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ABSTRACT

The background characteristics, occupational goals, and attitudes of agriculture students enrolled in 1890 and 1862 land grant universities in 1977 were examined by questionnaire, to construct a profile of agronomy majors as compared to animal science majors and to agriculture majors as a whole. Females comprised 38.2% of animal science majors but only 15.8% of agronomy students. Among agronomy majors, 15.6% were non-white, 7.3% were foreign, 20% were married, and 39.4% from families whose primary income came from farming; these percentages were higher than for animal science majors or agriculture majors as a whole. Among agronomy majors, 70.5% had agriculture-related work experience, 55.3% had worked as hired labor on a farm or ranch, and 54% had worked on the family farm or ranch. In terms of occupational goals, 31.4% of agronomy majors wanted to operate or manage a farm, 36.3% wanted professional and technical occupations, and 18.3% wanted to be non-farm managers or administrators. Only 9.9% desired agricultural service occupations, compared to 53.8% of animal science majors. Regarding factors influencing choice of college major, perceptions of agriculture students in general, and attitudes toward agricultural issues, agronomy students were similar to animal science majors and to agricultural students as a whole. (SB)

AGRONOMY STUDENTS AT SOUTHERN LAND-GRANT UNIVERSITIES*

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ABSTRACT

Agronomy Students at Southern Land-Grant Universities

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The purpose of the paper is to examine selected attitudes and background characteristics of Agronomy majors at 1890 and 1862 Land-Grant Universities in the South. Agronomy students are profiled in comparison to Animal Science students and the aggregate of all agriculture students in the region. Data were obtained in 1977 via mail questionnaire sent to students at 24 universities resulting in weighted sample of 2,801 respondents. Three major sets of issues are addressed: the background characteristics of agriculture students, their occupational goals and aspirations, as well as selected attitudes and self-perceptions of the students.

Agronomy students were distinguishable from Animal Science students on a number of background characteristics. Animal Science majors tended to be more farm-oriented, as more had work, club, and educational experiences related to agriculture, but more agronomy parents received their primary income from farming.

The goals and aspirations of agriculture students showed a great deal of diversity. Many sought occupations in research, technical assistance, marketing, and the provision of technical services to the farmer, but relatively few expressed an expectation for direct-involvement in production agriculture.

Parents were cited as a primary source of influence in the choice of a college major, followed by college teachers or advisors, and college friends. Most students chose an agriculture major because they wanted to prepare for a career and had a preference for country life. A majority thought agriculture

students were more friendly and helpful to others than non-agriculture students. Finally, almost all students saw good career opportunities in agriculture, with Agronomy students being the most optimistic of all.

Agronomy Students at Southern Land-Grant Universities

Agronomy is one of the primary areas within scientific agriculture and one of the traditional curriculums in the land-grant system. Most careers and occupations in agriculture require some basic knowledge of soils, plants, and animals. Thus, agronomy and animal science are closely identified with the core of agricultural education.

Considerable attention has been given to the growth and stability of agricultural enrollments at the Nation's land-grant institutions. This increase has occurred concurrently with a decrease in the rural farm population from which agriculture students have come in the past (1). College administrators and teachers have reacted to these trends by giving greater attention to the reorganization of curricula and the introduction of new teaching methods to adequately meet the needs of nonfarm and urban students in agriculture.

The purpose of this report is to examine on a broad scale selected attitudes and background characteristics of agronomy majors in comparison to majors in animal science and the general population of agriculture students. In three major parts, we address three major sets of issues: the background characteristics of agriculture students, their occupational goals and aspirations, as well as selected attitudes and self-perceptions of the students. These profiles are intended to generalize to agriculture students at 1862 and 1890 Land-Grant Universities in the Southern region.[1]

METHOD

Data were obtained from a survey of agriculture students at land-grant universities in 13 states comprising the Census South. Agriculture student enrollment lists for Spring 1977 were obtained for all 1862 and 1890 Land-Grant

Universities. The total undergraduate enrollment of 1890 agriculture students and a 15 percent random sample of 1862 students stratified by university were sent questionnaires.[2]

A questionnaire and cover letter describing the purpose of the study and requesting cooperation were mailed to 4,380 students. Completed questionnaires were returned by 3,084 students with a response rate of 76 percent for the 1862 and 53 percent for the 1890 students. Adjustments were made to allow the 1890 and the 1862 respondents to be combined. This adjustment took into consideration both differential sampling and return rates for the 24 universities (2). The resulting weighted regional sample consisted of 3,178 agriculture students. Among these students were 377 who reported a variety of majors unique to specific universities and not identifiable with agriculture education. These students were excluded from the sample for purposes of this report. The resulting weighted sample consisted of 2,801 agriculture students.

The weighted regional sample included 329 agronomy[3] and 843 animal science[4] majors or 42 percent of all reported majors in the study. Freshman comprised 18%, sophomores 22%, juniors 27%, and seniors 33% of the sample. Agronomy students were somewhat disproportionately represented among the seniors (39%) and less among the freshmen and sophomores than was the case for all agriculture students.

I. Background Characteristics

The four sections in Part I profile various aspects of the students' personal background, in terms of family origins, high school experience, and contact with agriculture.

Personal Background

Selected characteristics of agriculture and agronomy students are presented in Table 1.[5] During the past decade, increased attention has been given to the enrollment of women in agricultural curricula. In this sample of agriculture students representing Southern Land-Grant Universities more than one-fourth were women. Their presence in agronomy was much less (16%), while animal science was a bigger recipient (38%) of women students. Many students select animal science majors that reflect interests in horses and small animals. The predominance of men in agronomy reflects the traditionally male nature of production agriculture, although increased numbers of women are choosing farming as a career (3).

- Table 1 here -

Agronomy students were more likely to be nonwhite and to be foreign citizens than were either animal science or agriculture majors, although the proportions were small in both instances. Similarly, students in agronomy were more likely to be married (20%) than were most agriculture students.

The places in which agriculture students had lived most of their lives ranged over the entire spectrum from large cities to scattered farms. One half of the agronomy students had lived in rural nonfarm areas and towns of fewer than 10,000 inhabitants. This was a somewhat larger proportion than animal science or the agriculture student total. Nevertheless, even among agronomy

students, more were city reared than were farm reared. Only one-fifth (21%) of all agriculture students had grown up on a farm.

Family Background

Characteristics of parents provide important background information about students. This is particularly true for students in agriculture because of the family farm tradition in the United States. The occupational endeavors of the parents are an important source of knowledge about different lines of work and the entry paths to various occupations. Table 2 presents comparative information describing both fathers and mothers of agriculture students with regards to their residential, educational and occupational backgrounds.

- Table 2 here -

Childhood Residence. Fathers of agricultural students were more likely than mothers to have been raised on a farm (difference of 7%). Mothers, on the other hand, were more likely than fathers to have been raised in rural-nonfarm places and towns of less than 10,000 population (difference of 9%). Conversely only one-third of the parents were reared in cities. From the perspective of the parents' childhood, at least, there continues to be some affinity between their rural upbringing and their childs' selection of a college major in agriculture. This same pattern prevails among parents of agronomy students. Here the affinity was even more pronounced as both fathers and mothers were more likely to be farm reared than was true for either agriculture or animal science majors.

Education. Levels of completed education for both fathers and mothers revealed sex related differences. Fathers had higher levels of education than mothers among all categories of agriculture students. Differences were most

pronounced with respect to completion of college. Here only 28 percent of the mothers were college graduates compared to 42 percent of the fathers. Parents of agronomy students generally had lower educational levels than did other students' parents. The proportions of agronomy fathers and mothers who had not graduated from high school exceeded by 6 percent those of both animal science and the total sample of agriculture students. The proportions of agronomy fathers and mothers who had graduated from college also were less than the other groups.

Occupation. Nonfarm managerial and professional occupations were the most common types held by the fathers of agriculture students. Only one-quarter of the fathers held occupations associated directly with agriculture and only 16 percent were involved in production agriculture as farmers or farm managers. Fathers of agronomy students were both more likely to be employed in agriculture related occupations and in farming (one-third) than was true for fathers of animal science and agriculture students.

Patterns among the mothers did not directly involve agricultural occupations. Instead the difference was more along the lines of a traditional wife-mother definition of the woman's role versus a contemporary one of a wage earner. Only about one-half of the mothers of agriculture students were employed. Among the employed mothers almost one-half were in professional or managerial occupations. The pattern was the same for the mothers of agronomy students except that fewer were employed and those that were, were less likely to be in professional or managerial occupations. Mothers of animal science students were most likely to be employed (half were) and to have a professional occupation (26%).

The parental characteristics of agronomy and animal science students differed in several important ways. One of these is whether they currenly live on a farm. Slightly more than one-quarter of the parents were farm residents.

An even larger proportion either owned or rented farm land (40 percent) and one-third received their primary income from a farm.

Parents of agronomy students were only slightly more farm-orientated than parents of agriculture students. One exception is the proportion of agronomy parents for whom the farm served as the primary source of income. Nearly 40 percent depended primarily on income from a farm. In contast, parents of animal science students were more likely to live on a farm and to own or rent farm land, but were less likely to depend primarily on farm income.

Looking specifically at the parents' annual income for 1977, a wide range of income levels was revealed. A sizeable number (30%) had incomes less than $15,000 and 13 percent were below $10,000. Conversely, one-third had incomes of $25,000 and above. More agronomy students were from families headed by parents with lower incomes. In fact, 6 percent had incomes less than $5,000. Incomes of animal science parents tended to be higher than the other comparison groups.

High School Background

The vast majority of agriculture students had attended public high schools (88%) with agronomy students only slightly less likely to have done so (86%). The size of these high schools differed markedly, as agronomy students were more likely to have attended smaller schools. Table 3 shows that 38 percent of all agriculture students attended schools with fewer than 150 students in the graduating class, whereas 45 percent of the agronomy students did so. Clearly the farm residence of many agronomy students placed them in less populated areas served by smaller rural schools. Only 20 percent attended large schools with 400 or more graduates in the class.

- Table 3 here -

Self-reported grade-point averages show that most had been A or B students in high school. Assuming random distribution of errors in reporting grade levels, agronomy students were more heavily represented among C students and less heavily among A students. The high school grades of agronomy majors did not appear to be as high on the average as animal science majors or the total sample. The differences may reflect greater numbers of students oriented toward production occupations in the agronomy curriculum and greater numbers of science and professional orientated students in other curricula.

At one time the majority of agriculture students entered college directly from the farm and often after being in a number of agriculturally related activities . Three such activities are considered here - high school agriculture courses, 4-H and FFA. The first observation is that the vast majority of agriculture students have not been exposed to these high school experiences. Only 25 percent reported participation in any one of these activities and less than one-third had either 4-H or FFA experience.

Agronomy students were similar to all agriculture students relative to exposure to these high school experiences. They were more likely to have completed an agriculture course or to have participated in 4-H and were only moderately more likely to have been in FFA. Animal science majors were somewhat distinct in the markedly larger proportion (one-third) who had participated in 4-H activities.

One further consideration was made as to whether the student had attended a high school in which agriculture courses were offered. Approximately half the students surveyed had attended high schools offering vocational agriculture courses. When this factor is considered a different picture emerges. Only 30 percent of agriculture students who reported having agriculture courses available in their high schools had completed such a course (not shown in table).

In contrast, half of the agronomy and animal science majors, when given an opportunity to take an agriculture course, had done so.

Agricultural Work Experience

As the majority of agriculture students do not have farm backgrounds, the acquisition of practical skills and knowledge of production practices is a concern for curriculum planners and potential employers (4). Students were asked about three kinds of work experiences they may have had - work on the home farm or ranch, farm or ranch work as a hired employee, or other nonfarm agriculture related work, Table 4. Almost half had some experience on the home farm or ranch and a similar proportion had done hired farm labor. The proportion of students indicating experiences of other work types related to agriculture was even larger (59%).

- Table 4 here -

Agronomy students were somewhat more likely than agriculture students to have had each of the three types of work experience. The difference was most pronounced for other agriculture work, which was reported by 71 percent. Animal science majors were slightly more likely even than agronomy majors to have worked on a farm or ranch.

Summarizing agricultural experiences gained from either working on the family farm or working for hire on someone elses farm revealed that a majority (61%) had some active farm or ranch experience. Furthermore, when those with any farm or agriculturally related experience are considered the proportion increased to 75 percent. Thus, only one-fourth of the agriculture students had no agriculturally related work experience. By the same token two-thirds of the agronomy students had actual agriculture experience on either the home farm or as a hired farm worker.

II. Occupational Aspirations and Goals

Part II addresses two major questions: why students choose agriculture majors; and whether agronomy and animal science majors differ from animal science majors and the aggregate of all agriculture students in this process. Attention is given to the occupational goals, education goals and residential preferences of students enrolled in agriculture.

Occupational Goals

A major aspect of a college education is occupational or career preparation. It is generally assumed that college students in the process of identifying their occupational goals choose the kinds of education required to enter the occupations they desire (5). Some college majors seem directly linked to specific types of occupations. Many agriculture curricula such as agricultural engineering, pre-veterinary medicine, agronomy, forestry, etc., appear on the surface to be rather specific in this regard, but in point of fact, the actual occupations to which these kinds of curricula lead are quite varied.

This section considers several dimensions of occupational choice. Occupational desires or aspirations are distinguished from more realistic occupational expectations and a more detailed examination of the specific kinds of agricultural occupations the students sought is provided.

Types of Occupational Aspirations. Table 5 shows that a large number of students in agriculture curricula desire professional and technical occupations. More than half (54%) of agriculture students wanted to enter a professional occupation. The occupations of veterinarian and forester or conservationist accounted for more than half of these students and only 18 percent wanted to be farm operators or managers (not shown in table). This is an important consideration in determining the primary thrust of an agriculture education program.

- Table 5 here -

As might be expected, the profile of agronomy students reveals several differences of considerable magnitude. Among agronomy majors almost one-third wanted to operate or manage a farm. Although farming was a prominent goal, this was not the majority orientation. Another one-third were oriented toward a variety of professional and technical occupations with no single one predominating. The more common occupations were forester or conservationist and agricultural scientist. Only about one-fifth of the animal science majors were farm-oriented. Of the animal science majors (60%) aspiring to professional and technical occupations, two-thirds wanted to be veterinarians (not shown in table).

Types of Occupational Expectations. Individuals tend to differentiate their occupational aspirations from their more realistic career expectation (6). Table 5 shows the desired and expected occupations of agriculture students. Differences occurred in two ways across all curriculum types. First, there was an appreciable increase in the level of uncertainty about their occupational future as more than 10 percent giving an expected occupation failed to identify an expected occupation. At the same time there was a decrease in the number of students expecting to enter professional and technical occupations and farming.

Looking specifically at the profile for agronomy students, only 20 percent actually expected to become farm operators or managers. This was a decline of 11 percent from the proportion desiring to farm. Because fewer agronomy students desired professional and technical occupations, the decrease here was relatively small (6%). On the other hand, almost 19 percent of the animal science majors expected that they would enter nonprofessional occupations. Virtually all of the change was accounted for by deflection from the veterinary

profession. Furthermore, the proportion of animal science majors expecting to farm was rather stable.

Agricultural Occupations. Since college students enrolled in agriculture curricula are often interested in a variety of occupations associated with the agricultural industry, we have attempted to categorize these occupations according to kind of activity. Table 6 shows ten of the more frequently cited agricultural occupations. Among agricultural students, sizeable numbers neither aspired nor expected to enter agriculture-related occupations. The responses classified as "other occupations" represent more than one-quarter of the students' aspirations and an even larger proportion of their expectations.

- Table 6 here -

The most often desired agricultural occupations were in the area of production services of a professional and technical nature. Twenty-five percent desired these types of occupations with the majority (17%) desiring to be veterinarians. The next most desired agriculture occupation was that of self-employed farmer or rancher (18%). Conservation, forestry and wildlife represented another sizeable clustering (14%) of occupational choices. Horticultural workers, mostly ornamental, professional researchers, and agriculture teachers were the only other occupations mentioned by a substantial number of students. Farm manager occupations were desired by only two percent of the students, and when combined with those desiring to be farm or ranch operators, only 21 percent were oriented toward direct involvement in production agriculture.

Agronomy students were by far the most desirous of becoming self-employed farmers or ranchers (31%). They seldom indicated any particular agricultural specialty such as dairy, poultry or cotton in this choice. In addition, they were most likely to identify occupations in the areas of supply and mechanical

services and in agricultural research (particularly in soils), horticulture, conservation and forestry and in agriculture education. Animal science majors were most prominent in the area of production services because of their strong attraction to veterinary medicine.

Expectations for agricultural occupations reveal the same general patterns among different types of agriculture occupations. However, some shifts were observed between aspirations and expectations. Among agriculture students the most pronounced changes were in the smaller number who expected to achieve their occupational goals in the areas of production agriculture and production services. Declines of 4 percent were observed in both instances. These decreases were reflected primarily in an increased number expecting nonagricultural occupations, or occupations such as farm managers, or in agricultural research or business.

The change among agronomy students desiring to operate a farm or ranch was marked by a decline of 11 percent. Many of these students expected, as alternative occupations, employment in the production services or conservation and forestry areas. By comparison, animal science majors desiring occupations in production services primarily as veterinarians, declined by 14 percent. No shifts from the production occupation of farm operator occurred. Actually, a small increase was due to deflection from the veterinary profession.

Residential Preferences

Closely associated with agricultural occupations are aspirations and expectations for where one would like to live. Traditionally agricultural occupations have been identified with the farm or ranch or small rural trade centers. This is not true today with the rapid expansion of occupations in the agribusiness sector. Still the residential preferences of agriculture

students is of interest as the backgrounds of students become more varied.

Only about 40 percent of agriculture students wanted to live on a farm or ranch, Table 7. This was inspite of the fact that almost half anticipated that they would inherit a farm or ranch and 45 percent expected to own a farm or ranch someday. These preferences clearly denote the nonfarm perspective of the majority of agriculture students. This pattern prevails even for some who foresaw a clear opportunity to reside on a farm in the future.

- Table 7 here -

Although agronomy students were more likely to desire to live on a farm (7% higher), to expect to own a farm or ranch (5% more) and to expect to inherit a farm or ranch (6% more), the profile still conforms to that characterizing agriculture students generally. The most disparate group was the animal science students who were most likely to desire a farm or ranch residence and least likely to expect to own a farm or ranch anytime in the future. As observed previously, agronomy and animal science students regularly differed in the variety of their desired and expected goals.

Educational Goals

A college education opens a number of career opportunities to the student. One of these is the further pursuit of education either toward a profession or an academic goal. In order to reflect on the post-college educational orientations of agriculture students, attention was given to their educational aspirations and expectations. The findings are shown in Table 7.

Two-thirds of the agriculture students aspired to post-college education. The largest proportion wanted a master's degree in some academic discipline (27%), while 22 percent desired a professional degree and 19 percent a doctoral degree. Of course, these are the more ideal orientations or dreams of students.

In fact, these data reveal that many agriculture students did not expect to achieve these high educational goals. Twenty-five percent fewer actually expected to do post-college work than desired to do so. Nevertheless, this reduction should not obscure the fact that a large number of agriculture students do hold educational expectations. Most of the decline is attributed to the large decrease in the number of students expecting to achieve doctoral degrees (13% lower) and professional degrees (9%). The decline for master's degrees was only 5%, but this was influenced by the fact that some students with higher level aspirations expected a lower more realistic level of post-college achievement. Among those students who expected to do graduate work, the vast majority (85%) planned to do it in an area relating to agriculture.

Agronomy students were not as strongly oriented toward post-graduate education as other agriculture students. Because many intended to become involved in production agriculture, an endeavor having a less direct benefit from professional or academic credentials, such a difference is understandable. As further evidence, it should be noted that more than half the agronomy students (58%) did desire post-graduate education, virtually all of whom were oriented toward academic pursuits--35 percent to master's degrees and 21 percent to doctoral degrees. The pattern was reversed for animal science students with the prime goal being a professional degree.

The educational expectations of agronomy students revealed that many perceive obstacles to their desired goals. Only about one-third really expected to attain post-graduate training. Most of those with such expectations perceived the realistic level to be that of the master's degree. Virtually all of these students (92%) envisioned that this education would be in agriculture.

This pattern was the same among animal science majors except for the fact that the number of students expecting post-graduate education was larger (55%)

with consistent aspirations and expectations. Most of the decline (21%) occurred among those expecting to attain professional degrees. However, those still expecting to pursue post-graduate training were anticipating doing so in agriculture.

Income Goals

Ultimately, occupation and education goals are related to amount of income. To provide an indication of income expectations of agriculture students in 1978, they were asked to indicate what they anticipated their income to be in their first fulltime job after completing their education. A range of income levels was given with a minimum of $5,000 and a maximum of $20,000 in six categories of $2,500 each.

The income expectations of Southern agriculture students were not high. Only 29 percent expected first job incomes in excess of $12,500 annually, with more than half of these in the $12,500 to $15,000 bracket. The most common expectation was $10,000 to $12,500 and accounted for more than one-third of all students.

Comparatively, fewer agronomy students expected beginning incomes of $12,500 and above while animal science majors were much more inclined to incomes above this level. The lower income expectations of agronomy students were not large and were compensated by the fact that a larger number of them (39%) chose the $10,000 to $12,500 category.

III. Attitudes and Self-Perceptions

Part III focuses on factors affecting the decision to enroll in an agriculture major. Attention is given to four sets of influences. These include perceptions of the people who influenced the choice of agriculture as a major, perceptions of the importance of different experiences in this choice, assessments of their fellow agriculture students as compared to non-agriculture students, and the nature of attitudes toward selected aspects of the agriculture industry and its relationship to the rest of society.

Perceptions of Influentials

In the search for insight into why college students choose majors offered in the College of Agriculture, we began by considering the interpersonal dimension involving contacts with other people who exert influence on individuals' decisions. These relationships may be influential either because of the intimacy of the personal relationships or of the knowledge and prestige of the position these people represent. Both types of influentials are considered here.

The decisions of students to choose an agriculture major are influenced by a wide variety of persons, Table 8. As might be anticipated, parents (both fathers and mothers) were the most commonly acknowledged sources. This perceived influence most likely emanates from the socialization of the childhood and teenage years, as well as from the financial dependence of many students on their parents for meeting the costs of their college education. No other category of persons was considered influential by a majority of students.

- Table 8 here -

Three other types of persons were often helpful to agriculture students as they considered their choice of major. One type of person represents contacts developed within the college environment. These center around the friends

one makes at college and the teachers and advisors with whom a student has contact. A second important type of contact for many students stems from relatives. Still other influentials were high school friends, veterinarians, and college alumni acquaintances. The vocational agriculture teacher was influential for fewer than 20 percent of these students and the county extension agent, including the 4-H leader, was even less often mentioned. To a large extent, the relatively small number of students whose decision to enroll in an agriculture major was influenced by agricultural professionals is a direct reflection of the growing urban composition of the student body in agriculture. Previous analysis showed that less than half of the students had participated in 4-H or taken an agriculture course in high school.

Agronomy students varied little from this general agriculture student profile. Parents had slightly less influence on the choice of a major, while the vocational agriculture teacher was only slightly more influential. College teachers and advisors had more influence on the decisions of agronomy student than on those of students in other majors. This may be the result of smaller enrollments and more personal contact between agronomy faculty and students.

The prime point of distinctiveness for animal science majors was the frequency with which veterinarians were perceived as influencing the choice of major. Half of these students had experienced some type interpersonal contact with a veterinarian that was deemed important in the decision to select a major in agriculture. The tie between veterinary medicine and animal science is obvious, yet many animal science majors not in the pre-veterinary curriculum also were influenced by veterinarians with whom they had contact.

Perceptions of Important Experiences

Turning from influence sources to the reasons given by students themselves for their choice of an agriculture major, another side of student motivations for entering the field can be examined. Table 9 presents response ratings of "very important" assigned to 12 specific considerations listed as potential reasons for choosing an agriculture major.

(Table 9 here)

The most frequently cited reason for choosing an agriculture major was the desire to prepare for a career. Almost three-fourths of all agriculture students indicated career preparation was very important. No other reason was noted by a majority of students. Only the preference for country life was of prime importance for nearly half the students. The altruistic reason of helping others and the fact that they previously had successful agriculture experiences were things deemed very important by about one-fourth of the students. Financial motivation to improve their chances to earn a good income (16%) and motivation from a stimulating college course (12%) were the only other notable reasons mentioned.

Although some students change majors a time or two before making a final choice, very few of these students (3%) indicated that they had chosen their agriculture curriculum in order to obtain good grades. Similarly, friends and teachers were rarely considered important reasons for the choice of a major in agriculture. College teachers or advisors were important for only 5 percent of the students, but this number may be somewhat misleading, since significant course experiences, the direct result of stimulating and effective teaching, often shape a student's orientation toward an occupational line or field of study.

Agronomy students were more likely to attribute importance to these motivators than were agriculture students generally. A number of differences were in the 5 to 8 percent range. These reasons were associated more frequently with career preparation, the desire to help others, the preference for country life and having previous successful agricultural experiences. By comparison, animal science students mentioned only preference for country life and having previous successful agricultural experiences more frequently than all agriculture students.

The general conclusion with regard to the kinds of considerations that might contribute to the decision to choose a college major in agriculture is the finding that students in the more traditional majors of agronomy and animal science do not differ in any distinctive way from other agriculture majors. Change in the student body is following much the same path for students enrolled in all agriculture curricula.

Perceptions of Agriculture Students

One consideration affecting choice of major, and eventually an occupation, is the individual's perception of people in or associated with that major or line of work. Students look to the occupational group as a point of reference or comparison in making plans or evaluating their performance (7). During the college years the critical reference group is composed of other agriculture students. This reference group is broadly defined here as students enrolled in the College or School of Agriculture. To assess perception of agriculture students as a group each student was asked to compare students enrolled in agriculture with nonagriculture students on eight descriptive characteristics. They were asked to rate agriculture students as "more," "the same" or "less" than nonagriculture students on each characteristic.

- Table 10 here -

The ratings presented in Table 10 reflect the larger of the "more" or "less" ratings for each characteristic. For every item, the majority perceived agriculture students to be similar to or the same as nonagriculture students. The percentages presented here represent only the larger of the "more" or "less" ratings. Generally, the opposite rating was virtually nonexistent with the "no difference or same" rating accounting for almost all of the remaining proportion.

As shown in Table 10, a majority of agriculture students perceive themselves as more friendly and helpful to other people. Agriculture students saw their group as being more sure of what they want to do in life, more seriously concerned about the state of the nation and the world, and less interested in making a lot of money. With regard to academic standards, 18 percent perceived their peers in agriculture as being less interested in competing for high grades.

Agronomy students differed only moderately from the profile exhibited by all agriculture students. On the other hand, agronomy and animal science students sometimes varied markedly in their peer perceptions. The greatest disagreement found agronomy students being less likely to rate their peers as more friendly and helpful (6% difference), and less likely to rate agriculture students as less tolerant of people from different backgrounds (7% less) than animal science students. Similarly, agronomy students were more likely to see their peers as less interested in making money (7% more) and more likely to rate them as more seriously concerned about world affairs (5% less). Although there is strong similarity in the perceptions of the majority of agronomy and animal science students, the extent of difference apparent on

some characteristics underscores the more diverse backgrounds and orientations of animal science majors.

Attitudes toward Agricultural Issues

The respondents were presented a number of statements reflecting issues facing agriculture and its relation to the rest of society. These issues included such concerns as the role of women, government regulation, and future prospects. Response categories were: "strongly agree," "agree," "undecided," "disagree" and "strongly disagree."

- Table 11 here -

Table 11 presents student reactions to each of the six statements summarized by the proportion of "agree" or "strongly agree" responses. Attitudes toward the future of agriculture were positive in the minds of almost all agriculture students. More than 85 percent agreed that there are good career opportunities in agriculture and only 13 percent agreed with the negative contention that most work in agriculture can be done by people with little education. These attitudes reflect the positive orientation expected among students preparing themselves to enter agricultural occupations. However, it should be noted that these positive attitudes are not held by all students, and that agronomy students were more likely to hold favorable attitudes on these issues than agriculture students generally.

Traditionally, agriculture has been a male-dominated occupation. Today there is an increasing number of women entering the field. Student attitudes are split regarding the suitability of most agriculture occupations for women, although a majority hold a positive attitude. Animal science students are more likely to hold a favorable attitude on this issue than agronomy students, with both less favorable than all agriculture students by 5% and 2% respectively.

The two additional attitudes relate to the role of government in agriculture. In one statement the contention was expressed that greater regulation is needed on the use of chemicals in agriculture. A solid majority of these agriculture students (58%) favored this type of governmental role. In the second statement the concern was with governmental authority to force farmers to adopt soil conservation practices. Slightly less than half (48%) held favorable attitudes supporting a greater role for governments in the protection of vital soil resources. However, nearly equal proportions of agriculture students accepted and rejected expansion of regulatory authority within agriculture. This is potentially a very divisive issue.

Agronomy students reflect much the same profile on these six attitudes as observed among all agriculture students. The proportion of agronomy students holding the attitude is higher in every instance. Moreover, except for the two attitudes reflecting governmental regulation in agriculture, animal science majors hold an intermediate position. Animal science students are much less likely to have attitudes favoring government regulation in agriculture than the other categories of students, as the two items reflected issues which agronomy students were more likely to be familiar with through the instructional process.

A final item asked for a political self-classification by the agriculture students, Table 15. Each student rated his or her political preference on a five-point scale - "very conservative" to "very liberal." This rating scale avoids political party identifications although these labels are associated in many instances with party philosophies.

- Table 12 here -

Only a small proportion (6%) indicated they did not have a political preference. The largest proportion (35%) identified with a moderate label. Of the

others, nearly equal proportions were in the conservative and liberal categories. Agronomy students were more likely to label themselves moderates than agriculture students, while animal science students were more likely to be of conservative orientation, although the most students located themselves as "moderate."

How do these students see their own political philosophy compared to that to which they are exposed at home? Each student was asked to indicate the rating perceived as describing the political preference of his or her father. A considerable number perceived their fathers to be politically conservative. This rating and their own self-rating was compared and each student classified as more conservative, the same or more liberal than their father. Consistent with what one would expect many students perceived their fathers more conservative than they are. Sometimes this was only a matter of degree, i.e., father was somewhat liberal but the student was liberal or a somewhat conservative father with a somewhat liberal student. Almost half (46%) of the students perceived themselves as either less conservative or more liberal than their fathers. This proportion was higher for agronomy students (50%) with the difference reflected in a lower proportion having the same political preference as their father. Animal science students, on the other hand, were most likely to have the same philosophy as their father on politics (45%) and least likely to view themselves as more liberal.

CONCLUSION

The profile of agronomy students enrolled in Southern Land-Grant Universitites reveals that they vary considerably from the stereotyped image of the traditional agriculture student. According to these findings, agronomy majors conform only a little more closely to students of the past than do agriculture students generally. Their differences from the overall sample of agriculture students were not large. On the other hand, agronomy students were distinguishable from animal science students on a number of background characteristics. These differences, however, were not always as expected. Animal science majors tended to be more farm-orientated, as more had work, club, and educational experiences related to agriculture, but more agronomy parents received their primary income from the farm.

Agricultural employment opportunities in nonproduction type jobs have been on the increase in recent years (8). Much of this growth has occurred in white-collar sales and managerial jobs in the agribusiness sector. Many times, agriculture students are sought, not only for their technical skills and acquaintance with agriculture, but for their habits and positive attitude toward work.

Today there is a revived realization of the importance of agriculture in assuring an ample food supply both for domestic consumption and world trade. For these reasons attitudes within the United States are becoming more favorable toward agricultural occupations. As a result, agricultural careers have become more attractive to a broader range of young people.

Agronomy curricula will most likely continue to draw heavily on students with family ties to production agriculture. But any growth in student enrollments must come from among students lacking these experiences. This has been the pattern behind the growth in student enrollments in Schools and Colleges of Agriculture described herein. The challenge to agronomy and animal science

educators is to incorporate new experiental learning opportunities outside the traditional classroom setting into the educational program (9, 10). These may include such things as closer attention to the establishment of cooperative education arrangements with farm and ranch organizations and with a variety of agribusiness firms; or development of internship programs with onsite faculty visitation patterned after that used in education. In another way, it may be important to expose the beginning student to the realities of agriculture and agricultural careers by developing some type of contact with various agribusiness activities early in their college programs.

Seldom do educators have available to them primary data for a wide cross-section of students in their specialty. More specifically, we know of no other study that addresses the subjective goals of college students specifically majoring in agriculture. In these changing times marked by a renewed awareness and concern for agricultural education, it is more important than ever that educators in agriculture acquire a better understanding of their student clientele.

The goals and aspirations of agriculture students, as examined in Part II of this paper, show a great deal of diversity, as reflected in the diverse curricula encompassed by colleges of agriculture. The small proportions who desired or expected occupations in production agriculture reflect the shifting structure of the industry. Fewer individuals are directly involved in the direct production process, but many more play a role supporting the farmer in research, technical assistance, marketing, and the provision of services to the farmer.

In Part III, we found that the parents continue to be perceived as influential in deciding to enroll in an agriculture related major. College related friends represent a second source influence. Also relating especially to this

decision are the personal motivations relating to career preparation and the associated desire to have a career compatible with country living.

Agriculture students appear to have considerable pride in their academic choice, if this may be inferred from their strong positive perceptions of their agriculture peer group. Additional support for this contention can be found in the optimistic attitudes expressed about the future of the agricultural industry and its potential for young people seeking career opportunities.

Agronomy students were characterized by a subjective profile reflecting small but consistent differences from animal science students and the aggregate of agriculture students. Furthermore, the differences between agronomy and animal science students were the most pronounced. One conclusions is that the agriculture student today is much different from the student of a generation ago. This is as it should be, in our opinion, because agriculture is a vastly different and more complex industry. But most importantly, all agricultural curricula, including the most basic, have shared in this metamorphosis of its students. What is true for agriculture students is largely true of agronomy students as well. New forms of field experiences and innovative teaching techniques are required in all curricula to serve the needs of today's agriculture and agronomy students.

FOOTNOTES

[1]The terms 1862 and 1890 institutions refer to separate Morrill Acts that created agriculture schools for whites and blacks in 18 Southern and border states. The 1862 institutions are the larger, predominantly white institutions in each state. In this study, 1890 respondents were approximately 15 percent white, and the 1862 respondents were approximately 5 percent black.

[2]All thirteen 1862 and eleven of the 1890 institutions providing agriculture education programs are included as part of this study. The 1890 institutions are: Alabama A & M University, Alcorn State University (MS), University of Arkansas - Pine Bluff, Florida A & M University, Fort Valley State College (GA), Langston University (OK), North Carolina A & T University, Prairie View University (TX), and Virginia State College. The 1862 institutions are: University of Arkansas - Fayetteville, Auburn University (AL), Clemson University (SC), University of Florida, University of Georgia, University of Kentucky, Louisiana State University, Mississippi State University, North Carolina State University - Raleigh, Oklahoma State University, University of Tennessee, Texas A & M University and Virginia Polytechnic Institute and State University.

[3]Agronomy majors include: Agronomy, Plant Science (Crop Production), Plant Pathology, or Protection, Range Science, Soils Science, and Turgrass Management. Our classification does not include horticulture majors.

[4]Animal Science majors included: Animal Science, Dairy Science, Food Technology,

[5]No statistical tests of comparison are presented because many of the percentages are selected cells from more complex crosstabulations, and statistical tests would be inappropriate without benfit of the full table. As the sample is large, and the strategy of analysis is to compare percentage differences on a large number of characteristics; we consider differences of 5 percentage points or more to be substantively more meaningful, and less likely attributable to measurement or sampling error.

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Table 1. Background Characteristics of Agriculture Students by Curriculum Type

Characteristic	Curriculum		All Students
	Agronomy	Animal Science	
	percent		
Female	15.8	38.2	25.4
Nonwhite	15.6	9.2	10.2
Foreign citizen	7.3	3.2	3.1
Married	20.0	11.1	13.4
Parent's residence:			
Farm	24.3	24.8	21.0
Rural nonfarm (less than 10,000)	43.1	38.5	45.2
Urban (10,000-500,000)	32.5	36.7	34.8
Weighted sample size	329	843	2,801

Table 2. Family Characteristics of Agriculture Students by Curriculum Type

Family Background Characteristic	Curriculum		All Students
	Agronomy	Animal Science	
	percent		
Father's Residence			
Reared on farm	40.0	34.7	34.5
Reared rural nonfarm	41.0	42.1	43.8
Father's Education			
Less than high school graduate	20.6	12.9	14.8
College graduate	36.8	44.3	42.2
Father's Occupation			
Managerial or professional	49.6	54.4	51.2
Farm production	23.3	17.9	16.5
Ag. related non-production	10.2	4.4	8.1
Mother's Residence			
Reared on farm	33.4	26.9	27.1
Reared rural nonfarm	48.4	48.8	50.2
Mother's Education			
Less than high school graduate	15.4	9.5	10.9
College graduate	22.2	29.1	27.6
Mother's Occupation			
Managerial or Professional	17.9	25.8	22.9
Employed	40.8	49.7	48.2
Parents:			
Live on farm	28.9	32.4	26.5
Own or rent farm	42.8	44.2	39.8
Primary income from farm	39.4	29.8	32.3
Income below $15,000	34.2	26.3	30.1
Income above $25,000	28.2	35.8	33.8
Weighted sample size	329	843	2,801

Table 3. High School Background Characteristics of Agriculture Students by Curriculum Type

High School Characteristics	Curriculum		All Students
	Agronomy	Animal Science	
	percent		
Size of high school:			
Fewer than 150 in class	45.1	36.8	38.4
400 or more in class	20.1	28.8	27.6
Graduated with A average	20.3	31.7	26.7
Completed agriculture course	25.1	24.5	24.7
4-H member	25.4	31.3	25.4
FFA member	29.4	27.3	25.8
4-H and/or FFA member	32.2	37.2	31.8
Weighted sample size	329	843	2,801

Table 4. Work Experience of Agriculture Students by Curriculum Type

Agricultural Work Experiences	Curriculum		All Students
	Agronomy	Animal Science	
	percent		
On home farm or ranch	54.0	56.6	48.8
Hired labor (farm or ranch)	55.3	54.5	48.5
Other agricultural work	70.5	59.0	58.9
Weighted sample size	329	843	2,801

Table 5. Desired and Expected Occupational Categories for Agriculture Students by Curriculum Type

Occupational Category	Desired Occupation			Expected Occupation		
	Agronomy	Animal Science	All Students	Agronomy	Animal Science	All Students
	Percent					
Professional & Technical	36.3	59.9	54.4	30.6	41.4	42.0
Nonfarm Managers & Administrators	18.3	8.3	13.4	21.9	11.2	15.4
Farm Operators & Managers	31.4	21.2	18.3	20.1	21.0	13.8
All other Nonfarm	2.1	2.6	2.8	4.9	5.4	5.2
Not reported	11.9	8.0	11.1	22.5	0	23.6
Weighted sample size	329	843	2,801	329	843	2,801

Table 6. Desired and Expected Agricultural Occupations Mentioned by Agriculture Students by Curriculum Type

Agricultural Occupations	Desired Occupation			Expected Occupation		
	Curriculum		All Students	Curriculum		All Students
	Agronomy	Animal Science		Agronomy	Animal Science	
	Percent					
Production agriculture operators	31.3	19.2	18.2	21.0	19.3	14.5
Farm manager	4.3	4.2	2.4	5.1	7.7	3.6
Ornamental horticulture	6.1	--	4.2	2.0	0.7	4.8
Agricultural production services (includes veterinarian)	9.9	53.8	24.9	18.0	39.7	20.7
Agricultural supplies & mechanical services	3.1	1.4	1.9	4.2	2.4	2.8
Agricultural research	10.0	1.4	5.1	11.0	3.8	6.2
Agricultural education	5.7	2.5	3.3	4.4	4.0	3.2
Agricultural business	0.5	1.7	0.6	1.1	3.2	1.3
Agricultural communi-cations	3.0	0.2	0.7	1.7	0.2	0.4
Conservation and forestry	8.7	.4	13.5	13.8	0.8	13.5
All other agriculture	0.8	4.1	2.5	0.3	4.9	3.4
Non - agriculture	16.6	11.1	22.7	17.4	14.0	25.6
Weighted Sample Size	329	843	2,801	329	843	2,801

Table 7. Goals and Expectations of College Agriculture Students by Curriculum Type

Goals and Expectations	Curriculum		All Students
	Agronomy	Animal Science	
	Percent		
Desire to live on farm or ranch	45.9	48.6	39.1
Expect to own farm or ranch someday	50.1	37.3	45.3
Expect to inherit a farm or ranch	54.5	52.5	48.6
Desire post-graduate education	58.1	76.1	67.9
Expect post-graduate education	32.6	55.3	43.0
Expect first job incomes of $12,500 or more (1977)	22.5	37.6	28.7
Weighted sample size	329	695	2,801

Table 8. Persons Perceived as Influencing the Choice of Major for Agriculture Students by Curriculum Type

Influence Source*	Curriculum: Agronomy	Curriculum: Animal Science	All Students
	Percent		
Family			
Father	65.5	71.2	66.0
Mother	57.5	69.6	61.4
Brother	23.7	26.0	23.6
Sister	15.1	19.5	17.7
Other relatives	33.2	30.9	29.7
High School			
School friends	22.0	26.4	26.8
School counselor	16.1	20.7	18.5
Vocational agriculture teacher	21.1	17.6	17.4
Other teachers or principal	19.3	25.2	23.1
College			
College friends	37.0	35.7	35.6
College teacher or advisor	43.0	38.7	37.6
Agriculture Dean	16.3	12.3	13.1
College alumni	23.7	24.7	23.1
Professional Contacts			
Veterinarian	7.5	55.5	24.4
County extension agent	12.8	14.7	11.1
Clergyman	6.1	7.7	6.3
Weighted sample size	329	843	2,801

*Percent rating source as being "some" or "very" influential.

Table 9. Reasons for Choosing an Agriculture Major Rated Very Important by Agriculture Students by Curriculum Type

Reasons*	Curriculum		All Students
	Agronomy	Animal Science	
	Percent		
Career preparation	80.8	76.2	73.7
Preference for country life	54.2	55.2	48.7
Desire to help others	34.5	32.2	28.6
Successful agriculture experiences	29.0	30.9	24.1
Better chance to earn a good income	19.5	17.2	16.4
Related college course	16.4	11.6	12.0
Related high school course	4.4	3.9	6.4
College teacher or advisor suggested	6.0	3.1	5.0
Better chance to make good grades	3.7	2.8	3.1
Friends were agriculture majors	2.9	2.8	2.9
Friends advise choosing agriculture major	4.0	3.1	2.7
High school teacher or counselor suggested	2.2	1.7	2.7
Weighted sample size	329	843	2,801

*Includes only responses of very important.

Table 10. Group Self-Perceptions for Agriculture Students by Curriculum Type

Self-Perceptions	Curriculum		All Students
	Agronomy	Animal Science	
Agriculture students are:	Percent		
More friendly and helpful to other people.	53.6	59.4	56.2
More sure of what they want to do in life.	47.3	43.8	43.1
More seriously concerned about the state of the nation and world.	33.5	28.8	31.4
Less interested in making a lot of money.	26.9	19.7	24.5
Less tolerant of people who come from a different background.	15.4	22.0	19.2
Less interested in competing for high grades.	20.0	17.8	18.3
More willing to accept new and unusual ideas.	18.9	14.1	17.7
More interested in having a good time at college.	10.9	9.9	10.6
Weighted sample size	329	843	2,801

Table 11. Attitudes Toward Occupations in Agriculture for Agriculture Students by Curriculum Type

Statement	Curriculum		All Students
	Agronomy	Animal Science	
	Percent		
There are good career opportunities in agriculture.	95.0	91.1	87.9
Greater regulation is needed on the use of chemicals in agriculture.	60.0	53.5	58.3
The government should be able to force farmers to adopt soil conservation practices if they have erosion problems.	53.2	41.4	48.4
Most agricultural occupations are unsuited to women.	28.9	26.0	23.9
Most work in agriculture can be done by people with little education.	13.7	12.4	12.5
Agriculture is a declining industry.	8.4	9.0	7.9
Weighted sample size	329	843	2,801

Table 12. Political Preferences of Students (and their Fathers) by Curriculum Type

Political preference	Curriculum		All Students
	Agronomy	Animal Science	
	Percent		
Students			
Conservative	27.8	38.6	31.5
Moderate	40.7	33.7	34.7
Liberal	26.1	23.6	27.8
None	5.4	6.2	5.9
Fathers			
Conservative	59.8	58.2	54.8
Moderate	24.6	22.3	24.5
Liberal	3.7	6.7	7.2
Don't know	11.8	12.8	13.5
Student-Father Compared			
Student preference is:			
More conservative than father	13.3	12.6	13.5
Same as father	37.0	45.0	40.1
More liberal than father	49.8	42.5	46.4
Weighted sample size	329	843	2,801