

Perceptions and Perceived Knowledge Levels of Texas Public School Superintendents Regarding the Agricultural Science and Technology Program

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ABSTRACT

The superintendent is a public school district's highest academic officer. The success of an agricultural science and technology program can be dependent on whether the superintendent recognizes the program as a vital part of the school and society. Therefore, the primary purpose of this study was to determine the perceptions and perceived knowledge levels of Texas public school superintendents regarding the agricultural science and technology program.

The statement of the problem was that the agricultural science and technology program in Texas is not fulfilling its maximum potential in its efforts to provide a high quality education for the student population it serves. Recognition by the program and its teachers of those areas in which improvements can be made is necessary to achieve this maximum potential and enable the superintendent to realize the program's value and its objectives.

The design for the study was descriptive, using a mailed questionnaire to gather data. The population for the study was Texas public school district superintendents in whose district an agricultural science program was offered during the 1999-2000 school year. One hundred superintendents were randomly sampled. The sample was proportional and stratified according to the ten geographic areas of the Texas FFA Association. A 71% response rate was attained.

Ninety percent of the respondents were male, the majority (55.7%) were 50 to 59 years old, and 91.4% were Anglo. Two-thirds (66.7%) indicated academics as their primary teaching area, and a vast majority had no career and technology education (82.9%) or agriscience (88.6%) teaching experience. Most (58.6%) had not been enrolled in agriscience themselves, almost two-thirds (65.7%) had not had a child enrolled, and 67.1% had work experience in agriculture.

As a group, superintendents were found to have a positive perception of the agriscience program and its teachers. Generally, they perceived the program to be a wise investment of fiscal resources and that agriscience is beneficial to students of various academic abilities. They also considered teachers to have a professional and positive image among those involved in education, and perceived teachers to be successful in meeting various students' needs. Superintendents perceived themselves to be very knowledgeable about most aspects of the program, with knowledge levels higher for areas related to funding and lower in areas related to the curriculum. Finally, they most often cited areas related to curriculum and academics as changes needed in order to remain a part of the Texas public school system in the future.

Introduction/Theoretical Framework

In 1988, the National Research Council stated that “Agriculture is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture and pursuing vocational agriculture studies.” (p. 8). The National Council for Agricultural Education (1999) envisions agricultural education as a world where all people value and understand the vital role of agriculture, food, fiber and natural resources systems in advancing personal and global well-being. Lee and Thomas (1995) wrote that “relevant agricultural education is in the best interest of the people individually and of the United States as a collection of people.” (p. 11). Reports by entities such as the National Research Council (1988) and The National Council for Agricultural Education (1999) have examined the challenges facing agricultural education and the new directions that need to be taken.

Almost since their inception, agricultural science and other vocational programs have been a part of the comprehensive high school system throughout the nation (Martin and Peterson, 1991). Furthermore, the secondary agricultural curriculum has been oriented towards production agriculture (King, 1991). Martin and Peterson (1991) stated that production agriculture still dominates most agricultural education programs, even though it no longer represents a major proportion of the jobs in the agricultural industry.

The rapidly changing demographics of the United States from a rural to an urban society have created challenges for agricultural education. Public schools’ desire to prepare students for succeeding in an urban society has created a focus on a more rigorous academic program, one that readies students to continue their education at an institution of higher learning (K. Edney, personal communication, April, 1995). These factors have subsequently led administrators, board members, teachers and communities to view today’s agricultural education in the same way that vocational agriculture was previously viewed - as a system with a duty to prepare students for immediate entry into farming and agriculturally-related occupations (Viterna, 1971). Students considered to have higher academic skills are often discouraged from enrollment in career-oriented programs for courses perceived to be more challenging. As a result, students and parents have developed negative stereotyped attitudes regarding programs such as agricultural education (Dyer & Osborne, 1997). Additional graduation requirements of the Texas Education Agency (1999a), such as those outlined in the Recommended High School Program (§74.12) and the Distinguished Achievement Program (§74.13), mandate that students complete a more advanced program of study, thereby limiting the number of elective and optional courses while requiring additional credits in areas such as fine arts and other languages. Schools are also giving more attention to the portions of the Academic Excellence Indicator System (AEIS) that reward them for having a high percentage of students on the two "advanced" graduation plans.

The superintendent is first and foremost the chief academic officer (Spillane & Regnier, 1998). He/she is responsible for empowering principals, who then empower her/his own staff to provide the instructional program, in addition to ensuring that established goals for the campus are met (Konnert & Augunstein, 1995). Superintendents must help identify the portions of an ideal agricultural science program necessary to help students meet the needs and demands of a global economy and workforce (B. Shaw, personal communication, January 28, 2000).

The influence of an administrator was found in a study of Kansas school districts that did not have agricultural education programs. The study concluded that administrators did not want the program in spite of the support by rural residents and agribusiness representatives (Parmley, 1982). A United States Department of Education (1979) national study also found a significant number of administrators did not support programs providing job skills through vocational programs, and these same administrators will determine whether or not vocational education is available in secondary schools. Counselors were found to often encourage the conventional academic route over the vocational route (Lewis & Kaltreider, 1976). Jackson and Herring (1998) concluded that high school counselors in Texas had only a slightly positive perception of the agriscience program.

There have been studies that found support for agricultural programs. Eighty percent of superintendents and principals in Nebraska indicated they favor a vocational agriculture program (Viterna, 1971). Principals in Indiana indicated they support the vocational agriculture program, but the teachers did not feel the principals took as much interest as they indicated (Martin, 1986). Administrators in Indiana also believed that vocational education should be a part of the education of all pupils (Nasstrom & Baker, 1979). A Texas study regarding communication between agriscience teachers and school administrators found the administrators to have a high regard for the program (Hinkson, 1999).

Purpose/Objectives

There has not been a major study in Texas to ascertain the perceptions and perceived knowledge levels of Texas public school superintendents regarding the agricultural science and technology program. Superintendents were selected for this study because they are the primary educational leader in cities and communities, and will thus have the most significant impact regarding the educational plans for schools.

Superintendents must recognize the agricultural science program as a vital part of the school, community, and society if the program is to be successful. In this regards, it is vital that superintendents recognize the role of the agriscience program in the public schools of Texas. Equally pertinent is the need for educators in the agricultural science program to realize opportunities to improve. Thus, the primary purpose of this study was to determine the perceptions and perceived knowledge levels of Texas public school superintendents regarding the agricultural science and technology program.

As a means of accomplishing the purpose of the study, the study focused on determining the following objectives:

1. Demographic characteristics of superintendents of Texas' public school districts;
2. Perceptions of public school superintendents in Texas toward the agricultural science program, its purpose, and its role in the total school program and the school's goals;
3. Areas of change needed by agricultural science programs, as perceived by Texas public school superintendents;
4. Quality, performance, and/or success of agricultural science teachers, as perceived by Texas public school superintendents, in regard to:

- a. professionalism and image;
 - b. instructional abilities as it relates to preparing students for gainful employment and/or higher education;
 - c. knowledge of agriculture; and
 - d. involvement in the total school program;
5. Perceived level of knowledge possessed by Texas public school superintendents regarding the agricultural science program;
 6. Future direction needed for the agricultural science and technology program, as perceived by superintendents of Texas' public school districts.

Methods/Procedures

The targeted population sample (superintendents of public school districts in Texas) was derived from districts whose high schools include agricultural science as part of the instructional program. In the 1999-2000 school year, there were approximately 880 school districts in Texas with high schools that offered agricultural science courses at the middle and high school level (Instructional Materials Service, 1999). The number of superintendents surveyed was determined according to the formula developed by Cochran (1977). The superintendent of those districts was determined by utilizing the 1999-2000 Texas Public School Directory (Texas Education Agency, 1999b) and personal communication. One hundred superintendents were included in the sample and 71 responded, resulting in a 71% response rate.

To further ensure the external validity of the survey, schools were selected within the ten geographically-arranged "areas" of the Texas FFA Association by stratified random selection. Some areas are comprised of as few as 75 agriscience departments while others have in excess of 95. Within each area, the desired number of schools was chosen using random selection.

Questions for the questionnaire were derived from a variety of previous studies that determined similar attitudes, perceptions, relationships, opinions, and practices of administrators regarding the agricultural science program and its teachers. These previous studies were conducted in Georgia (Woodard & Herren, 1995), Illinois (Dyer & Osborne, 1997), Mississippi (Johnson & Newman, 1993), Nebraska (Foster, Bell, & Erskine, 1995; Viterna, 1971), North Carolina (Jewell, 1995; Price, 1990), Oregon (Bender, 1996; Thompson, 1998), and Texas (Jackson & Herring, 1998). Additional questions were created by the researcher and Texas Tech University Department of Agricultural Education and Communications faculty members to address specific attitudes and perceptions that had not been previously studied. The instrument was mailed via first-class mail. Guidelines of Dillman's (1978) Total Design Method (TDM) were followed to increase response rates. The desired rate of response was 100%, with a 70% response rate considered the minimum acceptable level. Follow-up procedures continued until this minimum acceptable response rate was achieved or exceeded.

The instrument was a five-part mailed questionnaire. Part One contained questions pertaining to the demographic information of the subjects. Part Two consisted of questions pertaining to the superintendents' perceptions of the purpose, need, functions, and value of the agricultural science program, in which an eight-point Likert-type scale was used to record levels

of agreement with statements. Part Three contained questions related to superintendents' perceptions of the ideal characteristics of an agricultural science teacher, their role in the agriscience and total school programs, their expectations regarding professionalism and professional development, and instructional abilities. The same eight-point Likert-type scale was used to indicate levels of agreement with statements. Part Four contained statements related to the agriscience program, to which superintendents indicated their perceived level of knowledge or awareness. To allow for a more elaborate response, Part Five consisted of short response questions that allowed superintendents to address specific areas not previously identified.

The instrument was evaluated to determine the validity of its content by several entities prior to distribution. Evaluators included faculty and graduate students in the Agricultural Education and Communications Department at Texas Tech University, high school agricultural science teachers, and public school administrators. Field review of the instrument was also conducted by pilot testing the survey at approximately 30 schools throughout the state, and such schools included those not randomly selected for the actual study.

Data were coded, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) for the Macintosh computer. Descriptive statistics were reported using demographic characteristics and responses of participants.

For purposes of discussion, means for agreement or knowledge are reported using the following interpretations: a mean of 7.6 or above denotes the highest level or complete; a mean between 7.5 and 6.6 indicates a very high level; a mean between 6.5 and 5.6 signifies a moderately high level; all means within the range of 5.5 to 4.6 indicate a reasonably high level; a mean within the 4.5 to 3.6 range denotes a reasonably low level; a mean between 3.5 and 2.6 indicates a moderately low level; any mean between 2.5 and 1.6 signifies a very low level; and a mean of 1.5 or below indicates the lowest level or none.

Results/Findings

Demographics

Ninety percent of respondents were male, the majority (55.7%) were between 50 and 59 years of age, and Anglo (white, non-Hispanic) was indicated by 91.4% as their ethnicity. Forty-nine of the 70 respondents (70%) had spent between five and 14 years as a classroom teacher, with the largest group (47.1%) having five to nine years of experience. Slightly over 40 percent (40.6%) stated it had been 20 or more years since they were last employed as a classroom teacher. Two-thirds (66.7%) of the respondents indicated academics (language arts, history, science, or math) as their primary teaching area. A vast majority (82.9%) said they had no teaching experience in career and technology education, and an even greater percentage (88.6%) said they had no agricultural science teaching experience.

Most (58.6%) of the superintendents were found to have not been enrolled in agricultural science/vocational agriculture while in high school and/or college, and almost two-thirds (65.7%) said their children had not been enrolled in high school agricultural science/vocational agriculture. However, slightly more than two-thirds (67.1%) of the participants indicated they

had some work experience in agriculture, as the largest percentage (47.1%) were found to have been raised in a rural hometown with a population of 2,500 or less.

Twenty-five respondents (35.7%) stated they had four or less years experience as a superintendent, and over 87 percent (87.1%) had 14 years or less experience as a school district's chief administrator. Most (55.7%) of the participants' school districts were located in a rural town with a population of 2,500 or fewer, with the largest percentage of superintendents (45.7%) indicating their school districts has less than 1,000 students.

Perceptions Toward the Agriscience Program

Respondents were asked to indicate their level of agreement with certain statements pertaining to their perception of the agricultural science and technology program as a whole and not as they relate to the program within their individual school district (Table 1). An 8-point Likert-type scale was provided for participants as per the following: 1 = lowest level of agreement or no agreement, and 8 = highest level of agreement or complete agreement.

Table 1

Superintendents' Agreement with Statements Regarding the Agriscience Program

Statement	Mean ^a
Instruction in agriscience needs to have more emphasis placed on technology/ computer applications.	6.9 ^b
Instruction in agriscience needs to have more emphasis placed on the integration of science, mathematics, etc.	6.8 ^b
Instruction in agriscience needs to have more emphasis placed on leadership development.	6.7 ^b
The amount of funds currently spent on the agriscience program is a wise investment of local, state, and federal resources.	6.5
The agriscience program should provide students with specific skills needed to both become gainfully employed and pursue a higher education.	6.5
The agriscience program is useful and successful in helping at-risk students remain interested in their education, lessening the likelihood that they will drop out of school.	6.3
Instruction in agriscience needs to have more emphasis placed on biotechnology.	6.2 ^b
Instruction in agriscience needs to have more emphasis placed on environmental and natural resources.	6.1 ^c
Instruction in agriscience needs to have more emphasis placed on agribusiness.	6.1 ^c
Agriscience is very useful in helping students to make a personal connection to, and find relevance in, non- curricula areas.	5.7
Certain courses in agriscience should be permitted to count for credit in courses such as science, speech, and economics, if the teacher completes additional training or coursework in the corresponding area.	5.7

(table continues)

Statement	Mean ^a
There would be more support for the agriscience program from administrators, teachers, parents, students, and communities if the program achieved higher standards in preparing students for higher education.	5.6
The agriscience program focuses too much attention on livestock showing.	5.5
Supervised Agricultural Experience Programs (SAEPs) are a vital component of the agriscience program that should continue as part of the program's requirements.	5.5
Instruction in agriscience needs to have more emphasis placed on horticulture/landscaping.	5.4 ^c
Instruction in agriscience needs to have more emphasis placed on animal care/health.	5.4 ^b
Instruction in agriscience needs to have more emphasis placed on agricultural mechanization.	5.4 ^c
Instruction in agriscience needs to have more emphasis placed on food science.	5.3 ^c
Instruction in agriscience needs to have more emphasis placed on wildlife management.	5.3 ^c
Instruction in agriscience needs to have more emphasis placed on plant production.	5.3 ^c
The general public, especially parents, believe that students who intend to pursue a higher education after high school graduation should not be enrolled in agricultural science courses, regardless of the major and occupation they intend to pursue.	4.8
Instruction in agriscience needs to have more emphasis placed on animal production.	4.8 ^c
Agriscience is less of a vocational program and more of an academic program than other career and technology education programs.	4.3
The agriscience program focuses too much attention on judging contests.	4.1
Most careers in agriculture are production-based, and the limited opportunities for students to obtain employment in this area lessens the need for agriscience programs in today's high schools.	3.8
The agriscience program focuses too much attention on production agriculture.	3.8
The agriscience program focuses too much attention on FFA activities.	3.5
A general course in agriscience should be required of all high school students to fulfill graduation requirements in the same manner that credit is required of all students in economics, speech, health, and technology applications.	3.4
Agriscience primarily a vocational program whose main function is to prepare students for immediate entry into the work force following high school graduation.	3.3
The agriscience program focuses too much attention on agricultural mechanization.	3.3
The agriscience program focuses too much attention on horticulture.	3.0 ^b
The agriscience program focuses too much attention on agribusiness management.	2.6 ^b
The agriscience program focuses too much attention on environmental and natural resources.	2.5
The agriscience program focuses too much attention on leadership development.	2.1

Note. N=70

^a Mean = 1 (Lowest Level of Agreement or No Agreement) and 8 (Highest Level of Agreement or Complete Agreement). ^b N = 69, 1 missing response. ^c N = 68, 2 missing responses

The highest levels of agreement were indicated by superintendents regarding the need for more emphasis on technology/computer applications (6.9), integration of science, mathematics,

etc. (6.8), and leadership development (6.7). They also agreed at a moderately high level of agreement that the amount of funds spent on programs as a wise investment of resources (6.5), and on whether the program should provide students with specific skills for both gainful employment and pursuing a higher education. The program is useful and successful among at-risk students (6.3), while more emphasis needs to be placed on biotechnology (6.2), environmental and natural resources (6.1), and agribusiness (6.1). Respondents did not believe that too much attention is focused on agribusiness (2.6) or environmental and natural resources (2.5) as a curriculum area, as well as leadership development (2.1).

Perceptions Toward Agriscience Teachers

Respondents were asked to indicate their level of agreement with certain statements pertaining to their perception of agricultural science and technology teachers as a whole and not the teacher(s) within their individual school district (Table 2). An 8-point Likert-type scale was provided for participants as per the following: 1 = lowest level of agreement or no agreement, and 8 = highest level of agreement or complete agreement.

Table 2

Superintendents’ Agreement With Statements Regarding Agriscience Teachers

Statement	Mean ^a
Agriscience teachers should possess a significant level of knowledge about all phases of agriculture, as compared to a specialization in one or two aspects of the agricultural industry.	5.9
Agriscience teachers portray a positive professional image to, and have a positive professional relationship with, students.	5.9
Agriscience teachers portray a positive professional image to, and have a positive professional relationship with, parents.	5.8
Agriscience teachers portray a positive professional image to, and have a positive professional relationship with, administrators.	5.8
Agriscience teachers portray a positive professional image to, and have a positive professional relationship with, the community.	5.7
In terms of life skills and their respective content areas, agriscience teachers do as good a job as “academic” teachers do in educating students.	5.6
Agriscience teachers do a good job of equipping students with desirable employability and life skills that will enable them to be productive members of society.	5.5
Agriscience teachers tend to do a better job of educating, encouraging, and motivating lower achieving students as compared to other teachers in the school.	5.4
Agriscience teachers portray a positive professional image to, and have a positive professional relationship with, the field of education as a whole.	5.3
Agriscience teachers provide instruction to students that adequately prepares them for immediate and successful entry into the work force after high school graduation.	5.2
Agriscience teachers portray a positive professional image to, and have a positive professional relationship with, other teachers.	5.2

(table continues)

Statement	Mean ^a
In order to receive their certification, agriscience teachers should be required to pass an Examination for the Certification of Educators in Texas (ExCET) in the area of Production Agriculture.	5.2 ^b
Agriscience teachers provide instructional opportunities to students that adequately prepare them to continue their education at a postsecondary institution.	5.1
Agriscience teachers are well-prepared to offer instruction at an acceptable and challenging level for students intending to pursue a higher education.	5.1
Agriscience teachers are well prepared by university agricultural teacher education programs to conduct a successful agriscience program and prepare students for a higher education or entry into the work force.	5.0
Agriscience teachers do an acceptable job of enhancing their technical and professional skills by participating in various professional development activities.	4.9
Agriscience teachers are able to provide instructional opportunities in agriscience at a level that would warrant students being able to obtain credit for science, speech, and/or economics through agriscience courses.	4.8
Agriscience teachers are able to integrate curriculum areas such as science, economics, and speech into the agriscience curriculum at an acceptable and challenging level for students of all academic abilities.	4.7
Agriscience teachers are adequately involved in the total school program and all students, and not concerned only with the agriscience program and its students.	4.5
Agriscience teachers should be employed on 12-month contracts due to Supervised Agricultural Experience Programs (SAEPs) and student participation in leadership activities, in addition to teacher participation in professional development activities.	4.5
Agriscience teachers place an acceptable level of emphasis on curriculum and instruction as compared to the amount of attention given to extracurricular activities such as FFA contests and livestock shows.	4.4
Agriscience teachers should have smaller teaching loads than other teachers due to the extra duties they are required to perform, such as SAEP visits, FFA activities, facility management, etc.	4.1 ^b

Note. N=70

^a Mean = 1 (Lowest Level of Agreement or No Agreement) and 8 (Highest Level of Agreement or Complete Agreement). ^b N = 69, 1 missing response.

Highest agreement levels were found regarding whether teachers should possess a significant level of knowledge about all phases of the agricultural industry as compared to specialization in selected aspects (5.9). Agriscience teachers portray a positive image to, and have a positive relationship with, students (5.9), parents (5.8), administrators (5.8), and the community (5.7). Teachers do a good a job in terms of teaching life skills and their respective content area when compared to “academic” teachers (5.6).

Perceived Knowledge Levels of the Agriscience Program

Regarding program funding, superintendents are very highly knowledgeable about the receipt of weighted state funding for students enrolled in agriscience courses compared to

traditional academic courses (7.0). They are also quite knowledgeable in regard to the permitted use of these funds only on career and technology programs, except for allowable administrative costs (6.5). However, almost 13% (12.9%) indicated some low level of knowledge about this funding use. They are aware of the availability of federal funds from the Carl Perkins Federal Vocational Act and the use of these funds for teacher travel in certain instances (6.2).

Agriscience as a Part of the Future in Texas's Public Schools

When asked to indicate what the agricultural science and technology program must do in order to remain a part of the public school system in Texas, superintendents most commonly made some mention of a needed change related to curriculum and academics (35.4%). A change in the perception and/or image of the program was cited by slightly more than 20 percent (20.1%) of respondents, 16.7% of the responses addressed career preparation, and another 16.7% mentioned planning for and meeting future needs of students and society.

Conclusions/Recommendations

Conclusions

Superintendents in Texas are not representative of the diversity that is found in the state's general population. According to U. S. Census Bureau (2000) population estimates for 1998, the Texas population is approximately 50% female, 65% White, 23% Hispanic, 10% Black, 2% Asian American, and 0.4% Native American. This is in stark contrast with Texas public school superintendents who are predominantly White (91.4%) and male (90%). The sample did reflect the gender and ethnicity of the population, which is 88% male, 91.1% White, 7.1% Hispanic, and 1.4% African American (T. Reichle, personal communication, June 23, 2000).

As a group, superintendents in Texas represent an "older" portion of the populations in the state. The average age of the superintendent in the study was 50 to 59 years, while the median age for the state's population is 33 (U. S. Census, 2000).

Superintendents in Texas have very little recent experience as high school teachers. The average time spent as a high school teacher was 5–9 years, and the majority of the individuals have been out of the classroom for more than 20 years. Most superintendents in Texas come from an academic teaching area such as language arts, history, mathematics, or science. Most superintendents in Texas have not had lengthy experience as a superintendent. The majority has less than ten years of experience, and over one-third have four years or less. Very few have teaching experience in career and technology education or agricultural science.

Most superintendents lack "real-life" experience with agriscience programs. Although a substantial number (41%) have been enrolled in an agriscience/ vocational agriculture program or have had children enrolled in such programs (34%), most superintendents lack experience as a student or parent. Surprisingly, most public school superintendents in Texas have had agricultural work experience. Some of this is probably due to another surprising fact – most were raised in a rural environment (small town with a population of 2,500 or less).

Texas superintendents, as a group, have a positive perception of the agricultural science program and of those who teach agricultural science. They believe the amount of funds spent on agriscience programs is a wise investment of resources, and that the program provides students with specific skills needed for both gainful employment and higher education.

Most superintendents perceive themselves as being very knowledgeable about most aspects of the agriscience program. Their knowledge level is highest in areas related to funding and lower in areas related to the curriculum. In terms of perceived needs, superintendents sense a need for agriscience programs to address academics and current practices in order for it to remain a part of the Texas public school system in the future. They also perceive a need for changing the program's image to match changes in society and ensure its future.

Recommendations

Efforts should be made to attain greater diversity in the superintendent population by encouraging more female, minority, and non-foundation area educators to pursue such a position. In addition, it is recommended that a study be conducted to determine why such a lack of diversity exists in this important educational position.

Superintendents should participate in activities related to classroom teaching to stay abreast of the demands and challenges faced by classroom teachers. This would help those who are older and farther removed from their teaching experience to remain current on various issues such as changes to student demographics and instructional activities. Teachers should invite superintendents to participate in agriscience activities to increase their familiarity with the program, enabling superintendents without previous connections to agriculture or the agriscience program to develop a greater understanding and appreciation for agricultural education.

Teachers should continue to ensure that the agriscience program prepares students of all academic abilities for both gainful employment and higher education. Agriscience teachers should give greater attention to academics and current practices, as well as changing the program's image and how it is perceived, in order to solidify its place in the public school system in Texas in the future. This might require less emphasis on extracurricular activities such as showing livestock and judging contests.

Efforts should continue to be made to enable students in certain agriscience courses to receive credit for foundation courses through the use of waivers. Teachers should be willing to participate in professional development and continuing education activities that better prepare them for conducting instructional activities that warrants such waivers. Further study is recommended of administrators, foundation course teachers, Texas Education Agency personnel, and State Board of Education members to determine and address any barriers that exist in enabling students to capitalize on this educational opportunity.

The agriscience program should continue to expand its role as an academic program. While it should continue to provide students with employability and life skills, current trends dictate a move toward higher academic standards. These efforts would also improve agriscience's image with administrators, all teachers, students, parents, communities, and the field of education as a whole.

Teachers need to increase their knowledge level of the weighted funding structure, uses for weighted funding, and sources and uses of federal funds to enhance program quality. Superintendents appear to be very knowledgeable in this area and should be supportive of requests that include reference to such.

Agriscience programs should integrate more science and mathematics into its curriculum, in addition to placing more emphasis on biotechnology, technology/computer applications, leadership development, and environmental and natural resources. Teachers should recognize the need for their involvement in the total school program. Such efforts would increase the program's visibility and standing as an academic program that is concerned with helping all students become successful.

Superintendents should be made aware of the vast career opportunities in the agricultural industry to remove any stereotypes of such careers being primarily based on production agriculture. Teachers should increase their efforts to educate, encourage and motivate lower achieving students. Agriscience permits many of these students to make a personal connection to other curricular areas and find relevance in them.

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