

A Trend Analysis of National Agriculture in the Classroom Program Data: 2006-2010

Abstract

Agriculture in the Classroom (AIRC) state programs throughout the United States have been asked to submit annual reports since 2002. A consistent set of questions and responses was available beginning in 2006. In order to determine the effectiveness and impact of AIRC programs, as well as to explore changes to programs, data from these state reports were analyzed to determine trends and provide direction for future programming. While budgets remained relatively flat between 2006 and 2010, the number of preservice and inservice teachers reached through AIRC programs increased. Overall, the number of students reached through AIRC programming increased, with the largest increase in the number of secondary students reached. The number of AIRC volunteers increased as did the number of students who were reached through the use of volunteers. Recommendations include improved effort in reaching preservice teachers, the continued development of resources aligned with core curriculum standards, including the Common Core, and exploration of funding sources outside of the United States Department of Agriculture.

Introduction / Theoretical Framework

Following the decline in farm and rural populations during the first half of the twentieth century, a small group of stakeholders began to lobby for more agricultural awareness and for an increase in educational programs about agriculture. These stakeholders were concerned that “Americans, as a whole, were at least two generations removed from the farm and did not understand even the most rudimentary of processes, challenges, and risks that farmers and the agricultural industry worked with and met head-on every day” (National Agriculture in the Classroom, 2011a, p. 1). Throughout the 1960s and 1970s some educational materials were developed to help increase awareness of agriculture within public schools. However, no central coordination existed for promoting education about agriculture to the general public. In 1981 the United States Department of Agriculture (USDA) formed a national task force to explore means of increasing education about agriculture. The task force recommended that the USDA coordinate the efforts of national agricultural classroom literacy and to provide means for states to organize their own programs (USDA: Agriculture in the Classroom, 2011). The Agriculture in the Classroom (AIRC) program was formally established in 1982 by the United States Secretary of Agriculture, John R. Block. Secretary Block challenged every state’s governor and commissioner/secretary of agriculture to form a committee of educational and agricultural leaders who would then be responsible for organizing a state agricultural literacy program (National Agriculture in the Classroom, 2011b).

Following the call for educational reform outlined in *A Nation at Risk* (National Commission on Excellence in Education, 1983), the National Research Council formed the Agricultural Education in Secondary Schools Committee to examine the future of agricultural education. In 1988, the findings of the committee were published in *Understanding Agriculture: New Directions for Education*. The committee stated that “Agriculture – broadly defined – is too important a topic to be taught only to the relatively small percentage of students considering careers in agriculture” (National Research Council, 1988, p.8). Prior to programs such as Agriculture in the Classroom, education about agriculture was focused almost entirely on a small

segment of students who had selected agriculture as a future career. The committee found that “most Americans know very little about agriculture, its social and economic significance in the United States, and particularly its link to human health and environmental quality” (p. 21). They also found that “few systematic educational efforts are made to teach or otherwise develop agricultural literacy in students of any age. Although children are taught something about agriculture, the material tends to be fragmented, frequently out-dated, usually only farm oriented, and often negative or condescending in tone” (p. 21). These two findings were particularly important to the further development of agriculture in the classroom programs. The committee specifically recommended that “beginning in kindergarten and continuing through twelfth grade, all students should receive some systematic instruction about agriculture” (p. 20). The committee posited that “an agriculturally literate person would understand the food and fiber system and this would include its history and its current economic, social and environmental significance to all Americans” (p. 8).

As a result of the organized leadership efforts of the USDA and the findings of the National Research Council, Agriculture in the Classroom programs were organized in most states in the early 1990s. The focus of these programs was to reach the K-12 population in the classroom setting through the use of instructional materials and professional development training for teachers at the state level. Through grant programs, annual national and regional conferences, teacher awards programs, website development, and resource directories, the USDA has continued to play a key leadership role in the development of these state programs (National Agriculture in the Classroom, 2011a).

The mission of AITC is “to improve agricultural literacy — awareness, knowledge, and appreciation — among PreK-12 teachers and their students” (USDA: Agriculture in the Classroom, 2011, p. 1). The mission is accomplished through the development and diffusion of instructional materials in formal K-12 classrooms as well as through face-to-face teacher pre-service instruction, in-service instruction, student-centered online information, and online professional development for teachers. Due to pressures placed on public school teachers to meet state and national standards, AITC programs integrate accurate agricultural information into the instruction of social studies, science, mathematics, language arts and other required subjects. Most resources provided by AITC programs are aligned with educational standards. This alignment increases AITC program credibility with state educational agencies and allows teachers to seamlessly incorporate agriculture into their teaching (National Agriculture in the Classroom, 2011a).

While state data has been collected and reported on the National Agriculture in the Classroom website for several years, state program data has not been summarized, analyzed and reported since 2003. A report of the 2001-2002 National Agriculture in the Classroom survey indicated that nearly 98,000 students were reached through AITC programs and 1,190 teachers were involved in AITC programs (Lesser, Newton, & Amer, 2003).

Purpose

The purpose of this study was to analyze and summarize five years of Agriculture in the Classroom program data.

Methods and Procedures

The Agriculture in the Classroom (AIRC) program report data is requested each year by the National Agriculture in the Classroom Organization. This group is composed of dues paying state program memberships. The purpose of the NAIRC Organization “is to assume and maintain an active national role in promoting agricultural literacy programs by providing leadership and a professional network for state Agriculture in the Classroom Programs and work to insure continuity of the Agriculture in the Classroom at USDA” (National Agriculture in the Classroom Organization, 2011, p. 1).

State reports must be submitted to NAIRC by February 15 each year for state to be eligible for the NAIRC - USDA AIRC grant program. The report is not mandatory, unless you are applying for a grant, and as a result, some states do not report each year. Requested State Report data is a reflection of the previous calendar year (January-December). Baseline data is collected on 1) participant numbers and contact-time for pre-service teachers, in-service teachers, volunteers and students 2) program budgets, grants, 3) resources developed and the frequency of alignment to educational standards and 4) program accomplishments and impacts. Additional questions have been asked over the years based on the needs of the NAIRC organization or other agricultural literacy researchers. The data is reported via an online form and saved to a database for analysis.

Each state is unique in terms of structure, funding, and programming priorities. It is difficult to make meaningful comparisons without some stratification. To begin the analysis, raw spreadsheet data from 2006-2010, was examined to determine which states had provided data for each of the five years. Secondly, questions that were asked uniformly each year were organized into a spreadsheet. Two questions concerning resources and educational standards were asked 2007- 2010 (four years of data) and were added to the trend analysis. The questions and the results are noted in the Findings section.

Findings

Thirty-five states reported consistently on six reoccurring participation questions during the defined five year period (Table 1). The overall trend for contact-hours and number of teachers contacted/trained by AIRC program staff increased between 2006-2010. The trend line can be viewed in Figure 1. This increase is also seen in Figure 2 as the number of students receiving instruction by their teachers correspondingly increased. Elementary students make up the largest number of students impacted but there was a modest increase in the number of secondary teachers and students reached with AIRC resources and instruction. There were slight increases in the number of students reached directly by AIRC program staff, again more elementary than secondary students participated in the direct AIRC instruction (Figure 3). The number of volunteers assisting with AIRC programs increased as did the number of students reached by volunteers 2006-2009. A slight decrease in students reached by volunteers was noted in 2010 (Figure 4).

Table 1

Summary of Agriculture in the Classroom Annual Survey Data 2006-2010 (N = 35)

Question	Contact-hours	Response Totals				
		2006	2007	2008	2009	2010
1. Estimate the number of teachers contacted/trained statewide, face-to-face, with AITC programs, curriculum, or other resources during the past year in the following categories. (Figure 1)	0-0.5 hours	15,330	20,138	24,415	29,557	33,564
	1-2 hours	53,439	40,496	38,591	40,972	32,539
	3-5 hours	5,426	10,197	9,820	11,840	14,736
	6-10 hours	1,986	9,815	7,673	2,249	6,692
	11-20 hours	2,527	3,663	3,342	2,680	1,705
	20-30 hours	438	440	644	537	224
	30+ hours	1,511	1,851	1,795	1,649	1,872
2. Estimate the number of students reached statewide through their teachers with AITC programs, curriculum, or other resources during the past year. (Figure 2)	Elementary (Grades K-6)	2,104,391	2,142,606	1,839,806	2,016,257	2,360,289
	Secondary (Grades 7-12)	500,641	420,557	481,414	467,157	487,868
3. Estimate the number of students reached statewide directly with AITC staff with programs, curriculum, or other resources during the past year. (Figure 3)	Elementary (Grades K-6)	866,261	807,074	895,034	864,760	878,387
	Secondary (Grades 7-12)	98,736	172,175	186,071	188,388	207,460
4. Estimate the number of volunteers who conducted/assisted with AITC programs statewide. This includes volunteers delivering programs from the many agricultural organizations who	N/A	15,078	17,894	18,368	23,884	23,883

Question	Contact-hours	Response Totals				
		2006	2007	2008	2009	2010
partner with your overall state AITC program. (Figure 4)						
5. Estimate the number of students reached statewide through volunteers (noted in the previous question) with AITC programs, curriculum, or other resources during the past year. (Figure 4)	N/A	939,565	1,070,777	1,088,307	1,137,637	1,115,863
6. Estimate the number of pre-service teachers contacted/trained statewide with AITC programs, curriculum, or other resources during the past year in the following categories. (Figure 5)	0-0.5 hours	1,711	1,565	1,721	1,581	2,263
	1-2 hours	3,875	3,734	3,166	3,211	3,889
	3-5 hours	4,088	2,795	2,895	2,970	3,075
	6-10 hours	152	408	344	406	350

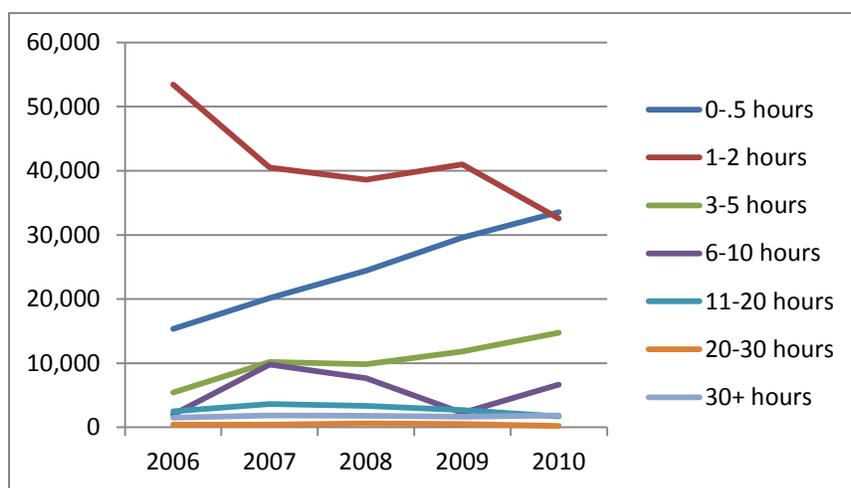


Figure 1. Estimated number of teachers contacted/trained statewide, face-to-face, with AITC programs, curriculum, or other resources 2006-2010.

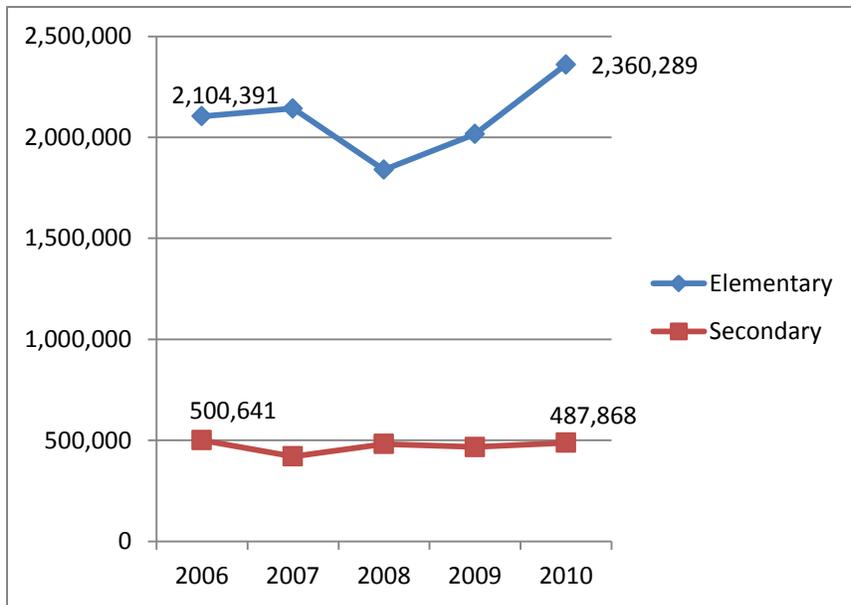


Figure 2. Estimated the number of students reached statewide through their teachers with AITC programs, curriculum, or other resources 2006-2010.

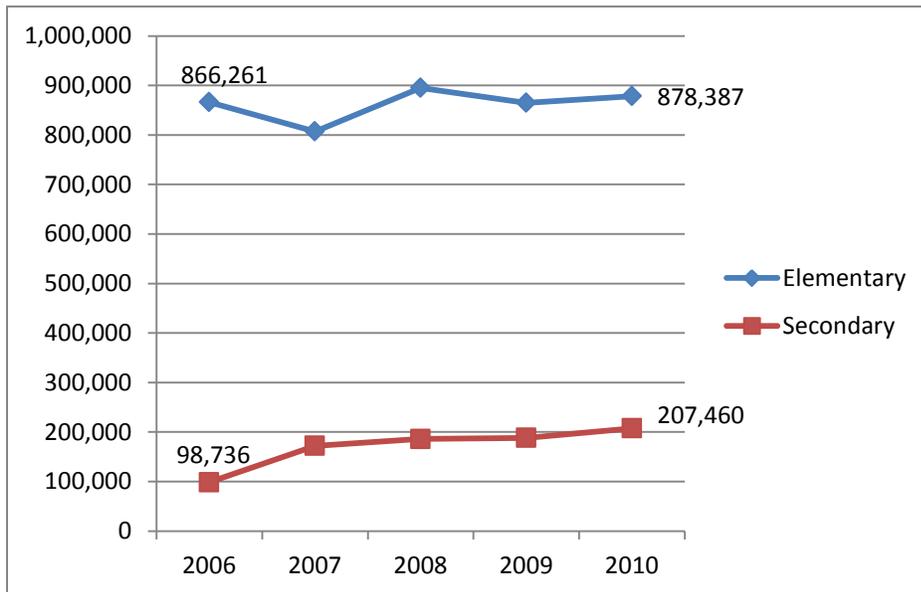


Figure 3. Estimated number of students reached statewide directly with AITC staff with programs, curriculum, or other resources 2006-2010.

Overall the number of pre-service teachers trained increased between 2006-2010 (Figure 5). There was a slight dip in 2007 in the 3-5 contact-hours category; however the trend has been upward since that time and the number of students reached by an the longer contact-time also increased. It should be noted that only 60%, 21 of the 35 states reporting, conduct pre-service training. In 2010 a total of number of pre-service program student participants was 9,577.

The next set of questions dealt with AITC program finances. Total budget dollars were requested along with the funding sources. Funding reached its highest point in 2008. A steep downward trend in total budget dollars available annually to state AITC programs since 2008 can be seen in Figure 6. The minimum, maximum and total budget dollars are noted in Table 2. Some state programs operate with volunteers and hence have zero budget dollars. Interestingly, California and Illinois budgets account for approximately 50% of the total AITC dollars. California’s economy contributed to a significant loss in California AITC budget dollars. Although not as drastic, Illinois experienced a reduction in budget dollars for the same period and also contributed to the downward trend in state AITC budgets. However, when California and Illinois budget numbers are removed from the equation, budget dollars show a slight increase among the 33 other state programs (Figure 6).

In addition to total budget dollars, the sources of funding were identified (Figure 7). The sources of funding remain fairly flat with approximately 80% of state AITC budgets coming from private sources, 19% from state (public) sources, and 1% or less coming from federal sources. It should be noted that of the 35 states reporting, 17 are housed within (private) Farm Bureau organizations, 10 are non-profit (foundations) organizations, 3 are part of state departments of agriculture, and 5 are affiliated with universities, all are working with 501(c)(3) partner organizations. One-time grant dollar totals were also reported, there was no clear trend (Figure 8), rather in a given year one state may land a large grant and skew the numbers.

No data was collected on developed program resources in 2006. Of the 35 states reporting on this item 2007-2010, 22, 33, 34, and 33 respectively created program resources, showing a slight upward trend. As a follow-up question, state program representatives were asked if the resources developed were designed to meet educational standards; there was an upward trend (Figure 9) for ensuring “All” resources meet educational standards.

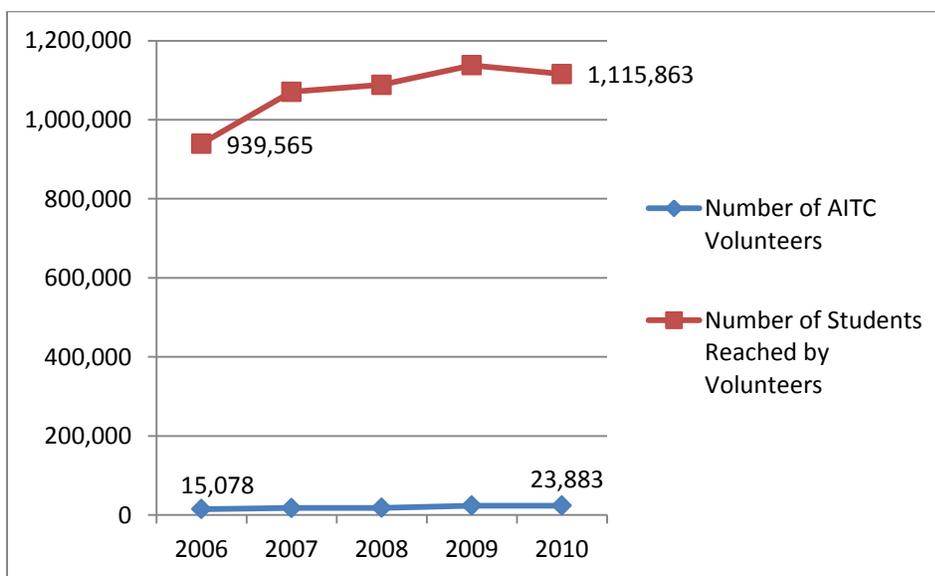


Figure 4. Estimated number of volunteers who conducted/assisted with AITC programs statewide. This includes volunteers delivering programs from the many agricultural organizations who partnered with the overall state AITC program, 2006-2010.

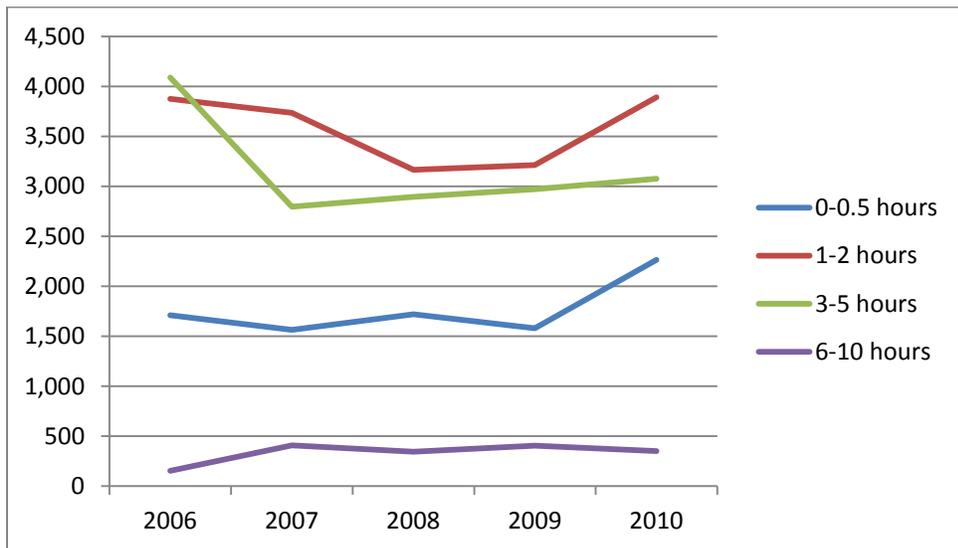


Figure 5. Estimated numbers of pre-service teachers trained by state AITC program staff 2006-2010.

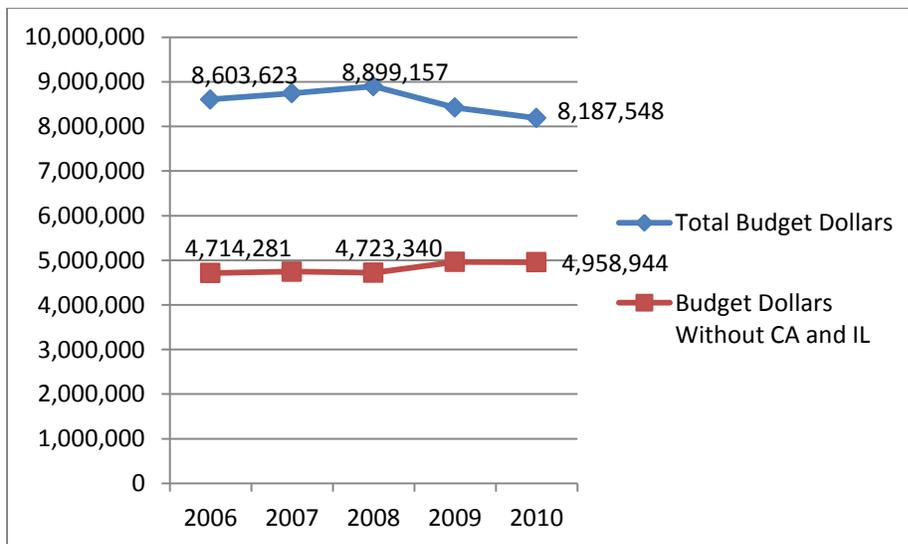


Figure 6. Total budget dollars for 35 reporting AITC programs 2006-2010.

Table 2

Minimum, Maximum and Total Budget Dollars for State AITC Programs 2006-2010

Year	Minimum	Maximum	Total
2006	0	2,643,442	8,603,623
2007	500	2,651,294	8,743,436
2008	0	2,752,417	8,899,157
2009	2,500	2,275,602	8,421,884
2010	2,500	2,260,063	8,187,548

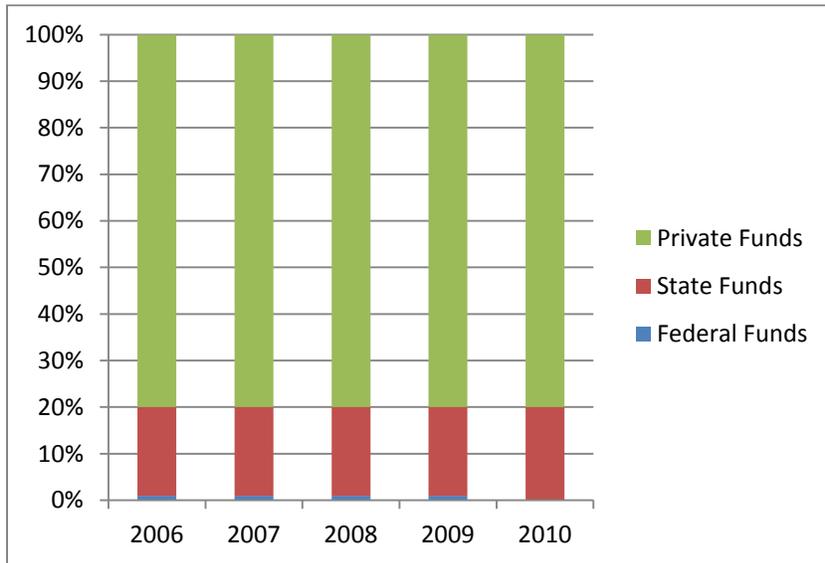


Figure 7. Sources of AITC funding.

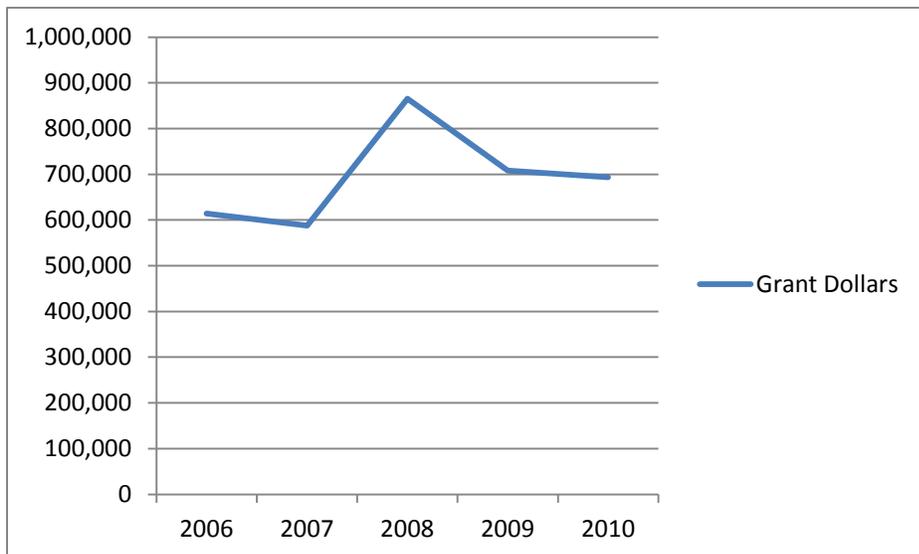


Figure 8. Total grant total trends 2006-2010.

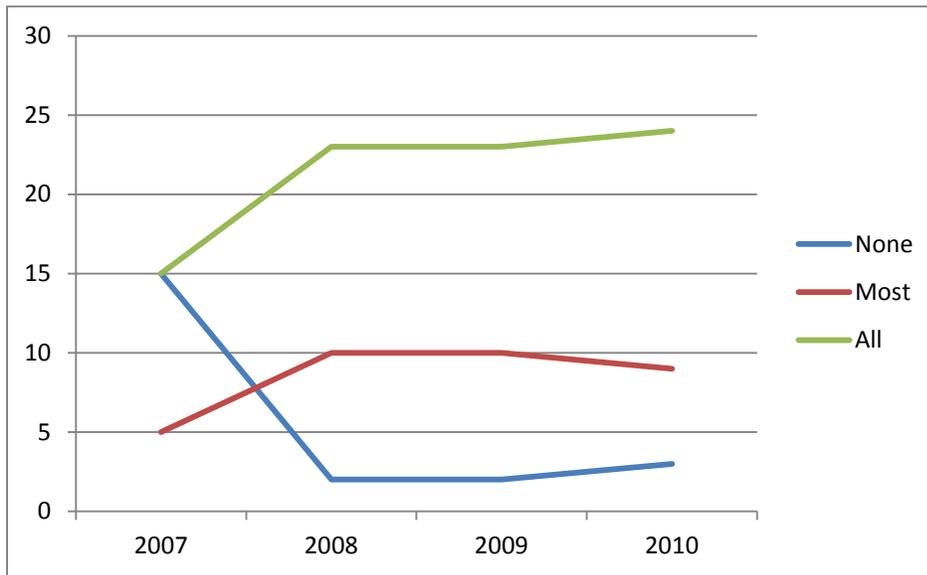


Figure 9. State AITC resources aligned to educational standards.

Conclusions and Recommendations

Significant increases in students and teachers reached through agriculture in the classroom programs were reported in comparison with the 2001-2002 survey report (Lesser et al., 2003). Overall, from 2006-2010, state AITC programs reached more pre-service teachers, in-service teachers, volunteers and their students, despite somewhat flat budgets. Accomplishments and impacts are outlined differently in each state report but progress can be seen by the increased participant numbers and the increased importance states have placed on meeting educational standards, and in the future, Common Core Standards.

While participant trends are up, there is room for improvement, especially in the area of agricultural literacy training through standards for pre-service teachers. All states worked with in-service teachers, however only 60%, 21 of the 35 states reporting, conducted pre-service trainings. State AITC programs need to make a greater effort to meet with undergraduate pre-service teachers at colleges and universities before they graduate, this “captive audience” is receptive as they need to develop curriculum maps and instructional units that meet standards and integrate meaningful strategies.

Additional funding avenues and partnerships need be explored. It is in the Nation’s best interest to prepare agricultural professional and to develop individuals who understand the resources and systems involved to meet the basic needs of food, clothing and shelter, while at the same time improve our quality of life and our environment. It will take greater commitment and a concerted effort among state and national education organizations, researchers and agricultural organizations to increase agricultural literacy, as outlined by the National Research Council

(1988), among K-12 students and their teachers and adequately given the limits of the school day and the educational climate of accountability.

There are approximately 50 million school age children in the United States. AITC programs currently reach 5.3 million or 1% of the U.S. K-12 population, spending approximately \$1.50 (2010) for each student reached. AITC programs will need to find additional sources of funding, work more closely with allied partners, leverage dollars even more perhaps by using technology to train teachers, and integrate program resources into existing school curriculum if the program mission and goals are to be achieved.

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