

An Evaluation of What's The Beef, A Video Program

For Agriscience Students

Lori Lynne Moore

University Undergraduate Fellow, 1993-1994

Texas A&M University

Department of Agricultural Education

APPROVED

Fellows Advisor Christine D. Townsend

Honors Director Dale T. Kell

ABSTRACT

AN EVALUATION OF WHAT'S THE BEEF, A VIDEO PROGRAM FOR AGRISCIENCE STUDENTS

This project is designed to determine if the video is effective at increasing awareness and changing attitudes of urban high school students regarding animal agriculture. It is important to conduct such a study because it is necessary to increase Agricultural Literacy in order to help animal activists understand the issues involved. The objective of the project is to determine if there is a difference in student attitudes and awareness toward animal agriculture following various methods of classroom instruction. A single instrument was employed and covered such topics as student demographics, agricultural experience, and attitudes about animal agriculture. A post-test non-equivalent control group quasi-experimental design was implemented with one control group and one treatment group each consisting of 15 urban (5-A) high schools. The control group filled out the questionnaire while the treatment group received the video lesson and subsequently filled out the questionnaire. The data has been collected and analyzed according to the Statistical Package for Social Science.

Table of Contents

	Page
Abstract	ii
Acknowledgments	iii
Table of Contents	iv
List of Tables	vi
Introduction and Purpose	1
Statement of the Problem	2
Significance of the Study	3
Objective	4
Literature Review	4
Null Hypothesis	7
Instrumentation	7
Pilot Test	8
Methodology	9
Population	9
Sampling Technique	10
Treatment	11
Data Analysis	11
Analysis of Demographic Data	11
Summary of Demographic Data	22

Analysis of Attitude Data	22
Summary of Attitude Data	30
Conclusions and Recommendations	30
References	33
Appendix A - Measurement Instrument	34
Appendix B - Control and Experimental Group Lists	38

List of Tables

Table	Page
1. Grade Level Distributions	12
2. Gender Distributions	12
3. Ethnicity Distributions	13
4. Student Residence	14
5. Parental Residence	14
6. Relatives Residence	15
7. Farm Related Work History	15
8. FFA and/or 4-H Membership	16
9. Student Animal Industry Organization Membership	16
10. Parental Animal Industry Organization Membership	17
11. Student Animal Industry Organization Membership	18
12. Parental Animal Industry Organization Membership	18
13. Participant Experience in Caring for Cattle	19
14. Participant Experience in Caring for Horses	19
15. Participant Experience in Caring for Sheep	20
16. Participant Experience in Caring for Swine	20
17. Participant Experience in Caring for Rabbits	21
18. Participant Experience in Caring for Poultry	21
19. Quantity and Quality of American Food Supply	23

Table	Page
20. Basis for Animal Activist Concerns	24
21. Terminology Used in Animal Agriculture	24
22. Treatment of Veal Calves is Humane	25
23. Texas Veal Consumers and Producers Should Not Be Affected	26
24. Hot-iron Branding is an Acceptable Method of Identification	26
25. Management Practices Are Humane	27
26. Dehorning Cattle is Necessary	27
27. Vaccinations of Children and Animals Cause Equal Amounts of Stress	28
28. Meat Consumption of People Not In Agriculture Would Decrease	28
29. Statements With No Statistical Differences by Treatments	29

An Evaluation of What's The Beef, A Video Program

For Agriscience Students

Introduction and Purpose

Agriculture is a broad-based industry that is responsible for producing the world's food and fiber products. The state of Texas plays a major role in the field of Agriculture. For example, Texas leads the nation in total cattle production and is among the top five states in cotton production. Despite these statistics, less than two percent of the nations population are involved directly in production agriculture. Because of this, many Americans today only see agriculture through the eyes of the media. In most cases, media incidents are negative. For example, a reporter is more likely to report on a farmer or rancher who mistreats his animals to the point of starvation than they are to report on a pig farmer who gives iron shots to his baby piglets to prevent anemia. Since all members of society are affected by changes in agriculture, either directly or indirectly, and many have such limited access to information concerning agriculture, the need to educate our youth regarding agriculture is growing more and more important. Thus, for several years now, agriscience classes have been incorporated into high schools in Texas and throughout the nation to accomplish this important goal.

For many years, high school agriscience teachers have employed numerous teaching materials in teaching their classes. Recently, one of the

"cone of experiences" in which "motion pictures" ranked higher on his list of effective teaching/learning experiences than did verbal or visual symbols such as talking, reading, handouts, or the chalkboard. The goal of this study was to evaluate the use of a video program entitled What's The Beef (Goodwin, 1991) as it is used in high school agriscience classes. The video was evaluated in terms of its effectiveness at increasing awareness and changing attitudes of urban high school students regarding animal agriculture and related issues.

Statement of the Problem

The What's The Beef video program is told from the animal agriculture standpoint and is available for purchase by agriscience teachers all over the state of Texas and beyond. The author/producer of the film, Jeff Goodwin, has also made another film entitled Here's The Beef that is told from the animal activist point of view. However, this video is not for sale. Research has been conducted using the two video tapes together (Goodwin, 1993), but no data have been collected on the effectiveness of the What's The Beef video by itself. The problem, then, is: Can the What's The Beef video program be effective when used in the high school agriscience classroom.

Significance of the Study

Animal agriculture has been a topic of much debate over the years and dates back as far as biblical times. The Bible states in several verses that man is to have dominion over all animals; and since the beginning of time, man has exercised this right by using livestock animals for food, labor, and entertainment purposes. Many books and magazine articles have been published from both sides of the animal agriculture issue, and the topic is still under fire. At the heart of the animal activist issue is the definition of two terms, animal welfare and animal rights. Animal welfare revolves around expressing a responsibility to protect the well-being of animals while animal rights revolves around the belief that animals have intrinsic "rights" that should be guaranteed. These "rights" include not being eaten, used for sport or research, abused, or killed. As a result of these beliefs, animal activists are attacking agriculturists for such practices as calf roping and veal production. At the same time, animal agriculturists are attacking the activists for the myths that they are promoting. The animal agriculture issue is one that is going to remain with our society for many years to come. The key to approaching a solution to the issue is educating both sides. Because many schools are using the video, it is important to evaluate the effects the video program has on both knowledge gains and attitude changes.

Objective

To accomplish the goals of this study, the primary objective was to determine if there was a difference in student attitudes and awareness toward animal agriculture following various methods of classroom instruction.

Literature Review

Animal agriculture has been around since biblical times. However, it was not until the mid 1900s that the issue of animal rights versus animal welfare became so controversial. In 1964 a book written by British author Ruth Harrison set the stage for the modern animal activist movement. In her book, Animal Machines, she questioned the right of humans to use animals for food by describing the conditions of slaughter houses and the transport of animals by meat packing companies in Great Britain (Jasper, 1992, p. 140). The controversy that raised from the publication and distribution of her book led to the creation of the Brambell Committee, a committee appointed by Great Britain's Parliament, that was composed of nine members. The committee's job was to look at new farming practices and make recommendations for new laws concerning the animals involved. No such law has ever been passed (Singer, 1985, p. 104).

The next major event in the animal activist movement occurred in 1975 when a book by Peter Singer was published. The book, Animal Liberation: A

New Ethics For Our Treatment of Animals, has come to be known as the “Bible of the Animal Rights Movement.” In portions of his book, Singer argues that animals should not be used for food, clothing, or research because animals, like humans, have a nervous system, and therefore can suffer, like humans.

Author Tom Regan went a step further than Singer in his book The Case for Animal Rights. Regan stated that animal agriculture is wrong because “it fails to treat farm animals with the respect they are due, treating them instead as renewable resources having value only relative to human interests” (p.394).

Regan went on to say that animal agriculture is wrong even when animals are treated humanely because it is man who decides when their life is over, and it is usually earlier than nature would have intended.

Throughout the last few decades, animal activists have targeted factory farms. Factory farming refers to the concept of huge factory-like farming systems which allow producers to maintain large numbers of animals in a given space. Jim Mason painted an ugly picture of animal agriculture by writing, “factory animals are crowded, restricted, stressed, frustrated, held in barren environments and maintained on additive-laced, unnatural diets” (Singer, 1985, 92).

The attacks on factory farming did not stop here. Dr. Michael W. Fox ‘s book Inhumane Society also addressed the issue. Fox wrote that overall productivity of the farm is the only thing producers see, and therefore the physical and psychological well-being of their animals are sacrificed. Fox went

on to say that in order to enhance the efficiency and productivity of the overall farm, animals were often fed “such waste products as cardboard, newspaper, and other industry by-products, and even their own excrement” (p.49). In addition to these feed “additives,” Fox indicated that animals raised in intensive factory-like operations had to be fed greater amounts of antibiotics, hormones, and other drugs to maintain productivity.

Factory farming is not the only concern of animal activists. The animal activist movement of today targets other management practices and especially the use of animals as a source of entertainment. Management practices such as castrating, dehorning, and branding are seen by many animal activists as inhumane. The use of animals for entertainment is also seen as inhumane. Recently, the rodeo sport of calf roping has been under heavy fire and as a result, many rodeos have eliminated the event entirely.

The animal activist issue is far from one-sided. The question of whether or not humans should treat their animals humanely is far less controversial than whether or not animals have intrinsic rights that humans are violating. Carl Cohen argues “that while humans have an obligation to treat animals humanely, animals can not have rights” (Bender, 1989, p.23). Producers often argue that in order for them to make a living, they must always treat their animals with respect. Thus, it is in a farmer/rancher’s own best interest to see that his/her animals are treated humanely. It holds true that livestock animals are very well

cared for when less than two percent of the nation's population is responsible for feeding one hundred percent of the population.

Recently, animal agriculturists have waged their fight against the animal activist movement. Many groups, representing all facets of modern animal agriculture, have established voluntary regulations regarding the treatment and production of livestock animals. For example, egg producers, veal producers, and swine producers have all developed such guidelines to implement in their respective industry.

Null Hypothesis

The null hypothesis of this study was that there was no difference between treatment groups in animal agriculture attitudes regardless of the incorporation of the video What's The Beef as a method of classroom instruction.

Instrumentation

A single instrument was used in this study to collect the data. It was developed by the author in conjunction with the project advisors, Dr. Chris Townsend and Dr. Gary Briers, and the author of the video used in the study, Dr. Jeff Goodwin. The instrument consisted of two major sections (see Appendix A).

The first section consisted of two types of questions. The first twelve questions were demographic questions. These questions asked participants for specific responses to variables such as: grade level, gender, ethnicity, previous

agriscience class background, student residence, parental residence, residence of relatives, farm or ranch work history, FFA or 4-H membership, and breed association and animal industry organization membership (both student and parental). The final question in this section asked participants to identify any past experience in caring for livestock animals. A response scale for each question was employed in this section to input the data into the computer so that demographic data could be analyzed for each treatment group.

The second section of the instrument consisted of sixteen statements designed to measure student attitudes towards animal agriculture. A response scale was also implemented in this section to obtain a numerical response for each of the attitude questions. The scale used was: strongly agree = 5, agree = 4, undecided = 3, disagree = 2, and strongly disagree = 1. The data for each student was entered into the computer and an average attitude score for each of the variables was obtained for each of the treatment groups.

Pilot Test

The instrument was given, in rough form, to students enrolled in a similar Agriculture class at Snook High School, Snook, Texas. The major goal of the pilot test was to ensure face validity - the questions asked were clear to students of that age group. From the student feedback, the instrument was refined, and the questionnaire was distributed to study participants.

Methodology

This study employed a post-test non-equivalent control group quasi-experimental design. The data was collected from two groups of urban high school agriscience classes. The treatment groups, one control and one experimental, each consisted of fifteen schools.

Population

The study population consisted of 488 "urban" high school students. Urban schools were chosen as participants because urban settings are generally where agricultural literacy is at its lowest level. Thus, by selecting schools with perceived lower levels of agricultural literacy, it was possible to accurately evaluate the effectiveness of the video program. All study participants were enrolled in animal agriculture oriented classes at their respective high school during the fall semester of 1993.

The population was randomly divided into two treatment groups each consisting of fifteen schools. Treatment group 1, the control group, consisted of 243 participants from randomly assigned schools (see Appendix B). Treatment group 2, the experimental group, consisted of 245 participants from the schools randomly picked to serve as experimental group schools (see Appendix B).

Sampling Technique

A random cluster sample was employed in this study with one cluster coming from each of thirty 5-A University Interscholastic League (U.I.L.) football districts. There are thirty-two 5-A U.I.L. football districts in the state of Texas. One of the districts did not have a high school in which agriscience classes were taught so it was automatically eliminated. In order to make an even thirty, another district was randomly eliminated.

Fifteen of the districts were randomly picked to serve as control group districts and fifteen were randomly picked to serve as experimental group districts. The names of the schools in which agriscience classes were taught in each of the thirty districts was determined. Using one district at a time until all thirty districts were completed, the names of the schools were randomly drawn and ranked. The school in each district that was ranked number one was mailed an invitation to participate in the activity.

Of the thirty schools originally invited to participate, twenty-six schools accepted. To compensate for the four schools that declined, the number two ranked school in each of the corresponding districts was invited to participate. All four of the alternate schools accepted.

From this point, the timeline of events was developed. All thirty schools were mailed packets containing the information and resources needed to participate. The teachers conducted the activity and the data was collected.

Treatment

As previously stated, two treatment groups were established. In treatment group 1, the control group, participants responded to the instrument without any previous specialized instruction. Participants in treatment group 2, the experimental group, viewed the video program and subsequently responded to the instrument.

Data Analysis

The data that was collected in the study was coded according to the response scale and inputted into the computer. It was then analyzed on the mainframe computer at Texas A&M University using the Statistical Package for Social Science (SPSS). To determine statistical significance, the error level was set apriori at $p < .10$.

Analysis of Demographic Data

The demographic data collected in the study was analyzed in order to ensure that the two treatment groups were approximately equal and to provide a profile of the urban high school student enrolled in an agriculture class.

Treatment group 1, the control group, had 243 participants (49.8%). Treatment group 2, the experimental group, had 245 participants (50.2%). The participants in the study represented all grade levels in both treatment groups. In the control group there was 0.8% freshmen, 29.2% sophomores, 35.0%

juniors, and 35.0% seniors. In the experimental group, there was 15.6% freshmen, 24.6% sophomores, 33.2% juniors, and 26.6% seniors. Table 1 shows the grade levels of the students in each treatment group.

The students in the study represented both genders in both treatment groups. In the control group, there were 55.4% males and 44.6% females. In the experimental group, there were 61.1% males and 38.9% females. Table 2 shows the gender distribution of the participants.

Table 1

Grade Level Distributions

Treatment Group	Grade Level							
	9		10		11		12	
	N	%	N	%	N	%	N	%
Control	2	0.8	71	29.2	85	35.0	85	35.0
Experimental	38	15.6	60	24.6	81	33.2	65	26.6

* Adjusted for missing values.

Table 2

Gender Distributions

Treatment Group	Gender			
	Male		Female	
	N	%	N	%
Control	134	55.4	108	44.6
Experimental	149	61.1	95	38.9

* Adjusted for missing values.

The students in the study represented various ethnicity's. In treatment group 1, the control group, there was 18.3% African Americans, 13.3% Hispanics, 65.6% Caucasians, and 2.9% Native Americans. In treatment group 2, the experimental group, there was 9.0% African Americans, 31.1% Hispanics, 59.0% Caucasians, and 0.8% Native Americans. Table 3 shows the ethnicity of students in each treatment group.

Table 3
Ethnicity Distributions

Treatment Group	Ethnicity							
	African American		Hispanic		Caucasian		Native American	
	N	%	N	%	N	%	N	%
Control	44	18.3	32	13.3	158	65.6	7	2.9
Experimental	22	9.0	76	31.1	144	59.0	2	0.8

*Adjusted for missing values.

In treatment group 1, 29.6% of the students live or have lived on a farm and 70.4% do not or have not. In treatment group 2, 40.0% of the participants live or have lived on a farm and 60.0% do not or have not. Table 4 shows student residence.

In treatment group 1, 50.4% of the parents were raised on a farm and 49.6% were not. In treatment group 2, 61.5% of the parents were raised on a farm and 38.5% were not. Table 5 shows parental residence.

Table 4

Student Residence

Treatment Group	Live or have lived on a farm		Do not or have not lived on a farm	
	N	%	N	%
Control Group	72	29.6	171	70.4
Experimental Group	98	40.0	147	60.0

Table 5

Parental Residence

Treatment Group	Were raised on a farm		Were not raised on a farm	
	N	%	N	%
Control Group	122	50.4	120	49.6
Experimental Group	150	61.5	94	38.5

*Adjusted for missing values.

In treatment group 1, 78.6% of the participants relatives have lived on a farm and 21.4% have not. In treatment group 2, 80.3% of the participants have relatives that have lived on a farm and 19.7% that have not. Table 6 shows relatives residence.

In treatment group 1, 56.8% of the participants have worked on a farm and 43.2% have not. In treatment group 2, 58.4% of the participants have worked on a farm and 41.6% have not. Table 7 shows the farm related work history of the participants.

Table 6

Relatives Residence.

Treatment Group	Have lived on a farm		Have not lived on a farm	
	N	%	N	%
Control Group	191	78.6	52	21.4
Experimental Group	196	80.3	48	19.7

*Adjusted for missing values.

Table 7

Farm Related Work History

Treatment Group	Participants that have worked		Participants that have not	
	on a farm		worked on a farm	
	N	%	N	%
Control Group	138	56.8	105	43.2
Treatment Group	143	58.4	102	41.6

In treatment group 1, 61.6% of the students have belonged to a FFA and/or 4-H chapter and 38.4% have not. In treatment group 2, 64.5% of the students have belonged to a FFA and/or 4-H chapter and 35.5% have not. Table 8 shows the FFA and/or 4-H membership of the students involved in the study.

Table 8

FFA and/or 4-H Membership

Treatment Group	Have belonged		Have not belonged	
	N	%	N	%
Control Group	149	61.6	93	38.4
Experimental Group	158	64.5	87	35.5

*Adjusted for missing values.

In the control group, 17.8% of the participants have at some time belonged to an animal industry organization (i.e. Breed Association) and 82.2% have not. In the experimental group, 15.8% of the students have belonged to an animal industry organization and 84.2% have not. Table 9 shows student animal industry organization membership.

Table 9

Student Animal Industry Organization Membership

Treatment Group	Have belonged		Have not belonged	
	N	%	N	%
Control Group	43	17.8	199	82.2
Experimental Group	38	15.8	203	84.2

*Adjusted for missing values.

In the control group, 14.8% of the participants said their parents belonged to an animal industry organization, 40.7% said their parents did not belong, and

44.4% of the participants said they did not know if their parents belonged to an animal industry organization. In the experimental group, 21.4% of the participants said their parents belonged, 43.7% said their parents did not belong, and 34.9% of the participants said they did not know if their parents belonged to an animal industry organization. Table 10 shows parental animal industry organization membership.

Table 10

Parental Animal Industry Organization Membership

Treatment Group	Have belonged		Have not belonged		Unknown	
	N	%	N	%	N	%
Control Group	36	14.8	99	40.7	108	44.4
Experimental Group	51	21.4	104	43.7	83	34.9

*Adjusted for missing values.

In treatment group 1, the control group, 4.5% of the participants have belonged to an animal activist organization (i.e. People for the Ethical Treatment of Animals) and 95.5% have not. In treatment group 2, the experimental group, 3.3% of the participants have belonged to an animal activist organization and 96.7% have not. Table 11 show student animal activist organization membership.

Table 11

Student Animal Activist Organization Membership

Treatment Group	Have belonged		Have not belonged	
	N	%	N	%
Control Group	11	4.5	232	95.5
Experimental Group	8	3.3	236	96.7

*Adjusted for missing values.

In the control group, 2.5% of the participants said that their parents have belonged to an animal activist organization, 58.8% have not belonged to such an organization, and 38.8% of the participants did not know if their parents have been members. In the experimental group, 4.1% of the participants said their parents have belonged to an animal activist organization, 71.3% of their parents have not, and 24.6% of the participants did not know. Table 12 shows parental animal activist organization membership.

Table 12

Parental Animal Activist Organization Membership

Treatment Group	Have belonged		Have not belonged		Unknown	
	N	%	N	%	N	%
Control Group	6	2.5	141	58.8	93	38.8
Experimental Group	10	4.1	174	71.3	60	24.6

*Adjusted for missing values.

In the control group, 48.5% of the participants have cared for cattle and 51.5% have not. In the experimental group, 53.3% have cared for cattle and 46.7% have not. Table 13 shows participant experience in caring for cattle.

Table 13

Participant Experience In Caring For Cattle

Treatment Group	Have cared for cattle		Have not cared for cattle	
	N	%	N	%
Control Group	94	48.5	100	51.5
Experimental Group	112	53.3	98	46.7

*Adjusted for missing values.

In the control group, 65.9% of the participants have cared for horses and 34.1% have not. In the experimental group, 58.7% have cared for horses and 41.3% have not. Table 14 shows participant experience in caring for horses.

Table 14

Participant Experience In Caring For Horses

Treatment Group	Have cared for horses		Have not cared for horses	
	N	%	N	%
Control Group	137	65.9	71	34.1
Experimental Group	125	58.7	88	41.3

*Adjusted for missing values.

In the control group, 38.9% of the participants have cared for sheep and 61.1% have not. In the experimental group, 31.3% have cared for sheep and 68.7% have not. Table 15 shows participant experience in caring for sheep.

Table 15

Participant Experience in Caring For Sheep

Treatment Group	Have cared for sheep		Have not cared for sheep	
	N	%	N	%
Control Group	70	38.9	110	61.1
Experimental Group	63	31.3	138	68.7

*Adjusted for missing values.

In the control group, 39.5% of the participants have had experience in caring for swine and 60.5% have not. In the experimental group, 48.0% of the participants have cared for swine and 52.0% have not. Table 16 shows participant experience in caring for swine.

Table 16

Participant Experience in Caring for Swine

Treatment Group	Have cared for swine		Have not cared for swine	
	N	%	N	%
Control Group	73	39.5	112	60.5
Experimental Group	98	48.0	106	52.0

*Adjusted for missing values.

In the control group, 58.5% of the participants have cared for rabbits and 41.5% have not. In the experimental group, 56.3% of the participants have had experience in caring for rabbits and 43.7% have not. Table 17 show participant experience in caring for rabbits.

Table 17

Participant Experience in Caring for Rabbits

Treatment Group	Have cared for rabbits		Have not cared for rabbits	
	N	%	N	%
Control Group	117	58.5	83	41.5
Experimental Group	121	56.3	94	43.7

*Adjusted for missing values.

In the control group, 41.7% of the participants have had experience caring for poultry and 58.3% have not. In the experimental group, 47.1% of the participants have cared for poultry and 52.9% have not. Table 18 shows participant experience in caring for poultry.

Table 18

Participant Experience In Caring For Poultry

Treatment Group	Have cared for poultry		Have not cared for poultry	
	N	%	N	%
Control Group	78	41.7	109	58.3
Experimental Group	96	47.1	108	52.9

*Adjusted for missing values.

Summary of Demographic Data

Analysis of the demographic data collected in this study reveals that the two treatment groups were equal in size and statistically the same. A profile of the urban high school student enrolled in an Agriculture class is given below:

- In eleventh grade.
- Male.
- Caucasian.
- Lives in an urban setting.
- One or more of his/her parents was raised or lived on a farm.
- Has relatives that live on a farm or ranch.
- Has worked on a farm or ranch.
- Has belonged to a FFA and/or 4-H organization.
- Neither he nor his parents have belonged to an animal industry organization.
- Neither he nor his parents have belonged to an animal activist organization.
- Has experience caring for horses and rabbits.

Analysis of Attitude Data

The attitude data collected in this study was analyzed to determine if there was a statistically significant difference in attitudes toward animal

agriculture from students in the control group versus students in the experimental group.

Participants in the experimental group agreed more strongly than did participants in the control group that agricultural producers in America provide consumers with a food supply that is plentiful and cheap. The average response for the experimental group was 3.9795 and the average response for the control group was 3.7893. Table 19 shows the responses for the two groups.

Table 19

Quantity and Quality of American Food Supply

Treatment Group	Mean	t-value	Probability
Control Group	3.7893		
		-2.45	.015
Experimental Group	3.9795		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

Participants in the experimental group also agreed more strongly that the concerns and demands of animal activists about animal agriculture are not based on facts. The experimental group responded with mean of 3.2739 while the control group responded with a mean of 2.9753. Table 20 shows the responses from each of the two treatment groups.

Table 20

Basis for Animal Activist Concerns

Treatment Group	Mean	t-value	Probability
Control Group	2.9753		
		-2.45	.004
Experimental Group	3.2739		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The experimental group agreed more strongly that the terms “Humans” and “Animals” should be used instead of “Human” and “Non-Human” animals when talking about animal agriculture. The experimental group had a mean response of 3.7325 and the control group had a mean response of 3.5350.

Table 21 shows the responses of the two groups.

Table 21

Terminology Used In Animal Agriculture

Treatment Group	Mean	t-value	Probability
Control Group	3.5350		
		-2.01	.045
Experimental Group	3.7325		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The experimental group agreed more strongly that veal calves are treated humanely in confinement operation than did the control group. The experimental

group had an average response of 3.6157 and the control group had an average response of 3.0289. Table 22 illustrates the average responses of the two treatment groups.

Table 22

Treatment of Veal Calves is Humane

Treatment Group	Mean	t-value	Probability
Control Group	3.0289		
		-5.90	.000
Treatment Group	3.6157		

Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The experimental group agreed more strongly that animal rights activist concerns about confinement veal operations should not affect consumers and producers in Texas. They had a mean response of 3.4896 while the control group disagreed more strongly with a mean response of 3.0413. Table 23 shows the average responses of the groups.

The participants in the experimental group agreed more strongly that hot-iron branding is an acceptable and humane method of livestock identification than did participants in the control group. The experimental group responded with a mean of 3.9136 while the control group responded with a mean of 3.5514. Table 24 shows the average responses given by the two groups.

Table 23

Texas Veal Consumers and Producers Should Not Be Affected

Treatment Group	Mean	t-value	Probability
Control Group	3.0413		
		-4.47	.000
Experimental Group	3.4896		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

Table 24

Hot-Iron Branding is an Acceptable Method of Identification

Treatment Group	Mean	t-value	Probability
Control Group	3.5514		
		-3.47	.001
Experimental Group	3.9136		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The experimental group agreed more strongly than the control group that management practices such as branding, castrating, ear tagging, tattooing, and dehorning are humane and acceptable procedures. The average response for the experimental group was 3.8807 and 3.7078 for the control group. Table 25 illustrates the average responses.

Table 25

Management Practices Are Humane

Treatment Group	Mean	t-value	Probability
Control Group	3.7078		
		-1.66	.097
Experimental Group	3.8807		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The experimental group agreed more strongly than the control group that dehorning cattle is a necessary management practice. The mean for the experimental group was 3.9250 while the mean for the control group was 3.4421. Table 26 shows the responses of each group.

Table 26

Dehorning of Cattle is Necessary

Treatment Group	Mean	t-value	Probability
Control Group	3.4421		
		-4.79	.000
Experimental Group	3.9250		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The experiment group agreed more strongly that vaccinating children causes as much stress for children as vaccinating livestock does for animals. The experimental group had an average response of 3.8554 and the control

group had an average response of 3.4380. Table 27 shows the responses of both the control and experimental groups.

Table 27

Vaccinations of Children And Animals Cause Equal Amounts of Stress

Treatment Groups	Mean	t-value	Probability
Control Group	3.4380		
		-4.12	.000
Experimental Group	3.8554		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

Although both groups disagreed, the participants in the experimental group disagreed more strongly that their friends who are not in agriscience would probably eat less meat if they saw how farm animals are usually treated. The experimental group responded with a mean of 2.4463 while the control group responded with a mean of 2.6955. Table 28 Shows the responses of both treatment groups.

Table 28

Meat Consumption of People Not In Agriculture Would Decrease

Treatment Group	Mean	t-value	Probability
Control Group	2.6955		
		2.19	.029
Experimental Group	2.4463		

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

The remaining six attitude statements did not show statistically significant differences in the average responses of the two treatment groups. Both groups agreed that animal activist concerns should be studied. Both groups also agreed that calf-roping is an acceptable form of entertainment. Both of the treatment groups were moderate in their opinions concerning poultry operations, branding, and castrating being necessary and humane production practices. The groups also had moderate opinions about what their friends who are not in Agriculture would think of some of the management practices. Table 29 shows the average responses of the groups regarding the six attitude statements that did not have statistically significant differences.

Table 29

Statements With No Statistical Differences by Treatments

Statement	Control Group Mean	Experimental Group Mean
Animal activist concerns should not be studied.	2.5083	2.5702
Calf-roping is an acceptable form of entertainment.	3.9421	4.1111
Poultry production practices are humane.	3.7625	3.8382
Branding is necessary.	3.7284	3.8719
Castrating is necessary.	3.7025	3.8595
Management practices would repulse people not in Agriculture.	3.1446	3.0868

*Scale values: 1=Strongly Disagree to 5=Strongly Agree.

Summary of the Attitude Data

There were several attitude questions in which there were statistically significant differences in the average responses of the two treatment groups. In each case, the participants in the experimental group, the group that watched the video, agreed more with the animal agriculture attitude than the animal activist attitude and the participants in the control group.

Conclusions And Recommendations

The null hypothesis was rejected because there was a significant difference ($p < .10$) between the two groups concerning ten of the sixteen animal agriculture attitude statements. The group that participated in the What's The Beef video program had as positive or more positive attitudes toward animal agriculture issues.

The results of this study indicate that the What's The Beef video program for agriscience students is effective at increasing awareness of urban high school students regarding animal agriculture. Also, the What's the Beef video caused an attitude change of the participants towards animal agriculture. The participants in the experimental group agreed more with animal agriculturists than did participants in the control group.

1. Students who enroll in urban animal agriculture courses are typically upper classmen of both genders who are mostly white in ethnicity. The students do not live on farm residences. Schools should actively recruit non-white

students to provide animal agriculture instruction to all future policy makers.

2. Parents of students who enroll in urban animal agriculture courses may have resided on farms as approximately 50% of the parents grew up on farms. The number of students who had relatives with farm residences was even larger as over 75% of the students had relatives from farms. It may be that future parents will more likely be from the city. The schools should seek ways to provide hands-on agriculture activities to the future citizens who will make agricultural policy decisions.
3. Over 50% of the urban animal agriculture students had farm work history and were involved with an agriculture youth organization (FFA and/or 4-H).
4. A limited number of students and parents were involved in animal industry or activist groups. Both industry and activist groups may seek to increase membership and enhance education by recruiting from urban animal agriculture classes.
5. The treatment teaching method of using a video to introduce animal activist concerns was effective as students who participated in the treatment had more positive attitudes concerning the nation's food supply, understanding agriculture based on fact, use of common agriculture language, and the use of agriculture production practices such as dehorning, castration, and veal calf production. Schools and teachers should incorporate the video What's The Beef into the classroom to provide instruction in animal rights and animal welfare.

6. All students, regardless of treatment, agreed that animal agriculture was a justified activity. As students become adults who make voter decisions, it is recommended to incorporate animal agriculture discussions into non-agriculture classrooms.

References

- Bender, David L. and Bruno Leone, Ed. 1989. Animal Rights.
San Diego: Greenhaven Press.
- Dale, Edgar. 1954. Audio-Visual Methods in Teaching -- Revised Edition. New York: Holt, Rinehart, and Winston, Inc.,
p. 42-44.
- Fox, Michael W. 1990. Inhumane Society. New York: St. Martin's
Press.
- Goodwin, Jeff. 1993. Experimental Evaluation of an Extension Educational Program to Address Animal Activist Concerns About Animal Agriculture.
- Goodwin, Jeff. 1991. What's The Beef. [Video Cassette].
Instructional Materials Service, College Station, Texas.
- Jasper, James M. and Dorothy Nelkin. 1992. The Animal Rights Crusade. New York: The Free Press.
- Regan, Tom. 1983. The Case For Animal Rights. Los Angeles:
University of California Press.
- Singer, Peter, Ed. 1985. In Defense Of Animals. New York:
Basil Blackwell Inc.
- The Holy Bible. New American Version, (1979). Wichita, Kansas:
Catholic Bible Publishers.

APPENDIX A

DEPARTMENT
OF AGRICULTURAL EDUCATION
TEXAS A&M UNIVERSITY
STUDENT INFORMATION

I. DEMOGRAPHIC INFORMATION. Please circle the letter of the correct or best answer.

- | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------|-----|----|--------|-----|----|-------|-----|----|-------|-----|----|---------|-----|----|---------|-----|----|--------------------|--|--|
| <p>1. Grade level</p> <p>a. 9</p> <p>b. 10</p> <p>c. 11</p> <p>d. 12</p> <p>2. Gender</p> <p>a. Male</p> <p>b. Female</p> <p>3. Ethnicity</p> <p>a. African-American/Black</p> <p>b. Hispanic</p> <p>c. White/Anglo</p> <p>d. Native American/American Indian</p> <p>e. Asian-American</p> <p>4. Agscience Class in which this survey is given: _____</p> <p>5. Including this class, how many semester Agscience classes have you taken? _____</p> <p>6. Have you ever lived on a farm or ranch?</p> <p>a. Yes</p> <p>b. No</p> <p>7. Were your parents/guardians raised on a farm or ranch?</p> <p>a. Yes</p> <p>b. No</p> <p>8. Do you have any relatives who live on a farm or ranch?</p> <p>a. Yes</p> <p>b. No</p> <p>9. Have you ever worked on a farm or ranch?</p> <p>a. Yes</p> <p>b. No</p> | <p>10. Have you ever been a member of an FFA and/or 4-H chapter?</p> <p>a. Yes</p> <p>b. No</p> <p>11. Have you ever been a member of an animal industry organization (ex: Breed Associations)?</p> <p>a. Yes</p> <p>b. No</p> <p>Your parents/guardians?</p> <p>a. Yes</p> <p>b. No</p> <p>c. Unknown</p> <p>12. Have you ever been a member of an animal activist group (ex: "PETA")?</p> <p>a. Yes</p> <p>b. No</p> <p>Your parents/guardians?</p> <p>a. Yes</p> <p>b. No</p> <p>c. Unknown</p> <p>13. Have you ever cared for livestock?</p> <table border="0" style="width: 100%;"> <tr> <td>Cattle</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Horses</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Sheep</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Swine</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Rabbits</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Poultry</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Other (list) _____</td> <td></td> <td></td> </tr> </table> | Cattle | Yes | No | Horses | Yes | No | Sheep | Yes | No | Swine | Yes | No | Rabbits | Yes | No | Poultry | Yes | No | Other (list) _____ | | |
| Cattle | Yes | No | | | | | | | | | | | | | | | | | | | | |
| Horses | Yes | No | | | | | | | | | | | | | | | | | | | | |
| Sheep | Yes | No | | | | | | | | | | | | | | | | | | | | |
| Swine | Yes | No | | | | | | | | | | | | | | | | | | | | |
| Rabbits | Yes | No | | | | | | | | | | | | | | | | | | | | |
| Poultry | Yes | No | | | | | | | | | | | | | | | | | | | | |
| Other (list) _____ | | | | | | | | | | | | | | | | | | | | | | |

II. RESPOND TO THE FOLLOWING STATEMENTS. There are no right or wrong answers. Please circle your answer.

SA=Strongly Agree A=Agree UN=Undecided
D=Disagree SD=Strongly Disagree

- | | | | | | |
|---|----|---|----|---|----|
| 1. Agricultural producers in America provide consumers with a food supply that is plentiful and cheap. | SA | A | UN | D | SD |
| 2. The concerns and demands of animal activists about animal agriculture are not based on facts. | SA | A | UN | D | SD |
| 3. None of the animal activist concerns about animal agriculture should be studied. | SA | A | UN | D | SD |
| 4. When talking about animal agriculture, the terms "Humans" and "Animals" should be used instead of "Human" and "Non-Human" animals. | SA | A | UN | D | SD |
| 5. Veal calves (young cattle) are treated humanely in confinement veal operations. | SA | A | UN | D | SD |
| 6. Animal rights activist concerns about confinement veal operations should not affect consumers and producers in Texas. | SA | A | UN | D | SD |
| 7. Calf roping and other rodeo events are acceptable forms of entertainment. | SA | A | UN | D | SD |
| 8. Intensive poultry production practices are a humane method of poultry and egg production. | SA | A | UN | D | SD |
| 9. Concerning animal well-being, hot-iron branding is an acceptable and humane method of livestock identification. | SA | A | UN | D | SD |
| 10. Management practices such as branding, castrating, ear tagging, tattooing, and dehorning are humane and acceptable procedures. | SA | A | UN | D | SD |
| 11. Branding is a necessary management practice. | SA | A | UN | D | SD |

- | | | | | | |
|--|----|---|----|---|----|
| 12. Castrating bull calves or boar pigs is a necessary management practice. | SA | A | UN | D | SD |
| 13. Dehorning cattle is a necessary management practice. | SA | A | UN | D | SD |
| 14. Vaccinating children causes as much stress for children as vaccinating livestock does for animals. | SA | A | UN | D | SD |
| 15. My friends who are NOT in Agscience would probably be repulsed by the "management practices" such as branding, castrating, and/or dehorning. | SA | A | UN | D | SD |
| 16. My friends who are NOT in Agscience would probably eat less meat if they saw how farm animals are usually treated. | SA | A | UN | D | SD |

APPENDIX B

SCHOOLS COMPRISING THE CONTROL GROUP

Canutillo High School, Canutillo, Texas

Abilene High School, Abilene, Texas

Weatherford High School, Weatherford, Texas

Plano East Senior High School, Plano, Texas

Westwood High School, Austin, Texas

John Tyler High School, Tyler, Texas

Jersey Village High School, Houston, Texas

Humble High School, Humble, Texas

Beaumont Central High School, Beaumont, Texas

Clear Lake High School, Houston, Texas

Willowridge High School, Sugar Land, Texas

Maddison High School, San Antonio, Texas

Carroll High School, Corpus Christi, Texas

Arlington Martin High School, Arlington, Texas

Marshall High School, San Antonio, Texas

SCHOOLS COMPRISING THE EXPERIMENTAL GROUP

Ysleta High School, El Paso, Texas

Coronado High School, Lubbock, Texas

Rider High School, Wichita Falls, Texas

Terry High School, Rosenberg, Texas

Garland High School, Garland, Texas

Temple High School, Temple, Texas

Westfield High School, Houston, Texas

Memorial High School, Houston, Texas

Yates High School, Houston, Texas

East Central High School, San Antonio, Texas

Holmes High School, San Antonio, Texas

McAllen Memorial High School, McAllen, Texas

Harlingen High School, Harlingen, Texas

Maddison High School, Houston, Texas

United South High School, Laredo, Texas