

HOW OHIO TEACHERS USE AGVENTURE MAGAZINE TO INCREASE AGRICULTURAL LITERACY AMONG THEIR STUDENTS

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Abstract

This study was conducted to evaluate how elementary teachers in Ohio use AgVenture Magazine to increase their student's awareness about Ohio agriculture. A randomly selected sample of 750 fourth-grade teachers was mailed a questionnaire to collect data on how they used AgVenture Magazine with their students and assess their perceptions on the value of AgVenture Magazine as an instructional aid. Teachers used AgVenture Magazine approximately nine hours per year, primarily in social studies classes. Teachers used very few outside resources to help them teach their students about the importance of Ohio agriculture. Overall, teachers had positive perceptions about AgVenture Magazine as an instructional aid to help teach students about agriculture. Members of the Editorial Review Board and the writers of AgVenture Magazine should continue to use fourth-grade teachers to help review the content and terminology of each issue before being published. Additional research needs to be conducted to determine if AgVenture Magazine makes a difference in helping students become more aware about the importance of Ohio agriculture.

Agricultural literacy is defined as understanding and possessing knowledge of our food and fiber system (Frick, 1991). Individuals possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture (Frick, 1991). However, many Americans know little about agriculture and its role in society. Leaders in the agriculture industry, realizing that more Americans know less about the nature and scope of agriculture, proposed agricultural literacy to become a major function of the agricultural education profession (Strategies to Promote Agricultural Literacy, 1992).

Goal Number 1 from the National Summit on Agricultural Education (1989) was "To update instruction in and expand programs about agriculture." To expand programs about agriculture meant making people more aware about agriculture and the related industry. Agricultural literacy efforts were also to help produce informed citizens who would be able to more fully participate in the establishment of policies that support a high competence of agricultural understanding in their

country and abroad (Strategies to Promote Agricultural Literacy, 1992).

The Committee on Agricultural Education in Secondary Schools (1988) published the report Understanding Agriculture: New Directions for Education, devoting one entire section to agricultural literacy. The Committee reported on many disturbing trends regarding agricultural literacy and made recommendations on how agricultural literacy could be promoted in our nation's schools.

Various researchers have concluded that elementary school children know very little about agriculture, its social and economical significance, and particularly, its links to human health and environmental quality (Committee on Agricultural Education in Secondary Schools, 1988). Horn & Vining (1986) found that fewer than 30 percent of students surveyed in Kansas gave correct answers to relatively basic questions on agriculture. In Virginia, fourth grade students had only rudimentary concepts of where their food and fiber

originated (Oliver, 1986). These students were not even curious to find out where their food and fiber came from. Research in Oklahoma concluded that students knew least about the concept that agriculture is historically significant to the development of our nation (Williams & White, 1991). Furthermore, low test scores revealed a low level of basic knowledge about agriculture among youth (Williams & White, 1991).

To make school-aged children across our nation more literate about agriculture, the Committee on Agricultural Education in Secondary Schools (1988) recommended that all students should receive some kind of systematic instruction about agriculture beginning in kindergarten or first grade and continuing through twelfth grade. Few systematic efforts have been made to teach or develop agricultural literacy in students of any age (Committee on Agricultural Education in Secondary Schools, 1988). For students to receive such instruction, education leaders across the nation would have to develop and implement plans to foster school instruction about scientific, economic, and public health aspects of agriculture. Support materials would have to be developed to accomplish the goal of agricultural literacy. Whatever teachers wanted to do to promote agriculture could be done in existing courses; agriculture would not have to be taught separately.

The State of Ohio developed a program to make school-aged children more agriculturally literate. Through the support of the Ohio Agricultural Council; Ohio State University Extension; Ohio State University College of Food, Agricultural, and Environmental Sciences; and Ohio's agricultural community, AgVenture Magazine was developed to make fourth grade students aware about the importance of Ohio agriculture. AgVenture Magazine has been distributed to every public and private fourth-grade classroom in Ohio for the past four years. Three issues are published each year, one each during the

fall, winter, and spring. Each issue discusses a particular topic or deals with a specific theme.

The Editorial Review Board to AgVenture Magazine, consisting of fourteen members, meets to discuss the content of each issue and make recommendations on the content and format of the magazine before an issue is published. Each major commodity group in Ohio has one representative on the Board. Four fourth-grade teachers also sit on the Editorial Review Board to make sure the language and reading level of AgVenture Magazine is appropriate for fourth-grade students. Other members of the Board consist of the Executive Director of the Ohio Agricultural Council, two members of the Ohio Agricultural Council, and the author of this paper.

Individuals, businesses, and organizations who have donated their time and financial resources to support the production and distribution of AgVenture Magazine want to know how the magazine is being used in the classroom by fourth-grade teachers to promote Ohio agriculture. How well the content and activities of AgVenture Magazine makes elementary school students more literate about Ohio agriculture will determine whether support is provided in the future for such a project.

Teachers providing instruction to their students about agriculture want a publication that provides current and relevant information about Ohio agriculture. This publication needs to be on an appropriate reading level for students and contain a variety of hands-on activities to help reinforce what students learn about agriculture. Ideas and suggestions from teachers on how AgVenture Magazine can be improved are important to the writers of AgVenture Magazine as they plan and write future issues.

Purpose and Objectives

The purpose of the study was to identify those Ohio fourth-grade teachers who had used AgVenture Magazine during the 1993-94 school year and describe how they used AgVenture Magazine in their classrooms to make their students more literate about Ohio agriculture. The specific objectives of the study were to:

- 1) Describe Ohio fourth-grade teachers on demographic characteristics;
- 2) Identify ways fourth-grade teachers used AgVenture Magazine with their classes;
- 3) Identify reasons why fourth-grade teachers did not use AgVenture Magazine with their students;
- 4) Identify other resources fourth-grade teachers used when teaching their students about agriculture; and
- 5) Describe fourth-grade teacher perceptions regarding AgVenture Magazine and its effectiveness in promoting Ohio agriculture.

Methods/Procedures

Descriptive-survey research methods were used to collect data for the study. The target population was all public school and private school fourth-grade teachers in Ohio (N = 6,046). A randomly selected sample of 750 fourth-grade teachers was mailed a two-part questionnaire to complete. Part one of the questionnaire collected demographic data on Ohio fourth-grade teachers using both open-ended and closed-ended questions. Part two contained 13 Likert-type statements, using a four-point scale (1 = strongly disagree to 4 = strongly agree), to determine fourth-grade teacher perceptions regarding the content, activities and educational value of AgVenture Magazine in promoting Ohio agriculture.

A panel of experts who were specialists in 4-H youth development and familiar with the content and organization of AgVenture Magazine reviewed the questionnaire and determined that the questionnaire had content validity. Minor changes in wording were recommended to the questionnaire to improve clarity of some statements. A Cronbach's alpha coefficient of .92 was calculated post-hoc on part two of the instrument from usable responses, indicating that the Likert-type scale was reliable.

After three mailings, the final usable response rate was 58 percent (N = 423). An analysis was done to determine if significant differences existed between early and late responders. There were no significant differences between early and late responders. Since late responders are similar to non-responders (Miller & Smith, 1983), no additional follow-up was considered necessary. It was assumed that findings from the sample were generalizable to the population from which it was gathered. However, some respondents indicated they did not teach fourth grade, suggesting that the sampling frame used for the study was contaminated. Considering this fact, the results should be generalized only to the sample that responded in the study.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS Release 4.1). Descriptive statistics, including frequencies, percentages, means, and standard deviations were used to summarize data.

Results and Findings

Demographic Characteristics

The average Ohio teacher responding in the study was female, had 17 years of teaching experience, taught in a city school system, had 27 students in the class last year, was not raised on a farm, and currently did not live on a farm. A majority (70 percent) of teachers did not know if

agricultural education programs or FFA chapters existed in their school district, had not taken their class to participate in a Food for America Program (98 percent), and had not attended an Ag-in-the Classroom Workshop (97 percent).

Uses of AgVenture Magazine

Sixty-six percent of teachers responding in the survey used AgVenture Magazine during the 1993-94 school year. Teachers used AgVenture Magazine an average of 8.6 hours per school year with their students. Table 1 reports the classes in which teachers used AgVenture Magazine. AgVenture Magazine was used the most in social studies classes (f = 220) and was used the least in math classes (f = 77).

Table 1. Frequency of Classes in Which Teachers Used AgVenture Magazine (n = 423)

Class	f	%
Language Arts	114	27.0
Math	77	18.2
Social Studies	220	52.0
Science	122	28.8
Introduce Careers	100	23.6
Environmental Issues	165	39.0
Other	31	7.3

Reasons for Not Using AgVenture Magazine

Approximately 34 percent of teachers responding did not use AgVenture Magazine during the 1993-94 school year. Teachers who did not use AgVenture Magazine with their students cited that they did not have time to use it with their students, they did not know about AgVenture Magazine, or simply were not interested in using it. Over one-half of the teachers who did not use AgVenture

Magazine last year said they would use it this school year (1994-95) if they had the time.

Outside Resources Used By Teachers

Teachers used a varied, but limited number, of outside resources to assist in teaching their students about agriculture. Table 2 reports the various resources used by teachers when teaching their students about agriculture. The most commonly used outside resources cited by teachers included Ag-in-the-Classroom materials (f = 58), soil and water conservation districts (f = 52), and county extension agents (f = 46). The least-used outside resource by teachers was agribusinesses (f = 3).

Table 2. Outside Resources Utilized by Teachers Using AgVenture Magazine (n = 423)

Outside Resource	f	%
Extension agents (4-H)	46	16.5
Agricultural education programs	20	7.2
FFA Chapters	19	6.8
Farm Bureau	8	2.9
Ag-in-the-Classroom	58	20.8
Agribusinesses	3	1.1
Local Cooperatives	11	3.9
Soil and Water Conservation Districts	52	18.6
Other Resources	11	3.9

Some teachers used extension programs and projects available through their county and State 4-H office. The frequency of such programs being used by teachers is reported in Table 3. The most commonly used extension projects were Exploring plants (f = 48) and The Incredible Egg (f = 46). The least used extension project was a newly created project Fishv Science (f = 11).

Table 3. Extension Programs and Projects Used by Teachers with AgVenture Magazine (n = 423)

Extension Project	f	%
Acorn to Oaks	28	10.0
Blue Sky Below My Feet	20	5.7
Exploring Animals	30	10.8
Exploring Plants	48	17.2
Fishy Science	11	3.9
The Incredible Egg	46	16.5
<u>Other Extension Programs</u>	5	1.8

Teacher Perceptions Regarding AgVenture Magazine

Overall, teachers responding to the study who had used AgVenture Magazine had positive perceptions about the magazine increasing their students' awareness about agriculture. Table 4 reports the means for these 13 statements. Mean scores on the 13 Likert-type statements ranged from 3.07 to 3.49. The highest rated statement was "AgVenture provides valuable agricultural information for my students" (M = 3.49, SD = .50). The lowest rated statement was "The Pretest and Posttest provided in the Teacher's Guide are valuable in helping me determine students' knowledge about agriculture" (M = 3.07, SD = .59).

Teachers were also asked to respond to a series of open-ended questions dealing with that they specifically liked about AgVenture Magazine and the corresponding Teacher's Guide and how each could be improved. Teachers thought the magazine was "user-friendly" and helped make students aware about careers in agriculture. Teachers wanted the magazine to contain more hands-on activities for students to do to help them practice and learn about agriculture in an applied setting.

Conclusions/Recommendations/Implications

Teachers in Ohio use AgVenture Magazine in a variety of classes to teach their students about the importance of Ohio agriculture. Teachers used few outside resources to help teach their students about agriculture and its importance to society. Teachers who used AgVenture Magazine had positive perceptions regarding the content, activities, and educational value of AgVenture Magazine. However, there were still those teachers who either lacked the time or commitment to use AgVenture Magazine to make their students more literate about Ohio agriculture.

While many results and comments from teachers are positive, there are some concerns that must be addressed if AgVenture Magazine is to continue to have a positive impact in improving agricultural literacy among students in Ohio. The main concern is getting teachers to use AgVenture Magazine. Many teachers either do not have the time to use it or simply do not want to find time to incorporate AgVenture Magazine into their curriculum. Further follow-up can be conducted to help teachers understand the benefits of using AgVenture Magazine and suggest ways to incorporate the magazine into the core curriculum.

Another concern deals with to whom AgVenture Magazine is being mailed. While AgVenture Magazine is geared to fourth-grade students, past issues of AgVenture Magazine have been sent to teachers from kindergarten to eighth-grade. A conscious effort needs to be made by those who distribute AgVenture Magazine to see that an accurate and up-to-date list of fourth-grade teachers is available when mailing AgVenture Magazine.

A third concern is that many teachers are unaware that agricultural education programs and FFA chapters exist within proximity of their schools. There are many agricultural education programs and FFA chapters that are within

Table 4. Teachers Perceptions to Various Aspects of AgVenture Magazine

Statement	f	Mean	sd
<u>AgVenture</u> provides valuable agricultural information for my students.	274	3.49	.50
The content of <u>AgVenture</u> is relevant to current curriculum needs.	277	3.27	-.58
Integrating <u>AgVenture</u> into subject areas is easy.	275	3.19	-.60
My students find <u>AgVenture</u> to be fun and exciting.	269	3.26	.56
My students find <u>AgVenture</u> to be informative.	274	3.32	.49
<u>AgVenture</u> contains appropriate learning activities for students to apply what they have learned about agriculture.	276	3.26	.51
Terms used in <u>AgVenture</u> are at an appropriate reading level for fourth-grade students.	273	3.17	.57
<u>AgVenture</u> is organized in a logical manner.	277	3.29	.49
The Teacher's Guide to <u>AgVenture</u> is easy to use.	269	3.31	.51
The Teacher's Guide to <u>AgVenture</u> is organized in a logical manner.	268	3.30	.49
The Teacher's Guide provides helpful suggestions for integrating agriculture into the core curriculum.	261	3.28	.51
The Pretest and Posttest provided in the Teacher's Guide are valuable in helping determine students' knowledge about agriculture.	232	3.07	.59
The Discussion Prompters in the Teacher's Guide help me get my students talking about agriculture.	253	3.18	.50

Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree

reasonable distance to these schools that can assist in helping teachers provide relevant and up-to-date information about agriculture. One avenue that agricultural education programs and FFA chapters can use to promote agriculture is by conducting Food For America Programs. Agricultural education programs and FFA chapters must correspond with local elementary school teachers to offer their assistance throughout the school year in promoting Ohio agriculture.

To help ensure that AgVenture Magazine continues to help improve agricultural literacy in the state, the following recommendations are offered to the Editorial Review Board for their consideration:

- 1) Include in the Teacher's Guide science experiments or other similar activities that can help students apply agricultural principles and concepts;
- 2) Print in the Teacher's Guide a list of outside resources (names, addresses, and phone numbers) teachers may contact to get additional information about agriculture;
- 3) Include in the student magazine places where students can write to get more information about agriculture;
- 4) Work with elementary education specialists to assure that the reading level is appropriate for the grade level AgVenture Magazine intends to educate and inform;
- 5) Include a section in the student magazine that encourages parents to help their child understand the importance of Ohio agriculture;
- 6) Use fourth-grade teachers on the Editorial Review Board to provide assistance when planning future issues of AgVenture Magazine; and
- 7) continue to provide suggestions to teachers on how to integrate AgVenture Magazine into the core state curriculum.

The following are recommendations for further research in agricultural education:

- 1) Replications of this study must be done on a periodic basis to gather demographic information on teachers who are using AgVenture Magazine;
- 2) Replication of this study can be completed on a periodic basis to gather information on how improve AgVenture Magazine;
- 3) Conduct a study of students' perceptions on AgVenture Magazine;
- 4) Conduct a study to determine if AgVenture Magazine helps increase student's knowledge about agriculture; and
- 5) Conduct a study to determine if future support should continue be provided by individuals and organizations.

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