation for the implementation of data collection, along with an explanation of the established procedures for data analyses. These steps included: (1) Selection of the population, (2) Development and refinement of the instrument, (3) Establishing procedures for the collection of data, (4) Collection of data, and (5) Procedures for the analyses of data.

#### Selection of the Population

The population of this study consisted of minority students selected to be interviewed as candidates for the 1985 Minority Apprenticeship Program (MAP) sponsored by the College of Agriculture and Natural Resources at Michigan State University. To be included in the population, the student must have submitted an application for MAP and then have been placed on the interviewing list by the Minority Advisory Board Subcommittee on Selection. The Subcommittee on

Selection used the following criteria for determining the interviewing list:

- 1--Application on file prior to February 1, 1985.
- 2--Minimum of an overall Grade Point Average (GPA) of 2.50.
- 3--Minimum of two letters of recommendation.
- 4--Student paper on why the student wanted to be a part of MAP.
- 5--Indication that student was planning to pursue a post-secondary educational program.
- 6--Demonstrated leadership abilities.

Members of the Subcommittee were:

Chairman--Mr. Paul Ludwig, DOW Chemical  
Mr. Tom Black, Weyerhaeuser Co.  
Ms. Carol Boyles, Pillsbury Co.  
Mr. Ted Morris, School Teacher

(See Appendix II for complete biographies.)

All applicants were contacted by phone and mail prior to the meeting of the Subcommittee on Selection to determine their interest in participating in MAP. After the interviewing list was determined, all interviewees were contacted by phone and mail to determine an appropriate date and time for their interview. One-hundred seventy-eight students were contacted and interviewed either on-campus, at their local high schools or by phone. They constitute the

accessible population for this study. These students are categorized in Table 7.

TABLE 7

MAP SUBCOMMITTEE ON SELECTION STUDENT POPULATION  
SELECTED FOR INTERVIEWING FOR THE 1985 MAP PROGRAM

<u>Student Population</u>	<u>Number</u>	<u>% of Population</u>
Sex/Year in School		
Male/Senior	29	16.3%
Female/Senior	72	40.4%
Male/Junior	21	11.8%
Female/Junior	56	31.5%
Ethnic Background		
Black	150	84.7%
Hispanic/Chicano	21	11.8%
Asian American	1	.6%
Other	6	3.4%

The names of the High Schools of the interviewed students were obtained from the applications of the candidates. The High Schools represented in this study are categorized in Table 8.



TABLE 8

HIGH SCHOOLS REPRESENTED BY STUDENTS INTERVIEWED FOR  
THE 1985 MAP PROGRAM

School	City	Number	% of Population
Adrian High	Adrian, MI	4	2.2%
Assumption High	E. St. Louis, Ill	1	.6%
Battle Creek Cen.	Battle Creek, MI	7	3.9%
Benton Harbor H.S.	Benton Harbor, MI	2	1.1%
Cass Tech	Detroit, MI	12	6.7%
Central High	Detroit, MI	1	.6%
Charlotte High	Charlotte, MI	1	.6%
Cody High	Detroit, MI	1	.6%
Cooley High	Detroit, MI	2	1.1%
Covert High	Covert, MI	1	.6%
Denby High	Detroit, MI	2	1.1%
E. Lansing High	East Lansing, MI	6	3.4%
E. St. Louis Sr.	East St. Louis, Ill	22	12.4%
Eastern High	Lansing, MI	2	1.1%
Eaton Rapids High	Easton Rapids, MI	1	.6%
Everett High	Lansing, MI	2	1.1%
Finney High	Detroit, MI	3	1.7%
Grant High	Grant, MI	3	1.7%
Highland Park High	Highland Park, MI	1	.6%
Huron High	Ann Arbor, MI	13	7.3%
Lincoln High	East St. Louis, Ill	1	.6%
Marshall High	Marshall, MI	1	.6%
Muskegon Senior	Muskegon, MI	12	6.7%
Muskegon Heights	Muskegon Heights, MI	3	1.7%
Newago High	Newago, MI	1	.6%
Oak Park High	Oak Park, MI	1	.6%
Pontiac Catholic	Pontiac, MI	1	.6%
Pontiac Central	Pontiac, MI	3	1.7%
Pontiac Northern	Pontiac, MI	3	1.7%
Portage Northern	Portage, MI	1	.6%
Redford High	Detroit, MI	2	1.1%
Renaissance High	Detroit, MI	47	26.4%
Saginaw High	Saginaw, MI	1	.6%
St. Hedwig High	Detroit, MI	1	.6%
St Mary's	Detroit, MI	1	.6%
Sexton High	Lansing, MI	3	1.7%
Western High	Detroit, MI	5	2.8%
Wood River High	Wood River, Ill	1	.6%
Ypsilanti High	Ypsilanti, MI	3	1.7%

### Development and Refinement of the Instrument

One survey instrument was prepared for the students interviewed for the 1985 Minority Apprenticeship Program. The instrument was developed by a review of relevant literature and by consultation with the researcher's major professor, members of the staff of the Michigan State University Supportive Services Center, and members of the staff of the Agricultural and Extension Education Department at Michigan State University.

There was a consensus that to form an accurate student profile the following types of information should be collected:

1. Background and personal information.
  - (a) Residence
  - (b) High school
  - (c) Grade point average
  - (d) Year in school
2. Post-secondary plans
  - (a) Interest in pursuing post-secondary education or training
  - (b) If attending college, what were choices
  - (c) Major preference upon entering college
3. Career plans
  - (a) Specific career interests and plans
  - (b) Student interests
  - (c) Reasons for career and interest choices

Since this study was of minority students and their enrollment/major preference status as related to

Agriculture and Natural Resources, the following additional categories of information were needed:

4. Attitude about agriculture
5. Awareness of career opportunities in agriculture
6. Willingness to explore careers in agriculture

#### Establishing Procedures of Data Collection

In collecting the data for the study, it was determined to use as many of the research techniques as were feasible in order to ensure a high degree of accuracy and maintain objectivity. These techniques included the following:

1. A personally addressed letter to each interviewee was mailed on February 15, 1985 informing the applicant of his/her selection to the interviewing list and the dates and times to conduct the interviews. The letter was written on a word processor with the capability of personalizing each letter. The use of a letter perfect printer allowed for each letter to appear professionally written and personal. (See Appendix III.)
2. Each interviewee was called within two weeks to assure each student had received his/her letter and understood the interviewing process.

3. A date and time was set for each student interview. Each student then went through an interview, using the same instrument, whether the interview was on-campus, at the high school of the interviewee, or was conducted via the phone. All interviews were completed by April 15, 1985. (See interview instrument, Appendix IV.)
4. Students were placed into one of two groups: (Group 1) 1985 Minority Apprenticeship Program Participants and (Group 2) 1985 Minority Apprenticeship Program Alternates. (See table 15)
5. Students in the Minority Apprenticeship Program Participant Group were sent a personal letter informing them of their selection and requesting they return a pre-paid post card indicating their acceptance of the offer. They were given a deadline of June 1, 1985 to return the card and accept the offer. (See letter and card in Appendix V.)
6. Students in the Minority Apprenticeship Program Alternate Group were sent a personal letter informing them of their status and requesting them to return a pre-paid post card indicating their desire to have their name

kept on file for consideration, if any of the participant group either declined the offer or failed to show-up for the program. They were given a deadline of June 1, 1985 to return the card. (See letter and card in Appendix VI)

7. Each student, in each group, was called to assure they received the letter and understood their status.
8. Each Minority Apprenticeship Participant, who returned to high school for their senior year after completion of MAP 1985, was requested to send a letter stating their intentions about college and enrollment/major preference for Fall Term 1986.
9. Each Minority Apprenticeship Program Alternate, who still was a high school student, was contacted in September 1986 and asked to apply for 1986 Minority Apprenticeship Program, as well as indicate their intentions for Fall Term 1986.

The collection techniques used in this study allowed the researcher to follow each student from initial contact to post-secondary career choice. They were concise and complete and allowed the researcher to obtain data that allowed for a complete analysis.

### Collection of the Data

After the population was chosen, instrument developed, and the procedures finalized for the collection of the data, the population had to be refined. The population was refined by determining which minority students had enrolled or were intending to enroll at Michigan State University with a major preference in agriculture and natural resources prior to their participation in the Minority Apprenticeship Program. The admission records at Michigan State University were used to verify the status of each student.

It was further refined by determining which student participants changed their major preference to agriculture and natural resources after completion of the Minority Apprenticeship Program. It was refined again by determining which of the high school juniors switched universities and/or major preferences after they had completed the Minority Apprenticeship Program. The admission records at Michigan State University and the major change records of the College of Agriculture and Natural Resources were used to verify the status of each student.

The population could not be refined as thoroughly as planned, due to several unexpected circumstances.

Students thought they had chosen a specific major when applying for admission to Michigan State University but had miscoded the application for admission form and were not in the major they had wanted. Thus for some students, it was impossible to know their major preference status. Another problem concerned the procedure needed to change majors once a student was officially enrolled at Michigan State University. Another problem was caused by the confusion over what a major preference was. Many students thought that agri-business, agri-communications, and agri-engineering majors simply indicated business, communication, or engineering as their major and they then would concentrate on agriculture. Consequently, the status of many of the students could not be verified by the use of Michigan State University records. The researcher was able to use other methods to secure accurate records of the enrollment of students. It was possible to determine, with accuracy, that 19 of the freshmen entering during Fall Term 1985 did intend to change their major to a major preference in agriculture and natural resources before the end of the Winter Term of their freshman year.

The very accurate and complete records of the Director of the Minority Apprenticeship Program at Michigan State University, College of Agriculture and

Natural Resources Office of Academic and Student Affairs were used to obtain a current mailing address for nearly all the MAP Participants and Alternates. Other addresses were obtained from counselors at the high schools attended by each student.

Those students returning to complete their senior year in high school were asked to send a letter to the Director of the Minority Apprenticeship Program, indicating their intended choice of a post-secondary school and major preference. Students, who had graduated from high school, were asked to send a note indicating the college or university they would be attending, if any, their major preference, and if they planned to change majors and, if so, to what. (See Appendix VII.)

It was then possible to prepare Table 9 which indicates the status of the 48 senior students, Table 10 that indicates the status of the 46 Junior students, and Table 11 that indicates the combined status of Junior and senior students, who participated in the 1985 MAP Program, as of March 1, 1986.



TABLE 9

**Enrollment/Major Preference (March 1, 1986) of  
1985 Senior MAP Participants**

Participant Group	ANR* Major Preference		Non-ANR Major Preference	
	Number	Percentage (participant group)	Number	Percentage (participant group)
Males	7	46.7%	8	53.3%
Females	13	39.4%	20	60.6%
Total	20	41.7%	28	58.3%

\*ANR--agriculture and natural resources

TABLE 10

**Enrollment/Major Preference (March 1, 1986) of  
1985 Junior MAP Participants**

Participant Group	ANR* Major Preference		Non-ANR Major Preference	
	Number	Percentage (participant group)	Number	Percentage (participant group)
Males	3	33.3%	6	66.7%
Females	18	48.6%	19	51.4%
Total	21	45.6%	25	54.4%

\*ANR--agriculture and natural resources

TABLE 11

Enrollment/Major Preference (March 1, 1986) of  
All 1985 MAP Participants

Participant Group	ANR* Major Preference		Non-ANR Major Preference	
	Number	Percentage (participant group)	Number	Percentage (participant group)
Males	10	41.7%	14	58.3%
Females	31	44.3%	39	55.7%
Total	41	43.6%	53	56.4%

\*ANR--Agriculture and Natural Resources

Tables 9, 10, and 11 show the major enrollment status of the students who were in the 1985 Minority Apprenticeship Program group, as of March 1, 1986. Forty-seven percent of the senior male participants, thirty-three percents of the junior male participants, and forty-two percent of all male participants either were enrolled at Michigan State University with a major preference in agriculture and natural resources or were going to enter Michigan State University Fall term 1986 with a major preference in agriculture and natural resources. Similar results were recorded for female participants.

Table 12, Figure 1, and Figure 2 indicate the status of the 178 1985 Minority Apprenticeship Program Participants and Alternates as of February 15, 1985. Such status was determined for 90 percent of the participants and 85 percent of the alternates. Those

not accounted for were randomly distributed in the population by year in school, sex, and MAP group.

Table 12

**Enrollment and Major Preference Status of 1985 MAP  
Participants and Alternates as of  
February 15, 1985**

Participant Group	College Aspirations				Major Preference			
	Yes		No		ANR*		Non-ANR	
	Number	%	Number	%	Number	%	Number	%
Group 1**	(group)		(group)		(group)		(group)	
Males	25	26.6%	0	0.0%	0	0.0%	25	26.6%
Females	68	72.3%	1	1.1%	2	2.1%	67	71.3%
Combined	93	98.9%	1	1.1%	2	2.1%	92	97.9%
Group 2***								
Males	26	31.0%	2	2.3%	0	0.0%	28	33.3%
Females	56	66.7%	0	0.0%	1	1.2%	55	65.5%
Combined	82	97.7%	2	2.3%	1	1.2%	83	98.8%
Group 1 & Group 2****								
Males	51	28.6%	2	1.1%	0	0.0%	53	29.8%
Females	124	69.7%	1	.6%	3	1.7%	122	68.5%
Combined	175	98.3%	3	1.7%	3	1.7%	175	98.3%

\* ANR-Agriculture and Natural Resources

\*\* Group 1-Those students selected as 1985 MAP Participants

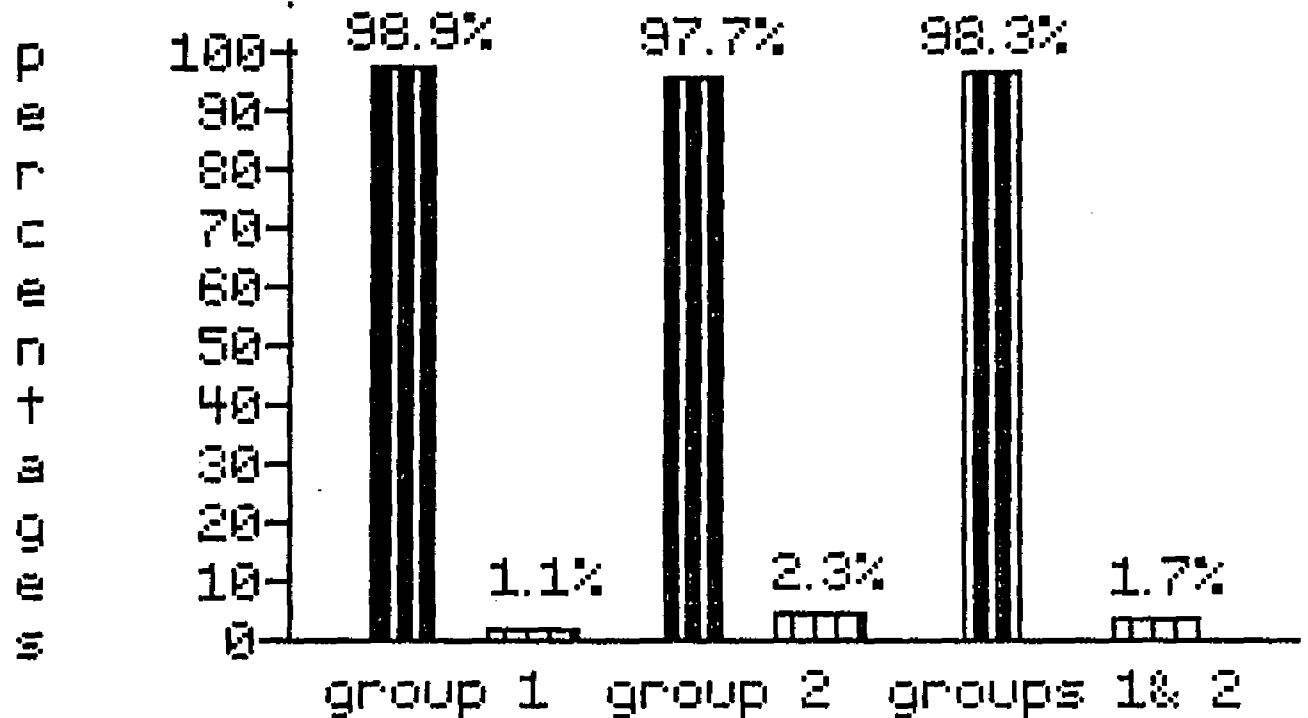
\*\*\* Group 2-Those students interviewed, but chosen as Alternates

\*\*\*\* All students interviewed for 1985 MAP Program

Table 12, Figure 1, and Figure 2 show that ninety-nine percent of the students who were in the Participant Group had college aspirations and ninety-eight percent of the Alternate Group also had college aspirations. They also indicate that less than two percent of either group had chosen a major preference in agriculture and natural resources prior to the beginning of the 1985 Minority Apprenticeship

Figure 1

College Aspirations of Students Interviewed for  
the 1985 MAP Program



group 1-1985 MAP Participant Group

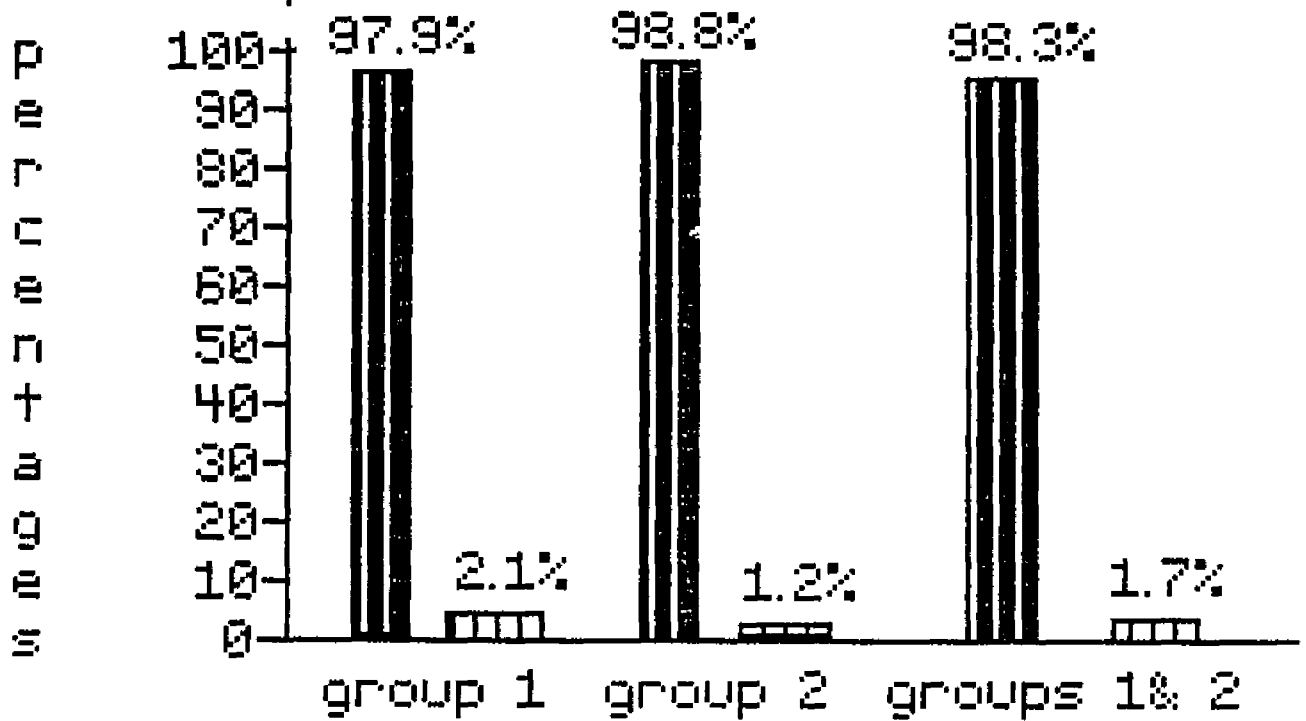
group 2-1985 MAP Alternate Group

■ students with college aspirations

□ students without college aspirations

Figure 2

Major Preference Choice of Students Interviewed for  
the 1985 MAP Program, as of March 1985



group 1-1985 MAP Participant Group

group 2-1985 MAP Alternate Group

▨ students with non-ANR major Pref.

■ students ANR major Pref.

Program. Figures 1 & 2 graphically show that both the Participant Group and Alternate Group are similar.

This continued refinement process resulted in the identification of 175 students who: (1) interviewed for the 1985 Minority Apprenticeship Program, (2) either attended a post-secondary school or had intentions of attending a post-secondary school upon completion of high school in September 1985 or 1986, and (3) did not have a major preference in agriculture and natural resources prior to summer 1985. (see Table 17)

Two follow-up letters were sent at the beginning of September in the process of refining the population. Copies of the survey instrument and the letters are Appendices VIII-X of this report. Telephone calls were also used as a part of the follow-up procedures. This was to insure better validity and more accuracy of the data.

#### Procedures for Treatment of the Data

The classification of research data falls into four categories: nominal, ordinal, interval, and ratio. The category and population variables dictate the general group of analytical tools to be used to analyze the data.

Data in this research study are nominal and ordinal in nature and, thus, call for the use of descriptive statistics.

The personal information included year in school, sex, high school attendance, ethnic background, and city of residence. The educational history included class rank, Grade Point Average, major preference, college/university choice, post-secondary aspirations, and career interest. These items were analyzed with the descriptive statements and the corresponding frequencies and percentages. An example of one such item could be: "The majority of 1985 Senior MAP participants definitely decided to attend Michigan State University Fall Term as 80 percent of the respondents enrolled for the 1985 Fall Term."

Chi-square analysis was used to look into the relationships between the backgrounds and educational history of MAP applicants chosen to participate in the program and those of MAP applicants placed in the alternate group. Independent variables such as year in school, high school, sex, and post-secondary plans were employed in this analysis. The chi-square analysis would determine if any relationship exists between the high school attended and the sexual composition of the MAP program; the academic performance of the applicants and their post-secondary ambitions; and ethnic

background composition and high school attended. This analysis was necessary to assure that the MAP Participant Group and the MAP Alternate Group were composed of students with very similar backgrounds and experiences so as not to bias the results of this study.

### Summary

This section of the study sets forth the research procedures used by the researcher. The chapter is divided into seven sub-sections. These are: (1) Introduction, (2) Selection of the Population, (3) Development and Refinement of the Instrument, (4) Establishing Procedures for the Collection of Data, (5) Collection of Data, (6) Procedures for the Analysis of Data, and (7) Summary. A survey was developed and used which primarily sought to gather personal, educational, and post-secondary interests towards entering agriculture in college (See Appendix XI). These data were classified as primarily second order or ordinal. Thus, the statistical tools used were descriptive. Percentages, frequencies, and chi-square were used most often.



## Chapter Four

### PRESENTATION AND ANALYSIS OF DATA

This chapter presents the results of the study in terms of responses to questions which were asked the students in the sample, records on enrollment from the Michigan State University Admissions Office, and records on major preference changes from the Michigan State University College of Agriculture and Natural Resources. The responses of Minority Apprenticeship Program participants are analyzed and compared to the responses of Minority Apprenticeship Program alternates to determine their post-secondary enrollment status and major preference choice. Emphasis is given to their major preference prior to the summer of 1985; their major preference upon entering college in the Fall of 1985; their major preference prior to the beginning of Spring term 1986; or their major preference upon entering college in the Fall of 1986.

For clarity, the chapter is divided into two sections. These are:

- A. Minority Apprenticeship Program Participant Group Compared With Minority Apprenticeship Program Alternate Group
- B. Analysis of Data

Those persons who were interviewed as possible Minority Apprenticeship Program participants for the 1985 Summer MAP Program constituted the source of the respondents. Those persons who were in the group to be interviewed but were going to select a major preference in Agriculture and Natural Resources prior to being interviewed were included in the study, as well as those students selected to participate in MAP and did not finish the program. A response was obtained from 95 percent of those qualified for the study.

MAP Participant Group Compared With  
MAP Alternate Group

The purpose of this section is to compare students in the sample who were selected and participated in the 1985 MAP program with those students in the sample who were placed in the Alternate Group. The comparison will be made on the basis of Grade Point Average, High School Attended, Sex, Year in School, and Ethnic Background. It will provide some indication of the similarity or differences between the MAP Participants and the MAP Alternates for the 1985 MAP Program. The results of the selection committee are found in Appendix XII.

The results are presented statistically in terms of whether or not the differences are significant. The

Chi-Square Statistic was used to determine significance.

Table 13 shows student status on High School Grade Point Average. The High School Grade Point Average is based on overall Grade Point Average of the student in all subjects taken during their entire high school career. It is used as an indicator of the student's academic efforts while in high school. No significant differences at the .05 level were found between the MAP Participant Group and the MAP Alternate Group.

The MAP Participant Group and MAP Alternate Group were compared on the basis of school background.

Table 13

High School Grade Point Averages of MAP Applicants  
Interviewed for the 1985 MAP Program as of  
February 15, 1985

Participant Group	Number	Percentage	
		Group	Total
Group 1*			
3.50>	16	17.0%	9.0%
3.25-3.49	11	11.7%	6.2%
3.00-3.24	28	29.8%	15.7%
2.75-2.99	24	25.5%	13.5%
<2.75	15	16.0%	8.4%
Group 1 Total	94		
Group 2**			
3.50>	10	11.9%	5.6%
3.25-3.49	17	20.2%	9.6%
3.00-3.24	16	19.0%	9.0%
2.75-2.99	20	23.8%	11.2%
<2.75	21	25.0%	11.8%
Group 2 Total	84		

\* Group 1-1985 MAP Participant Group

\*\* Group 2-1985 MAP Alternate Group

Table 14 indicates that the proportion of MAP Participants and the proportion of MAP Alternates with similar high school backgrounds was relatively constant.

Table 14

High School Backgrounds of the MAP Participants  
and MAP Alternates for the 1985  
MAP Program

Participants Community	Participant Group			Alternate Group		
	Number	Frequency	Total**	Number	Frequency	Total
Adrian, MI	3	.03	.02	1	.01	.01
Ann Arbor, MI	4	.04	.02	9	.11	.05
Battle Creek, MI	5	.05	.03	2	.02	.01
Benton Harbor, MI	2	.02	.01	0	.00	.00
Charlotte, MI	0	.00	.00	1	.01	.01
Covert, MI	0	.00	.00	1	.01	.01
Detroit, MI	46	.49	.26	30	.36	.17
East Lansing, MI	5	.05	.03	1	.01	.01
East St. Louis, ILL	8	.08	.04	16	.19	.09
Eaton Rapids, MI	0	.00	.00	1	.01	.01
Grant, MI	1	.01	.01	2	.02	.01
Highland Park, MI	1	.01	.01	1	.01	.01
Lansing, MI	4	.04	.02	4	.05	.02
Marshall, MI	0	.00	.00	1	.01	.01
Muskegon, MI	5	.05	.03	7	.08	.04
Muskegon Heights, MI	3	.03	.02	0	.00	.00
Newago, MI	0	.00	.00	1	.01	.01
Oak Park, MI	0	.00	.00	1	.01	.01
Pontiac, MI	5	.05	.03	2	.02	.01
Portage, MI	0	.00	.00	1	.01	.01
Saginaw, MI	0	.00	.00	1	.01	.01
Wood River, ILL	1	.01	.01	0	.00	.00
Ypsilanti, MI	1	.01	.01	2	.02	.01

\* Group--Frequency of students from each community within either the 1985 MAP Participant Group or the Alternate Group compared to total group population

\*\* Total--Frequency of students from each community within either the 1985 MAP Participant Group or the Alternate Group compared to total population of students interviewed

The percentage of male and females students in the MAP Participant Group and MAP Alternate Group is shown

in Table 15. The percentage of males to females was relatively constant for both groups.

Table 15

Sex of MAP Applicants Interviewed for the 1985 MAP Program

Participant Group	Number	Percentage	
		Group*	Total**
Group 1***			
Males	25	26.6%	14.0%
Females	69	73.4%	38.8%
Group 2****			
Males	28	33.3%	15.7%
Females	56	67.7%	31.5%

\* Group-Percentage of males and females within either the 1985 MAP Participant or Alternate Group

\*\* Total-Percentage of males and females within either the 1985 MAP Participant or Alternate Group as compared to total population of students select interviewed

\*\*\* Group 1-1985 MAP Participant Group

\*\*\*\* Group 2-1985 MAP Alternate Group

The percentage of black and non-black minority groups in the MAP Participant Group and MAP Alternate Group is shown in Table 16. The percentage of black to non-black minority groups was relatively constant for both groups.

Table 16

**Ethnic Background of the MAP Applicants Interviewed  
for the 1985 MAP Program**

Participant Group	Number	Percentage Group* Total**	
Group 1***			
Black	80	85.1%	44.9%
Hispanic/Chicano	9	9.7%	5.0%
American Asian	1	1.1%	.6%
Other	4	4.3%	2.2%
Group 2****			
Black	69	82.1%	38.8%
Hispanic/Chicano	13	15.4%	7.3%
American Asian	0	0.0%	0.0%
Other	2	2.4%	1.1%

\* Group-Percentage of students from each ethnic group within either the Participant or Alternate Group compared to the group total

\*\* Total-Percentage of students from each ethnic group within either the Participant or Alternate Group compared to the total population of students interviewed

\*\*\* Group 1-1985 MAP Participant Group

\*\*\*\* Group 2-1985 MAP ALternate Group

**SUMMARY**

This section indicates that there was no significant difference between the MAP Participant Group and comparable students in the MAP Alternate Group when they were compared on the basis of Grade Point Average, High School background, sex, and ethnic background. This indicates that the two groups are similar and any differences in major preference and

enrollment was not due to the composition of either the MAP Participant Group or the MAP Alternate Group.

### ANALYSIS OF DATA

This section presents the results of the study in terms of responses to questions which were asked the students in the sample; enrollment information from Michigan State University; and major change information from the College of Agriculture and Natural Resources. The data of MAP Participants was analyzed and compared to the data of MAP Alternates to identify the enrollment and major preference status of the students studied. Emphasis is given to their choice of a major upon their enrollment at Michigan State University for Fall Term 1986 or their major choice as of March 1, 1986.

Responses were received from 95 percent of the students contacted. One hundred percent of the 94 students classified as MAP Participants responded as compared to 98 percent of the students classified as MAP Alternates.

### Characteristics of the Students Studied

Table 17 indicates the major preference/career choice of the MAP applicants at the time of the first

interview in February and April of 1985. Two percent of the MAP applicants in the MAP Participant Group indicated they planned to major or have a career in agriculture and natural resources as compared to one percent of the MAP Alternate Group. The difference was not significant, however.

Table 17 indicates that males in the MAP Participant Group were not significantly different from males in the MAP Alternate Group when compared on their major preference/career choice prior to the MAP program experience. Females in both groups reported considerably more interest in a major/career in agriculture and natural resources as compared with males from their respective group, during the initial interview.

The ethnic backgrounds of the students in both the MAP Participant Group and the MAP Alternate Group and their major preference/career choice at the time of the first interview in February and April of 1985 were reported in Table 17. When blacks were compared with other ethnic groups there was no significant difference in the selection of a major/career choice in either the MAP Participant Group or the MAP Alternate Group.



Table 17

**Major/Career Preference of 1985 MAP Applicants  
as of February 15, 1985**

Participant Group	ANR* Number	Major/Career Percentage		Non-ANR Number	Major/Career Percentage	
Group 1**		Group	Total		Group	Total
<b>Males</b>						
Black	0	0.0%	0.0%	16	17.0%	9.0%
Hispanic/Chicano	0	0.0%	0.0%	7	7.4%	7.4%
American Asian	0	0.0%	0.0%	0	0.0%	0.0%
Other	0	0.0%	0.0%	2	2.1%	1.1%
<b>Females</b>						
Black	2	2.1%	1.1%	62	70.0%	34.8%
Hispanic/Chicano	0	0.0%	0.0%	2	2.1%	1.1%
American Asian	0	0.0%	0.0%	1	1.1%	.6%
Other	0	0.0%	0.0%	2	2.1%	1.1%
<b>Males &amp; Females</b>	<b>2</b>	<b>2.1%</b>	<b>1.1%</b>	<b>94</b>	<b>97.9%</b>	<b>52.8%</b>
<b>Group 2***</b>						
<b>Males</b>						
Black	0	0.0%	0.0%	17	20.2%	9.6%
Hispanic/Chicano	0	0.0%	0.0%	9	10.7%	5.0%
American Asian	0	0.0%	0.0%	0	0.0%	0.0%
Other	0	0.0%	0.0%	2	2.4%	1.1%
<b>Females</b>						
Black	1	1.2%	.6%	51	60.7%	28.6%
Hispanic/Chicano	0	0.0%	0.0%	4	4.8%	2.2%
American Asian	0	0.0%	0.0%	0	0.0%	0.0%
Other	0	0.0%	0.0%	0	0.0%	0.0%
<b>Males &amp; Females</b>	<b>1</b>	<b>1.2%</b>	<b>.6%</b>	<b>83</b>	<b>98.8%</b>	<b>46.6%</b>
<b>Group 1 &amp; Group 2</b>	<b>3</b>		<b>1.7%</b>	<b>175</b>		<b>98.3%</b>

\* ANR-Agriculture and Natural Resources

\*\* Group 1-1985 MAP Participant Group

\*\*\* Group 2-1985 MAP ALternate Group

During the 1980's, there had been a great deal of concern about the decrease in minority students attending college. Some people believed that minority students lacked the funds or had so little hope in

achieving success, even with a college education, that they simply did not go to college. Further, many people questioned the type of student that could be attracted to an agricultural program. Students interviewed for the 1985 Minority Apprenticeship Program were asked about their post-secondary ambitions. Both the MAP Participant Group and the MAP Alternate Group indicated a strong commitment to attend college after graduation from high school. Table 18 represents the response of each group.

Table 18

Post-Secondary Ambitions of the Students Selected for  
Interviewing for the 1985 MAP Program

Participant Group	Number	Percentage	
		Group	Total
Group 1*			
Attend College	93	98.9%	52.2%
Non-College	1	1.1%	.6%
Group 2*			
Attend College	82	97.7%	46.1%
Non-College	2	2.3%	1.1%
Group 1 & Group 2			
Attend College	175		98.3%
Non-College	3		1.7%

\* Group 1-1985 MAP Participant Group

\*\* Group 2-1985 MAP Alternate Group

Two of the hypotheses tested in this study were that minority students who participated in the Minority Apprenticeship Program were more likely to attend Michigan State University and enroll with a major

preference in agriculture and natural resources than minority students with similar backgrounds but do not participate in the Minority Apprenticeship Program. Tables 19 and 20 show the major preferences of the Junior and senior students in both the MAP Participant and MAP Alternate groups for the 1985 program. As indicated in these two tables there was a major difference between the two groups of Junior and senior students.

Table 19

Enrollment/Major Preference of the Seniors in the 1985  
MAP Participant Group and the MAP Alternate Group,  
as of March 1, 1986\*

Participant Group	Number	Percentage Group
Group 1**		
ANR Major***	18	39.1%
Non-ANR Major****	28	60.9%
Group 2*****		
ANR Major	0	0.0%
Non-ANR Major	52	100.0%

\* Information based on the 175 MAP Participant and Alternate Group members who had indicated a major choice other than agriculture and natural resources at the time MAP interviews (February 1985). See Table 12

\*\* Group 1-1985 MAP Participant Group

\*\*\* ANR Major-any of the sixteen majors offered by the College of Agriculture and Natural Resources, Pre-Vet, or Agricultural Engineering

\*\*\*\* Non-ANR Major-any major outside the College of Agriculture and Natural Resources

\*\*\*\*\* Group 2-1985 MAP Alternate Group

Thirty-nine percent of the seniors in the MAP Participant Group either enrolled in one of the majors in the College of Agriculture and Natural Resources prior to the beginning of Fall Term 1985 or changed their major before March 1, 1986 after completing the 1985 MAP Program as compared to zero percent of the seniors in the MAP Alternate Group. Table 19 presents the enrollment information. This comparison indicates a major difference between the two groups.

Table 20  
Enrollment/Major Preference of the Juniors in the 1985  
MAP Participant Group and the MAP Alternate Group,  
as of March 1, 1986

Participant Group	Number	Percentage Group
Group 1*		
ANR Major**	21	45.6%
Non-ANR Major***	25	54.4%
Group 2****		
ANR Major	0	0.0%
Non-ANR Major	31	100.0%

\* Group 1-1985 MAP Participant Group

\*\* ANR Major-any of the sixteen majors offered by the College of Agriculture and Natural Resources, Pre-Vet, or Agricultural Engineering

\*\*\* Non-ANR Major-any major outside the the College of Agriculture and Natural Resources

\*\*\*\* Group 2-1985 MAP Alternate Group

Forty-six percent of the Juniors in the MAP Participant Group enrolled in a major in the College of Agriculture and Natural Resources when applying for

admissions for Fall Term, 1986 after completing the 1985 MAP program compared to zero percent of the Juniors in the MAP Alternate Group. The percentages are shown in Table 20. This comparison indicates a major difference between the two groups.

## Chapter Five

### SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This has been a study to determine the potential impact of the Minority Apprenticeship Program (MAP) on the enrollment and choice of a major preference in agriculture and natural resources of students who were interviewed for the 1985 Minority Apprenticeship Program (MAP). The review of literature revealed what had been the level of participation of minorities in the agricultural and natural resources industry; the level of participation of minorities in college and university agricultural and natural resource programs; what had been done by the colleges and universities to increase enrollments of minorities with a major preference in agriculture and natural resources; and what was currently being done by colleges and universities to increase minority enrollments with a major preference in agriculture and natural resources. Specific purposes of the study were to compare minority students who were 1985 MAP Participants with minority students who were 1985 MAP Alternates, on the basis of: (1) personal characteristics, including (a) their academic achievements (Grade Point Averages); (b) their community backgrounds; (c) their post-secondary aspirations; (d) their ethnic background; (e) their

sex; and (f) their year in school and (2) their selection of a major preference/career upon entering college. The comparisons were made to determine whether any significant differences existed between the members of the 1985 MAP Participant Group and members of the 1985 MAP Alternate Group.

This chapter will provide a summary of the data collected, as well as the conclusions and implications.

Summary of What Had Been the Level of Participation of Minorities in the Agricultural and Natural Resources Industry

The following statements summarize the level of participation of minorities in the agricultural and natural resources industry:

(1) Historically, minorities had always been a part of the agricultural and natural resources industry, but on a low level. Blacks, Hispanics, and American Indians traditionally worked with the land, but had always been underrepresented in college agricultural programs resulting in low representation in professional positions in the agricultural industry. This trend had been national and across the entire agricultural industry.

(2) In the early 1980's, minorities composed less

than five percent of the total professional work force in agriculture and natural resources.

(3) Few minority agricultural and natural resource professors were in the Land-Grant System in the 1980's.

(4) In 1985, only three members of the Michigan State University, College of Agriculture and Natural Resources staff were black.

Summary of What Had Been the Level of Participation of Minorities in College and University Agriculture and Natural Resource Programs

The following statements summarize the level of participation of minorities in college and university agriculture and natural resource programs:

- (1) From 1862 to 1890, minorities were not active participants in the 1862 college and university agriculture and natural resource programs, except in rare cases.
- (2) In 1890 the second Morrill Act was passed, thus allowing a small percentage of minorities to become a part of college agriculture and natural resource programs.
- (3) Minority enrollment in the 1862 Land-Grant System was less than two percent of the



agricultural and natural resource students,  
as of 1980.

- (4) Total enrollment of minorities in agricultural and natural resource programs in all colleges in 1980 was less than three percent.

Summary of the Efforts Colleges and Universities Had Made to Increase the Enrollments of Minorities With a Major Preference in Agriculture and Natural Resources

The following statements summarize the efforts colleges and universities had made to increase the enrollments of minorities with a major preference in agriculture and natural resources:

The literature review found no efforts directly aimed at increasing enrollments of minorities with major preferences in agriculture and natural resources had been made, as of 1985.

Summary of Current Efforts of Colleges and Universities to Increase Minority Enrollments With a Major Preference in Agriculture and Natural Resources

The following statements summarize the current efforts (1985) of colleges and universities in increasing minority enrollments with a major preference in agriculture and natural resources:

- (1) Michigan State University had developed the Minority Apprenticeship Program (MAP) in 1982

and it was still being sponsored by the College of Agriculture and Natural Resources in 1985.

- (2) The literature review did not reveal any other significant efforts to recruit minorities into agriculture and natural resources.

#### Summary of Personal Characteristics

The following statements summarize the personal characteristics of the students in the sample:

- (1) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their academic performance (Grade Point Average).
- (2) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their community backgrounds.
- (3) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their post-secondary goals.
- (4) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their ethnic backgrounds.
- (5) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their sex.

- (6) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their year in school.

Summary of Selection of a Major Preference/Career

The students were monitored to determine their major preference/career on March 15, 1986. Significant differences were found between the members of the MAP Participant Group and members of the MAP Alternate Group with respect to their major preference/career choice. The following statements summarize the major preference/career choice of the students.

- (1) MAP Participant Group members did not differ significantly from MAP Alternate Group members with respect to their major preference choice prior to the interview in February-April 1985.
- (2) After participation in the 1985 MAP Program, the members of the MAP Participant Group differed significantly from members of the MAP Alternate Group in the following ways:
- (a) Forty-two percent of the males in the MAP Participant Group enrolled with a major preference in agriculture and natural resources compared to 0 % of the males in the MAP Alternate Group;
  - (b) Forty-four percent of the females in the

MAP Participant Group enrolled with a major preference in agriculture and natural resources compared to 0 % of the females in the MAP Alternate Group;

(c) Forty-two percent of the seniors in the MAP Participant Group enrolled with a major preference in agriculture and natural resources compared to 0 % of the seniors in the MAP Alternate Group;

(d) Forty-six percent of the Juniors in the MAP Participant Group enrolled with a major preference in agriculture and natural resources compared to 0 % of the Juniors in the MAP Alternate Group;

(e) Forty-four percent of all groups in the MAP Participant Group enrolled with a major preference in agriculture and natural resources compared to 0 % of the total MAP Alternate Group.

### CONCLUSIONS

Three hypotheses, as stated on pages 22 and 23, provided the basis for this study. The conclusions were drawn from the findings as they related to the hypotheses.

### Conclusions Relative to Hypothesis Number One

Hypothesis Number 1 stated that "For either secondary male or female senior students, there is a significant difference between the percentage of MAP participants and percentage of those interviewed, but who did not participate in MAP, in their enrollment at Michigan State University with a major preference in the College of Agriculture and Natural Resources."

This hypothesis was to be accepted and regarded as true if the percentage of male and female senior MAP participants who enrolled at Michigan State University with a major preference in the College of Agriculture and Natural Resources was significantly greater than those interviewed but not selected (Alternate Group). In both the male and female groups, senior MAP participants enrolled in significantly greater numbers than senior students interviewed but not selected. Therefore, Hypothesis Number One was accepted.

### Conclusions Relative to Hypothesis Number Two

Hypothesis Number Two stated that "Senior students interviewed for MAP and selected attend a post-secondary institution more frequently than those interviewed but not selected (Alternate Group)."

Data to test this hypothesis was taken from Michigan State University records, College of

Agriculture and Natural Resources Office of Academic and Student Affairs, and personal contact with students.

No significant differences were found between the two groups of students. Therefore the hypothesis was rejected and the null accepted.

### Conclusions Relative to Hypothesis Number Three

Hypothesis Number Three stated that "For either secondary male or female students, there was a significant difference between the percentage of MAP participants and the percentage of those interviewed, but who did not participate in MAP (Alternate Group), in their choice of Michigan State University as the university they will attend in the Fall of 1986 with a major preference in the College of Agriculture and Natural Resources."

The hypothesis was to be accepted and regarded as true if the percentage of Junior male and female students, who participated in the 1985 MAP program, enrolled in Michigan State University with a major preference in agriculture and natural resource was significantly larger than the percentage of those students who interviewed but were not selected for the 1985 MAP. For both Junior males and Junior females, who were participants in the 1985 MAP Program,

enrollments were significantly higher than enrollments for Junior males and Junior females, who were interviewed but not selected. Therefore, Hypothesis Number Three was accepted.

#### IMPLICATIONS OF THE STUDY

Several implications resulted from the study and are listed as follows:

1. Historically, minorities have never participated in either the agriculture and natural resources industry or in educational programs on an acceptable level. Therefore, it would seem that if agricultural and natural resource concerns wish to increase minority participation in both the industry and the educational programs, there should be efforts made to attract, retain, and place highly competitive minorities at all levels of the agricultural and natural resource system.

This might be accomplished by making a concerted effort to make young minority students aware of opportunities in agriculture and natural resources; to change the image of agriculture and natural resources in the minority community; and to make opportunities available to young, highly competitive minorities to experience modern agriculture and natural resources.

2. In 1985, minority students were not enrolled in agricultural and natural resource programs at our colleges and universities in representative numbers. The Land-Grant System had less than five percent of its agricultural and natural resource enrollment coming from minorities. This would imply that minorities were not interested in pursuing careers in agriculture and natural resources. It also would imply that few minorities could enter the agricultural and natural resources industry simply because the trained professionals were not present at the colleges and universities. Therefore, it would seem that if the agricultural and natural resource industry were desirous of highly competitive minority employees, the colleges and universities should develop effective programs to recruit, retain, and place minority students with a major preference in agriculture and natural resources.

This could be accomplished by beginning to institute innovative and creative programs at colleges and universities. The Michigan State University, Minority Apprenticeship Program might serve as a model to begin this process.

3. The lack of published data suggests that in 1985 colleges and universities were not actively involved in the recruitment of minority students for



agriculture and natural resources programs. In view of this finding, it would appear that either the colleges and universities truly were not interested in attracting minorities in agriculture and natural resources or they did not have an effective means of doing so. In order to change the enrollment patterns of minority students in agriculture and natural resources, colleges and universities would need to begin to develop and implement effective recruitment efforts using the industry to assist in changing the perceptions of agricultural and natural resources careers.

4. The findings of this study suggests that highly competitive minority students, when given a chance, will participate in agricultural and natural resource programs. They are willing to take a long hard look at the careers available and listen to spokespersons from both the industry and the educational system, as well as work at pre-professional jobs.

5. The findings of this study suggest that the Minority Apprenticeship Program (MAP) is a possible model for use in the recruitment of highly competitive minorities into agriculture and natural resources. In 1985-86 over forty percent of MAP participants enrolled at Michigan State University, with a major preference in agriculture and natural resources. These results

indicate that MAP could serve as a blue print for other colleges of agriculture and natural to draw upon as they begin to develop their individual programs.

6. Additional studies need to be conducted to determine (a) The long range impact of MAP on its participants. The study could provide information concerning retention and placement of MAP participants after they have entered the agricultural and natural resources educational system. It could affirm the concept that making competitive minorities aware of agricultural and the career opportunities should be the initial step in a three pronged program designed to recruit, retain, and place minority students after graduation from agricultural and natural resources programs. (b) Which components of the Minority Apprenticeship Program influence the students to pursue agricultural and natural resource careers. This study could indentify the specific components that might be included in any program developed by other institutions. It would affirm the basic structure of the model as well as clarify what is unique to the MAP program at Michigan State University. (c) The impact MAP had on enrollment at Michigan State University and the College of Agriculture and Natural Resources. The study could validate the Minority Apprenticeship Program as an effective recruitment tool for both the

College of Agriculture and Natural Resources and Michigan State University. It could identify aspects of MAP that were beneficial to the college and university. (d) The impact MAP had on the agricultural and natural resource industry. Such a study would provide information to the industry concerning the development of competitive, professional minorities and the role they could play in the various fields of the industry; valuable information that would assist in the development of future professionals from programs across the nation; and identify effective means available to the agricultural and natural resources industry to secure minorities with agricultural and natural resource skills and interests, as well as the skills and abilities to become promotable professionals.

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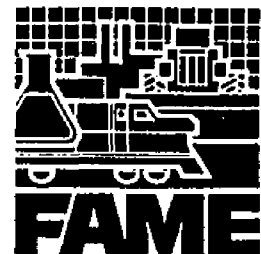
## APPENDICES

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## APPENDIX I

## APPENDIX I

### OVERVIEW OF THE FAME PROGRAM



FAME, as a pre-college engineering program, continues to prepare and motivate minority students in the Wilmington, Delaware area to enter and complete a baccalaureate of science program in engineering. Since its inception, over 100 students have graduated from the program with 75 percent entering colleges to pursue a technical career.

FAME has grown considerably since 1977. At that time it was a 6-week program with 69 middle school students participating. Today FAME involves 300 plus students in the 7th through 12th grades, 100 plus college students, 15 instructors, 20 sponsoring industries and 6 technical and community groups.

Along with the increasing numbers of people involved, there has been constant program enhancement. FAME provides an extremely comprehensive program that now includes not only school year activities but summer enrichment as well.

#### SCHOOL YEAR PROGRAMS

**Saturday Science Club** — an educational maintenance, extension and enrichment program offered the first and third Saturdays, October through May. This activity focuses on mathematics, science, computer science and communication skills. Participants are generally 7th through 11th grade students.

**Saturday Calculus Club** — a Saturday Calculus Program sponsored by the University of Delaware. This program is available every Saturday, October through May, for twelfth grade students.

**Test Awareness Program** — is offered on Saturdays for all students and aims to familiarize students with test taking techniques and procedures associated with standardized testing instruments such as the Scholastic Aptitude Test.

**Special Events and Programs** — Special events and programs are also offered throughout the year. The Job Readiness Training Program is an evening seminar designed to ease the transition from school to the working world for senior high school students who will be entering the summer employment phase. Older students are used as peer counselors and role models to prepare younger students for more demanding phases of the program, i.e., the on-campus programs at the University of Delaware.

**Tutorial Programs** — with the corps of tutors being engineers and professionals from the supporting corporations who have an interest in working with minority students. The academic areas that they are most often requested for include chemistry, physics, algebra, trigonometry and calculus.

#### SUMMER ENRICHMENT PROGRAMS

**7th-10th Grade Summer Engineering Enrichment Program** — is modeled closely after the first six week summer program administered by FAME in June, 1977. The first half of the day is devoted to mathematics, science, computer science and communication skills. The second half of the day focuses on industrial and cultural tours for seventh and eighth graders. For ninth and tenth graders the afternoon consists of working on engineering projects.

**11th Grade On-Campus Program, University of Delaware** — offers participants their first opportunity to experience campus life. This six week program offers coursework in Algebra II/Pre-Calculus/Geometry and Chemistry.

**12th Grade Residential Program, University of Delaware** — provides students with the opportunity to enroll in two college level courses — one in precalculus or calculus and one in physics. The program is six weeks in length.

**Pre-Freshman Summer Employment** — Those FAME students who have graduated from high school and have been accepted into college move into the final phase of the program: summer employment. Pre-freshmen students are offered the opportunity to work at one of the supporting corporations for a 6-8 week period.

**Off-To-College Nights** — for those pre-freshmen students who learn about graduate education, insurance, personal finance and budgeting, study skills and assertiveness training. The series of meetings takes place one evening a week during the summer.

FAME looks forward to continued success in its effort to increase the number of minorities represented in the engineering professions.

## APPENDIX II

## APPENDIX II

BIOGRAPHIES OF MEMBERS OF 1985  
MINORITY APPRENTICESHIP BOARD OF DIRECTORSMINORITY APPRENTICESHIP PROGRAM  
BOARD OF DIRECTORSPresident

Ben F. Walraven  
PPG Industries, Inc.  
One Gateway Center  
Pittsburg, PA 15272

Claude Davis  
Farm Credit Services  
375 Jackson Street  
St. Paul, MN 55101

Vice-President

Rod Braye  
Manager  
Beatrice Foods  
55 East Monroe  
Chicago, ILL 60603

Ms Bronwen Kelly  
Manager, Personnel  
American Cyanamid Co.  
Agricultural Division  
One Cyanamid Plaza  
Wayne, NJ 07470

Gene Ayton  
Mead Corporation  
World Headquarters  
Courthouse Plaza Northeast  
Dayton, Ohio 45463

Tom Black\*  
Human Resource Manager  
Weyerhaeuser Co.  
P.O. Box 1064  
Warren, MI 48090

Richard D. Locke  
Regional Marketing Manager  
E.I. DuPont De Nemours & Co.  
Agricultural Chemicals Dept  
5725 East River Road  
Chicago, Ill 60631

Ms Carol Boyles\*  
Human Resource Manager  
Pillsbury, Edible Bean Div.  
Saginaw, MI

David C. Ambrose  
Field Sales Manager  
General Mills, Inc  
30600 Telegraph Road  
Suite 2250  
Birmingham, MI 48010

Ms Becky Carden  
Manager/Quality Control  
Kraft, Inc.  
Kraft Court  
Glenview, ILL 60025

Mr. Paul Ludwig\*  
Director Education  
DOW Chemical  
Midland, MI

Ted Morris\*  
Teacher  
School District #189  
East St. Louis, Ill

\*members of 1985 MAP Selection Committee

### APPENDIX III

## MICHIGAN STATE UNIVERSITY . APPENDIX III

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES  
OFFICE OF ACADEMIC AND STUDENT AFFAIRS · AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824-1039

LETTER SENT TO STUDENTS SELECTED FOR  
INTERVIEWS FOR THE 1985 MAP PROGRAM

February 18, 1985

John Doe  
121 Farm Lane  
East Lansing, MI 48823

Dear John :

I want to first let you know how excited we are about the Summer of "85" MAP Program. At this time, we are anticipating 100 students coming to MSU and being a part of this years program. Some of the finest young people in the Mid-West have applied for the program. I am proud to say that you are one of this select group of high school juniors and seniors.

I want to let you know that the selection process will begin March 1st. At that time, our selection committee will be contacting you. Between now and then I will be calling and writing to you in an attempt to answer any questions you might have.

Please feel free to write or call me at any time. Once again, I am excited about you and your interest in our program. I believe that it takes students like you to make MAP a success.

Sincerely,



Don Wallace  
Minority Programs



#### APPENDIX IV

## APPENDIX IV

FORM USED WHEN CONDUCTING  
Date \_\_\_\_\_ INTERVIEWS FOR THE 1985 MAP PROGRAM

## STUDENT INFORMATION SHEET

Student being Interviewed \_\_\_\_\_  
Attending College Yes \_\_\_\_\_ No \_\_\_\_\_ ANR Major Yes \_\_\_\_\_ No \_\_\_\_\_

Please check all of the following that you would feel comfortable doing:

_____ work outdoors	_____ work in doors
_____ work with plants	_____ work with animals
_____ work in a laboratory	_____ work on written reports
_____ travel	_____ work with a professor
_____ work on a computer	_____ do office type work
_____ dress casual	_____ dress as a professional
_____ explore the unknown	

Please check all careers or majors that interest you:

_____ engineering	_____ medicine	_____ communications
_____ business	_____ management	_____ lawyer
_____ decision maker	_____ sales	_____ advertizing
_____ government	_____ genetics	_____ research
_____ chemistry	_____ computer science	_____ executive
_____ agriculture	_____ forestry	_____ animal science
_____ plant science	_____ don't know	

Do you have any limitations that would hinder student from doing certain types of jobs? (such as allergies, glasses, physical handicap, etc.)

\_\_\_\_\_ yes \_\_\_\_\_ no

Please detail any specific type of experience student would like to receive in the space below :

Indicate student leadership activities and skills:

## APPENDIX V

## MICHIGAN STATE UNIVERSITY

## APPENDIX V

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES  
OFFICE OF ACADEMIC AND STUDENT AFFAIRS • AGRICULTURE HALL

EAST LANSING • MICHIGAN • 48824-1039

LETTER SENT OFFERING POSITION TO STUDENTS  
SELECTED AS 1985 MAP PARTICIPANTS

May 19, 1985

John Doe  
121 Farm Lane  
East Lansing, MI 48823

Dear John:

Congratulations on being selected as a participant for the 1985 Minority Apprenticeship Program. As the Director of the MAP program, I am officially extending you an invitation to participate in the 1985 MAP program. As a MAP member you will be part of one the nation's most outstanding programs for high school students.

During the next two weeks our staff will be obtaining detailed job descriptions and will contact you concerning the type of positions that will be available to you. You will also begin receiving additional information concerning the entire program, as well as forms to be filled out and returned.

Please sign the enclosed card and return it to my office no later than May 30th. If you do not return the card, I will assume you can not participate in the program and will replace you with another student.

Once again congratulations and I hope you are as excited about this summer as we are.

Sincerely,



Bob LaPrad  
Director, MAP Program

CARD TO BE RETURNED BY THE STUDENTS  
SELECTED AS 1985 MAP PARTICIPANTS

11-3013



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY CARD**

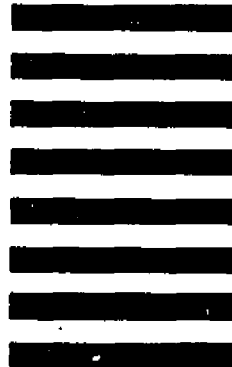
FIRST CLASS

PERMIT NO. 941

EAST LANSING, MI.

POSTAGE WILL BE PAID BY ADDRESSEE

Bob LaPrad, Placement Coordinator  
College of Agriculture and Natural Resources  
121 Agriculture Hall  
Michigan State University  
East Lansing, Michigan 48824-1039



I, \_\_\_\_\_ accept the  
position offered in the 1985 MAP  
Program.

## APPENDIX VI

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES  
OFFICE OF ACADEMIC AND STUDENT AFFAIRS · AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824-1039

LETTER SENT TO STUDENTS  
SELECTED AS 1985 MAP ALTERNATES

May 2, 1985

John Doe  
121 Farm Lane  
East Lansing, MI 48823

Dear John:

I would like to commend you on your outstanding high school record, both as a leader in the classroom as well as in the school. It has been a most difficult task to make the final choices for the 1985 MAP program. With over 150 applicants like yourself, it has been difficult identifying only 100 students for this summers program.

Because of the limitations of funds and overwhelming interest it is not possible to offer each student a chance to be in the MAP program. I regret that we will not be able to offer you a position at this time. We would like to keep your name on file and contact you prior to June 15th, if more positions open up.

Please return the card, if you are interested in being contacted should a position become available. I want you to know that you are the kind of student we are looking for and that this is in no way a reflection on your abilities.

Thank you for your interest and we wish you continued success in school.

Sincerely,



Bob LaPrad  
Director, MAP Program

CARD TO BE RETURNED BY THE STUDENTS  
SELECTED AS 1985 MAP ALTERNATES

11-3013



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY CARD**

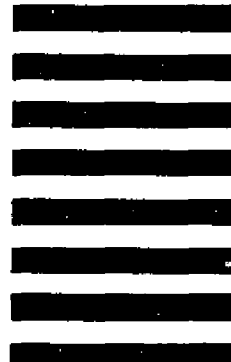
FIRST CLASS

PERMIT NO. 941

EAST LANSING, MI.

POSTAGE WILL BE PAID BY ADDRESSEE

Bob LaPrad, Placement Coordinator  
College of Agriculture and Natural Resources  
121 Agriculture Hall  
Michigan State University  
East Lansing, Michigan 48824-1039



I, \_\_\_\_\_ would like  
to be considered as an Alternate  
for the 1985 MAP Program.



APPENDIX VII

APPENDIX VII

COPY OF ONE OF THE JUNIOR MAP STUDENT PARTICIPANT  
LETTERS SENT TO VARIFY 1986 COLLEGE AND MAJOR  
PREFERENCE

September 17, 1985

—

Mr. Donald Wallace  
Minority Apprenticeship Program  
College of Agriculture and Natural  
Resources  
121 Agriculture Hall  
Campus

Dear Mr. Wallace:

My plans are to apply for admissions to Michigan State University this fall.  
I plan to major in Crop and Soil Sciences with a minor in Entomology.

Additionally, I am interested in employment during the summer of 1986. The  
jobs in forestry interested me that Mrs. Prutnam had to offer, but I would be  
willing to do any kind of work.

Sincerely yours,

Delbert Richburg

## APPENDIX VIII

APPENDIX VIII  
SURVEY GIVEN STUDENTS PRIOR TO PARTICIPATING IN THE  
MINORITY APPRENTICESHIP PROGRAM

1. Name \_\_\_\_\_
2. Birthdate \_\_\_\_\_
3. Social Sec. \_\_\_\_\_
4. Age \_\_\_\_\_
- 5a. What are/have you presently attending? \_\_\_\_\_
- b. What year graduated if not expected date of graduation? \_\_\_\_\_
6. Have you applied to college/university/junior college/technical school?  
yes \_\_\_\_\_ no \_\_\_\_\_
7. If planning to attend the forementioned institutions please list the schools you have applied to.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. List the colleges/junior colleges/technical schools/universities you have been accepted to.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. If not attending the forementioned institutions, what are your career plans?  
\_\_\_\_\_  
\_\_\_\_\_
- 10a. What is the highest level of education attained by parents?
  - a. grammar school
  - b. high school
  - c. vocational school
  - d. junior college
  - e. university
- b. What occupation do your parent/parents previously hold? \_\_\_\_\_  
\_\_\_\_\_

For Questions 11-15, circle the most appropriate responses.

11. When did you make the decision to attend college?

1. I have always planned to attend college
2. Before the seventh grade
3. Eighth or ninth grade
4. Tenth or eleventh
5. Twelfth
6. Don't remember when I made the decision

12. What is the highest degree you plan to obtain?

1. Associate Degree (2 year college)
2. Technical Certificate
3. Bachelor's
4. Masters
5. Doctoral
6. Professional (Lawyer, Doctor, Dentist)
7. I do not plan on getting a degree or certificate
8. other \_\_\_\_\_

13. What is your GPA you wish to obtain during your attendance at an educational institution?

1. 4.0-3.5
2. 3.0-2.5
3. 2.0-1.5
4. 1.0-0.0

14. How long do you think it will take you to complete the education you desire?

1. Less than 4 years
2. Four years
3. Five to six years
4. Seven to eight years
5. Nine years or more

15. Were you exposed to college information in school? Yes \_\_\_\_\_  
No \_\_\_\_\_ If yes, what grade?

- a. Before eighth and seventh grade
- b. Ninth and tenth grade
- c. Eleventh and twelfth grade
- d. No exposure

16. If exposed to career information, who presented it to you (circle more than one response.)

1. Guidance counselor
2. Parents
3. Teacher
4. Media
5. Friends
6. Media
7. Others, such as university representative

Using the key below for questions 16-47, please circle the most appropriate response.

How important were the following factors in influencing your decision to attend college? (Please circle appropriate responses).

	Very Important	Important	Slightly Important	Not Important
17. Guidance counselor	1	2	3	4
18. Friends	1	2	3	4
19. Parents	1	2	3	4
20. Teachers	1	2	3	4
21. Adult acquaintances	1	2	3	4
22. College recruiters	1	2	3	4
23. Minority Apprentice Agriculture Program	1	2	3	4
24. Financial aid	1	2	3	4

Of the following factors which influenced you the most in making a career decision? (Please rank appropriate responses).

	Very Important	Important	Slightly Important	Not Important
25. Guidance counselors	1	2	3	4
26. Parents	1	2	3	4
27. Friends	1	2	3	4
28. Minority Agriculture Program	1	2	3	4
29. Teachers	1	2	3	4
30. Counselors	1	2	3	4
31. Other _____	k	2	3	4

Of the following factors which were the most helpful to you in exposing you to agriculture? (Please rank the appropriate response).

	Very Important	Important	Slightly Important	Not Important
32. Workshops	1	2	3	4
33. Tours	1	2	3	4
34. Work site	1	2	3	4
35. Animal farm tours	1	2	3	4
36. Presentations by speakers	1	2	3	4

What is your best guess as to the chance you will do the following after participating in the Agriculture Summer Program? (Please rank your responses appropriately).

	Good Chance	Some Chance	Little Chance	No Chance
37. Change your intended field of study to agriculture.	1	2	3	4
38. Change your career choice.	1	2	3	4
39. Encourage you to come to MSU.	1	2	3	4
40. Encourage you to enroll in a higher education institution.	1	2	3	4

How important are each of the following career characteristics to you? (Please rank the appropriate responses).

	Very Important	Important	Slightly Important	Not Important
41. High income	1	2	3	4
42. Opportunity to help others	1	2	3	4

	Very Important	Important	Slightly Important	Not Important
43. Opportunity to use special talents.	1	2	3	4
44. Being respected on the job.	1	2	3	4
45. Having job security.	1	2	3	4
46. Having power to influence.	1	2	3	4
47. Enjoying the work.	1	2	3	4

(Please fill in as accurately as possible.)

48. Are there other factors of importance to you that influence your career choice?

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49. What is your intended career goal?

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50. How did you come to learn about the Summer Agricultural Program at Michigan State?



## APPENDIX IX

## MICHIGAN STATE UNIVERSITY

## APPENDIX IX

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES  
OFFICE OF ACADEMIC AND STUDENT AFFAIRS • AGRICULTURE HALL

EAST LANSING • MICHIGAN • 48824-1039

LETTER SENT TO 1985 MAP SENIOR PARTICIPANTS AFTER  
COMPLETION OF THE PROGRAM

August 26, 1985

John Doe  
121 Farm Lane  
East Lansing, MI 48823

Dear John:

Congratulations on an outstanding summer!!! Without doubt you represent the very best this nation has to offer in future leaders. I hope you found the summer to be as exciting and rewarding as I did. Being surrounded by such dynamic young people makes an "old" man like me grow younger.

I know that you are concerned about \$1,000 stipend. As promised I have made arrangements to take care of that "small" issue. I need to know the following:

Are you attending Michigan State

Do you want to pick up your check at registration or in my office

What is your major preference

If it is not agriculture, will you be changing

I am quite sure you have questions about each of these and as usual I will gladly "talk" with you about them. I have scheduled a meeting for the Wednesday before classes for all MAP students to attend. At that time we will discuss such things as summer employment, advising, and other matters of importance.

I will be contacting you before September 10th about the exact way you want your money and how to go about receiving it. Because I am concerned about you, I want to meet with you and talk about the future. Have a good year and again thanks for making the MAP program the best in the country.

Sincerely,



Don Wallace  
Coordinator, MAP

## APPENDIX X

MICHIGAN STATE UNIVERSITY

APPENDIX X

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES  
OFFICE OF ACADEMIC AND STUDENT AFFAIRS - AGRICULTURE HALL

EAST LANSING - MICHIGAN - 48824-1039

LETTER SENT TO 1985 MAP JUNIOR PARTICIPANTS AFTER  
COMPLETION OF THE PROGRAM

August 26, 1985

John Doe  
121 Farm Lane  
East Lansing, MI 48823

Dear John:

Congratulations on an outstanding summer!!! Without doubt you represent the very best this nation has to offer in future leaders. I hope you found the summer to be as exciting and rewarding as I did. Being surrounded by such dynamic young people makes an "old" man like me grow younger.

I realize that this is a little early to be asking you to make decisions about the summer of 86, but time is one thing that never waits for anyone. I am already making contacts about placement opportunities for MAP graduates and I need to know what your plans are. I need to know three things:

Are you applying to Michigan State

Are you willing to indicate a major choice in either Agriculture or Natural Resources

Do you want to work in the summer, if so where and doing what

I am quite sure you have questions about each of these and as usual I will gladly "talk" with you about them. I have enclosed a copy of a letter I received from one of you. If you will use it to provide you with a format, please send me your own letter so I can begin to prepare the corporate world for you.

I will be contacting you before September 15th about a visit to campus. I want to meet with you and talk about the future. Have a good year and again thanks for making the MAP program the best in the country.

Sincerely,



Don Wallace  
Coordinator, MAP

## APPENDIX XI

## APPENDIX XI

## SURVEY TAKEN AFTER THE MAP EXPERIENCE

## "THE EFFECTIVENESS OF MAP"

1. What is your sex?

A. male B. female

2. Please indicate the size of your community.

A. less than 10,000 population

B. 10,000 to 50,000 population

C. 50,000 to 100,000 population

D. 100,000 to 500,000 population

E. more than 500,000 population

3. Do you live or have you ever lived on a farm?

A. yes B. no

4. How many members of your family are in agriculture  
or natural resources related jobs?

A. none B. one C. two D. three E. more than three

5. Had you considered a career in agriculture or natural  
resources prior to the MAP program? A. yes B. no

6. Are you now considering a career in agriculture or natural resources after participating in the MAP program? A. yes B. no
7. What were your career plans prior to MAP?
8. What type of work experiences did you receive?  
( select all appropriate answers ) A. research  
B. laboratory C. field D. computer E. clerical  
F. others
9. Did you have a choice of selecting your MAP job?  
A. yes B. no
10. Would you like to have a career related to your MAP job? A. yes B. no
11. What did you like best about the MAP program?  
1.  
2.  
3.
12. What did you like least about the MAP program?  
1.  
2.  
3.

13. Would you recommend MAP to your peers?

A. yes B. no

14. How did you learn about MAP? A. school counselor

B. Mr. Wallace C. friends D. others

15. If you could change one thing about the MAP program, what would it be?

16. Of the various experiences received, which one(s) do you think will have a direct effect on your future? A. job B. seminars C. campus life D. creating your future E. video sessions

17. What did you learn about yourself that you didn't know as a result of the MAP program?

18. If given the same opportunity again, would you enroll in the MAP program? A. yes B. no  
( if no, why )



## APPENDIX XII

## APPENDIX XII

SELECTION COMMITTEE REPORT PRESENTED TO ADVISORY  
BOARD AT THE FEBRUARY, 1985 MEETINGREPORT PRESENTED BY MR. TOM BLACK TO ADVISORY BOARD  
CONCERNING THE STUDENTS SELECTED FOR INTERVIEWING FOR  
THE 1985 MINORITY APPRENTICESHIP PROGRAM

	Student	Community	GPA	Year in School
1.	Andrea Aguilar	Grant, MI	2.50	Junior
2.	Serena Alderson	Oak Park, MI	3.17	Junior
3.	Daryl Allen	Detroit, MI	2.70	Junior
4.	Tamarah Anderson	Detroit, MI	2.50	Junior
5.	Keith Arnold	Pontiac, MI	2.80	Junior
6.	Nicole Banks	Ann Arbor, MI	3.20	Junior
7.	Rachel Banks	Detroit, MI	2.80	Senior
8.	Kelinda Barber	Detroit, MI	3.40	Junior
9.	Donella Baskin	Ann Arbor, MI	2.90	Junior
10.	Vickie Beene	Ann Arbor, MI	3.07	Junior
11.	Kimberly Bell	Detroit, MI	3.00	Junior
12.	Erik Belk	E. St. Louis, Ill	2.88	Junior
13.	Matilda Bennett	E. St. Louis, Ill	3.00	Senior
14.	Tracy Blakemore	Pontiac, MI	2.69	Senior
15.	Davinci Bledsoe	Highland Park, MI	2.83	Junior
16.	Tina Bonamy	Detroit, MI	2.63	Junior
17.	Lisa Bradham	Detroit, MI	3.60	Junior
18.	Sharon Brookins	Detroit, MI	3.60	Senior
19.	Nicole Brown	Detroit, MI	3.00	Junior
20.	Augustine Burciaga	Adrian, MI	2.70	Senior
21.	Sheila Burries	E. St. Louis, Ill	3.26	Senior
22.	Mark Bush	E. St. Louis, Ill	2.72	Senior
23.	Carmen Butler	Muskegon, MI	3.75	Senior
24.	Francis Cabrera	East Lansing, MI	3.76	Junior
25.	Albert Calvillo	Detroit, MI	3.20	Junior
26.	Lisa Carter	Saginaw, MI	3.40	Junior
27.	Patrica Cena	Eaton Rapids, MI	4.00	Senior
28.	Kim Chandler	Battle Creek, MI	3.29	Senior
29.	Dora Cisneros	Adrian, MI	2.00	Senior
30.	Andre Cheatham	Detroit, MI	2.20	Senior
31.	Alicia Clayborne	E. St. Louis, Ill	2.56	Senior
32.	Theresa Clayton	Detroit, MI	2.60	Senior
33.	Stacey Coleman	Detroit, MI	3.40	Senior
34.	Cheri Collins	Detroit, MI	3.74	Junior
35.	Tina Cooper	Detroit, MI	3.20	Junior
36.	Jill Crenshaw	Detroit, MI	2.90	Senior
37.	Angela Dae	E. St. Louis, Ill	3.00	Senior
38.	Kristin Davis	East Lansing, MI	2.60	Junior
39.	Tisha Dease	Muskegon, MI	3.32	Senior

40.	Robert Dobbs	Benton Harbor, MI	3.20	Senior
41.	Debra Draper	Muskegon, MI	2.80	Senior
42.	Martin Duarte	Lansing, MI	2.73	Senior
43.	Danielle Duvernay	East Lansing, MI	3.00	Junior
44.	Bobbi Edwards	Detroit, MI	4.00	Junior
45.	Elaine Edwards	Detroit, MI	3.54	Senior
46.	Allen Ezell	Detroit, MI	3.67	Senior
47.	Muhammad Farha	Ann Arbor, MI	3.10	Junior
48.	Amer Farran	Portage, MI	2.91	Senior
49.	Tammi Flowers	E. St. Louis, Ill	2.77	Junior
50.	Heriberto Franco	Detroit, MI	2.86	Senior
51.	Melynda Foster	E. St. Louis, Ill	4.00	Senior
52.	Emerald Fuller	Ypsilanti, MI	3.18	Junior
53.	Carol Gaddis	E. St. Louis, Ill	2.89	Junior
54.	Kim Garnett	Ann Arbor, MI	2.89	Junior
55.	Monique Gee	Detroit, MI	3.00	Junior
56.	Gilbert Gerardo	Detroit, MI	2.80	Junior
57.	Renita Geter	Detroit, MI	3.30	Senior
58.	Carla Gibson	Detroit, MI	2.50	Senior
59.	Marjorie Gill	E. St. Louis, Ill	2.50	Junior
60.	Lynda Glass	Detroit, MI	3.27	Junior
61.	Jeunae Godwin	Detroit, MI	2.70	Senior
62.	Rosa Gonzalez	Newago, MI	3.36	Junior
63.	Chenee Gooden	Detroit, MI	2.43	Senior
64.	Christina Goodrich	E. St. Louis, Ill	2.75	Senior
65.	Sonja Gray	Pontiac, MI	3.29	Senior
66.	Maricela Guerra	Grant, MI	2.50	Junior
67.	Deanna Hale	Detroit, MI	3.95	Junior
68.	Delon Hall	Lansing, MI	2.10	Senior
69.	Kevin Harrison	Ann Arbor, MI	2.60	Junior
70.	Ingrid Hawkins	Detroit, MI	2.75	Senior
71.	Debra Hence	Detroit, MI	2.74	Senior
72.	Keith Hernandez	Detroit, MI	3.80	Soph
73.	Leonel Hinojosa	Lansing, MI	2.50	Senior
74.	Tracey Hodge	Detroit, MI	2.73	Senior
75.	Beverly Hogan	Detroit, MI	2.90	Senior
76.	Kim Hood	Benton Harbor, MI	3.06	Senior
77.	Brigitte Horne	Muskegon, MI	3.41	Junior
78.	Eric Hugar	Ypsilanti, MI	3.30	Junior
79.	Betrina Hughes	E. St. Louis, Ill	2.50	Senior
80.	Lisa Hughes	Detroit, MI	3.21	Senior
81.	Carla Hunter	Detroit, MI	3.30	Senior
82.	Theresa Hutson	Detroit, MI	3.50	Junior
83.	Dorinda Jackson	Detroit, MI	3.00	Senior
84.	Jacqueline Jackson	E. St. Louis, Ill	4.00	Senior
85.	Jennifer Jackson	Detroit, MI	2.67	Senior
86.	Kathy Jackson	Detroit, MI	3.10	Senior
87.	Nicole Jeffers	Detroit, MI	3.50	Junior
88.	Karyn Johnson	Detroit, MI	2.80	Senior
89.	Marlene Johnson	Detroit, MI	3.35	Senior
90.	Heather Jones	Detroit, MI	3.25	Junior

91.	Michael Jones	E. St. Louis, Ill	2.90	Senior
92.	Patricia Jones	Detroit, MI	3.95	Junior
93.	Benat Katar	East Lansing, MI	2.91	Senior
94.	Rajat Katar	East Lansing, MI	2.90	Senior
95.	Khayya Kelly	Detroit, MI	3.20	Junior
96.	Charise Kelley	Muskegon, MI	3.42	Senior
97.	Donice Knight	Detroit, MI	3.30	Senior
98.	Shannon Knight	Detroit, MI	3.04	Senior
99.	Shavaun Langston	Muskegon, MI	2.85	Junior
100.	Kevin Lartigue	Lansing, MI	2.90	Senior
101.	Thuy-Trang Le	Lansing, MI	3.00	Senior
102.	David Lee	E. St. Louis, Ill	3.11	Junior
103.	Ronald Lee	Detroit, MI	2.50	Junior
104.	LaTrelle Leonard	Detroit, MI	2.50	Junior
105.	Eva Lewis	Muskegon, MI	3.86	Senior
106.	Laura Lewis	Detroit, MI	3.20	Junior
107.	Kyle Marsh	Wood River, Ill	2.20	Junior
108.	Dawn Martin	Detroit, MI	2.80	Senior
109.	Albert McClendon	E. St. Louis, Ill	2.84	Senior
110.	Stacy McClendon	Battle Creek, MI	2.82	Senior
111.	Marvelle McGee	Battle Creek, MI	2.80	Senior
112.	Kirk Megginson	Lansing, MI	3.00	Senior
113.	Pricilla Miley	Detroit, MI	3.00	Senior
114.	Sherita Mitchell	Muskegon Hgts., MI	3.30	Junior
115.	John Noone	Ann Arbor, MI	3.00	Junior
116.	Andre Outlaw	Pontiac, MI	3.08	Senior
117.	Jeff Pennington	Pontiac, MI	2.93	Senior
118.	Jesus Perez	Ann Arbor, MI	2.98	Senior
119.	Marcelius Perez	Ann Arbor, MI	3.07	Junior
120.	Annie Perry	Detroit, MI	2.50	Junior
121.	Tyra Peterson	Pontiac, MI	2.83	Senior
122.	Keisha Price	Detroit, MI	3.05	Senior
123.	Tomena Rawls	Detroit, MI	2.60	Junior
124.	Donna Redd	Detroit, MI	3.50	Senior
125.	Delbert Richburg	East Lansing, MI	2.95	Junior
126.	Myron Richardson	Ann Arbor, MI	2.78	Senior
127.	Donita Robinson	Muskegon, MI	2.95	Senior
128.	Kim Robinson	Battle Creek, MI	2.70	Senior
129.	Leah Robinson	Detroit, MI	3.60	Senior
130.	Lisa Robinson	Detroit, MI	3.14	Senior
131.	Renita Robinson	Muskegon, MI	2.80	Junior
132.	Tracey Robinson	Detroit, MI	3.00	Junior
133.	Mark Robles	Charlotte, MI	2.80	Senior
134.	Lisa Rocquemore	Detroit, MI	3.38	Junior
135.	John Rodgers	Muskegon, MI	3.25	Junior
136.	Sarah Rodriquez	Adrian, MI	2.50	Senior
137.	Rosalyn Ross	E. St. Louis, Ill	2.88	Junior
138.	Kim Sanford	E. St. Louis, Ill	3.75	Junior
139.	Armene Satterfield	E. St. Louis, Ill	3.25	Senior

140.	Monica Sherman	Detroit, MI	3.30	Senior
141.	Lisa Simmons	Detroit, MI	3.60	Senior
142.	Michael Simmons	Ypsilanti, MI	3.21	Junior
143.	Colleen Simpson	Ann Arbor, MI	2.71	Junior
144.	Dionne Small	Detroit, MI	4.00	Junior
145.	Marilyn Smith	Detroit, MI	3.11	Senior
146.	Monica Smith	Detroit, MI	2.80	Junior
147.	Patricia Solis	Adrian, MI	2.30	Junior
148.	Yolanda Spraggins	Detroit, MI	4.00	Junior
149.	Tahirih Steen	Battle Creek, MI	3.02	Senior
150.	Monica Stedman	Muskegon, MI	3.40	Junior
151.	Charles Stewart	Detroit, MI	3.50	Senior
152.	Edwardo Suniga	Lansing, MI	2.41	Senior
153.	Patrick Tate	Marshall, MI	2.78	Junior
154.	Sharon Taylor	E. St. Louis, Ill	2.63	Junior
155.	John Tuck	Covert, MI	2.90	Senior
156.	Delsa Turner	Muskegon Hgts., MI	3.73	Junior
157.	Ernest Vargas	Adrian, MI	2.30	Senior
158.	Kimberle Vaughn	Detroit, MI	2.60	Senior
159.	Krystal Vincent	Detroit, MI	3.00	Junior
160.	Gia Walker	Detroit, MI	3.28	Junior
161.	Willy Warren	Muskegon Hgts., MI	3.05	Junior
162.	Erane Washington	Ann Arbor, MI	2.77	Senior
163.	Wendi Waters	Detroit, MI	3.35	Junior
164.	Andre West	Detroit, MI	3.74	Senior
165.	Reginald White	Pontiac, MI	2.75	Senior
166.	Rozelle White	Detroit, MI	2.82	Senior
167.	Rochelle Whiting	Battle Creek, MI	3.26	Senior
168.	Alesia Williams	Lansing, MI	3.00	Senior
169.	Angelita Williams	Detroit, MI	3.45	Senior
170.	Brigitte Williams	Battle Creek, MI	3.04	Senior
171.	Deide Williams	Detroit, MI	3.25	Senior
172.	Kenneth Wilson	Muskegon, MI	3.10	Junior
173.	Norvena Wilson	Detroit, MI	3.00	Senior
174.	Litonya Wilson	Detroit, MI	3.10	Senior
175.	Jan Wimberly	Ann Arbor, MI	2.90	Junior
176.	Donna Wood	E. St. Louis, Ill	3.20	Senior
177.	Lashawanda Wooten	E. St. Louis, Ill	2.89	Junior
178.	Mechelle Wright	E. St. Louis, Ill	3.22	Junior

This is the Selection Committee Report. Tom Black, Carol Boyles, Paul Ludwig, Ted Morris, and Don Wallace all examined and evaluated all the applications for the 1985 Minority Apprenticeship Program. The total number of applications was 220. From those applications 178 students were selected to be interviewed.

## APPENDIX XIII

## APPENDIX XIII

## CHI SQUARE FORMULA

Chi Square Formula Used For Determining  
Differences Between Sample Groups

$$\chi^2 = E \frac{(f - fe)^2}{fe}$$

$$fe_{ij} = \frac{C_i R_j}{T} \quad f_{ij} = \frac{C_i R_j}{T}$$

$$d.f. = (R-1)(C-1)$$

$$1 \times 1 = 1$$

$$22 \times 1 = 22$$

$$\chi^2_{1,.05} = 3.84$$

$$\chi^2_{1,.01} = 6.63$$

$$\chi^2_{4,.05} = 9.49$$

$$\chi^2_{4,.01} = 13.28$$

$$\chi^2_{22,.05} = 33.92$$

$$\chi^2_{22,.01} = 36.78$$

f = observed number

fe = expected number

## APPENDIX XIV



## APPENDIX XIV

Table of Chi Squares---Group Responses  
 Relative to Personal Characteristics  
 of Students Interviewed for the  
 1985 MAP Program

Characteristic	X <sup>2</sup> Value	Degrees of Freedom	Level of Significance
Sex	1.516	1	none
GPA	7.306	4	none
Ethnic Background	.846	1	none
Community	27.612	22	none
Year in School	3.080	1	none

## APPENDIX XV

## APPENDIX XV

Table of Chi Squares---Group Responses  
Relative to College Aspirations and  
Major Preference/Career Choice  
of Students Interviewed for  
the 1985 MAP Program

Characteristic	X <sup>2</sup> Value	Degrees of Freedom	Level of Significance
College Aspirations	1.026	1	none
Major Preference/ Career Choice	.796	1	none