

**A Longitudinal Study of  
Secondary Student Attitudes and Beliefs Relative to  
International Agricultural Issues**

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***Abstract***

*Moore (1989) developed an international curriculum for secondary agricultural programs in the late 1980s. An assessment of students who were presented with the international concepts in their agricultural courses indicated that the curriculum was effective in improving students' scores in a pre-test/post-test study (Williams, Moore & Elliot, 1992). The initial curriculum was never updated and a curriculum status study (Henne, 1996) indicated that high school agricultural teachers did not include any international concepts in their repertoire of teaching materials. Because a rudimentary understanding of global issues is considered to be important for all United States citizens, an assessment of those concepts was conducted for the past three years in Arizona.*

*The overall average indicates slight agreement with the attitude and belief statements. The participants agreed with 2/3 of the attitude and belief statements and were undecided for the rest. In addition, the relatively low scores indicated that the participants did not place a high value on international concepts or issues. The study showed that without a constant effort to keep an international focus within the realm of what teachers teach, students' attitudes and beliefs about international agricultural issues are marginal at best. Given the current state of global awareness within the media, it is more important than ever to keep international agricultural literacy within the framework of school curriculums. The integration of international issues should be a viable and important component of today's secondary agricultural education programs. In fact, this baseline knowledge inspired a new Arizona global curriculum effort.*

### Introduction

Moore (1989) developed an international curriculum for secondary agricultural programs in the late 1980s. An assessment of students who were presented with the international concepts in their agricultural courses indicated that the curriculum was effective in improving students' scores in a pre-test/post-test study (Williams, Moore & Elliot, 1992). The initial curriculum was never updated and a curriculum status study (Henne, 1996) indicated that high school agricultural teachers did not include any international concepts in their repertoire of teaching materials. Because a rudimentary understanding of global issues is considered to be important for all United States citizens, an assessment of those concepts was conducted for the past three years in Arizona.

Incorporating international concepts within high school curriculums has been a goal of educators in the past decade (Radhakrishna, Leite, & Domer, 2003). This increased awareness among educators of the importance of global education has been a direct result of an overall emphasis by various reform movements that promote a broader understanding of world affairs (Wingenbach, Boyd, Dick & Haba, 2003). Using agriculture as a context for teaching international issues, themes and concepts is especially important because of the complexities, especially political, of world trade (Connors, 2003). In addition, because all phases of the agricultural industry comprise a substantial portion of the livelihoods of world population, it is important to determine if young people in the United States are internationally literate (Elliot & Yanik, 2002).

### Purpose

The purpose of the longitudinal study was to assess secondary students' attitudes and beliefs relative to international agricultural issues for the past three years.

### Conceptual Framework

The need for an international curriculum in U.S. schools has been recognized for a long time. In fact, the need for internationalizing the agricultural industry has become a major issue. To be successful in agriculture, a person must be aware of the relationships of various agricultural systems and the governments, cultures and societies in which they function (Akpan & Martin, 1996). For almost 20 years, nationwide Extension leaders have been trying to get colleges and universities that teach agriculture to internationalize their programs. There are three criteria for successfully implementing such programs: (a) institutional commitment, which realizes the critical importance of international efforts; the policies and procedures generated and the rewards and recognition for involvement; (b) staff development in which scholars interact with scholars from foreign countries, gain international experiences and increase their knowledge of global issues; (c) organizational development which includes visitation by foreign scholars, guidelines for internationalization, exchange programs, involvement in international development, focus resources, and ongoing Extension budgets (Ludwig & Barrick, 1996).

Acker (1999) contends that primary reform is needed in current agricultural education to support improvements in global food production and security, but there are constraints to contend with: First, cooperation between international educational groups is piecemeal, although they do exist. Second, while organizations are open worldwide, cooperation is hampered by distance and costs, with unintended consequences of excluding some systems. Third, although many international agencies are engaged in higher education, if there are

particular directives, this can curb global cooperation. When there is global interaction, the benefits are greater student learning, faculty mobility, curriculum development and cross sharing of thoughts. When agricultural colleges and universities become provincial, they constrain ideas to a narrow spectrum resulting in “poor programmatic articulation between national systems, constrained international mobility of students among systems, duplication of curriculum development efforts, and the professional inbreeding that occurs when generation after generation of faculty are trained in the same system” (p.49). What occurs is that institutions are unable or unwilling to learn from each other. In the search for knowledge, faculty need to model that good scholarship means working with and improving upon prior research work. It means publishing in international journals so others can do the same with their work. Faculty also need to consider other sources of knowledge, i.e., the “indigenous knowledge systems” (p.49) in which the wisdom of individuals involved in cultivating the soil and animal husbandry have important contributions to make. Agricultural systems function in a global market and need a workforce that can interact in that capacity. Internationalizing the agriculture curriculum helps prepare students to work in a global workforce. They need to be provided with a balanced national and international education. Another problem is the lack of broad thinkers, ones who are problem solvers not mere technicians. Students will need to know foreign languages and about communication and the environment as well as about policy, ethics, and social sciences (Acker, 1999).

Acker (1999) also concludes that in the future educators will need to prepare students on ways to feed the world’s population and protect the environment at the same time. Some new ideas will come from the national scene, while others will require global cooperation. What needs to be done is for the U.S. higher agricultural education to take a greater leadership role, to re-invent and reform educational programs to keep up with current times, and to improve the educational system based on global cooperation. Acker (1999) feels that the New Global Consortium of Higher Education and Research for Agriculture with its mission to improve institutions engaged in human resource development and research is the opportunity that is needed to solve the problems outlined.

Acker and Scanes (2000) have mentioned that while faculty commitment is the centerpiece of success to global agricultural research, international graduate students also play a significant role because of their perspective with different environments. They also suggest the following mechanisms for implementing globalized graduate education:

1. Inclusion of faculty of universities outside the U.S.
2. Joint graduate degrees with foreign universities.
3. Globalization of curriculum.
4. Team investigations.
5. Conducting research at foreign universities (p.53).

Furthermore, Place, et al. (2000) recommend that future projects continue this trend of establishing partnerships for Extension professionals to foster global relations between the U.S. and foreign partners. Dissemination of the experience will help Americans understand their interconnectedness in global trade, markets and politics. They suggest that for Americans to succeed in global markets, they need knowledge of the countries they deal with. This can be brought about by increasing “cooperative international opportunities” (p. 16). Likewise, more solutions as suggested by Ludwig (1995) to successfully international programs are:

(a) Communicate the importance of establishing global Extension programs. (b) Policies and

procedures need to be implemented showing support. (c) Recognition, incentives and rewards are necessary. A sense of direction needs to be provided; Professional development and growth opportunities need to be offered such as offering technical skills, communication skills, and people skills along with out-of-country experiences. The end results expected are development of human resources and leadership development on a worldwide context and providing international experiences leading to establishment of global partnerships. Ludwig (1995) also lists suggestions for developing a culture within the university that helps faculty to develop international global Extension programs. These are:

1. Travel outside the US, especially in visiting rural areas.
2. Create a cross-cultural competency.
3. Increase interaction between international visitors and Extension agents.
4. Provide in-service educational programs.
5. Learn how to work in teams.
6. Provide small grants for individual development.
7. Add international modules to present programs.
8. Provide reward and recognition for achievements.

For increasing the enrollment in international agricultural activities, Egelund, Sleight, Miller and Straquadine (1995), designed a study to produce a recruitment and retention strategy. They developed a country and student information guide which tracked geographic, demographic and economic background to produce the most appropriate study program for each student; created an international agricultural student organization to provide mentoring and networking; instituted a student data base for recruitment and keeping track of graduates; and printed recruitment materials, brochures, and newsletters for marketing the degree.

As schools are the windows to globalization, McCracken, (1995) lists five reasons why international education should be taught in agricultural education:

1. Agricultural Education: As secondary education has changed, so must agricultural education. To keep up to date, agriculture must do what it can to be on the cutting edge of this change. As an example, agricultural students need to understand production and importation of other countries of the world for agricultural products and how other products, such as oil, have an effect on agriculture. To be prepared to accomplish this, international programs need to be designed that broaden awareness of the world and allow students to participate in meaningful experiences.

2. Global Economy: International trade is an important component of U.S. agriculture. The agriculture curriculum should be compatible with the interdependence of the world economy. As global patterns of agricultural production and consumption are changing, nations that once were dependent importers of food products have now become food exporters. On top of this, political decisions, import quotas, and tariff and subsidies are all important factors in market forces.

3. Cultural Understanding: To compete and cooperate internationally requires students to understand the interdependence of the entire world. Knowledge of relationships provides an understanding of international buying, selling and trading.

4. Career Opportunities: An awareness of other cultures can be useful for a job in the U.S. that is involved in global agriculture. The U.S. government, the Peace Corps and the Agency for International Development as well as schools, consulting firms, international and multinational businesses employ international agricultural workers. These positions usually require a degree and even international experience.

5. Rural Societies: Much of the third world is living in poverty. Increasing populations, along with loss of natural resources, will cause severe problems for agriculture in this part of the world. The challenge must be met by institutions of higher learning to produce well-educated, highly trained persons to develop and maintain a solid agricultural economy to overcome the human suffering that is occurring.

Finally, Akpan and Martin's (1996) research shows that unless more opportunities are given to faculty and students to be involved in travel and international activities, internationalization in agriculture will not improve.

#### Methods

Using an updated version of the Williams, Moore and Elliot (1992) assessment, an 85 question instrument was used to determine the attitudes and beliefs of 98 urban high school freshmen students relative to international agricultural issues for the past three years. Proper research procedures were followed. Yet, due to budget constraints a single urban high school was selected, so the results will be generalizable only to the participants. This paper is the result of three years of research and concludes the first phase of the international interest study in the state. It provides a baseline of information that future global curriculum efforts will use to determine effectiveness and improvements in international agricultural education.

#### Results

The overall average indicates slight agreement with the attitude and belief statements. The participants agreed with 2/3 of the attitude and belief statements and were undecided for the rest. The information provides a baseline of knowledge that will be used by future researchers. In addition, the relatively low attitude and belief scores indicated that the participants did not place a high value on international concepts or issues. The study showed that without a constant effort to keep an international focus within the realm of what teachers teach, students' attitudes and beliefs about international agricultural issues are marginal at best. Given the current state of global awareness within the media, it is more important than ever to keep international agricultural literacy within the framework of school curriculums. The integration of international issues should be a viable and important component of today's secondary agricultural education programs.

The results are shown on the following tables. The three-year overall average indicates slight agreement with the attitude and belief statements.

Table 1  
Part I – Your Attitude About International Issues

		SD	D	?	A	SA
1	I should understand more about agriculture and its importance to the world economy.			3.49		
2	I should understand more about the differences between developing and developed countries.				3.53	
3	I should know more about other countries as markets for U. S. agricultural products.			3.42		
4	I should have a better understanding about how politics affect world agriculture.			3.47		
5	I should know more about the cultures of other countries.				3.61	
6	I should understand how the culture of other countries impact agriculture in those countries.				3.55	
7	I should know more about Arizona's agriculture and its connections to world trade.				3.62	
8	I should know more about agricultural products that Arizona sells to other countries.			3.41		
9	I should learn more about agricultural products that Arizona producers sell to other states			3.39		
10	I should learn more about the agricultural products from other states that are consumed in Arizona.			3.41		
11	I should learn more about the agricultural products from other countries that are consumed in Arizona.			3.46		
12	Learning more about agriculture in other countries will help me understand future changes in world agriculture.				3.62	
13	I need to know more about world agriculture.			3.46		
14	I should know more about the world economy and its relationship to Arizona's agriculture.				3.59	
15	I should know more about Arizona's agriculture and its impact on Arizona's economy				3.54	
16	I should know more about how world events affect local agriculture in my community.				3.55	
17	I should know more about how world agriculture affects food prices in the local grocery store.			3.41		
18	Marketing Arizona agricultural products to other countries will help Arizona's economy.				3.52	
19	Marketing U. S. agricultural products to other countries will help the U. S. economy.				3.56	
20	Politics has a major effect on world agriculture.			3.37		
21	Culture has some impact on agriculture in other countries.			3.40		

Table 1

## Part I – Your Attitude About International Issues (continued)

		SD	D	?	A	SA
22	World trade helps Arizona agriculture.			3.48		
23	Coming changes in world agriculture will have some impact on me in the future.				3.57	
24	World events have some impact on agriculture in my community.			3.44		
25	World agriculture has some effect on food prices in my local grocery store.				3.70	
26	For me to understand global agriculture, I should first have a basic understanding of geography as related to my state such as:					
A	Location of where I reside on a country map.				3.59	
B	Location of my county on a state map.				3.74	
C	Identification of major cities in the state where large quantities of agricultural products are consumed.				3.61	
D	Location of major port for shipping agricultural products.				3.56	
27	To help me understand agriculture from a global perspective, I should have a basic understanding of the United States and world geography, such as:					
A	Major regions in the United States.			3.49		
B	Location of states in major regions in the United States.				3.66	
C	The seven continents in the world.				3.65	
D	Location of countries in the world.				3.71	
E	Major waterways used in shipping agricultural products.				3.80	
F	Countries that are the most densely populated.				3.65	
28	I am more likely to understand global agriculture if given instruction about:					
A	Major agricultural products that are produced in my country.				3.55	
B	What happens to local products once they leave the community.				3.57	
C	Major agricultural products that are produced in Arizona.				3.63	
D	Major export markets for Arizona agricultural products.				3.64	
E	States in the U. S. that are competing with Arizona's major agricultural products.			3.45		
F	Other countries that are competing with Arizona's major agricultural products.			3.37		
G	Countries that need and are capable of purchasing Arizona's major agricultural products.				3.63	
H	How the U. S. works with other countries on economic issues.				3.54	

Table 1

## Part I – Your Attitude About International Issues (continued)

		SD	D	?	A	SA
I	How the U. S. works with other countries on political issues			3.47		
J	How the U. S. works with other countries on humanitarian issues.				3.58	
K	Global agriculture and the effects on American agriculture.				3.53	
29	With proper instruction and materials, I will be able to understand basic international agricultural concepts.				3.61	
30	Considering the countries that are projected to be the best markets for Arizona's major products, I should be instructed on those countries:					
A	Cultures.				3.67	
B	Infrastructure (educational system, transportation system, major industries, etc.).				3.62	
C	Standard of living.				3.78	
D	Natural resources.				3.75	
E	Agriculture.				3.80	
31	With proper instruction and material, I will be able to understand international career opportunities.				3.75	
32	I should be encouraged to participate in the various FFA international programs.				3.55	
33	A proposed set of lessons on international issues should:					
A	Not be too complex for me.				3.57	
B	Provide me with an appreciation of the interdependency of nations around the world.				3.54	
C	Prepare me for future changes in global agriculture.				3.52	
D	Provide an opportunity to interact with people in other parts of the world.				3.65	
E	Help me understand global agricultural marketing systems.				3.56	
F	Help me function better as citizens in a global society.				3.63	
G	Prepare me for future changes in global agriculture.				3.57	



Table 2  
Part II – Your Beliefs About International Issues

	I believe:	SD	D	?	A	SA
1	Agriculture involves more than farming.				3.71	
2	World agriculture is different from country to country.				3.65	
3	World agriculture allows me to eat a variety of products year round.				3.65	
4	Natural disasters affect the price of food in my local grocery store.				3.54	
5	The U. S. should help other countries with food aid in times of famine.				3.65	
6	U.S. trading partners (customers) help U. S. agriculture.				3.65	
7	Competition with other producers worldwide help to keep food prices rather reasonable.				3.63	
8	An understanding of other cultures will help U. S. food producers to market their products abroad.			3.37		
9	An understanding of international political issues will help U. S. producers market their products abroad.			3.46		
10	Arizona's citizens eat food products that are produced around the world.				3.68	
11	That Arizona's agricultural products are superior in quality to products from other states.			3.42		
12	That Arizona's agricultural products are superior in quality to products from other countries.			3.40		
13	World agriculture is covered extensively in my agricultural class.			3.37		
14	That my agricultural teacher should cover world agriculture whenever it relates to what we are studying.				3.51	
15	That my agricultural teacher should use maps to help me learn more about world agriculture.				3.56	
16	That guest speakers who are knowledgeable regarding international events would help me learn more about world agriculture.				3.56	
17	That a variety of audio-visual materials (web-sites, slides, videos, films, etc.) would help me learn more about world agriculture.				3.62	
18	That computer programs that are internationally oriented would help me learn more about world agriculture.				3.57	
19	That hosting an agricultural exchange student from another country in my community would help me learn more about world agriculture.			3.36		
20	I should be able to learn about world agriculture in other classes in the school.			3.41		



Table 2

## Part II – Your Beliefs About International Issues (continued)

	I believe:	SD	D	?	A	SA
21	That other classes in the school should include information about world agriculture.			3.37		
22	That I can learn about world agriculture from watching selected television programs.			3.48		
23	That I can learn about world agriculture from listening to selected radio programs.			3.32		
24	That I can learn about world agriculture from attending events such as fairs or shows.				3.57	

## Conclusions

The participants agreed with 2/3 of the attitude and belief statements and were undecided for the rest. The specific breakdown within the instruments indicated that the participants' responses varied very little with a low value of 3.32 and a high value of 3.80.

## Educational Importance

The educational importance was viewed at two levels. First, the information provides a baseline of knowledge that will be used by future researchers. Second, the relatively low attitude and belief scores indicated that the participants did not place a high value on international concepts or issues. Past curriculum, and subsequent in-service, efforts clearly demonstrate that a concentrated attempt to improve international understanding does work (Elliot & Yanik, 2002; Williams, Moore & Elliot, 1992; Hossain, Moore & Elliot, 1992). The study showed that without a constant effort to keep an international focus within the realm of what teachers teach, students' attitudes and beliefs about international agricultural issues are marginal at best. Given the current state of global awareness within the media, it is more important than ever to keep international agricultural literacy within the framework of school curriculums. The integration of international issues should be a viable and important component of today's secondary agricultural education programs.

## References

- Acker, D. G. (Summer 1999). Improving the quality of higher education in agriculture globally in the 21<sup>st</sup> century: Constraints and opportunities. *Journal of International Agricultural and Extension Education*, 47-53.
- Acker, D. G., & Scanes, C. G. (Spring 2000). A case for globalizing undergraduate education and student learning at colleges of agriculture. *Journal of International Agricultural and Extension Education*, 49-54.
- Akpan, M., & Martin, R. A. (Fall 1996). Perceptions and activities of agricultural education professors in U.S. institutions of higher education regarding internationalization of the agricultural education curriculum. *Journal of International Agricultural and Extension Education*, 63-71.
- Connors, J. (2003). International Knowledge and Attitudes of FFA Costa Rican Travel Seminar Participants. *Proceedings of the 19<sup>th</sup> Annual Conference of the Association for International Agricultural and Extension Education*, 19, 170-179.

- Egelund, L., Sleight, W. S., Miller, B. E., & Straquadine, G. S. (Spring 1995). Recruitment and retention tools to promote an international agricultural Extension Master of Science program, *Journal of Agricultural And Extension Education*, 48-52.
- Elliot, J. & Yanik, R. (2002). An Analysis of Secondary Student Attitudes and Beliefs Relative to International Issues. *Proceedings of the 18<sup>th</sup> Annual Conference of the Association for International Agricultural and Extension Education*, 18 . 494-500.
- Henne, P. (1996). *The Development of an Aquaculture and Fisheries Management Student Reference*. Master Project, The University of Arizona, Tucson, AZ.
- Hossain, D., Moore, E., & Elliot, J. (1992). Attitudes of Agriscience Teachers in Michigan Toward International Agricultural Education Programs. *Proceedings of the 1992 Symposium for Research in Agricultural and Extension Education*.
- Ludwig, B. G. (Summer 1999). Globalizing Extension professionals perspectives on global programming. *Journal of International Agricultural and Extension Education*, 61-67.
- Ludwig, B. G., & Barrick, R. K. (Summer 1996). Identification of organizational efforts important to the internationalization of a state university Extension system. *Journal of Agricultural Education*.
- Moore, E. (1989). *Internationalizing Agricultural Education Programs*. A curriculum published by the National Council for Agricultural Education.
- Place, N. T., Evans, D. E., Andres, M. P., & Crago, N. E. (Spring 2000). Implications and impact among American Extension professionals and near-associates resulting from the Polish-American Extension project. *Journal of International Agricultural and Extension Education*.
- Radhakrishna, R., Leite, F. & Domer, S. (2003). An Analysis of High School Students' Attitudes and Beliefs Toward International Agricultural Concepts. *Proceedings of the 19<sup>th</sup> Annual Conference of the Association for International Agricultural and Extension Education*, 19, 540-549.
- Wingenbach, G., Boyd, B., Lindner, J., Dick, S., Arispe, S. & Haba, S. (2003). Students' Knowledge and Perceptions about International Agricultural Issues. *Proceedings of the 19<sup>th</sup> Annual Conference of the Association for International Agricultural and Extension Education*, 19, 703-713.
- Williams. E, Moore, E., & Elliot, J. (1992). An Assessment of Agriscience Students' Knowledge Relative to International Agriculture: Pre-test and Post-test Results. *Proceedings of the 1992 Symposium for Research in Agricultural and Extension Education*.