

2009

A portrayal of the modern day dairy farm in children's literature

Bridget Donlon
University of Northern Iowa

Let us know how access to this document benefits you

Copyright ©2009 Bridget Donlon

Follow this and additional works at: <https://scholarworks.uni.edu/grp>

Recommended Citation

Donlon, Bridget, "A portrayal of the modern day dairy farm in children's literature" (2009). *Graduate Research Papers*. 1963.

<https://scholarworks.uni.edu/grp/1963>

This Open Access Graduate Research Paper is brought to you for free and open access by the Student Work at UNI ScholarWorks. It has been accepted for inclusion in Graduate Research Papers by an authorized administrator of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Offensive Materials Statement: Materials located in UNI ScholarWorks come from a broad range of sources and time periods. Some of these materials may contain offensive stereotypes, ideas, visuals, or language.

A portrayal of the modern day dairy farm in children's literature

Find Additional Related Research in UNI ScholarWorks

To find related research in UNI ScholarWorks, go to the collection of [School Library Studies Graduate Research Papers](#) written by students in the [Division of School Library Studies](#), Department of Curriculum and Instruction, College of Education, at the University of Northern Iowa.

Abstract

Children's books may be the only views of farming urban students experience, yet books depicting farms with one or two cows are outdated. There is a lack of information available for children to learn about modern dairy farming practices. The dairy industry has experienced substantial changes in its history, including the introduction of many technologies. Modern dairy farms have incorporated technologies into everyday tasks, yet few children's books show farmers working at computers or even milking machines. At a time when most families are removed from farming, students create understanding of dairy farming through secondary sources such as children's literature. Therefore, a nonfiction book for children with an accurate portrayal of modern dairy farms would be a significant addition to children's literature in this country, and would provide information for children and adults.

A PORTRAYAL OF THE MODERN DAIRY FARM
IN CHILDREN'S LITERATURE

A Graduate Research Project
Submitted to the
Division of School Library Studies
Department of Curriculum and Instruction
In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts
UNIVERSITY OF NORTHERN IOWA

by
Bridget A. Donlon
December 2009

This Research Project by: Bridget A. Donlon

Titled: A Portrayal of the Modern Dairy Farm in Children's Literature

has been approved as meeting the research requirement for the
Degree of Master of Arts.

Jean Donham

12/11/2009
Date Approved

Jean Donham
Graduate Faculty Reader

Karla Krueger

12/11/09
Date Approved

Karla Krueger
Graduate Faculty Reader

Jill M. Uhlenberg

12-14-09
Date Approved

Jill M. Uhlenberg
Head, Department of Curriculum and Instruction

ABSTRACT

Children's books may be the only views of farming urban students experience, yet books depicting farms with one or two cows are outdated. There is a lack of information available for children to learn about modern dairy farming practices. The dairy industry has experienced substantial changes in its history, including the introduction of many technologies. Modern dairy farms have incorporated technologies into everyday tasks, yet few children's books show farmers working at computers or even milking machines. At a time when most families are removed from farming, students create understanding of dairy farming through secondary sources such as children's literature. Therefore, a nonfiction book for children with an accurate portrayal of modern dairy farms would be a significant addition to children's literature in this country, and would provide information for children and adults.

TABLE OF CONTENTS

LIST OF TABLES	vii
CHAPTER 1. INTRODUCTION	1
Agriculture through History.....	1
Agriculture Education	3
Children’s Literature	4
Problem Statement	5
Purpose Statement.....	5
Research Questions	5
Definitions.....	6
Assumptions.....	6
Limitations	6
Significance.....	7
CHAPTER 2. REVIEW OF LITERATURE	8
Introduction.....	8
Text Structures in Children’s Nonfiction.....	8
Children’s Literature About Farming and Rural Life	12
Impact of Teachers Participation in Agriculture in the Classroom Programs on Student Agricultural Literacy	16
The Modern Dairy Industry	18
Summary	19
CHAPTER 3: PROCEDURES	21
Problem/Purpose	21
Rationale	21
Audience	22
Design	22
Procedures.....	23
CHAPTER 4: PROJECT	25

CHAPTER 5: RECOMMENDATIONS.....	26
Summary	26
Conclusions.....	28
Recommendations for Further Study	31
REFERENCES	32
APPENDIX A: REQUEST LETTER FOR PROJECT REVIEWER.....	34
APPENDIX B: PROJECT REVIEWER QUESTIONNAIRE	35

LIST OF TABLES

TABLE	PAGE
Evaluating Nonfiction Books.....	10

CHAPTER 1

INTRODUCTION

Today most farmers use milking machines, which are quicker and cleaner. First, the udder must be washed. A small amount of milk is “stripped” by hand – that is, pulled from the teat to begin milking. Then a pump sucks the milk through rubber lined cups that fit over the cow’s teats. The action of the cups is like the sucking of a calf. (Gibbons, 1985, p. 13 unnumbered).

Agriculture through History

Leising, Pense, and Portillo (2003) referred to the findings of Leising and Zilbert (1994) when they asserted,

America’s food and fiber systems determine the nation’s general welfare and standard of living. Today nearly ninety percent of the population is two or three generations removed from direct contact with food and fiber production...As a result, youth know little about agricultural production, processing, marketing, distribution, regulation or research. (p. 1)

Gone are the days when families were self-sustaining; when keeping a cow, other animals, and garden provided the family’s food (Fairvue Farms, 2008). Children’s literature about farming which shows lanterns, milk cans and three-legged stools are out of date; these items “are antiques and are sold in antique stores,” (Ediger, 1998, p. 277). Today a very small number of students are involved in agriculture (Biser, 2007; Czarney & Terry, 1998; Ediger, 1998; Irwin & Andreasen, 2003). These future consumers know very little about the origins of their food. Many students see the grocery store as the source of their milk, eggs, and tomatoes (Biser, 2007; Ediger, 1998).

The dairy industry has experienced substantial changes in its history, including the introduction of many technologies. As long ago as 1898, the United States

Department of Agriculture (USDA) approved a pulsating milking machine. This approval followed almost 50 years of developing and testing (American Artifacts, 1996, 1998). In the 1930s the Rural Electrification Association provided many farms with electricity. Laws governing the sale of fluid milk date back to the 1950s (Iowa Department of Public Health, n.d.). Even before these laws, a process called pasteurization was invented to kill harmful bacteria (America's Dairy Farmers, n.d.).

Children's books depicting farms with one or two cows are outdated. As villages and towns grew in the late 19th century, dairy farms also grew in size. The production of Grade A milk, that which is sold as fluid milk in grocery stores and restaurants, is licensed and governed by strict regulations for cleanliness (Michigan, 2001, p. 7). "The history of the Grade 'A' Milk Certification Program dates back to the 1930s and 40s," (Iowa Department of Public Health, n.d.). In 1944 a multiple-state conference was held and created a plan to ensure public safety in the way milk was produced. In 1950 the first National Conference on Interstate Milk Shipments was held; their original slogan: The Best Possible Milk Supply for All the People, though *Best* was later replaced with the word *Safest*. Today representatives from all 50 states, the District of Columbia and other United States Territories participate in the National Conference on Interstate Milk Shipments through biannual conferences (Iowa Department of Public Health, n.d.).

Dairy farms have incorporated technologies to allow for better record keeping, better genetics, and better nutrition. Today there are fewer farms and fewer cows, but using genetic technologies and nutrition testing, today's cows produce six times more milk than in 1900 (Coppock, 2000). Today's farmers often have advanced record keeping

systems and professional training, yet few children's books show farmers working at computers or even milking machines (Kruse, 2001).

Agriculture Education

The idea of intentionally teaching students about agriculture dates back to the early twentieth century when agriculture teachers began to envision an organization that would "expose farm boys to the world outside their small communities," (Gibson Horne, 2007, p. 11). Early in the 1900s, 4-H grew out of a need to connect school to the needs of rural communities. In 1902, A.B. Graham fathered what is now considered the birth of 4-H clubs in Ohio, starting a youth program to introduce new technologies into farming practices (National 4-H Headquarters, 2006). FFA held its first gathering in 1928, and to date has influenced past and future leaders from both agriculture and non-agriculture backgrounds (Gibson Horne, 2007).

"Agricultural education envisions a world where all people value and understand the vital role of agriculture, food, fiber, and natural resources systems in advancing personal and global well-being," (National Council for Agricultural Education, NCAE, 2000, p. 3). This has not always been the case in agriculture education. After its beginnings with the Smith-Hughes Act of 1917, agriculture education held onto its roots in production agriculture, that is, preparing students to live and work on farms. Nearly 50 years after federal funding for agriculture education began, the focus broadened to include other related fields (Blassingame, 1999).

The first of two major shifts in the field occurred in 1963. That year agricultural education began to include agribusiness and agriscience. Agribusiness encompasses the companies that provide goods and services for the farm, such as seeds, milking machines and pharmaceuticals for livestock. Agriscience includes genetic engineering of crops and livestock.

The second shift came in the mid-1980s, with a push to increase the agriculture literacy of the general population. (Blassingame, 1999, p. 5)

In northeast Iowa, where many of Iowa's dairy farms are located, a grass-roots organization, the Northeast Iowa Dairy Foundation, was created to promote positive images of the dairy industry. In cooperation with Iowa State University and Northeast Iowa Community College, the Dairy Foundation has a fully-functioning dairy farm and hosts a program for grades three to five to teach about the dairy industry. Boylen, Dairy Foundation Director, says:

Iowa's Dairy Story is a program, created in 2001, which educates elementary students about the dairy industry. To date, more than 9,000 area grade school children have participated in the program and gotten a upclose look at how milk from our cows ends up on their school lunch tray. (personal communication, June 18, 2009)

Agricultural education is needed to prepare youth for their future as consumers and as decision-makers. "An agriculturally literate population will make intelligent and informed decisions regarding agricultural issues and policies to benefit all of society," (Biser, 2007, p. 11). One way children learn is to have personal experience with the subject. As field trips, such as one to Iowa's Dairy Story, have become more expensive, children's books hold an increasing prominence in learning about agriculture (Biser, 2007; Czarney & Terry, 1998; Ediger, 1998).

Children's Literature

Children's books may be the only views of farming urban students experience. Many students associate agricultural careers with traditional farming (Wittler, 2007); these students view traditional farming as they have read about in children's literature (Czarney & Terry, 1998; Kruse, 2001). It is then important that these books are free of "factual inaccuracies that may permanently distort the reader's image of agrarian

workers,” (Kruse, 2001, p. 22). “Library books on farming should have much appeal to learners...Pupils like to interact with animals” (Ediger, 1998, p. 280). Books written for children should also be accurate and written by knowledgeable people in the field (Ediger, 1998).

The reasons for inaccuracies about agriculture may be adults’ need to reminisce about their past; these books have been “created to preserve...personal memories of agrarian life,” (Kruse, 2001, p. 24). Another source of inaccuracy is the use of farm animals in fantasy books, in which animals talk and display decision-making skills, also known as anthropomorphism (Czarney & Terry, 1998; Moss, 2003). These fantasy books can give students an inaccurate understanding of the role of farm animals as food and romanticize farm animals as pets (Czarney & Terry, 1998).

Problem Statement

At a time when most families are removed from farming, students create understanding of dairy farming through secondary sources such as children’s literature. This research project is focused on the need for accurate portrayal of modern dairy farms in nonfiction for children.

Purpose Statement

The purpose of this project is to create a nonfiction picture book to show a modern dairy farm for children 8- to 11-years-old.

Research Questions

- What is the best way to visually depict the modern dairy farm accurately in a children’s nonfiction book?
- How should the story of a modern dairy farm be told?

- What are the key content elements necessary to give children an accurate portrayal of dairy farming?

Definitions

Agricultural literacy – a person who is “able to make decisions based on accurate experiences and knowledge about agriculture” (Biser, 2007, p. 64)

Anthropomorphism – “attributing human thought and speech to animals” (Moss, 2003, p. 37)

Dairy animal – “any domesticated lactating mammal, including a cow, goat, sheep, water buffalo, or other hooved mammal, which is managed and milked to obtain milk for human consumption” (Michigan, p. 2).

Dairy farm – “any place or premises where one or more dairy animals are kept for milking purposes, and from which a part or all of the milk is provided, sold, or offered for sale” (Michigan, p. 2).

Assumptions

For children to develop a realistic understanding of dairy farms, books must contain accurate information and images (Czarney & Terry, 1998).

Limitations

“The complex and varied nature of American agriculture prevents a single book from providing a complete picture of American farm life for child readers” (Chu, 1993, p. 14). While this researcher aims to provide an accurate picture of modern dairy farming, it must be recognized that on different farms and in different areas of the country, dairy farming practices vary.

This study is also limited to the modern dairy farm, and not to the dairy industry as a whole. This study is designed to provide children with accurate information about the origins of their dairy products, not the entire process of making, distributing and selling dairy products.

Significance

“What children read today influences the society of tomorrow” (Czarney & Terry, 1998, p. 44). Modern dairy farms are diverse in size, location and use of technology. In a study of Agriculture in the Classroom, books were the most used resource as reported by teachers in the treatment group, (Leising, Pense, & Portillo, 2003). Due to the high use of children’s literature to teach about farming, this study is designed to provide children with accurate information about dairy farms and the origins of their dairy products. Accurate agricultural education prepares informed consumers and decision-makers (Biser, 2007).

CHAPTER 2

REVIEW OF LITERATURE

At a time when most families are removed from farming, students construct understanding of dairy farming through secondary sources such as children's literature. The intent of this study is to respond to the need for accurate portrayal of modern dairy farms in nonfiction titles for children.

The researcher will create a nonfiction picture book to show a modern dairy farm for children 8- to 11-years-old.

Introduction

The dairy industry continues to incorporate new technologies and improve farming practices (Coppock, 2000), while children's literature on the subject has shown little of these advancements (Biser, 2007; Czarney & Terry, 1998; Kruse, 2001). Research on child development and children's literature has shown that it is important to avoid stereotyping in literature for young readers "when clear concepts of self and others are being formed" (Hoffman & Daniels, 1995, p. 1). The limited research about children's agricultural nonfiction shows a need for "a current and accurate view of agriculture" (Czarney & Terry, 1998, p. 43).

Test Structures in Children's Nonfiction

Like a good teacher, a good author makes nonfiction interesting. "They take facts and weave them into interesting forms that engage readers," (Moss, 2003, p. 13). Moss referred to major differences between fiction and nonfiction as the justification for a

nonfiction evaluation tool, and developed questions to evaluate nonfiction titles for educators. Moss referenced an exciting transformation in nonfiction writing over the last twenty years, a transformation that has led to an increased popularity of the genre with children. Current nonfiction titles are more likely to have a singular focus and many use a narrative style to engage readers (Moss, 2003).

Today's growing field of nonfiction provides a wide variety of topics and can be used in all subject areas. Educators easily identify life cycle books fitting into science classrooms while biographies are associated with social studies. Yet there are many artful uses of informational books on topics "from AIDS to zebras" (Moss, 2003, p. 13).

Nonfiction books differ from textbooks in more than just the amount of content covered. "Today's nonfiction authors don't use a 'one size fits all' approach to writing," (Moss, 2003, p. 40). Instead these authors employ vivid details to make the text come to life, interesting anecdotes to hook the reader and comparisons to help the reader build on prior knowledge. Moss compared a textbook passage of the first Thanksgiving to a more dramatic passage of Leonard Weisgard's *The Plymouth Thanksgiving*, and stated many children can relate because they have experienced busy preparations and long waits (Moss, 2003).

When choosing nonfiction titles, Moss provided questions to evaluate books, found in Table 1 (Moss, 2003, p. 43). These questions were intended to encourage the use of quality books instead of books that cover a specific curricular area. Moss (2003) also cited professional journals such as *School Library Journal*, *Booklist*, and *Horn Book* as resources to aid in the selection of quality nonfiction books for young readers.

Table 1 Evaluating Nonfiction Books

Criteria	Questions to ask
Authority	Does the author identify and credit experts consulted during the research process?
Accuracy	Is text content accurate? Are maps, graphs, charts, and other visual information presented clearly? Does the author distinguish between fact and theories?
Appropriateness	Is information presented in ways appropriate to the intended audience? Does the author show respect for the reader? Is information effectively organized?
Literary artistry	Does the book have literary artistry? Does the author use literary devices to make information come alive? Is the author's style engaging?
Attractiveness	Is the appearance and layout of the book likely to entice readers?

Nonfiction varies from fiction, and when children understand the text structures of nonfiction, they are more likely to understand the book's purpose. The patterns in expository text are "a map that guides" (Moss, 2003, p. 99). Research cited by Moss also found that students who understood text structure patterns were better at comprehension and recall (2003).

In a study of how nonfiction was taught to educators, Sanders & Moudy (2008) used mentor texts selected through national award lists, professional reviews, and *Horn Book* ratings. These mentor texts were used to learn the most popular patterns in nonfiction, and how the mentor texts could be used to encourage students' creative nonfiction writing.

Sanders & Moudy (2008) found that text structure is directly related to the author's purpose. Bakhtin (1986) theorized that author's purpose influenced word choice (as cited in Sanders & Moudy, 2008), and an author's purpose influences the text structure used.

An example of the author's purpose directly shaping the text structure can be seen in how Albert Marrin, author of *Oh, Rats!*, uses a compare-contrast text structure for the purpose of comparing rats to humans so as to make them seem less frightening and help readers "get to know them." (Sanders & Moudy, 2008, p. 34-35)

The text structure patterns most often used in expository text include narrative, description, sequence, comparison and contrast, cause and effect, problem-solution, and question and answer (Moss, 2003; Sanders & Moudy, 2008). This section will attempt to give a brief description of these text structures and a limited view of their use.

Descriptive text structure is organized around a central topic with many sub-topics, similar to a semantic map. Descriptive text structure is similar to "the typical animal report children often do in schools" (Sanders & Moudy, 2008). The question and answer text structure is usually descriptive as well, but uses questions to organize the content. Sanders & Moudy cited supporting reading comprehension as a strength of the question and answer text structure; "the explicit questions posed by authors employing a question-answer text structure can support readers in understanding and conceptually organizing the information" (Sanders & Moudy, 2008, p. 35).

When the sequence text structure is used, events are organized chronologically. Sequential organization is like a written timeline, most often arranged from earliest events to the most recent ones. Authors often employ this strategy in writing biographies, histories, and life cycles. Sequence text structure can lend a sense of excitement and urgency to these subjects. Problem and solution and cause and effect patterns can also be organized chronologically (Sanders & Moudy, 2008).

The cause and effect text structure uses everyday relationships to explain events. Often organized sequentially, one event is directly link to the next. Cause and effect

relationships can be and are often used within a narrative text structure (Sanders & Moudy, 2008). The problem-solution text structure is similar to cause and effect patterns, however may include multiple possible solutions. “A person (or group) is typically depicted wrestling with a problem, brainstorming possibilities, and trying various solutions” (Sanders & Moudy, 2008, p. 35). The problem-solution text structures can be used to explain modern inventions as well as historical events such as the sinking of the *Titanic* (Moss, 2003).

Scaffolding is a strength of the compare and contrast text structure. Using prior knowledge of a similar animal or idea will help the author teach about the similarities and differences to the new concept. An example is Elaine Scott’s (2004) *Poles Apart* which explains the differences between the north and south poles (Sanders & Moudy, 2008).

Narrative text is familiar to most readers. “A narrative-informational text reads like a story because it has all the elements of realistic fiction: character(s), setting, plot, and conclusion” (Sanders & Moudy, 2008, p. 36). Narrative text structure is employed to describe real life journeys (Sanders & Moudy, 2008).

Nonfiction is an evolving genre, today including many variations in style to inform young readers (Moss, 2003). An author’s purpose influences the text structure used; many books are available on a given subject, yet they differ in organization (Sanders & Moudy, 2008). This research provided a limited look at the making of quality children’s nonfiction literature.

Children’s Literature About Farming and Rural Life

Hoffman & Daniels (1995) reviewed children’s books about farmers for stereotyped and non-stereotyped factors. Hoffman & Daniels’ review of literature showed

“the subject of bias and stereotypes in children’s literature has received considerable attention” (p. 1). Bias in children’s literature has often been focused on categories such as age, gender, and race. An example is the role of women in books and other media, where women are shown less often and as under-developed characters. Hoffman & Daniels (1995) call attention to the need to address the biased view of agricultural in children’s literature.

Hoffman & Daniels (1995) analyzed a total of 63 books on the subject of “Farmers”, from *Children’s Books in Print*. Books were both fiction and nonfiction, but the emphasis was on picture books because both text and illustrations were evaluated. Their study includes an evaluation tool to determine if a “dull-witted” (p. 1) farmer is simply a cute character or if it gives a book an overall negative and stereotypical message about farmers. The tool gathers a 0-10 score of stereotyped factors, such as portraying one or two of many species, continually happy characters, and farmers always wearing bib overalls. A second, 0-9 score was collected of non-stereotyped factors, such as modern farm machinery, women in strong roles, and complex settings. Hoffman & Daniels consider the stereotyped factors “expressed a contradiction of the true picture of today’s farmers” (p. 2).

For the books examined, a mean score of 4.30 stereotyped factors and 1.73 non-stereotyped factors were found. Hoffman & Daniels (1995) explain that this finding “does support the notion that farmers receive considerably more unfavorable than favorable coverage in these children’s books” (p. 2).

In contrast to the findings of Hoffman and Daniels, Chu (1993) stated that recently published books “present a more accurate picture” (p. 11). Chu’s review presents

selected children's fiction and nonfiction books that represent her personal criteria of accurate representation of farms.

Chu's work was intended to provide parents and educators with a list of books that would expose children to the complex nature of farming. "Modern technology blended with traditional practices has changed the face of American agriculture." (Chu, 1993, p. 11). Chu also identified features, such as point of view, which led her to describe these children's books as "valuable resources" (Chu, 1993, p. 11).

Books written from a child's point of view can "draw their readers into the experience" (Chu, 1993, p. 11). One example is *Joel: Growing Up a Farm Man* by Patricia Demuth, in which not just the day—to—day chores are shared, but also Joel's ambitions to become a farmer. This book, for ages 10 to 14, was described as "matter of fact [and] unsentimental" (Chu, 1993, p. 11) in describing the cycles of life and death.

Another feature Chu describes is comparison. Young readers can begin to recognize differences between animals, seasons, and even regions of the United States as they read some of these selected books. Chu (1993) found one strength of the picture book *Farming*, written and illustrated by Gail Gibbons, to be "the use of illustration that present the same view of the farm as it appears in each season of the year." (p. 11). Chu (1993) asserted that *Corn Belt Harvest*, by Richard Bial, *Cranberries*, by William Jaspersohn, and *Hay from Seed to Feed*, by Jan Arnow, show the different uses for crops grown and the different types of crops grown in different regions of the United States.

Chu described the need for accurate representation of the advanced technologies used in modern farming practices. Chu also cited a need to separate the current view of agriculture from a historical one. In conclusion, Chu stated:

By selecting and sharing a range of informational books, picture books, and even poetry, teachers and parents can help children recognize the fact that farming is accomplished by people whose skillful use of technology, knowledge of the environment and science, and sense of commitment are crucial to our society. (Chu, 1993, p. 14)

While Chu's 1993 study depicted several selected books with accurate portrayal of agriculture, a more recent review of children's nonfiction showed there is still cause for concern in the knowledge base of future decision-makers. Biser's (2007) study of agricultural images in 68 nonfiction books also supports the conclusion that books with more recent publication dates have a more realistic view of animals in agriculture. Biser's study analyzed the perceived accuracy of agriculture images, the number of animal species included, and the types of graphics presented.

While statistics showed fewer than one percent of the United States population to be considered farmers, Biser's research found that many children learned about agriculture through books (2007). "Based on the findings of this study, the books reviewed were overall rated as 'somewhat accurate,' generally meaning the information from these children's books provides children with both accurate and inaccurate information" (Biser, 2007, p. 59). When individual elements of a book were reviewed, the information may have seemed accurate; however, the overall message was not always realistic or accurate. The study found that books using photographs as well as books focusing on one type of animal were more realistically portrayed (Biser, 2007).

Biser's study presented several suggestions to enhance the learning about agriculture for children. Some of the suggestions included choosing books with photographs as the illustrations, selecting books that studied a single animal species, and

choosing books with newer publication dates, as accuracy was shown to improve over time (Biser, 2007, p. 62).

The effort to choose accurate agricultural books was considered important as children are exposed to new and continuing research, development and implementation of farm practices. Biser cited the need for safe food products and alternative energy sources as one reason young children and adults need to be informed:

If greater efforts were taken to select children's books that generate a more accurate understanding of agriculture, then children would have the opportunity to learn about the importance of agriculture and would develop into a more agriculturally literate public, a public able to make decisions based on accurate experiences and knowledge about agriculture. (Biser, 2007, p. 64)

Biser's study raised questions about how students are taught about agriculture in the United States. The Smith-Hughes Act of 1917 mandated agriculture education (Blassingame, 1999), and programs like 4-H and FFA have been considered agriculture education (Gibson Horne, 2007; National 4-H Headquarters, 2006). In the 1980s a new movement developed to improve agricultural literacy (Blassingame, 1999), which led to programs such as Agriculture in the Classroom (Leising, Pense, & Portillo, 2003).

Impact of Teachers Participation in Agriculture in the Classroom

Programs on Student Agricultural Literacy

As agricultural education programs are developed, programs emerge to adapt and improve teacher training, classroom materials, and teaching practices. Leising, Pense, & Portillo (2003) studied the agricultural literacy of teachers and students in grades kindergarten through sixth before and after participation in the program Agriculture in the Classroom. Teachers with and without program training were included in the quasi-experimental study and student pre and posttest scores of the two groups were compared.

Leising, Pense, & Portillo (2003) found that students in classrooms with teachers who had participated in Agriculture in the Classroom training had higher gains in agricultural knowledge. “The national Agriculture in the Classroom (AITC) program, formalized by the United States Department of Agriculture in 1981, is the largest public effort to educate people about agriculture,” (p. 1). Teachers who had participated in the training were part of the treatment group, while teachers without the training but who taught in schools of similar size and location in the same states were part of the control group. “The agriculture literacy test results showed that AITC trained teachers make a positive difference in student acquisition of knowledge about agriculture” (p. 2).

Leising, Pense, & Portillo (2003) cited the National Research Council's Board on Agriculture (1988) recommendation, “all K-12 students [should] receive at least some systematic instruction about agriculture,” (p. 2) yet found assessment of agricultural education to be lacking. Leising, Pense, & Portillo shared the positive outcomes for students in a study of the Georgia Agriculture in the Classroom program; Herren & Oakley (1995, as cited in Leising, Pense, & Portillo) created assessment instruments for second and fourth grades. In Ohio, Swartzel (1996, as cited in Leising, Pense, & Portillo) found increased scores in a pretest/posttest study of animal agriculture. However, state achievement tests have not included an assessment of students' agricultural literacy (Leising, Pense, & Portillo, 2003, p. 5).

The study also pointed to a need for accurate classroom materials for teachers and students. Books were the most used resource as reported by teachers in the treatment group, followed closely by activities and videos; lesson plans and agriculture experts

were used by fewer than half the teachers. Very few teachers reported using online resources. (Leising, Pense, & Portillo, 2003, p. 25).

The Modern Dairy Industry

The dairy industry continues to conduct research to improve farming practices. Dairy farms have incorporated technologies to allow for better record keeping, better genetics and better nutrition (Coppock, 2000). Today's farmers often have advanced record keeping systems and professional training, yet few children's books show farmers working at computers or even milking machines (Kruse, 2001).

In examining the portrayal of today's agricultural practices in children's books, various issues and developments could serve as touchstones to assess whether modern practices are represented. For example, manure is a valuable fertilizer and a costly factor in modern confinement farms. "Nitrogen, phosphorus, and other nutrients excreted by the cows must end up somewhere in the environment – in the water, air, plants, or soil," (Peabody, 2005, p. 8). The Agriculture Research Service, part of the United States Department of Agriculture, recently revisited an old solution for recycling animal waste. New recommendations in the United States came from watching African farmers pen their animals on crop ground between growing seasons, where soil fertility is ensured by the immediate delivery of manure (Peabody, 2005).

"Plants' nitrogen uptake is 35 to 50 percent higher in plots where heifers are corralled than in plots where barn manure is simply spread" (Peabody, 2005, p. 8). Nitrogen is lost in confinement barns, and air quality becomes an environmental issue as ammonia is released into the air. When large amounts of liquid manure are spread on crop ground, the nutrients in manure can be leached into waterways and groundwater.

The rotating corral system eliminates these environmental concerns and provides needed fertilizers (Peabody, 2005).

Another example of recent developments in the dairy industry is a New Zealand farm with an innovative dairy barn that shelters cattle from the elements, protects air and water quality, and saves money with natural fertilizer. The barn allows for sunlight, which “eliminates most of the bacterial problems common to traditional animal shelters,” (Head, 2007, p. 30). Environmentalists applaud the underground manure storage, which dries the animals’ waste making nitrogen less likely to be leached into the air or waterways. The dried manure is a valuable fertilizer that is easily applied. Another feature is the air circulation, which reduces the greenhouse gases released by animal waste. In addition, the continuous air circulation provides “in-paddock air conditioning,” (Head, 2007, p. 30).

Dairy farms are on the forefront of current health practices and advances in technology. Improving milking machines has continued since its conception (American Artifacts, 1996, 1998) and providing safe milk has been a priority for dairy farmers and the government (Iowa Department of Public Health, n.d.; America’s Dairy Farmers, n.d.). Modern farming techniques also consider environmental concerns for water and air quality (Head, 2007; Peabody, 2005).

Summary

Biser (2007) and Leising, Pense, & Portillo (2003) have called attention to the predictions that today’s students will become citizens who will have opportunities to live with and/or shape policy for future farms; it follows that knowledge about agriculture will help them be informed consumers and voters.

Using a secondary source, such as children's nonfiction, is one popular and practical way to teach children about modern agriculture (Biser, 2007; Leising, Pense, & Portillo, 2003). "Creative nonfiction is informational writing that has voice and style and intentionally and skillfully employs a variety of writing techniques to engage the reader, keep the reader's attention, and convey the intended message" (Sanders & Moundy, 2008, p. 31). The purpose of the agriculture book should be clear and deliberate in voice and style, allowing the subject to come to life. Text structures are selected and constructed to increase the reader's understanding.

CHAPTER 3

PROCEDURES

At a time when most families are removed from farming, students construct understanding of dairy farming through secondary sources such as children's literature. The intent of this research project was to respond to the need for accurate portrayal of modern dairy farms in nonfiction for children. This project was the creation of a nonfiction book which accurately portrays the modern dairy farm for children 8- to 11-years-old. The information represented was checked for accuracy with independent information sources.

Rationale

Nonfiction today includes many variations in style to inform young readers (Moss, 2003). "Like good teachers, these authors inspire" (Moss, 2003, p. 13); nonfiction authors knit interesting stories from facts to engage readers. In addition, they are sensitive to content accuracy and the intended audience, yet do not talk down to their audience. "Good nonfiction authors distinguish between facts and theories and avoid anthropomorphism, that is, attributing human thought and speech to animals," (Moss, 2003, p. 37).

A narrative nonfiction book can encourage learning new information, as most young readers are familiar with realistic fiction which has similarities. The main text structure that will be used in this researcher's project will be the narrative nonfiction. In addition, the compare and contrast text structure will be used to connect "new

information with something with which they are likely to be familiar,” (Sanders & Moudy, 2008, p. 36).

Based on the findings of Biser (2007), accuracy “increased with the use of photographic images and the representation of only one animal specie per book” (p. 61). This project will focus on modern dairy farming, species specific to dairy cows. Original photographs will accompany the text.

An accurate book on dairy farming will benefit young children and older readers. People in the United States consume dairy products every day; most notable is the serving of milk with school lunches. Dairy farming is part of the American heritage, yet it is not stuck in the past. Many technologies in the past century have improved the dairy industry; therefore, a book on modern dairy farming will be a significant addition to a school library.

Audience

This dairy farming book was written with an upper elementary aged audience in mind. It can be useful, however, to all ages. The information is important to anyone who has little prior knowledge of dairy farming and the origins of their dairy products. It can be an enjoyable read for those adults with or without a background in dairy farming.

Design

This dairy farming book was formatted in landscape and contain 30 pages. Each left hand page shows photographic illustrations related to the text on the right side of the book. The right hand side of the book contains a storyline of a young girl giving a tour of the dairy farm where her mother works. This structure was maintained throughout the book. The photographs were taken primarily by the researcher on her family’s dairy farm.

A few photographs were taken by the researcher's mother. Written consent for use of all photos was obtained and filed in the office of the University of Northern Iowa's Library Media Studies Program. This book contains narrative text written for children ages 8 to 11.

Procedures

The creation of this dairy farming book proceeded according to the following steps:

1. A list of the areas and procedures of a modern dairy farm to be included was created. For each topic of information, two independent sources or experts were consulted. Citations will be included as a bibliography at the end of the book.
2. Original photographs of the areas and procedures on the dairy farm were taken by the researcher.
3. The storyline to accompany the photographs was developed. The storyline follows a young girl who explains the daily chores a modern dairy farm.
4. A layout of the pages with photographs that match the text was developed.
5. A title page was created.
6. A cover was created using a photograph and editing software.
7. A glossary of technical terms used in the story was created.
8. A bibliography of information sources and experts used was created.
9. Three teachers involved in agriculture education for students in grades three through five were recruited to review the project and make suggestions. The Director of the Northeast Iowa Dairy Foundation and two teachers who participate in fields trips to the Dairy Center (sponsored by Northeast Iowa Dairy

Foundation) also reviewed the draft of the book. All reviewers responded to the questions listed in Appendix B.

10. Corrections were made as recommended by the reviewers.

11. The book was printed and bound.

CHAPTER 4

PROJECT

Project accompanies this paper.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Summary

At a time when most families are removed from farming, students construct understanding of dairy farming through secondary sources such as children's literature. Modern dairy farms have incorporated technologies into everyday tasks (Coppock, 2000), yet few children's books show farmers working at computers or even milking machines (Kruse, 2001). Therefore, a modern dairy farming book would be a significant addition to children's literature in this country, and would provide information for children and adults.

Biser (2007) and Leising, Pense, & Portillo (2003) have called attention to the predictions that today's students will become citizens who will have opportunities to live with and/or shape policy for future farms; it follows that knowledge about agriculture will help them be informed consumers and voters.

The purpose of this research project was to respond to the need for accurate portrayal of modern dairy farms in nonfiction for children. A review of children's literature revealed that no such books are currently available in print. The best way to address the lack of publication was to create a storybook featuring currently used practices and technologies and included in the storyline of a young girl helping out with the daily chores.

The researcher considered the research questions regarding the best way to depict a modern dairy farm accurately and the manner in which the story should be told. Two decisions in response to these questions were the decision to use photographic visuals almost exclusively in the text and to adopt two text structures—narrative and compare/contrast. The book includes actual terminology used on dairy farms, thus introducing much new information. The compare and contrast text structure is used to allow readers to relate new ideas to prior knowledge. Narrative text is familiar to most readers. Books written from a child's point of view allow the reader to feel connected to the experience. There is a glossary in the back containing the words that may be unfamiliar to those removed from dairy farming. Actual photographs of cows and chores on a dairy farm are used to complete the authentic experience.

The original plan for the book was to present the daily chores, showcasing the technology found on modern dairy farms. Choosing and photographing the chores was the first step in the process of creating this book. Once the photography was done, a story line was created to take the audience on a virtual tour of the farm. As the story moves between places, details are shared. Technical information was researched and found in respectable sources found online and checked with practicing dairy farmers. The author already knew much of this information, as she has lived and worked on dairy farms for over 20 years.

The author laid out each page and composed the text to accompany the photographs. The author created one original illustration to show the stomach compartments of the cow. Each page was printed onto special paper that was printable on

both sides. These pages were aligned into the book, and the cover page and dedication were added.

Conclusions

American society is removed from the days when families keeping a cow, other animals, and garden provided the family's food (Fairvue Farms, 2008). Children's books depicting farms with one or two cows are outdated. As villages and towns grew in the late 19th century, dairy farms also grew in size. As early as 1841, milk was regularly shipped between Orange County, New York, and New York City (Animal Improvement Program Laboratory, n.d.).

Today a very small number of students are involved in agriculture (Ediger, 1998; Irwin & Andreasen, 2003; Czarney & Terry, 1998; Biser, 2007). These future consumers know very little about the origins of their food (Ediger, 1998, Biser, 2007).

Agricultural education has developed to teach children about the central role of agriculture production in the global economy (National Council for Agricultural Education, NCAE, 2000, p. 3). While agriculture education began by preparing students to live and work on farms, the focus has broadened to include other related fields, including teaching about the source of our food (Blassingame, 1999).

Children's books may be the only views of farming urban students experience. As field trips to farms become more expensive, children's books hold an increasing prominence in learning about agriculture (Biser, 2007; Czarney & Terry, 1998; Ediger, 1998). Many students view farming as the novel and whimsical stories they have read about in children's literature (Kruse, 2001; Czarney & Terry, 1998). The dairy industry

continues to incorporate new technologies and improve farming practices (Coppock, 2000), while children's literature on the subject has shown little of these advancements (Biser, 2007; Kruse, 2001; Czarney & Terry, 1998).

In a study of Agriculture in the Classroom, books were the most used resource as reported by teachers in the treatment group, (Leising, Pense, & Portillo, 2003). Books written for the purpose of agriculture education should be accurate and written by knowledgeable people in the field (Ediger, 1998). Accurate agricultural education prepares informed consumers and decision-makers (Biser, 2007).

Like a good teacher, a good author makes nonfiction interesting. "They take facts and weave them into interesting forms that engage readers," (Moss, 2003, p. 13). Moss referenced an exciting transformation in nonfiction writing over the last 20 years, a transformation that has led to an increased popularity of the genre with children. Current nonfiction titles are likely to use a narrative style to engage readers (Moss, 2003).

Those who read *Got Milk? How?* will benefit from the real photographs and information shared in the narrative text. In addition, the use of comparison and contrast text structure will help readers build new knowledge. The colorful illustrations and text make *Got Milk? How?* easily shared with the whole family. As an introduction or a review, it is the hope of this researcher that readers will develop a better understanding of the origin of dairy products.

This researcher invited several professionals with experience in the area of agriculture education to review the project. The reviewers included the director of the Northeast Iowa Dairy Foundation, two teachers who participate in field trips to the Dairy Center (sponsored by Northeast Iowa Dairy Foundation), two teachers who have

Agriculture in the Classroom training, and a reading specialist. The reviewers were given a preview copy of *Got Milk? How?* and a questionnaire, provided in Appendix B.

The purpose of the review was to evaluate the use of the narrative and compare and contrast text structures, and the accuracy and appropriateness of the information. Reviewers commented on the illustrations and presentation of information. All six reviewers approved the use of the compare and contrast text structure. Overall comments of the reviewers regarding the information in the book were positive and included suggestions for clarifying.

Several reviewers asked for clarification on the photograph of the feed mixture, citing the extensive explanation of free choice hay. One reviewer suggested taking the photographs “during a drier time of the year so cows are a little cleaner.” Another reviewer suggested a new photograph of the water tank, one including a cow drinking. In response to questions about several of the photographs, this researcher added colored arrows to identify specific items in the photographs.

It was also suggested that the storyline explain the structure and location of the udder, which this researcher added. Several reviewers also recommended more quotes from Emily. Upon review of the storyline, it was found that “We forgot about Emily. We don’t hear anything from her again until page 26.” To correct this, more comments from Emily were added.

Reviewers had the opportunity to suggest additional words for the glossary. Suggestions were reviewed and several terms added to the glossary. Two reviewers asked that pronunciation be added to the glossary. Upon review, this researcher chose not to include pronunciation.

The content suggestions for further information include farmers' methods to ensure the health of cows and the amount of manure produced by cows. This researcher chose not to include these items, opting to leave these topics for additional books in the area of dairy farming. Both topics could be very broad and could include many pages of information. for example, the health of the dairy herd could be a children's literature title about veterinary science.

Recommendations for Further Study

How are children to learn about the origins of their food? Studies show that children's literature is a popular way to teach about food and fiber production. Though readily available in grocery and convenience stores nation-wide, students do not know where milk comes from. There are attempts at providing information about dairy farming in publication, but more should be aimed providing current, reliable information for children and young adult readers.

It is recommended by this researcher that more literature be written in a user friendly manner for children, young adults and educators to learn about the origins of dairy products. As shared by one of the projects reviewers, it is important for consumers to "retain the image of wholesome milk".

REFERENCES

- American Artifact. (1996, 1998). *Early cow milking machines*. Retrieved June 17, 2009 from <http://www.americanartifacts.com/smma/milker/milker.htm>.
- Animal Improvement Programs Laboratory. (n.d.) *Kids's corner – Facts about cows*. Retrieved December 7, 2009 from <http://www.aipl.arsusda.gov/kc/cowfacts.html>
- Biser, J.L. (2005). *The accuracy of agricultural images in children's literature: an analysis of selected children's books on farm animals from 1950 to 2005*. M.S. dissertation, Oklahoma State University. Retrieved June 18, 2009, from Dissertations & Theses: A&I database. (Publication No. AAT 1445967).
- Blassingame, K.M. (1999). Agriculture Education. *Techniques: Connecting Education & Careers* 74(8), 29.
- Chu, N.L. (1993). A review of children's literature about farming and rural life. *Rural Educator*, 15(2), 11-15.
- Coppock, C.E. (2000). *Selected features of the U.S. dairy industry from 1900 to 2000*. Retrieved June 17, 2009, from http://www.coppock.com/carl/writings/History_of_Dairy_Production_From_1900_to_2000.htm.
- Czarney, S. & Terry, L. (1998). What do real farmers look like? Rural life in children's literature. *Rural Educator*, 19(3), 43-48.
- Dairy Farming Today. (2009). *Dairy farming today: Farm to fridge*. Retrieved June 23, 2009 from <http://www.dairyfarmingtoday.org/DairyFarmingToday/Quality-And-Safety/Farm-To-Fridge/>.
- Ediger, M. (1998). Needed: Children's literature on farming. *Journal of Instructional Psychology*, 25(4), 277-281.
- Fairvue Farms: The history of U.S. dairy farming – then and now. (2008). Retrieved June 23, 2009 from <http://www.fairvuefarms.com/historydairy.htm>.
- Gibbons, G. (1985). *The milk makers*. New York: Macmillan.
- Gibson Horne, A. (2007). The hidden diversity factor. *The Agricultural Education Magazine* 80(1), 10-12.
- Head, M. (2007). New Zealand's eco cow shed? *Ecos* (135), 30-31.
- Hoffman A.R. & Daniels, S.J. (1995). A study of stereotypes of farmers in children's literature. *Journal of Children's Literature* 21(2), 1-5.

- Iowa Department of Public Health. (n.d.) *Grade "A" milk certification program*. Retrieved June 22, 2009 from http://www.idph.state.ia.us/eh/milk_certification.asp
- Irwin, B. & Andreasen, R.J. (2003). *Assessment of children's literature for agricultural accuracy*. Retrieved June 21, 2009 from http://www.agclassroom.org/consortium/pdf/ag_literacy/2003/childrens_literature.pdf.
- Kruse, M. (2001). Aprons, overalls, and so much more: Images of farm workers in children's pictures books. *Journal of Children's Literature*, 27(2), 22-28.
- Leising, J.G., Pense, S.L., & Portillo, M.T. (2003). *The impact of selected agriculture in the classroom teachers on student agricultural literacy*. Retrieved June 22, 2009 from <http://www.agclassroom.org/consortium/pdf/finalreport.pdf>.
- Merriam-Webster's collegiate dictionary* (11th ed.). (2007). Springfield, MA: Merriam-Webster.
- Michigan Department of Agriculture. (2001). *Grade A milk law of 2001*. Retrieved June 17, 2009, from http://www.michigan.gov/documents/mda/MDA_2001PA266Complete_251568_7.pdf
- Miller, P. (2005). The farm in your library media center. *School Library Media Activities Monthly*, 21(10), 39-40.
- Moss, B. (2003). *Exploring the literature of fact: Children's nonfiction trade books in the elementary classroom*. New York: The Guilford Press.
- National 4-H headquarters – 4-H history*. (2006). Retrieved June 19, 2009 from http://www.national4-hheadquarters.gov/about/4h_history.htm.
- National Council for Agricultural Education. (2000). The national strategic plan and action agenda for agricultural education. Retrieved June 17, 2009 from <http://www.opi.state.mt.us/pdf/Agriculture/Plan.pdf>.
- Peabody, E. (2005). A new approach to dairy farming that's "out of Africa". *Agricultural Research* 53(9), 8-9.
- Sanders, J. & Moudy, J. (2008). Literature apprentices: Understanding nonfiction text structures with mentor text. *Journal of Children's Literature* 34(2), 31-42.S
- Wittler, P. H. (2007). The adventure of life. *The Agricultural Education Magazine*, 80(1), 4-5.

APPENDIX A: REQUEST LETTER FOR PROJECT REVIEWER

726 30th Street Drive SE
Cedar Rapids IA 52403
November 29, 2009

Agricultural Educator
Address Line 1
Address Line 2
Address Line 3

Dear Educator:

Agriculture is an important part of Iowa's economy and is a popular topic in Iowa K-12 education. Children's books may be the only views of farming urban students are exposed to. My research project aims to create a nonfiction picture book to show a modern dairy farm.

In order to make the book a successful teaching tool, I am seeking educators involved in agriculture education to help provide feedback. By choosing to take part in this project, you will receive an advanced copy of the book and provide your professional opinion to the content and delivery of the information. My goal is to provide an appropriate and realistic account of a modern dairy farm for children 8- to 11-years-old.

I have included my contact information, feel free to contact me by mail, by phone or my email at any time. You may also contact my faculty advisor at jean.donham@uni.edu.

Sincerely,

Bridget Donlon
bridget_donlon@hotmail.com
563-880-8865

APPENDIX B: PROJECT REVIEWER QUESTIONNAIRE

Please answer the following questions regarding the book, *Got Milk? How?*

1. Is the book sensitive to accuracy and audience (age 8- to 11-years old) while not talking down to the reader?
2. Do you think the use of the compare and contrast text structure is used appropriately to connect new information with something which children are familiar?
3. Do you see a need for any additional illustrations or description of photographs?
4. Do you see any additional words that should be included in the glossary?
5. Any additional comments or suggestions?