REPORT OF THE
DEPARTMENT OF EDUCATION

STUDY OF THE FEASIBILITY AND APPROPRIATENESS OF ESTABLISHING A GOVERNOR'S SCHOOL FOR AGRICULTURE IN VIRGINIA

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 34

COMMONWEALTH OF VIRGINIA
RICHMOND
1999

COMMONWEALTH of VIRGINIA

DEPARTMENT OF EDUCATION
P.O. Box 2120
Richmond, Virginia 23218-2120

PAUL D. STAPLETON
Superintendent of Public Instruction

Office: (804) 225-2023
Fax: (804) 371-2099
pstaplet@pen.k12.va.us

January 21, 1999

The Honorable James S. Gilmore, III
Governor of Virginia, and
The General Assembly of Virginia
3rd Floor, State Capitol
Richmond, Virginia 23219

Dear Governor Gilmore and Members of the General Assembly:

The study transmitted herewith is pursuant to House Joint Resolution No. 200 of the 1998 General Assembly of Virginia. This resolution requested the Board of Education to examine the feasibility and appropriateness of establishing a Governor's School for Agriculture. In accordance with HJR 200, this report addresses the need for specific programs and education and experiences, and similar schools for agriculture in other states.

Respectfully submitted,

Paul D. Stapleton

PDS:dta

Enclosure

PREFACE

This study was authorized by House Joint Resolution (HJR 200), requesting the Board of Education to examine the feasibility and appropriateness of establishing a Governor's School for Agriculture. In accordance with HJR 200, this report addresses the need for specific programs and the curriculum for a Governor's School for Agriculture, the methods of incorporating the education and experiences, and similar schools for agriculture in other states.

The principal investigators of this study were Dr. Glenn A. Anderson, Specialist, Agricultural Education, and Dr. Janie Craig, Specialist, Governor's Schools, Virginia Department of Education. Carole Inge, Associate Policy Analyst, Virginia Department of Education, provided technical assistance to the investigators. Appreciation is extended to the members of the Advisory Committee for this study and to the others who participated in the process.

The principal investigators acknowledge with grateful appreciation, the assistance of Dr. Jo Lynne DeMary, Assistant Superintendent for Instruction, Dr. Neils W. Brooks, Director, Office of Vocational and Adult Education Services, and Dr. Patricia Wright, Director, Office of Secondary Instructional Services, Virginia Department of Education, for their supervision of the development of this study and final report.

HJR 200

Contents

APPENDICES

EXECUTIVE SUMMARY

House Joint Resolution 200 (HJR 200) is the study of the feasibility and appropriateness of establishing a Governor's School for Agriculture. The major issues for consideration in the study were: "(1) the need for specific agricultural, technical, and professional training and programs and the types of curricula such Governor's School should offer; (2) the location, governance, and funding of such a school; (3) creative methods of incorporating the education and experience of farming, forestry, business, horticulture, and other agriculture-related industries and other experts in the delivery of instruction; (4) similar regional or special schools in other states; and (5) other issues as it deems appropriate."

An Advisory Committee was established for this study. The members of the Advisory Committee identified various items that were included under the major issues for consideration. These included:

- the need for specific agricultural, technical, and professional training
- the types of curricula, facilities, and resources needed
- methods of incorporating education and experience in the delivery of instruction.

A survey instrument was developed and sent to members of the agricultural and educational communities. The responses from the survey indicated that the survey respondents agreed with the need for a Governor's School for Agriculture and would support the School by providing resources. Also, a survey of the Superintendents of Schools in Virginia revealed that there would be numerous students interested in attending the school. The possible methods of providing a Governor's School for Agriculture include:

- statewide summer residential school
- summer regional school
- academic year school.

CHAPTER I. INTRODUCTION

House Joint Resolution 200 (HJR 200, Appendix A) requests the Board of Education to study the feasibility and appropriateness of establishing a Governor's School for Agriculture.

HJR 200 Primary Purposes

Agriculture is a significant and vital part of the economy of Virginia. Agricultural sciences are not the focus of any of the Governor's Schools in Virginia. However, a Governor's School for Agriculture "might provide a unique and invaluable educational alternative to effectively prepare students who wish to pursue a career in agricultural sciences." HJR 200 specifically requests the Board of Education to consider the following:

1. The need for specific agricultural, technical, and professional training and programs and the types of curricula such Governor's School should offer.
2. The location, governance, and funding of such a school.
3. Creative methods of incorporating the education and experience of farming, forestry, business, horticulture, and other agriculture-related industries and other experts in the delivery of instruction.
4. Similar regional or special schools in other states.
5. Other issues as it deems appropriate.

Importance of Agriculture in Virginia

A major consideration for this study is the economic importance of agriculture to the economy of Virginia. Virginia's agricultural economic system includes all activities that add value to its farm products. The major components of the system are farm production, processing, and distribution. A brief description of each component is given below.

Farm Production - All farm crops; livestock (cattle and calves, chickens, hogs and pigs, horses, sheep and lambs, turkeys); agricultural, horticultural and landscaping services; Christmas trees; aquaculture; vineyards; and private woodlots.

Processing - Processing by wineries, and processing of food, tobacco, and cotton textiles (excludes all non-cotton textiles, apparel, and textile-based consumer products).

Distribution - Transportation and the wholesale and retail sale of farm and processed products (including the basic value of food sold through restaurants but excluding all restaurant markup and restaurant activity itself).

According to the report "Virginia Agriculture Economic Contributions & Impact" (Virginia Department of Agriculture and Consumer Services, 1998), agriculture in Virginia is responsible for the following:

> Virginia agriculture generates approximately $35.9 billion in total sales for the state, which is 12.3 percent of all sales in Virginia.
>
> - $26.12 billion is directly related to agriculture
> - $9.74 billion is from the induced effects of agriculture on other sectors of Virginia's economy
>
> The agriculture industry in Virginia contributes approximately $19.5 billion to Virginia's Gross State Product (GSP), which is 11.2 percent of the total GSP.
>
> - $12.78 billion is directly related to agriculture
> - $6.69 billion is from the induced effects
>
> Agriculture creates approximately 388,000 jobs in Virginia, which is nearly 10 percent of the total jobs statewide.
>
> - 235,800 are directly related to agriculture
> - 152,000 are from induced effects

These are impressive figures and are even more so when combined with the value of the forestry industry to the economy of Virginia. Forestry is listed in HJR 200 as one of the particular areas to be included in the agriculture curriculum. According to the Virginia Department of Forestry, the forest resources contribute the following to the economy of Virginia:

- adds $11.5 billion annually to Virginia's economy
- continues to support one of the largest manufacturing industries in the state, ranking first in employment, second in wages and salaries, and fourth in value added
- gives $196 million back to Virginia landowners from selling their timber
- provides recreational opportunities to two-thirds of Virginia's citizens totaling $1.7 billion
- generates an estimated $35.2 million through minor forest products
- protects Virginia watersheds from erosion and sedimentation
- provides long-term carbon sequestration through forest management on 16 million acres of forest land, which contributes to clean air and enhances our quality of life
- provides important social benefits including attractive sites for homes, scenic beauty, wildlife habitat, a draw for visitors and potential new residents.

The forest industry employs over 220,000 in Virginia. Combining agriculture and forestry, approximately 508,000 workers in Virginia are employed in the two industries.

Virginia Governor's Schools

Standard 1 of the Standards of Quality requires that local school boards implement the early identification of gifted students and enrollment of such students in appropriately differentiated instructional programs [§22.1-253.13:1D.7.] The Virginia Board of Education has promulgated regulations addressing services for gifted students entitled, *Regulations Governing Education Services for Gifted Students*, 8 VAC 20-40-10 et. Seq. State regulations define gifted students as:

> *"...students in public elementary and secondary schools beginning with kindergarten through graduation whose abilities and potential for accomplishment are so outstanding that they require special programs to meet their educational needs."*

Gifted and talented students are identified as having potential or demonstrated abilities, and who have evidence of high performance capabilities, which may include leadership, in one or more areas: intellectual aptitude(s), specific academic aptitude, technical and practical arts aptitude, and the visual or performing arts aptitude.

Appropriately differentiated curricula for gifted students provide an emphasis on both accelerative and enrichment opportunities for advanced content and pacing of instruction and original research or production. Included among the strategies school divisions use to modify instruction for gifted students are: in-class differentiation, part-time and full-time center-based classrooms, advanced and honors course, special counseling, mentorship programs, and Governor's School programs.

The Virginia Department of Education (VDOE) funds and evaluates several Governor's School programs for the gifted. Three types of programs comprise the Virginia Governor's School programs: the Summer Residential, the Summer Regional, and the Regional Academic Year. These programs operate in a variety of academic sites across the Commonwealth, and each year serve approximately 6,000 students.

Governor's Schools provide challenging educational opportunities in the visual and performing arts, technical arts, sciences, and humanities that are not available to the participants in their regular school programs. The programs stress non-traditional teaching and learning techniques. Courses are interdisciplinary in nature and incorporate research, field studies, mentorships, authentic problem solving, and student theater productions. Staff development and curriculum design is an integral part of the approval process for all Governor's Schools.

Students use computers and other current technology in laboratory activities, conduct in-depth research, work with other students to develop special projects and performances, and work alongside mentors in business, industry, government, and universities gaining career experiences. As they work with professional mentors and instructors, students become scientists, writers, artists, researchers, and performers.

All programs are free to Virginia public school identified gifted students. All are funded through the Appropriation Act of the General Assembly (Chapter I, Item 141, 1998 Virginia Acts of Assembly) with additional funding and in-kind support from the participating school divisions. Governor's Schools are evaluated by the VDOE to determine if they are fulfilling their mission and what, if any, modifications need to be made in order for funding to be continued.

Statewide Summer Residential Governor's Schools

The statewide summer residential Governor's School program began in 1973 as an initiative of Governor Holton, the Secretary of Education, and the Governor's Advisory Committee. These Governor's Schools offer a rigorous summer program to 650 high school juniors and seniors from throughout the state. For four to six weeks on a college or university campus, they have the opportunity to tackle academic or artistic pursuits in an atmosphere that fosters hard work, creativity, and respect for others.

The VDOE contracts with colleges and universities to operate these programs on a competitive five-year contract. Six statewide residential Governor's Schools are offered each summer: The Humanities Program (200 students) and the Visual and Performing Arts Program (200 students) at the University of Richmond; the Math, Science, and Technology Program (200 students) at Lynchburg College; Mentorships in Medicine (30 students) at Virginia Commonwealth University (VCU) and the Medical College of Virginia (MCV); and Mentorships in Engineering (15 students) and Oceanography (10 students) in the Tidewater area under the auspices of the National Aeronautics and Space Administration (NASA) and the Virginia Institute of Marine Science (VIMS).

Each residential site focuses on one of these special areas of interest. Students live on campus for four to six weeks. During this time, students are involved in classroom and laboratory work, field studies, research, individual and group projects and performances, and seminars with noted scholars. In mentorships, students work side-by-side with research scientists, physicians, and other professionals. In addition, participants live, study, and socialize with students from all regions of Virginia who share similar interests and abilities. Recreation and free time are provided outside of the academic environment.

Any Virginia identified gifted tenth or eleventh grade student may apply for the summer residential schools. Applications are sent to high school guidance departments of public and private schools in the fall of each year. The number of students each school may nominate is determined by the number of students in grades 10 and 11. Nominations may be made by teachers, guidance counselors, peers, and the students themselves. Consideration is given to students' academic records, test scores, extra curricular activities, statement of interests, creativity, original essays, and teacher recommendations. A local school division selection committee chooses the nominees from each school and then forwards these applications to the

VDOE. Students in the arts must audition or submit portfolios of selected work samples for review. Final selection is made by Department and is based on the number of slots allocated per division and the total score and rank assigned to each application by the local division.

Summer Regional Governor's Schools

In 1982, the first summer regional Governor's Schools were established. Today, there are twenty summer regional programs serving 1,860 students throughout the state. These regional programs are designed to meet the needs of local gifted elementary, middle, and high school students in the participating divisions. These schools provide exciting opportunities in the arts, sciences, and humanities.

Regional Governor's Schools usually are housed at a public school or on the campus of a college or university. The program may last all day or a few hours a day and may continue for two to four weeks. Students return to their homes at the end of each day's activities.

Gifted students apply for the regional summer school in their area. Nomination and selection procedures are established by the Governor's School director at each regional site, in cooperation with the gifted program administrators from participating school divisions. Program topics and grade levels served vary among the sites and may change from year to year.

Academic Year Governor's Schools

Governor's Schools are administered by joint school boards and serve gifted high school students during the academic year. These schools, each with a specific focus, create special educational opportunities for gifted students in science, mathematics, technology, social sciences, the humanities, and the arts. Students at each of these schools concentrate on their specific areas of interest while obtaining well-balanced instruction in other areas of study, either through the Governor's School or at their base school. Each academic year school has its own admissions process.

Academic Year Governor's Schools are established through the organizational concept of creating a *Community of Learners*. Each Governor's School provides a community of learners whereby close, trusting relationships among faculty and students give rise to a climate that stimulates growth and intellectual development. In such communities, gifted students can rely on a small, caring group of specially trained adults who work closely with each other to provide coordinated, meaningful, and challenging educational experiences that match the unique needs and characteristics of the gifted learner. A Governor's School community of learners is created by bringing together gifted students from three or more adjoining school divisions. These students interact with and provide mutual support for their intellectual peers in the pursuit of academic and/or artistic growth and development commensurate with their needs and abilities.

Twelve schools offer academic year opportunities for gifted students: Thomas Jefferson Governor's School for Government and International Studies in Richmond (557 students, grades 9-12), Thomas Jefferson Governor's School for Science and Technology in Fairfax County (1,626 students, grades 9-12), New Horizons School for Science and Technology in Hampton (154 students, grades 11-12), Governor's School for Science and Technology in Roanoke (220 students, grades 9-12), Central Virginia Governor's School for Science and Technology in Lynchburg (108 students, grades 11-12), Southwest Virginia Governor's School for Science and Technology (123 students, grades 11-12), Governor's School for the Arts in Norfolk (316 students, grades 9-12), Central Shenandoah Valley Governor's School for Science and Technology (115 students, grades 11-12), Southside Governor's School for Global Economics and Technology (228 students, grades 11-12), A. Linwood Holton Governor's School (114 students, grades 10-11), Chesapeake Bay Governor's School for Marine and Environmental Sciences (81 students, grades 11-12), and Commonwealth Governor's School (168 students, grades 9-10).

Agriculture Programs

Agricultural Education in Virginia

Agricultural Education is an elective program available to middle school and high school students in Virginia and encompasses the study of biology, chemistry, physics, economics, technology, politics, sociology, international trade, and environmental issues within the context of the agricultural and natural resources industries.

Instruction in agriculture focuses on:

- the awareness and appreciation of agriculture
- the preparation of students to enter and advance in agricultural occupations
- the application of basic skills to strengthen and support other courses taught in public schools.

The student organization, (FFA), provides opportunities for students to develop premier leadership, personal growth, and career success. FFA activities are an integral part of the total instructional program in Agricultural Education.

Agriculture Education courses of study prepare students for employment and continued education and training for careers in many agriculture-related fields.

- Agricultural marketing, merchandising, and sales, includes such occupations as: chemical distributor, grain broker, pest monitoring and control worker, and harvest contractor.

- Natural resources and environmental management, includes such occupations as: forester, soil and water conservation worker, wildlife technician, water quality control monitor, fisheries worker.

- Agricultural science and engineering careers, includes such occupations as: construction engineer, equipment designer, land surveyor, biochemist, hydrologist, plant cytologist, and veterinarian.

- Agricultural management and finance occupations, includes such occupations as: farm investment manager, water resources manager, and dairy management specialist.

- Agricultural community service professions, includes such occupations as: extension agent, agriculture attache, and Agricultural Education teacher.

- Agricultural producers, includes such occupations as: agronomist, animal breeder, aquaculturalist, beekeeper, tree farmer, livestock producer, and vegetable grower.

- Agricultural education and communication specializations, includes such occupations as: environmental educator, scientific artist, agricultural journalist, and agricultural education teacher.

Schools for Agriculture Studies in Other States

Pennsylvania Governor's School for the Agricultural Sciences

The review of the literature revealed one Governor's School for Agriculture in operation. The Pennsylvania Governor's School for the Agricultural Sciences (Appendix B) opened in the summer of 1986 to tenth and eleventh graders from throughout the state. The five-week summer residential program brings together gifted students with similar strong interest and abilities in the agricultural sciences to live and work together on a university campus.

The Pennsylvania Departments of Education and Environmental Protection, and the Pennsylvania State University's College of Agricultural Sciences established the following goals for the program:

1. Acquaint high school age youth with the scientific and professional opportunities available to them in the food, agriculture, and natural resource sciences.

2. Provide educational programs in agriculture and environmental science to gifted and talented high school age youth.

3. Challenge these youth to use their talent and intellect in studying and researching the scientific nature of agriculture, and its interrelationship with the environment.

4. Promote an atmosphere of multicultural diversity and dialogue.

The program provides a small, academically talented group of students in Pennsylvania with opportunities to expand their knowledge of food, agriculture and the sustainable use of renewable natural resources, recycling and waste reduction and their understanding of the high technologies involved, in ways not usually found in their own schools. The program provides participants with an opportunity to become exposed to scientific concepts, land stewardship concepts, laboratory facilities, and facilities and professional scientists not normally available in any high school. Additionally, students get hands-on experience in learning that agricultural sciences provide an array of interesting and rewarding careers.

The residential component of the program establishes an environment where participants from different backgrounds can interact, share and learn from each other. The program encourages students to develop leadership, communication, problem solving, and interpersonal skills, and to apply them upon returning to their home school divisions.

Participants are involved in core courses that include Animal Science, Computer Applications, Ecology and Community, Methods and Techniques of Agricultural Research, Natural Resource Management, Plant Science, and the Science of Food. Additionally students are introduced to a broad field of topics that include Agricultural Economics, Atomic Applications in Agriculture, World Hunger, Microwave Technology, Environmental Resources Engineering and Wood Engineering.

Students are selected to participate based on the strength of the application which includes academic achievement, interest in science experiences, and record of leadership and service. Tuition, room, board, instructional materials, and costs of program activities are provided through the Pennsylvania VDOE to students who are selected to participate.

Other Agriculture Schools

Because of their curriculum and national recognition, there are two other high school agriculture programs that are worthy of mentioning for this study. The schools are the Walter Biddle Saul High School of Agricultural Sciences in Philadelphia and the Chicago High School for Agricultural Sciences. These are the only two urban schools in the nation devoted to agriculture. Both offer opportunities for inner-city students to expand their career choices. Both schools have high graduation rates and a high percentage of graduates attend college. For more information on Walter Biddle Saul, see Appendix C, and for information on the Chicago High School for Agricultural Sciences, see Appendix D.

CHAPTER II. PROCEDURES, FINDINGS, AND CONCLUSIONS

Procedures

The procedures followed in this study focused on a review of current Governor's Schools in Virginia, the Agricultural Education program in public schools, Governor's Schools for Agriculture in other states, and the input from an advisory committee. The study was divided into three phases. A description of the activities of these three phases follows.

Phase I - The Advisory Committee

The major thrust of the first phase of the study was the establishment of an Advisory Committee to guide the study and to assist in identifying certain criteria requested in HJR 200. The Advisory Committee consists of representatives from key constituent groups throughout the state who have a stake in the establishment of a Governor's School for Agriculture. The Superintendent of Public Instruction issued the invitations for membership on the Committee. Members of the Committee are listed in Appendix E.

The first meeting of the Advisory Committee was on July 23, 1998. The Farm Bureau hosted the meeting. During this meeting, the Committee provided responses to the following:

Why do we need a Governor's School for Agriculture?

What components should be included?

What resources could the agricultural industry provide?

The responses are given below:

Why We Need a Governor's School for Agriculture

1. Agriculture is the number one industry (economic) in Virginia.
2. One-hundred percent of the population depends on the agriculture industry.
3. Agriculture is the number one employer in the U.S.
4. Agriculture has a great impact on the environment.
5. The agriculture industry requires high level skills and technologies.
6. The agriculture industry is international in scope.
7. There are career opportunities available in the agriculture industry.
8. Students need to understand the state, national, and international regulations on the agriculture industry and the impact of these regulations on agriculture and the total economy.

9. There is a need for agriculturalists to increase skills in advocacy, marketing, the governmental process, business and communication skills.
10. There is a need for expanded research and development in alternative crops, livestock management, and crop use.
11. There is a need to recruit diverse populations as employees in the industry.
12. There is a need to raise awareness and appreciation of the industry.
13. There is a need for skills in agribusiness management and agricultural economics.
14. There is a need to understand the infrastructure that supports the industry.

Components of a Governor's School for Agriculture

1. Research and development
2. Telecommunication systems
3. Career awareness
4. Support systems in the industry
5. Technology
6. The politics of the industry
7. Economics
8. Cost benefit analysis
9. Environmental impact
10. Resource management issues
11. Veterinary science
12. Understanding the infrastructure of agriculture
13. Global issues
14. Domestic and international trade (issues and agreements)
15. Marketing
16. Biotechnology
17. Animal, crop, and soil sciences
18. Multi-cultural awareness

Resources Available from the Industry

1. Research labs--research stations, industry labs, high school labs
2. Equipment--state-of-the-art
3. Personnel--instructors, mentors, facilitators

4. Curriculum resource materials

5. Coordinators of mentorships, internships, and cooperative education

Next, the advisory committee identified a population to be surveyed concerning the feasibility and appropriateness of establishing a Governor's School for Agriculture.

Phase II - The Survey

Using the responses from the members of the Advisory Committee, a survey instrument was developed. The VDOE distributed the survey instrument to the population identified (Appendix F) by the Advisory Committee. The VDOE mailed the survey instrument (Appendix G) to the selected participants on September 3, 1998. The participants included representatives of agricultural businesses and industries and education.

In addition, all Superintendents of Schools in Virginia were askd to respond to the following questions (Appendix H).

1. "Do you feel that there would be students from your Division interested in a Governor's School for Agriculture, to include farming, forestry, business, horticulture, and biotechnology?"

2. "If yes, estimate how many students would be interest in participating annually."

Phase III - Compilation and Analysis

The procedures in Phase III involved the tabulation of the responses from the survey. Forty-eight of the seventy surveys (69 percent) were returned.

During the completion of Phase III, a meeting consisting of members of the Advisory Committee and certain educators was held. The meeting participants were asked to identify the curriculum, the facilities, and the staff development necessary for a Governor's School for Agriculture.

Another aspect of this study was to review similar programs in other states. A review of literature revealed that there is one state with a Governor's School for Agriculture. The review revealed also that there are agricultural high schools or agriculture magnet schools in other states.

Findings

The findings are based on the review of agricultural programs in Virginia, Pennsylvania, and Illinois; the input from the Advisory Committee; the results of the survey; and input from a committee composed of members of the Advisory Committee and additional educators. The findings are given under the items for consideration as listed in HJR 200.

The Need

The Advisory Committee identified 14 items as a basis for the need for a Governor's School for Agriculture. These items were included on the survey instrument and sent to leaders in the agricultural community. The responses to the survey were based on: strongly agree, agree, disagree, or strongly disagree.

The results (according to the highest rating) of the forty-eight responses to the survey are:

SURVEY ITEM	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
12. There is a need to raise awareness and appreciation of the industry.	44	4	0	0
1. Agriculture is the #1 industry (economic) in Virginia.	42	6	0	0
2. 100% of the population depends on the agriculture industry.	40	6	2	0
6. The industry is international in scope.	39	9	0	0
4. Agriculture has a great impact on the environment.	38	9	1	0
9. There is a need for agriculturalists to increase skills in advocacy, marketing, the governmental process, business and communication skills.	37	11	0	0
10. There is a need for expanded research and development in alternative crops, livestock management, and crop use.	36	10	2	0
13. There is a need for skills in agribusiness management and agricultural economics.	34	14	0	0
8. Students need to understand the state, national, and international regulations on the agriculture industry and the impact of these regulations on agriculture and the total economy.	31	17	0	0
5. The agriculture industry requires high level skills and technologies.	30	17	1	0
14. There is a need to understand the infrastructure that supports the industry.	29	19	0	0
7. Career opportunities are available in agriculture.	28	19	1	0
3. Agriculture is the #1 employer in the U.S.	27	16	4	1
11. There is a need to recruit diverse populations as employees in the industry.	24	16	8	0

Program Components

The essential program components for a Governor's School for Agriculture were identified by the Advisory Committee and included on the survey instrument. Participants in the survey were asked to respond to each item as: essential, important, or not important.

The results (according to the highest rating) of the forty-eight responses are:

SURVEY ITEM	ESSENTIAL	IMPORTANT	NOT IMPORTANT
9. Environmental impact	40	8	0
15. Marketing	41	7	0
7. Economics	37	11	0
5. Technology	38	10	0
8. Cost benefit analysis	36	10	1
17. Animal, crop, and soil sciences	36	12	0
1. Research and development	34	14	0
16. Biotechnology	30	16	2
10. Resources management issues	30	18	0
3. Career opportunities	27	21	0
14. Domestic and international trade (issues and agreements)	25	20	3
2. Telecommunication systems	23	23	2
12. Understanding the infrastructure of agriculture	21	27	0
13. Global issues	20	27	1
4. Support systems in the industry	21	27	0
6. The politics of the industry	15	28	5
11. Veterinary science	13	31	4

Resources

The Advisory Committee identified 10 resources that would be needed for a Governor's School for Agriculture. These items were included on the survey instrument. Participants in the survey indicated the resources that their organizations could provide to a Governor's School for Agriculture.

The results are given below:

1	1.	Research labs
3	2.	Industry labs
3	3.	High School labs
8	4.	Equipment
14	5.	Instructors
26	6.	Mentors
20	7.	Facilitators
13	8.	Curriculum materials
25	9.	Internships
19	10.	Site for cooperative education

Curriculum

The Advisory Committee and educators identified the topics that should be included in a Governor's School for Agriculture. The focus areas and curriculum areas identified are:

- Agriculture and Science Technologies
  - Animal and Veterinary Science
  - Soil and Plant Science
  - Food Science
  - Aquaculture

- Business Management
  - Marketing
  - Enterprise Analysis
  - Estate Planning
  - Policy and Politics
  - Economics
  - Global Issues
  - Taxes
  - Communication including Public Speaking

- Forestry and Natural Resources
  - Wildlife Biology
  - Resource Management
  - Products and Utilization
  - Best Management Practices
  - Fisheries Management

- Horticulture
  - Landscaping
  - Hydroponics
  - Greenhouse/Plant Nursery
  - Production Horticulture
  - Turf Management

- Other Agriculture Related Industries
  - Environmental Science
  - Biotechnology
  - World Food Studies
  - Information Technology
  - Agricultural Research
  - Farmland Use Management/Preservation
  - Sustainable Agriculture

Facilities

The facilities required by a Governor's School for Agriculture were identified by members of the Advisory Committee and certain educators in Virginia. The following facility needs were identified:

- College/university site with residential facilities
- Research/teaching labs
- Industry labs
- Computer labs with Internet access

- Library
- Access to working farms to include orchards, vineyards
- Field research sites
- Access to
    - Greenhouse
    - Nursery
    - Aquaculture
    - Forest land
    - Veterinary labs
    - Agricultural businesses
    - Food science facilities

Student Interest

The study design included input from Virginia's public education system. To this end, all school division superintendents were surveyed to determine the estimated number of students who may be interested in attending a Governor's School for Agriculture. Of the 132 school divisions in Virginia, 90 superintendents returned the survey and indicated either a "yes" or "no" to the following question: "Do you feel that there would be students from your division interested in a Governor's School for Agriculture, to include farming, forestry, business, horticulture, and biotechnology?" Responses to this question indicate that there are approximately 730 students in Virginia who may be interested in attending such a program.

Sixty-five superintendents who responded said they had students interested in attending a Governor's School for Agriculture, while 25 superintendents said they had no students who would be interested in attending. There appeared to be no distinct pattern across the state as to the geographic location of the students desiring to attend Governor's School for Agriculture as compared to divisions that reported no interest in such a school.

In addition to the survey of school superintendents, there was representation on the Advisory Committee from Virginia's K-12 system. These individuals provided feedback to members of the committee that related primarily to curricular issues as well as technical assistance in the formulation stage of the study. Based on the information received from school division superintendents, the Department of Education staff concludes there is support for a Governor's School for Agriculture in Virginia. For results of the responses by division, see Appendix H.

Conclusions

Members of the Advisory Committee and participants in the survey indicated the need for a Governor's School for Agriculture. Survey participants also indicated that they would support the School by providing resources. Superintendents indicated that students would be interested in attending the School. Possible methods of providing include: a statewide summer residential school, a summer regional school, or an academic year school.

REFERENCES

Printed Materials

Guide to vocational program planning in Virginia 1998-99 school year. Richmond: Virginia Department of Education.

Pennsylvania governor's school for agricultural sciences. (1998). University Park: The Pennsylvania State University.

Virginia agriculture economic contributions & impact. (May 1998). Richmond: Virginia Department of Agriculture and Consumer Services.

Virginia governor's schools. (No date). Richmond: Virginia Department of Education.

Internet Information

Forest facts, Virginia Department of Forestry. Available: http://state.vipnet.org/dof/facts.htm [1998]

"Urban agrarians", Education week on the web. Available: http://www.teachermag.org [1998]

W.b. saul high school of agricultural sciences. Available: http://www.phila.k12.va.us/schools/saul/ [1998]