

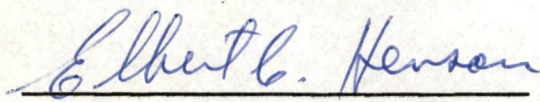
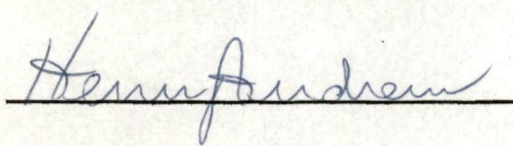
August 8, 1962

To the Graduate Council:

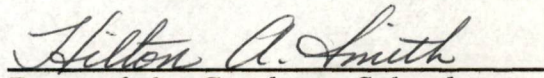
I am submitting herewith a thesis written by Charles L. Smith entitled "Safety Practices of Teachers of Vocational Agriculture in Farm Mechanic Shops in Georgia." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science with a major in Agricultural Education.


Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:


Dean of the Graduate School

SAFETY PRACTICES OF TEACHERS OF VOCATIONAL
AGRICULTURE IN FARM MECHANIC SHOPS
IN GEORGIA

A Thesis
Presented to
the Graduate Council of
The University of Tennessee

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
Charles L. Smith
August 1962

ACKNOWLEDGMENT

This study would not have been possible without the professional interest and cooperation of many persons. The writer desires to acknowledge his indebtedness to all those who assisted in the progress of the study.

Appreciation is expressed to the teacher of Vocational Agriculture in the State of Georgia for their willingness and cooperation in supplying the data included in this paper and to the writer's wife for her help and encouragement.

Finally, the author wishes to express special appreciation to Dr. George W. Wieggers, Jr., Head, Agricultural Education Department, University of Tennessee, who directed the study and who provided helpful guidance in the progress of this paper.

TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND ITS DEFINITION.	1
Purpose	1
Importance of the study	1
Definition of terms	3
Method of research and source of data	5
Review of related literature	6
II. SAFETY STATUS OF FARM MECHANIC SHOPS IN GEORGIA	13
III. SUMMARY, CONCLUSIONS AND RECOMMENDA- TIONS	36
Summary	36
Conclusions	40
Recommendations	41
BIBLIOGRAPHY	43
APPENDICES	47
APPENDIX A - SAFETY IN FARM MECHANIC SHOPS IN GEORGIA	48
APPENDIX B - LETTER TO VO-AG TEACHERS	52

LIST OF TABLES

TABLE	PAGE
I. Nature and Severity of Injuries in Farm Mechanics Shops in Georgia from July 1, 1960 to June 30, 1962.	14
II. Personal Factors Contributing to Accidents As Reported by Seventy-Seven Teachers of Agriculture Who Reported Accidents During the Period	16
III. Physical Factors Contributing to the Accidents As Reported by Seventy-Seven Teachers of Agriculture in Georgia Who Reported Accidents During the Period.	17
IV. Power Tools Involved in the 153 Accidents Reported	18
V. Hand Tools Involved in the 153 Accidents Reported by Seventy-Seven Teachers of Agriculture	20
VI. Materials or Conditions Involved in the 153 Accidents Reported During the Period	22
VII. A Comparison of the Frequency of Power Tools, Hand Tools, and Materials and Conditions Involved in the 153 Accidents Reported.	24
VIII. Number and Seriousness of Injuries Reported by Teachers With and Without Shop Policies . .	25
IX. Degree of Effectiveness of the Various Methods of Promoting Shop Safety.	27

TABLE	PAGE
X. First Aid Equipment Possessed by Teachers of Agriculture in Georgia.	29
XI. Activities Engaged in by Principals in the Farm Mechanics Safety Program in Georgia.	31
XII. Fire Fighting Equipment Available to Teachers of Agriculture in Farm Mechanics Shops in Georgia.	32
XIII. Degree of Effectiveness of the Various Methods of Formulating Shop Policies.	34

CHAPTER I

THE PROBLEM AND ITS DEFINITION

I. PURPOSE

The problem was to determine the safety practices of teachers of vocational agriculture in farm mechanics shops in Georgia.

The problem was divided into objectives to give specific direction to the study. The three major objectives were:

1. To identify the types of accidents that happened most frequently in farm mechanics shops in Georgia.
2. To determine the nature and causes of those accidents.
3. To determine methods, practices, and devices that were used by teachers of vocational agriculture in conducting a school shop safety program.

II. IMPORTANCE OF THE STUDY

There are a number of reasons why this study is important. The primary reason is that part of the findings should give guidance and suggestions to teachers developing and initiating a school shop safety program in farm mechanics.

There are too many accidents happening to rural people today which would indicate that they are not receiving adequate safety education at the high school level as well as in adult training programs. For example, 11, 300 deaths occurred to rural people in 1960 and 950, 000 suffered disabling injuries.¹ The need for safety education

¹"Family Safety at Work and Play" The National Safety Council and the U. S. Department of Agriculture (Washington, D. C.: U. S. Government Printing Office, April, 1962.)

is further emphasized by the fact that accidents (rural and urban) during the past ten years have cost the American public 100 billion dollars.² But the startling significance about these statistics is not manifested until it is pointed out that 98 per cent of these losses could have been avoided.³

American agriculture has undergone a revolution. Muscle power has been replaced by machines, electricity, and petroleum which make today's farm operations faster, more complex, and more powerful.⁴ Man's education must keep pace with these changes if he is to harness and use these sources of energy more safely and efficiently.

As further evidence of the need for safety education in high school, a reliable source has reported that shop and laboratory accidents have accounted for 9 per cent of all accidents in grades 7-12, and accidents account for 53 per cent of all deaths to persons 15-24 years of age.⁵ The report further showed that accidents were responsible for more fatalities than all other causes combined to youth 15-24 years of age. This would indicate that teachers of vocational agriculture were not meeting the challenge to educate youth in accident prevention.

²Ibid.

³Joe P. Bail. "Farm Safety Education." Agricultural Education Division, Rural Education Department, Cornell University, 1959, p. 5.

⁴Edward S. Adams. "Our Situation in Farm Safety." The President's Conference on Occupational Safety, Washington, D.C.: March 7, 1962, p. 2.

⁵"Accident Prevention Can Be Learned;" School Health Bureau, Health and Welfare Division, Metropolitan Life Insurance Company, New York: 1962, p. 6.

A third reason why this study is important involves the writer directly. During the past school year, one of the author's students was burned to death in an accident involving a gasoline fire. Two other boys who were working with the boy at the time barely escaped serious injury and this writer suffered facial and hand burns trying to rescue the burning boy.

To learn safety involves learning the safety procedures and practices necessary to avoid or prevent accidents. Garver⁶ has reported two basic rules for farm shop safety, prevention and preparedness. Preventing an accident is the most desirable way to avoid loss of lives, time, and money; however, it is necessary to understand the conditions involved in accidents that have happened in order to prepare for future prevention of similar accidents. This desire for increased knowledge concerning accidents and accident-prevention technique points up the fourth reason why this study is important.

III. DEFINITION OF TERMS

1. County Safety Committee

As used in this study this term refers to a group of three to four individuals appointed by the grand jury or county school superintendent to make periodic safety inspection of the farm mechanic shop, equipment, and other hazardous areas and make recommendations for correction needed.

2. Minor Injury

This term refers to those injuries requiring first aid and not the professional help of a physician.

⁶ H. L. Garver, et al., "Watch Your Step and Avoid Farm Accidents." United States Department of Agriculture, Farmer Bulletin No. 2102. Washington, D. C.: December 1957, p. 3.

3. Severe Injury

This term refers to those accidents resulting in loss, or loss of use, of a member of the body.

4. Serious Injury

This term refers to those accidents requiring the aid of a physician.

5. Student Safety Committees

This term as employed in this study means those committees set up specifically for making scheduled inspection of the shop and shop equipment to determine any hazardous condition in the farm mechanics shop and to recommend needed action.

6. Farm Mechanics Shop

This term is interpreted to mean a room or area including facilities, equipment, materials, and supplies used in the instruction of farm mechanics phase of courses in Vocational Agriculture in Georgia.

7. Class A Fire Extinguisher

This term as used in this study refers to either soda acid, or pressurized water used for extinguishing wood, rags, straw, paper types of fire.

8. Class B Fire Extinguisher

This term refers to either carbon dioxide, dry powder, foam, or vaporizing liquid, used to combat fire in electrical equipment.

9. Class C Fire Extinguisher

This term as used in this study refers to either dry powder, carbon dioxide, and vaporizing liquid used to combat gasoline, oil, grease, kerosene, etc. types of fire.

10. Color Schemes

This term as used in this study refers to the use of different colors in farm mechanics shops to focus attention to danger point of tools and equipment.

11. Safety Policies

This term refers to a written set of safety rules and regulations governing the use of the farm mechanics shop, tools, equipment, materials, and supplies.

12. Resource Personnel

This term refers to individuals who have had training and experiences in specific areas and can aid teachers of agriculture in carrying out their instructional program in these specific areas.

13. Period.

This term as used in this study refers to the time beginning July 1, 1960 and ending June 30, 1962.

IV. METHOD OF RESEARCH AND SOURCE OF DATA

The procedure followed in this study was to review the studies that have been made on accident prevention and preparedness with special emphasis on the accident problems in Vocational Agriculture farm mechanics shops. From these readings, a questionnaire was developed in line with the objectives of the study.

The names and addresses of teachers of vocational agriculture in Georgia were obtained from the state supervisor of agricultural education. A letter was prepared to accompany the questionnaire which dealt with the importance of the study in improving safety in vocational agriculture farm mechanics shop. This letter contained statements by the author and Dr. George W. Wiegers, Jr., the major professor who directed the study. A follow-up postal card was sent a week later encouraging teachers who had not returned questionnaires to participate. One hundred and twenty-seven or 49 per cent of the questionnaires were returned. One vocational agriculture teacher indicated that he did not have a farm mechanics program in operation

during the period specified. As a result, only 126 were recorded.

V. REVIEW OF RELATED LITERATURE

The problem of safety in farm mechanics shops is important in that the student must practice safety to prevent injuries while he is in the shop; and, he must also learn safe habits and procedures in order to prevent many accidents from happening once he is engaged in an occupation.

Some worthwhile studies have been completed by workers in the area of farm shop safety. These studies have tremendous transfer value from one instructional program to another in that general shop conditions are basically the same in one location as they are in another.

Studies of Safety in School Shops

Hehbach⁷ conducted a study of South Dakota teachers of agriculture to determine what methods and measures they were using to promote safety in high school farm shops. The report showed that South Dakota teachers did a highly successful job of teaching safety in the farm shop; however, it was found that only 22 per cent of the teachers indicated adequate training in the safe operation of the common power tools found in their shops. In addition, the report indicated that the majority of the teachers expressed a desire for more college courses dealing with shop safety. Daily experiences in the classroom concerning shop safety was indicated as the most effective method of teaching shop safety; however, all instructors indicated the desirability of good instruction just prior to the operation of the machines. The report further showed that the jointer and circular saw were the most dangerous power tools.

⁷ Lawrence R. Hehbach, "Safety Programs in the High School Farm Shops in South Dakota." (unpublished Master of Education problem, South Dakota State College, 1958).

The arc-welder was involved in forty of the 192 accidents reported during the five-year period the study covered. Among the hand tools, the wood chisel was ranked highest and was followed closely by the hand saw.

A study by Frye⁸ revealed that 70 per cent of the vocational agriculture teachers in Oklahoma felt that they had received adequate instruction in the operation of all the machines in their shops. Ninety per cent indicated that they taught shop safety as a daily part of shop instruction. Demonstrations and rules and regulations were rated second and third respectively as the most extensively used measures in promoting shop safety. Ninety-five per cent of the teachers indicated that they gave instruction to the students prior to the operation of the machines. The arc-welder was involved in more accidents than any other tool or machine. One death was reported while 78 per cent of the accidents required only first aid. The aid of a physician was required in 20 per cent of the accidents. Shields and guards were reported as being used on all the machines operated in this study.

Smith⁹ conducted a study in West Virginia to determine the conditions relating to the safe operation of machines in a number of shops in that state. Many of the teachers studied had no training in the operation of many of the machines the school provided. Some of the machines in the school shop were constructed poorly and improperly guarded. The boys were allowed to operate many of the machines without previous instruction.

⁸Thomas Neil Frye, "Safety Programs in the High School Farm Shop in Oklahoma." (unpublished Master's thesis, Oklahoma A & M College, 1955).

⁹David Emanuel Smith, "The Safe Use of Machines in the Vocational-Agriculture Shops in West Virginia." (unpublished Master's problem, West Virginia University, 1950).

The preceding study is evidence that many teachers were not providing the needed instruction in farm shop safety.

A study has been made by Russell¹⁰ in 45 schools in Texas to determine the safety practices and safety devices used in the area of farm mechanics. Fifty-five accidents were reported from the 45 schools. Each accident was caused by the violation of safety practices or the misuse of safety devices. Thirteen of the accidents involved the jointer, seven accidents were reported from the use of the oxy-acetylene welder, and seventeen cases of eye damage were reported from the use of the arc-welder.

Carney¹¹ reported the occurrence of accidents with all tools in all areas of school shop work in Tennessee. His study has shown that 965 accidents occurred in a three-year period. A large majority of the 965 or 88 per cent of the accidents reported were minor. Eleven per cent of the accidents reported were classified as severe, requiring the services of a doctor for stitching and bone setting. Less than one per cent of the accidents resulted in the loss of the use of a member of the body. Machines with rapidly moving parts were involved in the severe accidents.

The report further showed that the four leading causes of the accidents reported were due to carelessness, not observing safety rules, not using safety guards, and lack of proper instruction. Only thirty of the 155 teachers surveyed rated their shop satisfactory in

¹⁰ Eugene Russell, "A Study of Farm Shop Safety in Forty-Five Vocational Agriculture Departments in Texas." (unpublished Master of Education problem, Texas A & M College, 1945).

¹¹ John W. Carney, "Farm Shop Safety Program for Vocational Agriculture Departments in Tennessee." (unpublished Master of Education thesis, University of Tennessee, 1958).

over-all safety. Nineteen per cent felt that their first aid facilities were satisfactory, and sixty-two teachers indicated that they did not have adequate first aid supplies. Sixty-nine instructors disclosed that they were unqualified to give first aid treatment.

Baldwin¹² reported that one-hundred teachers had serious or severe accidents in their shops during a five-year period in Virginia. The machines most commonly involved in the accidents were the jointer, circular saw, grinder, drill, press, hammers, and chisels. The most frequently mentioned cause of the accidents reported were carelessness, improper use of tools, and failure to use guards.

A study by Cromer¹³ in Nebraska revealed that 20 per cent of the teachers of agriculture in that state had provided no farm safety instruction; however, most teachers indicated that farm safety instruction could best be given in the classroom instruction.

Caskill¹⁴ conducted a survey in the Arkansas Valley Area in Colorado to determine the types of accidents that occur most frequently as a basis for planning a course in farm safety for vocational agriculture high school students. The report showed that the most serious farm-work accidents involved machinery, livestock, falls, welding, and hand tools. The nature of the injuries were cuts, falls, and burns.

¹²Gordon Lee Baldwin, "The Development of a Safety Program for School Farm Shops." (unpublished Master of Education thesis, Virginia Polytechnic Institute, 1946).

¹³Chalmers Alfred Cromer, "Recommended Farm Safety Activities for Vocational Agriculture Departments in Nebraska." (unpublished Master of Education report, Colorado Agricultural and Mechanical College, 1951).

¹⁴Joseph L. Caskill, "A Farm Safety Program in Vocational Agriculture for the Arkansas Valley in Colorado." (unpublished Master of Education report, Colorado Agricultural and Mechanical College, 1951).

In a study to determine the number and nature of accidents that occurred in farm mechanics shops in North Carolina, Melvin¹⁵ found that the nature of the accidents reported were cut fingers, minor burns, and minor lacerations. One student lost a finger. The causes of the accidents reported were carelessness on the part of the student, failure to carry out instruction properly, and horseplay in the school shop. The jointer was involved in over 50 per cent of the accidents in the school shops.

During a period from 1947-1950, Lyday¹⁶ revealed the occurrence of 545 accidents in 150 school shops in Georgia. A majority of these accidents required only first aid. One resulted in death. Twenty of the 150 schools surveyed reported no accidents during the period. Lyday concluded from his study that 95 per cent of the accidents reported could be traced to lack of proper instruction, and failure to use sound safety practices in performing shop jobs. The report further revealed a definite legal responsibility of teachers of agriculture for accidents occurring under their supervision.

In regard to teacher liability, Webb¹⁷ conducted a study to determine the teachers' liability for accidents to students enrolled in vocational agriculture in Georgia. He reported that the teacher is definitely liable for accidents to students under his supervision and

¹⁵ Jefferson Roosevelt Melvin, "School Shop Safety Programs of Selected Departments of Vocational Agriculture in ten North Carolina Counties." (unpublished Master of Education thesis, The Agricultural and Technical College of North Carolina, 1956).

¹⁶ R. Lyday, "Developing Some Safety Measure That Can Be Used in High School Farm Shop Programs in Georgia." (unpublished Master of Education problem, University of Georgia, 1951).

¹⁷ Eustace O. Webb, "Developing Some Safety Policies That Can Be Used in Vocational Agriculture Departments in High Schools in Georgia." (unpublished Master of Education problem, University of Georgia, 1954).

that the teacher may be liable for damages if it can be proven that the teacher was negligent in performing his duties.

Nordberg conducted a study in Pennsylvania in 1950-51 in which he surveyed 185 schools.¹⁸ Only fifty-six accidents were reported during this period. One hundred and forty departments reported an accident-free record for the period. Over 60 per cent of the accidents reported were cuts requiring stitches. Burns were the nature of injuries in 11 per cent of the accidents. Power tools were involved in 65 per cent of all the accidents reported. The circular saw and jointer were rated as the most dangerous pieces of equipment.

Nordberg further concluded that many teachers were not making full use of available teaching aids in their safety instruction. One hundred and fifty-one teachers believed that carelessness was the number one cause of the accidents that occurred.

A study in North Carolina conducted by Craig¹⁹ revealed that farm safety was being taught to a limited extent at the time of the study. The investigator believed that the instructional program could be vastly improved in the area of shop safety. The teacher reported using small group and individual instruction in the nature of demonstration to teach shop safety.

Entrekin²⁰ conducted a study in South Carolina to determine the

¹⁸Carl O. Nordberg, "A Study Concerning Accidents and the Prevention of Accidents in Vocational Agriculture Farm Mechanics Shops in Pennsylvania." (unpublished Master's thesis, Pennsylvania State College, 1952).

¹⁹Frank Rankin Craig, "Safety and the Use of Power in North Carolina School Farm Shops." (unpublished Master's thesis, North Carolina State College, 1951).

²⁰W. G. Entrekin. "A Study of Some of the Factors Which Affect Shop Safety in Vocational Agriculture." (unpublished Master's thesis, Clemson College, 1952).

number of factors causing accidents in vocational agriculture farm shops. He found that the first-year students were subject to more accidents than students in advanced grades. He also has reported that more accidents occurred in small shops than in the larger ones. He concluded that the lack of guards and inadequate lighting were responsible for some of the accidents reported. Another significant finding was that the accident record was lower for teachers who had received the larger amount of college training in farm shop work.

A study was made by Burns²¹ of selected teachers of vocational agriculture in Pennsylvania to determine the nature of farm shop accidents. Hand and power tools were most frequently involved in accidents and were the most hazardous of the commonly used farm shop tools. He found that of the power tools, the jointer and the table saw ranked highest. Of the hand tools commonly used, the wood chisel was involved in five times as many accidents as any other hand tool in the farm mechanic shop. The crow bar, the tamping bar, and the wire steel brush were rated second.

A total of seventy-four serious and minor accidents were reported in Texas high school shops in 1951 by Leathers.²² Fifty-four of these accidents were due to carelessness, thirteen to insufficient abilities of the student and five were due to disobeying orders of the teachers.

²¹Paul M. Burns, "Accidents in Vocational Agriculture Shops in Pennsylvania." (unpublished Master's thesis, Pennsylvania State College, 1951).

²²Johnny E. Leathers, "A Study of the Safety Program in School Farm Shops in One Hundred Seven Schools in Texas." (unpublished Master's thesis, Sam Houston State Teachers' College, 1951).

CHAPTER II

SAFETY STATUS OF FARM MECHANIC SHOPS IN GEORGIA

This chapter is an attempt to show the nature and cause of accidents in farm mechanic shops in Georgia and to show what practices and procedures were used by teachers of agriculture in the prevention of accidents. The author further hopes to show what preparation has been made by teachers of agriculture in treating unexpected injuries that may occur.

Responses from 126 teachers of agriculture in Georgia obtained by questionnaires were compiled relating to the nature and cause of accidents during a two-year period from July 1, 1960 to June 30, 1962. Additional data collected dealt with accident prevention and accident preparedness.

Table I presents a summary of the nature and seriousness of 153 injuries reported by 126 teachers of agriculture during the period July 1, 1960 to June 30, 1962. There were 117 minor accidents, 31 serious, 4 severe injuries, and 1 death reported. The majority of the injuries were minor cuts and burns. Other miscellaneous injuries were eye injuries, bruises, lacerations, broken bones, and abrasions.

Fourteen cuts were serious requiring the aid of a physician. Three of the cuts resulted in permanent loss of a member of the body. In all instances, the losses were one or more fingers. One severe eye injury was reported which resulted in temporary loss of the vision in one eye. The broken bones were either fingers or the whole hand. One respondent reported a fractured foot. Death resulted from a severe burn received by one student.

Table I does not reveal that any of these injuries, whether minor, serious, or severe, could in most instances have been more serious

TABLE I

NATURE AND SEVERITY OF INJURIES IN FARM
MECHANICS SHOPS IN GEORGIA FROM
JULY 1, 1960 TO JUNE 30, 1962

Nature of Injury	Minor	Serious	Severe	Death	Total
1. Cuts	69	16	3		88
2. Burns	19			1	20
3. Eye damage	10	2	1		13
4. Bruises	11	1			12
5. Lacerations	5	7			12
6. Broken bones		5			5
7. Abrasions	3				3
Total	117	31	4	1	153

or even fatal.

Forty-nine of the 126 teachers surveyed reported no accidents during the period.

Table II shows that sixty-one teachers indicated that carelessness was a major reason why the accidents occurred. The next highest probable cause was believed to have been lack of concentration on the part of the student. Thirty-four, or 45 per cent, of the teachers listed disobedience as the probable cause. Twenty-five per cent said that unsafe practices in the shop may have been responsible. A high per cent, 82 per cent, believed that the student had the ability to grasp the work, and even a higher per cent, 92 per cent, did not believe inadequate instruction was responsible. Mentally and physically unfit students were named as the probable cause by four and three teachers respectively.

Table III shows the physical factors believed by teachers to be responsible for some of the accidents. Inadequate guards were listed twenty-three or 31 per cent of the times these factors were involved. Thirteen teachers thought that defective or improper equipment could have been the cause. Improper apparel and improper working conditions were reported as being a probable cause by nine and six teachers respectively. Other conditions mentioned as possible factors included poor arrangement of equipment and space, improper course content, poor housekeeping, and unsafe building conditions.

Presented in Table IV are the power tools that were being used when 117 of the 153 accidents occurred. Table IV also shows the number and the per cent of the accidents in which each tool was involved.

TABLE II

PERSONAL FACTORS CONTRIBUTING TO ACCIDENTS AS REPORTED
BY SEVENTY-SEVEN TEACHERS OF AGRICULTURE WHO
REPORTED ACCIDENTS DURING THE PERIOD

Personal Factors	Number	Percent
1. Carelessness	67	81
2. Lack of concentration	52	69
3. Disobedience	34	45
4. Unsafe practices in the shop	19	25
5. Inability on part of student to grasp the work	9	12
6. Inadequate instruction	6	8
7. The mentally unfit student	4	5
8. The physically unfit student	3	4

TABLE III

PHYSICAL FACTORS CONTRIBUTING TO THE ACCIDENTS AS
REPORTED BY SEVENTY-SEVEN TEACHERS OF AGRI-
CULTURE IN GEORGIA WHO REPORTED ACCIDENTS
DURING THE PERIOD

Physical Factors	Number	Percent
1. Inadequate guards	23	31
2. Defective or improper equipment and material	13	17
3. Improper apparel	9	12
4. Improper working conditions	6	8
5. Poor arrangement of equipment and space	5	7
6. Improper course content	3	4
7. Poor housekeeping	3	4
8. Unsafe building conditions	1	1

TABLE IV
POWER TOOLS INVOLVED IN THE 153 ACCIDENTS
REPORTED

Power tools involved	Number of accidents involved in	Percent of accidents involving power tools
1. Jointer	33	28
2. Arc-welder	28	23
3. Table saw	23	20
4. Grinder	8	9
5. Band saw	6	5
6. Planer	5	4
7. Radial arm saw	4	3
8. Wood lathe	3	3
9. Sander	3	3
10. Drill press	2	2
Total	117	100

The jointer was being operated when thirty-three or 28 per cent of the accidents occurred. Injuries received from the jointer ranged from minor cuts and lacerations to severe cuts and lacerations. In some instances, one or more fingers were lost from its use.

The electric arc-welder was involved in twenty-eight or 24 per cent of the accidents. Injuries received from this tool were mostly eye burns, but in some cases, the student touched or picked up hot metal. Some received burns from splattering metal. There were no cases of electric shock reported from its use.

Twenty-three accidents were reported from the use of the tilting arbor saw. Most of the injuries resulting from its use were minor; however, two severe accidents were reported when the interchangeable dado blades were being used.

Ten accidents were reported from the use of the grinder, most of which were minor abrasions. Two serious accidents were reported which resulted when the operator neglected to use goggles.

Other power tools responsible for injuries were the band saw, planer, radial arm saw, wood lathe, sander, and the drill press. All injuries from the use of these tools were of a minor nature. The only other power tool mentioned by teachers as being involved in an accident was a gasoline air compressor from which one boy received a minor bruise.

Listed in Table V are the hand tools reported to be associated with the twenty-four accidents that involved these tools.

Table V shows that the hammer was involved in eight accidents or 33 per cent of the total. Of the eight injuries resulting from the use of the hammer, six were minor and two were serious. One of

TABLE V
HAND TOOL INVOLVED IN THE 153 ACCIDENTS
REPORTED BY SEVENTY-SEVEN TEACHERS
OF AGRICULTURE

Name of tool	Number of accidents involved in	Percent of the accidents involving hand tools
1. Claw hammer	8	34
2. Hand saw	7	29
3. Knife	6	25
4. Two-man crosscut saw	1	4
5. Wrench	1	4
6. Wood chisel	1	4
Total	24	100

the serious injuries was due to the hammer separating from the handle and striking a student in the face dislocating some teeth. The other serious injury occurred when a student was accidentally struck in the head by the hammer claws.

Accidents occurred with the hand saw and knife eight and seven times respectively. The injuries resulting from the use of the hand saw were all minor ones. Five injuries occurring with the knife were minor and one was serious. The serious injury that occurred was a cut wrist due to carelessness.

The two-man crosscut saw, a wrench, and a wood chisel were involved in one minor accident each.

The data concerning the twelve accidents resulting from the use of materials and conditions appear in Table VI.

The dropping of lumber on the feet and falls were responsible for three accidents each. Two of the injuries resulting from dropping lumber were minor. The serious one required a physician to remove a toenail. One fall resulted in a broken ankle and one a broken tooth. The other fall required only first aid treatment.

The injuries occurring from truck bodies were both bruises. Neither were serious.

One student received a minor cut handling chicken wire and one student suffered a broken hand on a refrigerator door. In addition, two students were overcome by pine stain fumes while working in an area with inadequate ventilation.

The accident resulting from the use of gasoline happened in the shop under the supervision of this investigator. The accident occurred when three boys spilled gasoline on a storage room floor while pouring it from an army surplus can into a blow torch. The gasoline was ignited from an unknown source, trapping the three

TABLE VI

MATERIALS OR CONDITIONS INVOLVED IN THE 153
ACCIDENTS REPORTED DURING THE PERIOD

Materials or conditions	Number accidents involved in	Percent of accidents involving material and conditions
1. Lumber	3	25
2. Falls	3	25
3. Truck bed	2	18
4. Chicken wire	1	8
5. Refrigerator	1	8
6. Pine stain	1	8
7. Gasoline	1	8
Total	12	100

students in the room. Two of the students managed to get through the flames to safety, but the third boy fell in his attempt to escape the burning room and fell in the gasoline they had spilled. Death occurred approximately four weeks later when pneumonia developed.

According to the data shown in Table VII, power tools were involved in 117 or 76.5 per cent of the 153 accidents reported. Hand tools were involved in twenty-four or 16 per cent of the total accidents reported. Twelve or only 7.8 per cent of the accidents were the result of materials and conditions. It is highly significant to note, however, that materials and conditions were responsible for the more serious injuries. (See Table VI).

In an effort to determine the value of shop policies in preventing accidents in farm mechanic shops, information concerning the accidents of those teachers with and without shop policies was compared. Eighty-two teachers of agriculture reported having no written shop policies and forty-four indicated that they had a written set. All teachers having policies were asked to enclose a copy of these policies with the completed questionnaire. A total of nine copies were received.

Table VIII presents a summary of the number of minor, serious, severe, and death injuries as reported by teachers with and without shop policies. Table VIII also shows the average number of minor, serious, severe, and death injuries occurring as reported by the teachers surveyed.

Table VIII reveals that there were thirty-one minor injuries or an average of .70 per teacher reporting shop policies. In contrast, Table VIII shows that there were 86 minor injuries reported by teachers without policies. This is an average of 1.05 accidents per teacher.

TABLE VII
A COMPARISON OF THE FREQUENCY OF POWER TOOLS,
HAND TOOLS, AND MATERIALS AND CONDITIONS
INVOLVED IN THE 153 ACCIDENTS REPORTED

Items	Number	Percent
1. Power tools	117	76.5
2. Hand tools	24	15.7
3. Material and condition	12	7.8
Total	153	100.0

TABLE VIII
NUMBER AND SERIOUSNESS OF INJURIES REPORTED
BY TEACHERS WITH AND WITHOUT SHOP
POLICIES

Seriousness of injuries	Number of Injuries Reported			
	With policies		Without policies	
	Total	Average	Total	Average
Minor	31	.70	86	1.05
Serious	12	.27	19	.23
Severe	3	.07	1	.01
Deaths			1	.01
Total	46	1.04	107	1.30

Teachers with policies reported twelve serious or an average of .27 injuries per teacher. Those without policies reported 19 or .23 accidents per teacher. Table VIII further shows that the teachers with policies reported three severe injuries while those without policies reported one. There were no deaths reported by teachers with policies.

Finally, Table VIII discloses that the average number of all injuries as reported by the forty-four teachers with policies was 1.04 injuries per teacher. The eighty-two teachers without policies reported an average of 1.30 injuries per teacher.

Reference to Table IX shows that the majority of the teachers surveyed were of the opinion that instruction received before operating machines was very effective in promoting shop safety. Thirty-three teachers stated that it was an effective method and none considered it not effective. Demonstrations of safety practices were also rated very high by teachers. Eighty-six believed it to be very effective, forty thought it was effective and none of the teachers indicated that they did not use this method. Well-lighted, well-ventilated shops were also rated very high as a method of promoting shop safety. Seventy-two teachers felt that a well-lighted, well-ventilated shop was very effective and ten believed it was not effective. As a matter of interest, one accident was reported due to the lack of proper ventilation. (See Table VI, item 7, page 22).

It is significant to note that eighty-two teachers of the 126 reporting indicated that they did not use written rules and regulations as a method of promoting shop safety. Twenty-five rated it effective and the remaining thirteen believed it not effective. Sixty-one of the 126 teachers reporting did not use color schemes; however, a few teachers indicated they were color scheming their shop equipment this year.

TABLE IX
DEGREE OF EFFECTIVENESS OF THE VARIOUS METHODS
OF PROMOTING SHOP SAFETY

Method of Promoting shop safety	Not using	Very effective	Effective	Not effective
1. Instruction before operating machines		93	33	
2. Demonstrations of safety practices		86	40	4
3. Well-lighted, well- ventilated shop		72	38	10
4. Written rules and regulations	84	27	42	6
5. Using color schemes	61	25	27	13

Some statements follow that were made by teachers of agriculture in response to the author's request for information that could be of benefit in developing and initiating a safe shop.

"A good teacher demonstrates the correct procedure and calls attention to danger zones and probable cause of accidents."

"Have had only one accident in 21 years of teaching. I think it was due to improper use of machines. I think proper teaching before entering shop is the best prevention."

"I feel that the greatest aid to shop safety is through instruction and close supervision."

"Acquaint students with safe operation of machines. Use color conditioning and keep shop clean."

"Supervise all activities carried out in the shop. Never allow groups to work in the shop without supervision. Instruct and demonstrate the proper use of tools and equipment in shop pointing out danger in all tools when misused."

"Student awareness of the serious nature of all accidents is important."

"Keep classes small to avoid congestion."

"We have been fortunate in having only one minor accident in the last seven years. We strive to make boys safety conscious at all times. The National Foundation FFA Safety Awards program has proven an incentive for my FFA members to carry a better safety program."

The contents of the first aid kits of the eighty-six teachers of vocational agriculture having kits is presented in Table X. As can be seen, most teachers indicated having some form of disinfectant, burn ointment, sterilized gauze, roll of adhesive tape, and sterile cotton. Other items possessed by over 50 per cent of the teachers included scissors and rubbing alcohol. More than twenty-five kits

TABLE X
FIRST AID EQUIPMENT POSSESSED BY TEACHERS
OF AGRICULTURE IN GEORGIA

Items	Number with items	Percent with items
1. Disinfectant	82	95
2. Burn ointment	80	93
3. Roll of sterilized gauze	79	92
4. Roll of adhesive tape	78	91
5. Sterile cotton	70	81
6. Small pair of scissors	63	73
7. Rubbing alcohol	54	62
8. Clean white soft cloth for large bandages	42	49
9. Boric acid for eye wash	27	31
10. Swabs	27	31
11. First aid handbook	23	26
12. Band aids	3	4
13. Aspirins	2	3

contained cloth for bandages, boric acid for eye wash, and swabs, but only twenty-three teachers of the eighty-six reporting indicated the presence of a first aid handbook. Three and two departments respectively indicated the presence of band aids and aspirins, even though these two items were not listed on the questionnaire. One teacher indicated that all teachers of agriculture should have a Red Cross first aid course in college.

In Table XI an attempt is made to summerize the activities engaged in by principals in the farm shop safety program.

Seventy-four or 58 per cent of the 126 teachers reporting indicated that the principal insisted that the school safety policies were complied with, and sixty-six or 52 per cent reported that the principal acquainted students and faculty with the school's total safety program. Fifty-nine teachers or 46 per cent indicated that the principal saw that needed safety equipment was provided, and 42 per cent of the 126 teachers said that the principal made periodic safety inspections of the shop. Only fifty-two or 41 per cent were of the opinion that the principal studied and kept up to date on safety.

Miscellaneous activities of the principal included the encouragement of resource personnel in teaching shop safety and the appointment of safety committees. There were no other activities mentioned by teachers.

Regardless of the devices and techniques employed, accidents are still likely to happen in almost any situation to anyone at anytime. In an effort to show the preparation taken by teachers of agriculture to combat fires, Table XII reveals that ninety-eight teachers or 78 per cent said they had ordinary fire extinguishers available in case of fire to wood, straw, rage, etc. A large number, ninety-four, indicated that their school was serviced by a fire department and

TABLE XI
ACTIVITIES ENGAGED IN BY PRINCIPALS IN THE FARM
MECHANICS SAFETY PROGRAM IN GEORGIA

Activities	Number principals participating	Percent participa- tion
1. Insists that safety practices are complied with	74	59
2. Acquaints students and faculty with the school's total safety program	66	52
3. Sees that safety equipment is provided	59	49
4. Make periodic safety inspections of the shop	53	42
5. Studies and keeps up-to-date on safety	52	41
6. Encourages the use of resource personnel in teaching shop safety	36	28
7. Appoints safety committees	30	24

TABLE XII
FIRE FIGHTING EQUIPMENT AVAILABLE TO TEACHERS
OF AGRICULTURE IN FARM MECHANICS
SHOPS IN GEORGIA

Items	Number of teachers with items	Percent of teachers with items
1. Ordinary fire extinguisher (Class A)	98	78
2. Schools serviced by fire departments	94	75
3. Fire alarm systems	84	68
4. Gasoline fire extinguishers (Class B)	25	20
5. Electrical fire extinguisher (Class C)	20	16

68 per cent indicated fire alarm systems in their schools.

The number of gasoline and electrical fire extinguishers possessed by teachers of agriculture were significantly low. Only twenty-five teachers of the 126 reporting indicated gasoline fire extinguishers (for combating gasoline, kerosene, grease fire) available, and only 20 or 16 per cent had extinguishers available for combating fires to electric motors and the like.

The information disclosed in Table XIII reveals the degree of effectiveness of the various methods of formulating shop policies. The majority (thirty-one of the forty-four teachers reporting policies) revealed that policies could best be formulated by the students and teachers. Five of the teachers felt that the teacher himself could develop policies more effectively and seventeen felt that the teacher could develop policies effectively. Seventeen teachers indicated that they did not use student safety committees to develop policies, and twenty-one did not use county safety committees.

Teachers who had shop policies were asked to send copies of their policies with the questionnaire and most of the forty-four teachers indicated that the policies become a part of the student's notebook. Nine copies of shop policies were received.

The following are some opinions expressed by teachers of agriculture concerning shop policies:

"A set of shop policies is good. I teach each job as to the danger involved before the project is started."

"These are made up with student and teacher cooperation in each class. They are written in each student's notebook and are signed by each student. They are also dated since they change from year to year."

TABLE XIII
DEGREE OF EFFECTIVENESS OF THE VARIOUS METHODS
OF FORMULATING SHOP POLICIES

Method of formulating policies	Number		
	Not using	Very effective	Not effective
1. Student and teacher co- operatively		31	13
2. Teacher	10	5	17
3. Student safety committees	17	5	9
4. County safety committees	21	1	2

"We demonstrate safety rules to follow in using all equipment in shop and insist on proper use of tools and equipment daily. No use of written rules, slogans, posters, etc. They have proven to be of little value. Written safety rules will be in the student's notebook but not posted in shop as a guide to follow."

"A simple set of safety rules that are enforced."

"Students are kept out of shop unless they have school insurance. This in itself emphasizes shop safety. Makes the students conscious of it in my opinion."

"No definite set—changes from year to year."

"Shop policies a must in keeping down shop accidents."

"No horse play or kidding around. Automatic expulsion from the shop on first offence."

CHAPTER III

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

SUMMARY

Summary of Related Literature

The general findings that have been revealed by investigators in the area of farm shop safety are in agreement with each other. Most of the studies reviewed by this investigator have shown the following:

1. Most of the teachers of vocational agriculture were not receiving adequate instruction at the college level in farm shop safety.
2. The jointer, electric welder, tilting arbor saw, and the power grinder were involved in the majority of farm mechanics shop accidents.
3. Most accidents occurring in the farm mechanics shop were caused by carelessness, lack of concentration on the part of the student, lack of proper instruction, and not using the safety guards.
4. Previous instruction and demonstrations of safety practices were believed to be the best methods of preventing farm shop accidents.
5. The nature of most injuries reported were cuts, burns, and lacerations, most of which were minor, but all degrees of injury seriousness were reported, and even death.
6. Teachers were liable for damages if the teacher was negligent in performing his duties.

7. Hand saws, hammers, wood chisels, and other sharp edged instruments were the leading hand tools involved in accidents.
8. The findings were not consistent in determining whether accidents occurred most frequently with first year vocational agriculture students or the more advanced students.

Summary of Study

The objectives of this study were three-fold. The first objective was to determine the nature, seriousness, and cause of injuries in vocational agriculture farm mechanics shop from July 1, 1960 to June 30, 1962. The second objective was to determine the practices, devices, and procedures being used by teachers of agriculture to prevent accidents in farm mechanics shops. The third objective was to find what precautionary measures teachers of agriculture were taking in case an accident or injury occurred.

The method of research included a review of studies completed by other workers in the field and in industry. With the background information obtained from these studies a questionnaire was prepared. Copies of the questionnaire were sent to 256 teachers of vocational agriculture. One hundred and twenty-six responses were returned and compiled for this study.

The data in this study indicate the following:

1. The majority of the 153 injuries was minor (117).
 - (a) The majority of the injuries was cuts (88), a few of which were serious and severe (sixteen and three respectively).

- (b) There were nineteen burns (seventeen minor, one severe, and one resulted in death).
 - (c) Thirteen students received damages to the eyes (ten minor, two serious, and one severe).
 - (d) Twelve students received bruises (eleven minor and one serious).
 - (e) There were twelve lacerations (five minor and seven serious).
 - (f) Five students suffered broken bones. All of which were serious.
 - (g) Three minor abrasions occurred.
2. The personal factors were the predominating causes of the accidents. Those listed as the probable causes of the accidents and the number of accidents involved in were, carelessness (67), lack of concentration (52), disobedience (34), and unsafe practices in the shop (19).
 3. Physical factors believed to be the cause of accidents and the number of accidents they were probably responsible for were, inadequate guards (23), defective or improper equipment and materials (13), improper apparel (9), and improper working conditions (6).
 4. Five of the power tools and the number of times each was involved in an accident were the jointer (33), arc-welder (28), table saw (23), grinder (8), and the band saw (6).
 5. Hand tools were involved in twenty-four of the 153 accidents reported. The tools and number of accidents they were involved in were: claw hammer (8), hand saw (7), knife (6), two-man crosscut saw (1), wrench (1), and the wood chisel (1).

6. Of the twelve accidents involving materials and conditions, lumber was involved in three, falls (3), truck bed (2), and chicken wire, refrigerator, pine stain and gasoline, one each.
7. A comparison of the power tools, hand tools, and materials and conditions showed that:
 - (a) Power tools were involved in 117, or 76.5 per cent of the total accidents.
 - (b) Hand tools were involved in twenty-four or 15.7 per cent of the total accidents.
 - (c) Material and conditions were involved in twelve or 7.8 per cent of all the accidents.
8. This study showed that a written set of shop policies aided in preventing accidents to some degree. Those teachers without shop policies reported 107 or an average of 1.3 per cent injuries per teacher while those with shop policies reported forty-six or an average of one injury per teacher.
9. Thirty-one of the forty-four teachers who reported having written shop policies indicated that the most effective method of formulating these policies was with the students and teacher cooperatively. Other methods were either not used or not as effective.
10. Over seventy of the eighty-six teachers with first aid kits had the following items: disinfectant, burn ointment, sterilized gauze, adhesive tape, and sterile cotton. Over fifty teachers had a pair of scissors and rubbing alcohol. Less than fifty teachers had soft cloth for large bandages, boric acid for eye wash, first aid handbook, band aids and aspirins.

11. The school principal's participation in the farm mechanics safety program was low. Less than 60 per cent said that the principal insisted that safety practices were complied with and that he studied and kept up-to-date on safety problems. Other activities engaged in by the principal showed less than 50 per cent in each item.
12. The most effective methods of promoting safety in the shop were by (1) instruction before operating machines and (2) demonstrations of safety practices. Other methods of less value included (1) a well-lighted, well-ventilated shop, (2) written rules and regulations, and (3) the use of color schemes.
13. The majority of the vocational agriculture teachers had ordinary fire extinguishers (98), ninety-four teachers indicated that the school was serviced by a fire department, and eighty-four had fire alarm systems. Gasoline and electrical fire extinguishers were possessed by twenty-five and twenty teachers respectively.

Conclusions

Conclusions reached from this study were:

1. Many types of injuries have occurred in farm mechanics shops in Georgia.
2. Most injuries occurring in farm mechanics shops in Georgia were cuts of a minor nature.
3. A sufficient number of accidents occurred to warrent the use of better education on safety and the enforcement of good practices and procedures in developing farm mechanic skills.
4. Most of the accidents were caused by human error; therefore, most of the accidents could have been prevented or minimized.

5. Insufficient guarding of machine and defective equipment and material were the two physical factors most often associated with accidents in farm mechanics shops in Georgia.
6. Shop policies aid in preventing accidents in farm mechanic shops to some degree.
7. Some high school principals were not taking an active part in the farm safety program.
8. Adequate first aid supplies were not possessed by some teachers of agriculture in Georgia.
9. The majority of the accidents occurred when power tools were being used.
10. In most cases, the teacher of agriculture must take the initiative to develop a farm mechanic safety program for his shop.
11. Some teachers did not have adequate fire fighting equipment in their possession.
12. Serious accidents and even fatal ones did occur in farm mechanic shops in Georgia with items other than hand and power machines.
13. The most effective method of formulating shop policies was student-teacher cooperation.
14. Proper instruction before operating machines and demonstration of safety practice along with close supervision were the best methods of preventing accidents in farm mechanics shops in Georgia.

Recommendations

Based on the findings of this study and from the reading of literature relative to safety in vocational agriculture farm mechanics

shops, the following recommendations are made for teachers of vocational agriculture in Georgia:

1. That each teacher of agriculture learn what constitutes a safe farm mechanic program.
2. That each teacher of agriculture develop and maintain safe working conditions and practices in his farm mechanics shop.
3. That the teacher of agriculture provide experience for the development of attitudes toward safety which will tend to make the student safety conscious at all times.
4. That the instructional program be designed so that it will encourage student cooperation in safety procedures and practices.
5. That the teacher of agriculture inform school officials of the safety improvements needed in the shop and the materials required for a safe shop.
6. That the teacher make safety policies and procedures known to each student and see that these rules and procedures are observed at all times.
7. That the teacher set the standard and practices necessary for an accident free shop.
8. That the teacher of agriculture constantly remind the student of the need for safe practices and procedures in the shop.
9. That summer workshops be conducted by the University of Georgia dealing with safety in farm mechanic shops.

BIBLIOGRAPHY

FRANES  CREST

BIBLIOGRAPHY

- Accident Prevention Can Be Learned. School Health Bureau, Health and Welfare Division, Metropolitan Life Insurance Company, New York: 1962, p. 6.
- Adams, Edward S. "Our Situation in Farm Safety." The President's Conference on Occupational Safety. Washington, D. C., March 7, 1962, p. 2.
- Baldwin, Gordon Lee. "The Development of A Safety Program for School Farm Shops." Unpublished Master's thesis, Virginia Polytechnic Institute, 1946.
- Bail, Joe P. Farm Safety Education. Agricultural Education Division, Rural Education Department, Cornell University, 1959, p. 5.
- Burns, Paul M. "Accidents in Vocational Agriculture Shops in Pennsylvania." Unpublished Master's thesis, Pennsylvania State College, 1951.
- Carney, John W. "Farm Shop Safety Program for Vocational Agriculture Departments in Tennessee." Unpublished Master of Education thesis, University of Tennessee, 1958.
- Craig, Frank R. "Safety and the Use of Power in North Carolina School Farm Shops." Unpublished Master's thesis, North Carolina State College, 1951.
- Cromer, Chalmers A. "Recommended Farm Safety Activities for Vocational Agriculture Departments in Nebraska." Unpublished Master of Education Report, Colorado Agricultural and Mechanical College, 1951.
- Entrekin, W. G. "A Study of Some of the Factors Which Affect Shop Safety in Vocational Agriculture." Unpublished Master's thesis, Clemson College, 1952.
- Family Safety at Work and Play. The National Safety Council and the U. S. Department of Agriculture. Washington: U. S. Government Printing Office, April, 1962.

- Frye, Thomas N. "Safety Programs in the High School Farm Shop in Oklahoma." Unpublished Master's thesis, Oklahoma A & M College, 1955.
- Garver, H. L. "Watch Your Step and Avoid Farm Accidents." United States Department of Agriculture, Farmer Bulletin No. 2102, Washington, D. C., December 1957, p. 3.
- Gaskill, Joseph L. "A Farm Safety Program in Vocational Agriculture for the Arkansas Valley in Colorado." Unpublished Master of Education Report, Colorado Agricultural and Mechanical College, 1951.
- Hohbach, Lawrence R. "Safety Programs in the High School Farm Shops in South Dakota." Unpublished Master of Education Problem, South Dakota State College, 1958.
- Leathers, Johnny E. "A Study of the Safety Program in School Farm Shops in One Hundred and Seven Schools in Texas." Unpublished Master's thesis, Sam Houston State Teachers' College, 1951.
- Lyday, Jim R. "Developing Some Safety Measures That Can Be Used in High School Farm Shop Programs in Georgia." Unpublished Master of Education Problem, University of Georgia, 1951.
- Melvin, Jefferson, R. "School Shop Safety Programs of Selected Departments of Vocational Agriculture in Ten North Carolina Counties." Unpublished Master of Education thesis, The Agricultural and Technical College of North Carolina, 1956.
- Nordberg, Carl O. "A Study Concerning Accidents and the Prevention of Accidents in Vocational Agriculture Farm Mechanics Shops in Pennsylvania." Unpublished Master's thesis, Pennsylvania State College, 1952.
- Russell, Eugene. "A Study of Farm Shop Safety in Forty-Five Vocational Agriculture Departments in Texas." Unpublished Master of Education Problem, Texas Agricultural and Mechanical College, 1945.
- Smith, David E. "The Safe Use of Machines in the Vocational Agriculture Shops in West Virginia." Unpublished Master's Problem, West Virginia University, 1950.

Webb, Eustace O. "Developing Some Safety Policies That Can Be Used in Vocational Agriculture Departments in High Schools in Georgia." Unpublished Master of Education Problem, University of Georgia, 1951.



APPENDICES

APPENDIX A

SAFETY IN FARM MECHANIC SHOPS IN GEORGIA

Name _____

School _____

County _____

Please complete the forms on the following pages. Base your report on the past two years beginning July 1, 1960 and ending June 30, 1962. In case of a multiple teacher department, report only those accidents occurring to students under your supervision.

A stamped, self-addressed envelope is enclosed for your convenience in returning the questionnaire.

I. Please rank the following as to effectiveness in teaching shop safety in your shop.

Item	Did not use	Did Use		
		Very Effective	Effective	Not Effective
A. Written Rules and Regulations				
B. Demonstration of Safety Practices				
C. Using Color Schemes				
D. Instruction Before Operating Machines				
E. Well-lighted, Well-ventilated shops				
F. Others (Specify)				

II. Do you have a written set of safety policies or rules?
 (If yes, please enclose a copy with questionnaire) Yes No

- III. If your answer to number two is yes, please indicate below by a check (✓) the degrees of effectiveness in using different ways of formulating policies.

Item	Did not use	Did Use		
		Very Effective	Effective	Not Effective
A. Students and Teachers Cooperatively				
B. Teacher				
C. Student Safety Committee				
D. County Safety Committee				
E. Others (Specify)				

- IV. Please indicate below by a check (✓) fire fighting equipment available and the number of each for combating fires.

Item	Yes	No	Number
A. Gasoline fire extinguisher (Class B)			
B. Electrical fire extinguisher (Class C)			
C. Ordinary fire extinguisher (Class A)			
D. Fire alarm system			
E. School serviced by fire department			
F. Other (Specify)			

- V. Please check the following appropriate item concerning the activities your high school principal engages in concerning your shop safety program.

Item	Yes	No	Number
A. Sees that needed safety equipment is provided			
B. Studies and keeps up to date on safety			
C. Makes periodic safety inspections of your shop			
D. Acquaints faculty and students with the school total safety program			
E. Insist that safety practices are complied with			
F. Encourages the use of resource personnel in teaching farm safety			
G. Appoints safety committees			
H. Others (Specify)			

(July 1, 1960 --- June 30, 1962)

50

VII. From the list of personal factors listed below select the ones that you believe to have contributed to the accidents you have reported.

- A. ☐ The physically unfit student
- B. ☐ The mentally unfit student
- C. ☐ Unsafe practices in the shop
- D. ☐ Lack of concentration
- E. ☐ Disobedience
- F. ☐ Inability on part of student to grasp the work
- G. ☐ Inadequate instruction
- H. ☐ Others (specify) _____

VIII. From the list of physical factors listed below select the ones that you believe to have contributed to the accidents you have reported.

- A. ☐ Improper apparel
- B. ☐ Improper course content
- C. ☐ Improper working conditions
- D. ☐ Unsafe building conditions
- E. ☐ Defective or improper equipment and materials
- F. ☐ Poor housekeeping
- G. ☐ Inadequate guarding
- H. ☐ Poor arrangement of equipment and space
- I. ☐ Others (specify) _____

IX. Do you have a first aid kit in your farm mechanics shop? _____

If your answer is yes, indicate by a check the items Yes No
below it contains.

- A. ☐ Roll of adhesive tape
- B. ☐ Two rolls of sterilized gauze--two different widths
- C. ☐ Burn ointment
- D. ☐ Small pair of scissors
- E. ☐ Small bottle of 2% iodine, or other good disinfectant
- F. ☐ Toothpicks for swabs
- G. ☐ Boric acid for eye wash
- H. ☐ Rubbing alcohol
- I. ☐ Clean, white, soft cloth for large bandages
- J. ☐ Sterile cotton
- K. ☐ First aid handbook
- L. ☐ Others (specify) _____

X. Please include with this questionnaire any materials you feel will be of benefit to this investigator in developing and initiating a safe shop.

APPENDIX B

THE UNIVERSITY OF TENNESSEE
KNOXVILLE
College of Education

Department of
Agricultural Education

Date: June 28, 1962

To: Fellow Vo-Ag Teachers

Enclosed is a questionnaire concerned with shop safety in Georgia. I am conducting this study for a Master's thesis at The University of Tennessee. The responses will be kept confidential, and data will be presented in tabular form for easy interpretation.

Please return as soon as possible in the self-addressed, stamped envelope. Time is of major importance because I am trying to complete this study in time to graduate in August.

Dr. George W. Wieggers, Jr., Head of the Agricultural Education Department at The University of Tennessee, has encouraged me to conduct this study on safety. He said that if the results of this study will help save the arm, eye or life of one single vo-ag boy in Georgia, all the time and thought spent on this study will be fully justified.

I need your experiences and answers as evidence for proposing suggestions to improve safety in Georgia.

/S/ Charles L. Smith
Teacher of Agriculture
West Fannin High School
Blue Ridge, Georgia

Encl.