# DETERMINING THE PARENTS' CONCEPT OF THE DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS WHICH SHOULD BE TAUGHT IN FARM MECHANICS IN VOCATIONAL AGRICULTURE IN THE WYNNEWOOD HIGH SCHOOL



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# CHAPTER I

## PURPOSE AND DESIGN OF THE STUDY

### Introduction

A tremendous change has been and still is taking place in the farming programs in the Wynnewood community. Two decades ago we were primarily a diversified farming community consisting of many small individual farms, very few of which were mechanized. Today, we have fewer but considerably larger farms, each of which has machinery that will about equal, or in some cases, surpass the value of the farm.

With larger farms, more machinery is necessary, also with larger livestock programs with mechanized feeding and handling, more machinery is necessary. It is the selection, maintenance, and repair of this machinery which brings about the necessity of farm mechanics. This should be the basis for the farm mechanics program now being taught in vocational agriculture.

Farm mechanics has been a very important part of the instructional program in vocational agriculture since the program was established in 1917 by the passage of the Smith-Hughes Act.[1] In view of the limited time available for teaching each phase of vocational agriculture, we need to design a farm mechanics course that will benefit the students and at the same time limit the practices taught only to those that are

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[1]Smith-Hughes Act, 1917. It provided federal funds to be used for the betterment and advancement of agriculture in secondary schools.

pertinent to the community.

Farm mechanics programs are more likely to be successful with sufficient equipment. In many instances the shop space is provided but not adequately equipped. If the instructor is to teach farm mechanics most effectively, he must have sufficient equipment to meet the needs of the students, their home farm, and the farms of the community.

In this study of farm mechanics, the whole program will be considered. It will include: (1) Farm shop work, (2) Farm power and machinery, (3) Farm buildings and conveniences, (4) Soil and water management, and (5) Rural electrification.

Servicing and maintaining the mechanical devices and structures on the farm will be the responsibilities of the vocational agriculture student soon after he leaves high school. Since many modern farms have a well equipped farm shop, it is believed that the skills and abilities to make the minor repairs and to build small buildings should be taught in vocational agriculture, and it is the responsibility of the vocational agriculture teacher to teach the competencies needed in the farm shop. This study is being conducted to identify the competencies that vocational agriculture should endeavor to provide for vocational agriculture students.

## Statement of the Problem

The primary problem is to determine, by use of a survey, the parents' concepts as to the degree of importance of the different competencies and understandings that should be taught to students of vocational agriculture in farm mechanics. The Wynnewood Board of Education is in the process of equipping a new vocational agriculture classroom and farm shop. This study is necessary to determine what skills should be taught

so that the vocational agriculture teacher can teach these desired skills and competencies.

## Purpose of the Study

The purpose of this study is to determine the parental concept of the competencies and understandings that should be taught in the farm mechanics phase of vocational agriculture.

## Scope of the Study

This study is limited to the parents of boys enrolled in vocational agriculture in the Wynnewood High School during the school year of 1960-1961 and the parents of prospective vocational agriculture students who were in the eighth grade during the same year. There were thirty-one students enrolled and approximately twenty prospective students in the eighth grade during the school year of 1960-1961.

## Definition of Terms

The term "mechanics" is often used to indicate some mechanical work such as auto mechanics or blacksmithing, but as used in the vocational field it has a much broader meaning. The terms "farm shop work" and "farm mechanics" are often used interchangeably in connection with the program in vocational agriculture. Farm mechanics instruction, however, is a more inclusive term than farm shop work. Farm mechanics includes all the unspecialized mechanical activities performed on the farm and in the home.[2]

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[2] Phipps, McColly, Scranton, and Cook. Farm Mechanics Text and Handbook. 1959 edition. p. 13.

Therefore, in this report the term "farm mechanics" will be used when referring to the entire program of unspecialized mechanical activities as a part of vocational agriculture.

The term "parents" used in this report shall indicate the father of the vocational agriculture student in each case where the father is living in the home where the student resides. If the father is deceased, or for some other reason, does not reside in the same home as the student, the term "parents" will then refer to the mother or to the student's legal guardian.

## Basic Assumptions

Parents understand the problems involved in their sons' lives to such an extent that they are reliable sources in determining concepts and understandings which vocational agriculture students should acquire relative to farm mechanics.

# CHAPTER II

## REVIEW OF SELECTED LITERATURE

A number of studies relative to farm mechanics in vocational agriculture have been conducted. A review of selected literature was made to determine what others are doing and what developments have previously been reported on this problem. It is hoped that the writer will be able to use these sources of information to design his study so that it will be more effective.

With today's large investment in mechanized farming and present high labor costs, the vocational agriculture farm mechanics program must assume a role of vital importance. It is the duty of the teachers of vocational agriculture to teach these unspecialized mechanical skills and abilities to the all-day students and to the young and adult farmer groups.

The requirements of a good farm shop program are many. The first essential is the motivation of students to want to learn the skills and abilities which are necessary to manage a farm properly. The second essential is an adequate supply of tools which are easily accessible to the workers using the shop, and the third requirement is a shop area of ample space.

Agricultural mechanics is a part of the instructional program of vocational agriculture. The all-day students and farmers need to learn and develop the abilities required to operate a farm successfully. Many of the abilities and understandings may be used by the students who

go into occupations related to farming since they are called upon many times for service to the farmers. A farmer is more likely to be successful today if he is able to select, operate, service, and repair various pieces of farm power and machinery; to use electricity efficiently; to provide and maintain farm structures and conveniences; and to conserve the soil and water on his farm. Therefore, we must prepare students to do the jobs which they are called upon to do daily, weekly, or monthly on the home farm.

In the introduction of Farmers Shop Book by Roehl and Longhouse we find this statement:

> Farm shopwork is a part of farming. Those farmers who have shops equipped with the necessary tools and have the skill to do ordinary construction and repair work, can carry on the farming business more economically and with greater personal satisfaction than farmers who must have all mechanical work done by others.[3]

On farm mechanics Cook and Walker have this to say:

> Farm mechanics instruction is definitely one of the phases of an integral part of the instruction in vocational agriculture. It is just as much a part of the program as is the instruction in farm crops, livestock, or farm management. All of these phases are necessary for a well-rounded program of instruction in vocational agriculture.[4]

In the literature reviewed, it was pointed out that the trend of going from horse power to tractor power in a few short years has caused many rapid changes. This period of change has brought about a great need for farm mechanics in vocational agriculture.

A. H. Hollenberg shows why we need a smaller percentage of the people working the soil as we increase the number of tractors and machinery.

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[3]Roehl and Longhouse, Farmers Shop Book. Tenth edition, Bruce Publishing Company, 1953. p. v.

[4]Cook and Walker, Practical Methods in Teaching Farm Mechanics. Interstate, 1941. p. 1.

It was pointed out that farm mechanization is responsible for many new and improved practices, both in farming and in farm mechanics skills. The development of farm machinery has made farming more efficient and economical with more farm products being produced with fewer and fewer people on the farm.[5]

It is not only the use of machinery that has made farming more efficient. The farm buildings and structures need to be renovated and new ones constructed to meet the needs of today since rural electricity has brought more farm power and conveniences and new comforts with more leisure time.

In order to teach these competencies and understandings, the teacher must be proficient and must have a shop properly equipped.

In his doctor's thesis, Dugger made the following statement:

> To service and maintain the mechanical devices and structures on the farm, many farm operators have found that it is convenient to have a well equipped farm shop. The modern farm operator frequently finds it is necessary to understand how to use tools to build, maintain, and repair many kinds of mechanical structures and devices on the farm. Vocational agriculture teachers are responsible for giving instruction in the competencies required of farm operators. Educational programs in vocational agriculture must include the teaching of such competencies.[6]

After the review of selected literature, I find that many teachers and educators are aware of the need of teaching a well rounded program of farm mechanics. They are also aware that they must have the necessary shop space and have it properly equipped to teach efficiently the unspecialized mechanical competencies that are needed by farmers.

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[5]A. H. Hollenburg, Instruction in Farm Mechanics. Vocational Division Bulletin No. 267, Agricultural series No. 70, United States Department of Health, Education and Welfare.

[6]Roy W. Dugger, Mechanical Competencies Needed By Vocational Agriculture Teachers in Oklahoma. (Unpublished Doctor's Dissertation, Oklahoma State University, 1956). p. 9.

# CHAPTER III

## METHODS AND PROCEDURE OF STUDY

In trying to determine what competencies and understandings should be taught in farm mechanics, the writer decided to find if this problem has been recognized in other communities and if so, what results and conclusions have been drawn from the studies. All of the pertinent literature available was read, and the methods and procedures used in other studies were reviewed.

After the existing problem had been identified and pertinent literature had been reviewed, it was decided that a survey would help to find the solution to the problem. To draw accurate conclusions, it was decided to interview parents who have sons in vocational agriculture, throughout the community as well as the parents who live in town. This was necessary to determine what competencies and understandings of farm mechanics should be taught in Wynnewood vocational agriculture classes and to ask them to answer questions on a survey.

If a survey was to be used, a questionnaire of some type was needed in order to ask each parent the same questions and to have a record of their answers so that the collected information could be tabulated in an appropriate manner for use in solving the problem that has been previously identified.

To secure the information needed for this study the writer formulated a questionnaire to determine the need to teach certain competencies and understandings.

The questionnaire was divided into the five major areas of farm mechanics; then each of these major areas was broken down into sub-areas, and the questions were grouped according to the headings of these sub-areas.

After the questionnaire was formulated, a trial run was used. A selected group of four farmers was asked to evaluate the questionnaire. Each of the four farmers has had sons in vocational agriculture in the past and understand the need for farm mechanics. Each of the four farmers was asked to complete one of the questionnaires and then make recommendations to the writer when the questionnaire was returned.

After this trial run, the writer considered the recommendations offered by the four farmers and made the necessary changes in the questionnaire. After this was done, the writer mailed copies of the questionnaire to the parents as indicated in the scope of the study. Included with the questionnaire was a letter of information, which stated that the writer would call in a few days to help complete the questionnaire and to discuss it with the parent during the interview.

Tabulation forms were prepared, and the answer for each question carefully tabulated. Blanks were noted as well as comments by way of explanation. From these tabulations the tables in this study were prepared and used as the basis of the accompanying explanatory material.

## CHAPTER IV

## PRESENTATION AND ANALYSIS OF DATA

Data presented in this chapter were obtained from a questionnaire presented to 42 parents of vocational agriculture students and parents of prospective vocational agriculture students in the Wynnewood, Oklahoma High School during the school year of 1960-1961.

The parents surveyed represent boys who live in the rural area and boys who live in the urban area. Parents of 70 per cent of these boys live in the rural areas. Only 23.3 per cent of the rural parents surveyed were full-time farmers. Of the parents residing in the rural area, 66.7 per cent receive income both from farming and a source from off the farm. Ten per cent of the parents who reside in the rural area receive all of their income from some source other than the farm.

Of the parents surveyed, 30 per cent lived in the urban area. 38.4 per cent of the urban parents do part-time farming and receive some of their income from the farm. The other 61.6 per cent of the urban parents had no source of income from the farm which means that they were employed full-time in work other than on the farm.

While 45 surveys were mailed out, only 42 were completed and picked up by the writer. The parents of three prospective students explained that they and their sons had discussed the son's enrollment in vocational agriculture and had decided that the son would not enroll at this time. Therefore, these three parents could see no need for completing the survey.

Sharpening hand tools. The importance of teaching the job listed

under this heading is expressed according to the experiences and needs of the parents. As is shown in Table I, forty-one per cent thought the entire group of listed skills important enough to be taught in the vocational agriculture farm mechanics course at the Wynnewood, Oklahoma, High School. An additional thirty per cent felt that they are desirable to be taught. This totals seventy-one per cent expressing a need to teach these particular skills, while only twenty-nine per cent expressed the belief that the skills are not important enough to be taught.

TABLE I

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SHARPENING HAND TOOLS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Sharpening Hand Tools | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Plane blade | 13 | 15 | 9 | 5 | 42 |
| Wood chisel | 14 | 13 | 7 | 8 | 42 |
| Twist bit | 17 | 10 | 9 | 6 | 42 |
| Auger drill | 17 | 12 | 9 | 4 | 42 |
| Jointing and filing a hand saw | 25 | 12 | 2 | 3 | 42 |
| FREQUENCY OF RESPONSE | 86 | 62 | 36 | 26 | 210 |
| PER CENT OF TOTAL | 41 | 30 | 17 | 12 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Cold metal work. It is interesting to observe that there was not a definite feeling on this particular group of skills. The response of the parents showed that only thirty per cent thought it important to teach

cold metal work, while twenty-six per cent felt it is desirable to teach these skills, giving a total of only fifty-six per cent in favor since forty four per cent felt that it is not sufficiently worth while to use the time alloted to farm mechanics to teach the skills listed below.

TABLE II

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO COLD METAL WORK AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Cold Metal Work | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Measuring & Laying cut | 12 | 11 | 12 | 7 | 42 |
| Cutting threads on a rod | 15 | 16 | 6 | 5 | 42 |
| Cutting with hack saw | 13 | 7 | 11 | 11 | 42 |
| Drilling holes | 11 | 10 | 10 | 11 | 42 |
| Bending cold metal | 13 | 10 | 7 | 12 | 42 |
| FREQUENCY OF RESPONSE | 64 | 54 | 46 | 46 | 210 |
| PER CENT OF TOTAL | 30 | 26 | 22 | 22 | 100 |
| RANK | 1 | 2 | 3 tie | 3 tie | |

Soldering. A review of the data in this table reveals that thirty-three per cent of the parents thought it important to teach soldering while thirty per cent stated that it may be taught if time permits. By using the first two columns as a basis for teaching, there is a total of fifty-six per cent as compared to forty-four per cent that indicated it is not important enough to justify the teaching of soldering skills.

TABLE III

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SOLDERING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Soldering | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Cleaning & tinning the soldering iron | 17 | 5 | 15 | 5 | 42 |
| Soldering a seam | 13 | 13 | 10 | 6 | 42 |
| Repair small holes | 15 | 10 | 12 | 5 | 42 |
| Sweating out a wire joint | 11 | 10 | 13 | 8 | 42 |
| FREQUENCY OF RESPONSE | 56 | 38 | 50 | 24 | 168 |
| PER CENT OF TOTAL | 33 | 23 | 30 | 14 | 100 |
| RANK | 1 | 3 | 2 | 4 | |

Sheet metal work. The conclusions which may be drawn from the below table indicates that there are mixed thoughts on this group of competencies and understandings. About the same number of parents' ideas would be considered regardless of whether or not these skills are taught. Again considering that the first two columns indicate that the skills should be taught, we find a total of fifty per cent as compared to fifty per cent who thought they are probably not important enough to teach.

Pipe work. An evaluation of the material on this table shows clearly that the parents want their sons to study pipe work. This is the largest majority for any group of competencies shown, up to this point, in this study. A total of eighty-two percent indicated, by checking the first two columns on the survey, that working with pipe

is very useful in farm work. This has many uses on the farm as well as in the modern farm house.

TABLE IV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SHEET METAL WORK AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Sheet Metal Work | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Laying out sheet metal work | 9 | 11 | 13 | 9 | 42 |
| Cutting sheet metal | 9 | 16 | 9 | 8 | 42 |
| Riviting metal | 10 | 10 | 12 | 10 | 42 |
| Folding & forming joints | 11 | 8 | 12 | 11 | 42 |
| FREQUENCY OF RESPONSE | 39 | 45 | 46 | 38 | 168 |
| PER CENT OF TOTAL | 23 | 27 | 27 | 23 | 100 |
| RANK | 3 tie | 1 tie | 1 tie | 3 tie | |

TABLE V

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO PIPE WORK AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Pipe Work | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Measuring & cutting pipe | 24 | 12 | 4 | 2 | 42 |
| Reaming pipe | 23 | 9 | 3 | 7 | 42 |
| Threading pipe | 24 | 13 | 2 | 3 | 42 |
| Assembling pipe & pipe fittings | 27 | 7 | 4 | 4 | 42 |

TABLE V (continued)

| Pipe Work | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
|---|---|---|---|---|---|
| FREQUENCY OF RESPONSE | 98 | 41 | 13 | 16 | 168 |
| PER CENT OF TOTAL | 58 | 24 | 8 | 10 | 100 |
| RANK | 1 | 2 | 4 | 3 | |

TABLE VI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SELECTING TOOLS FOR FARM WORK SHOP AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Selecting Tools for Farm Work Shop | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Hand tools | 20 | 12 | 6 | 3 | 41 |
| Power tools | 22 | 13 | 5 | 1 | 41 |
| Arc welder | 27 | 10 | 3 | 2 | 42 |
| Oxyacetylene welder | 28 | 10 | 2 | 2 | 42 |
| FREQUENCY OF RESPONSE | 97 | 45 | 16 | 8 | 166 |
| PER CENT OF TOTAL | 58 | 27 | 10 | 5 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Selecting tools for farm work shop. It is noteworthy to observe the data in Table VI two blanks were unchecked on the survey which caused a smaller number on the frequency of response than on some of the other tables. It is the opinion of the writer that this was an oversight on the part of the parents who filled out the surveys, since one blank was

left unchecked on each of two surveys.

There was a decided majority in favor of teaching the selection of tools for farm workshops. This was indicated by fifty-eight per cent while only five per cent thought it is probably not important enough to be taught.

The findings in Table VI clearly indicate that the parents see a need for teaching a basis for selecting power tools and welders more so than for hand tools.

As some parents indicated, there will be fewer large pieces of equipment and they are more expensive than hand tools, also the students are more familiar with hand tools than power tools.

TABLE VII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO PROVIDING STORAGE AND WORK STANDS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Providing Storage and Work Stands | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Tool racks | 12 | 10 | 11 | 8 | 41 |
| Work benches | 11 | 10 | 12 | 8 | 41 |
| Tool stands (anvil, grinder, etc.) | 10 | 11 | 12 | 8 | 41 |
| FREQUENCY OF RESPONSE | 33 | 31 | 35 | 24 | 123 |
| PER CENT OF TOTAL | 37 | 25 | 28 | 20 | 100 |
| RANK | 2 | 3 | 1 | 4 | |

Providing storage and work stands. A study of the information secured in Table VII reveals that the thinking is mixed on this subject.

More of the parents checked the column headed "May Be Taught" than any other. The writer also finds more parents who think that this subject is probably not important than he finds in nearly any other table. It could be assumed that this is a desirable subject but the percentages shown in this table indicate that several other subjects are considered of more importance.

TABLE VIII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO ARC WELDING INFORMATION AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Arc Welding Information | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Arc welding terms | 28 | 10 | 1 | 2 | 41 |
| Selecting electrodes | 30 | 10 | 0 | 2 | 42 |
| Amperage settings for various electrodes and metals | 31 | 7 | 2 | 2 | 42 |
| FREQUENCY OF RESPONSE | 89 | 27 | 3 | 6 | 125 |
| PER CENT OF TOTAL | 71 | 22 | 2 | 5 | 100 |
| RANK | 1 | 2 | 4 | 3 | |

Arc welding information. The data in Table VIII is of interest because it shows a definite trend in the thinking of the parents who were surveyed on this problem. The writer finds that there is a indicated need for welding on the modern farm.

Additional evidence of the value of the findings in this table is that welding is used in many places other than on the farm. Several of

the parents indicated that welding is important for a student even if he does not plan to enter into the busines of farming.

Table VIII shows that ninety-three per cent of the parents indicated that arc welding information is one of the most desirable understandings that could be taught in a farm mechanics class.

Arc welding. It is worthwhile to note that a higher percentage of the parents indicated a need for arc welding than any other group of skills studied in this problem. A vast majority of eighty per cent expressed the importance of arc welding by checking the first column which is labeled "Important To Teach."

One survey was left unchecked on the skill of making a fillet weld. The writer was unable to determine if this was left blank due to an unintentional oversight or if this parent didn't understand the meaning of the term fillet weld.

TABLE IX

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO ARC WELDING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Arc Welding | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Striking an arc | 36 | 5 | 0 | 1 | 42 |
| Running a bead | 33 | 7 | 1 | 1 | 42 |
| Making butt welds | 32 | 4 | 4 | 2 | 42 |
| Making fillet welds | 32 | 5 | 1 | 3 | 41 |
| FREQUENCY OF RESPONSE | 133 | 21 | 6 | 7 | 167 |
| PER CENT OF TOTAL | 80 | 13 | 3 | 4 | 100 |
| RANK | 1 | 2 | 4 | 3 | |

Arc welding positions. It is interesting to discover in Table X that the parents did not think that the position for welding is as important to teach as are the basic competencies and understandings of arc welding. The frequency of response as to importance is about the same percentage for the different position as the amount of actual welding that is done in each position.

TABLE X

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO ARC WELDING POSITIONS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Arc Welding Positions | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Horizontal | 30 | 8 | 2 | 2 | 42 |
| Vertical | 27 | 12 | 1 | 2 | 42 |
| Overhead | 25 | 10 | 5 | 2 | 42 |
| FREQUENCY OF RESPONSE | 82 | 30 | 8 | 6 | 126 |
| PER CENT OF TOTAL | 65 | 24 | 6 | 5 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

It was the opinion of sixty-five per cent of the parents that teaching the positions for welding is important. Only five per cent felt that it is not important.

Advanced arc welding. When the below material is carefully considered, the following conclusions are apparent: There is a definite need to teach advanced arc welding. Second, the parents express the opinion that advanced arc welding is not as important as basic arc

welding. Third, the parents concur with the basic thought on farm mechanics, that the competencies and understandings taught should be in the form of unspecialized skills.

An analysis of the material below shows that forty-seven per cent stated that it is important to teach advanced arc welding. This may be compared to the nine per cent who thought it is probably not important. Also thirty-four per cent indicated that it is desirable to teach and ten per cent stated that it may be taught if time permits.

TABLE XI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO ADVANCED ARC WELDING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Advanced Arc Welding | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Welding cast iron | 21 | 13 | 4 | 4 | 42 |
| Hard facing | 19 | 14 | 6 | 3 | 42 |
| Operating the carbon arc torch | 18 | 16 | 4 | 4 | 42 |
| Controlling expansion and contraction | 21 | 14 | 3 | 4 | 42 |
| FREQUENCY OF RESPONSE | 79 | 57 | 17 | 15 | 168 |
| PER CENT OF TOTAL | 47 | 34 | 10 | 9 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Oxyacetylene welding information. A summary made of the material in Table XII shows that the degree of importance of teaching oxyacetylene welding information is almost parallel to the degree of importance of teaching arc welding information, as expressed by the parents.

The skills listed in this table were each answered with about the same frequency. Of the parents surveyed, seventy per cent stated that it is important to teach these skills, as compared to seventy-one per cent on teaching information about arc welding. A total of eighty-nine per cent checked either important to teach or desirable to teach. Only eleven per cent said it may be taught or that it is probably not important.

TABLE XII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO OXYACETYLENE WELDING INFORMATION AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF INFORMATION | | | | |
|---|---|---|---|---|---|
| Oxyacetylene Welding Information | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Adjusting regulators | 30 | 9 | 1 | 2 | 42 |
| Lighting the torch | 28 | 9 | 2 | 3 | 42 |
| Adjusting the flame | 30 | 6 | 3 | 3 | 42 |
| FREQUENCY OF RESPONSE | 88 | 24 | 6 | 8 | 126 |
| PER CENT OF TOTAL | 70 | 19 | 5 | 6 | 100 |
| RANK | 1 | 2 | 4 | 3 | |

Oxyacetylene welding. An evaluation of the material shows clearly that some of the skills listed are more important to teach than others. There were 42 surveys completed. On thirty of these surveys it was checked as important to teach welding in different positions and cutting with the torch. There were twenty-nine checked as important to teach brazing. This is compared to twenty-two on fusion welding and twenty-three on hard

facing.

When a summary is made of the below material, it shows that sixty-four per cent felt that it is important to teach oxyacetylene welding as compared to four per cent who thought it is probably not important.

The previous thirteen tables are summaries of the first group of sub-headings which are listed as "Farm Work Shop". These are unspecialized skills that may be learned and are useful in general shop work.

The next group of tables are summaries of the second main group of sub-headings which are listed as "Farm Power and Machinery". These skills are for the maintenance and repair of farm tractors and machinery. This group also includes the types and safe handling of farm fuels.

TABLE XIII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO OXYACETYLENE WELDING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Oxyacetylene Welding | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Welding in different positions | 30 | 8 | 2 | 2 | 42 |
| Fusion welding | 22 | 13 | 5 | 1 | 41 |
| Brazing | 29 | 9 | 3 | 1 | 42 |
| Hard facing | 23 | 14 | 1 | 3 | 41 |
| Cutting with torch | 30 | 7 | 4 | 1 | 42 |
| FREQUENCY OF RESPONSE | 134 | 51 | 15 | 8 | 208 |
| PER CENT OF TOTAL | 64 | 25 | 7 | 4 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Minor tractor repairs. An examination of Table XIV shows that the parents of vocational agriculture students in this community want their sons to acquire skills related to maintaining and making minor adjustments and repairs on farm tractors and other farm engines.

Response by the parents of these students indicate that fifty-eight per cent considered these skills as important to teach. Another twenty-eight per cent considered these skills as desirable to teach. This compares to fourteen per cent who felt that these skills are of lesser importance.

TABLE XIV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO MINOR TRACTOR REPAIRS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Minor Tractors Repairs | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Clean, adjust & test spark plugs | 24 | 11 | 5 | 2 | 42 |
| Check & set distributor points | 28 | 10 | 4 | 0 | 42 |
| Adjust generator drive belt | 23 | 12 | 5 | 2 | 42 |
| Clean & adjust carburetor | 25 | 12 | 5 | 0 | 42 |
| Flush cooling system | 22 | 13 | 7 | 0 | 42 |
| FREQUENCY OF RESPONSE | 122 | 58 | 26 | 4 | 210 |
| PER CENT OF TOTAL | 58 | 28 | 12 | 2 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

These skills are unspecialized and do not include those necessary to completely repair the engine or other major areas of the farm tractors.

Storage batteries. When an examination of this data is made, it shows that the storage battery is of tremendous importance on the mechanized farm of today. Although the frequency of response is not as great in favor of teaching these understandings as it is for teaching minor tractor repairs, some parents stated that a battery must be properly cared for if its useful life is to be extended.

Some of the parents stated that while a battery should be checked it is not as important as the minor tractor repairs, because repairs such as those made on other parts of the machinery can not be made on a battery.

Yet there is a total of forty per cent who expressed the storage battery as being important to teach. Only twelve per cent saw these competencies as probably not important enough to teach.

TABLE XV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO STORAGE BATTERIES AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Storage Batteries | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Check water | 16 | 16 | 5 | 5 | 42 |
| Check for loose connections | 17 | 17 | 3 | 5 | 42 |
| Check for dead cells | 18 | 13 | 6 | 5 | 42 |
| FREQUENCY OF RESPONSE | 51 | 46 | 14 | 15 | 126 |
| PER CENT OF TOTAL | 40 | 37 | 11 | 12 | 100 |
| RANK | 1 | 2 | 4 | 3 | |

Lubricating the tractor and machinery. The conclusion which may be drawn from this table is that the importance of each skill listed under this heading is about equal in importance as expressed by the parents of the vocational agriculture students.

Again, these are minor acts of maintenance similar to the minor repairs that may need to be made on the engine. Still they are important in the care and upkeep of the farm equipment. These are unspecialized skills which need to be performed daily, weekly, or monthly depending upon the use of the particular piece of machinery.

As expressed by the parents, eighty-two per cent felt that it is important or desirable to teach these skills. Only eighteen per cent saw fit to rate these skills as of lesser importance.

TABLE XVI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO LUBRICATING TRACTOR AND MACHINERY AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Lubricating Tractor and Machinery | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Remove & grease front wheels | 26 | 10 | 2 | 4 | 42 |
| Change oil & replace filter | 22 | 12 | 5 | 3 | 42 |
| General lubrication | 25 | 9 | 4 | 4 | 42 |
| Lubricate transmission and final drives | 24 | 11 | 4 | 3 | 42 |
| Grease all farm implements | 23 | 11 | 5 | 2 | 41 |
| FREQUENCY OF RESPONSE | 120 | 53 | 20 | 16 | 209 |
| PER CENT OF TOTAL | 57 | 25 | 10 | 8 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

TABLE XVII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO MAINTAINING AND REPAIRING MACHINERY AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Maintaining and Repairing Machinery | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Locate & replace worn parts | 24 | 8 | 9 | 1 | 42 |
| Sharpening plowshares and discs | 17 | 5 | 13 | 7 | 42 |
| Repair flats | 15 | 8 | 10 | 9 | 42 |
| FREQUENCY OF RESPONSE | 56 | 21 | 32 | 17 | 126 |
| PER CENT OF TOTAL | 44 | 17 | 25 | 14 | 100 |
| RANK | 1 | 3 | 2 | 4 | |

Maintaining and repairing machinery. The data above are of considerable interest because results show that the parents expressed a much greater need to teach how to locate and replace worn parts than the other skills listed in this group. This is a skill that may be used very frequently on the highly mechanized farms of today.

There were comments from some of the parents pertaining to sharpening plowshares and discs. It takes more equipment and skill to sharpen these tools than most farmers have because discs must be rolled. This is a major job and comes under the heading of specialized skills. Comments were also made about repairing flat tires. The usual thing now is to replace the flat with a spare. If the flat is on a large piece of machinery, such as a tractor, the farmer does not have the tools, time, or

equipment to patch a tube. Nor can they dismount the tire. Neither do they have air for airing up the tire. The average farmers can hire this done cheaper than they can buy the equipment to do it themselves.

When these skills are considered as a group, forty-four per cent indicated that it is important to teach this to farm boys.

TABLE XVIII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO PAINTING MACHINERY AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Painting Machinery | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Preparing metal surface | 13 | 13 | 10 | 6 | 42 |
| Mixing the primer | 10 | 14 | 11 | 6 | 41 |
| Applying primer | 11 | 12 | 13 | 5 | 41 |
| Applying the finish coat | 13 | 12 | 11 | 6 | 42 |
| FREQUENCY OF RESPONSE | 47 | 51 | 45 | 23 | 166 |
| PER CENT OF TOTAL | 28 | 31 | 27 | 14 | 100 |
| RANK | 2 | 1 | 3 | 4 | |

Painting machinery. Table XVIII brings out some striking information. As expressed by the parents it is of little importance to know how to paint farm machinery. This is not surprising, because very few of the farmers in this area ever paint their machinery. Neither do they have tool sheds for storage of this equipment. It was stated by some during the interviews that a rusty piece of equipment if properly lubricated would do as much work as a well painted piece of equipment.

Most of the parents expressed this as desirable to teach as shown in the table by thirty-one per cent. Twenty-eight per cent said it is important while twenty-seven per cent indicated it may be taught if time permits and fourteen per cent said it is probably not important.

Again the sprayer, air compressor, and building are not available on the farms to do these skills. The writer believes it will be a long time before the parents' ideas on this subject are changed in this particular community.

Safety with farm fuels. It is interesting to note that forty-four per cent of the parents of the vocational agriculture students indicated that is is important to teach the safety of farm fuels, also the difference in the fuels and how they are used.

Many of them states that engines on their farms used at least two different types of the fuels, and it is their desire that the students know the safety rules of each of these fuels.

Only nine per cent said they are probably not important. This nine per cent was made up largely of parents who do very little or no farming and have little or no machinery.

TABLE XIX

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO FARM FUELS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Farm Fuels | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Gasoline | 19 | 10 | 8 | 5 | 42 |
| LP-Gas | 19 | 12 | 8 | 3 | 42 |
| Diesel | 18 | 11 | 10 | 3 | 42 |

TABLE XIX (continued)

| Farm Fuels | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
|---|---|---|---|---|---|
| FREQUENCY OF RESPONSE | 56 | 33 | 26 | 11 | 126 |
| PER CENT OF TOTAL | 44 | 26 | 21 | 9 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Building planning on the farm. A study of the information secured in Table XX reveals that the planning of buildings is not too important. Some of them stated that the buildings at present are sufficient or that no buildings are planned in the near future. Also that in the Washita River bottom the land is too valuable to locate the buildings as they should be for convenience.

This table shows that fewer parents expressed these skills as important than on most of the tables. These were considered as minor skills as compared to others listed on the survey. This is shown by only thirty-five per cent indicating that they are important to teach.

TABLE XX

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO BUILDING PLANNING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Building Planning | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Locating buildings | 13 | 14 | 9 | 6 | 42 |
| Building requirements | 15 | 12 | 11 | 4 | 42 |
| Selecting plans for new construction | 16 | 11 | 10 | 5 | 42 |
| FREQUENCY OF RESPONSE | 44 | 37 | 30 | 15 | 126 |
| PER CENT | 35 | 29 | 24 | 12 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Selecting building materials. This table contains some interesting information. As indicated thirty-three per cent said this is important to teach, and thirty-three per cent said it may be taught if time permits.

Some of the parents said their sons also take the shop work in industrial arts and will learn about lumber in that class and vocational agriculture shop work should be mainly for teaching metal work. This is the only class in the Wynnewood High School where metal work is taught. All of the skills listed here are taught in the other shop classes.

TABLE XXI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SELECTING BUILDING MATERIALS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Selecting Building Materials | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| For specific purposes | 15 | 9 | 15 | 3 | 42 |
| Selecting roofing | 11 | 13 | 14 | 4 | 42 |
| Kinds and grades of lumber | 16 | 11 | 13 | 2 | 42 |
| FREQUENCY OF RESPONSE | 42 | 33 | 42 | 9 | 126 |
| PER CENT OF TOTAL | 33 | 26 | 33 | 8 | 100 |
| RANK | 1 tie | 3 | 1 tie | 4 | |

Wood working. It is interesting to discover that in Table XXII the skills such as rafter cutting is considered more important by many parents than competencies and understandings such as figuring a bill of materials or erecting a small building. This table discloses that sixty-two per

cent thought it important to teach cutting rafters while forty per cent though it important to teach figuring bills of materials. Yet only thirty-five per cent said it is important to erect a small building.

TABLE XXII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO WOOD WORKING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Wood Working | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Cutting rafters | 26 | 9 | 6 | 1 | 42 |
| Figuring bill of materials | 17 | 16 | 8 | 1 | 42 |
| Erecting a small building | 15 | 16 | 11 | 0 | 42 |
| FREQUENCY OF RESPONSE | 58 | 41 | 25 | 2 | 126 |
| PER CENT OF TOTAL | 46 | 32 | 20 | 2 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Based on the above data, the following conclusions may be drawn: That it is more important to teach individual skills than to teach a conplete enterprise such as erecting a small building.

A combined total of seventy-eight per cent clearly shows that it is important or at least desirable to teach these particular skills. Twenty per cent said that it may be taught if time permits, and only two per cent said that it probably is not important.

Fastening wood. When the above data are reviewed, the survey discloses that fastening wood is of lesser importance. It was stated that

every boy could fasten wood. The writer is doubtful that the boys could fasten it properly. Only twenty-seven per cent disclosed that it is important to teach wood fastening. This compares to thirty-one per cent who said it may be taught if time permits. Surveys were completed by forty-two parents and only nine of them indicated that identification and use of screws was important.

TABLE XXIII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO FASTENING WOOD AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Fastening Wood | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Identifying nails & uses | 15 | 10 | 11 | 6 | 42 |
| Identification & use of screws | 9 | 13 | 14 | 6 | 42 |
| Use of bolts | 11 | 11 | 14 | 6 | 42 |
| Glues | 11 | 10 | 13 | 8 | 42 |
| FREQUENCY OF RESPONSE | 46 | 44 | 52 | 26 | 168 |
| PER CENT OF TOTAL | 27 | 26 | 31 | 16 | 100 |
| RANK | 2 | 3 | 1 | 4 | |

Concrete and masonry work. When an examination of the data in Table XXIV is made, it shows that fifty-five per cent of the parents expressed as important to teach the skills listed in this table. Only four per cent of the parents stated that these skills are probably not important.

Statements of some of the parents were that this is one of the most useful skills that could be taught. Tanks, silos, bins, and many other places are necessary to use concrete and masonry. Many permanent

structures are now being built out of brick or concrete blocks.

TABLE XXIV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO CONCRETE AND MASONRY WORK AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Concrete and Masonry Work | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Laying out a foundation | 26 | 9 | 6 | 1 | 42 |
| Mixing concrete | 21 | 14 | 5 | 2 | 42 |
| Finishing concrete | 22 | 11 | 8 | 1 | 42 |
| Figuring amount of concrete | 24 | 11 | 4 | 3 | 42 |
| FREQUENCY OF RESPONSE | 93 | 45 | 23 | 7 | 168 |
| PER CENT OF TOTAL | 55 | 27 | 14 | 4 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Paints and painting. When the above data are reviewed, we find that painting is considered one of the lesser skills in farm mechanics. This agrees with the indications expressed by the parents as to the importance that was placed on farm buildings. It is the opinion of the writer that this was considered least important because of the high percentage of the parents who are renters. They depend upon the landlord to take care of the maintenance and repair of the farm buildings which includes painting.

As is plainly shown here, thirty-three per cent considered that painting may be taught if time permits, while fourteen per cent said it is probably not important. This is compared to twenty-six per cent who

stated that painting is important to teach.

TABLE XXV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO PAINTS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Paints | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Selecting paints | 12 | 12 | 12 | 6 | 42 |
| Mixing paints | 12 | 12 | 13 | 5 | 42 |
| Preparing wood surfaces | 9 | 11 | 16 | 6 | 42 |
| Applying stains and varnishes | 11 | 11 | 14 | 6 | 42 |
| FREQUENCY OF RESPONSE | 44 | 46 | 55 | 23 | 168 |
| PER CENT OF TOTAL | 26 | 27 | 33 | 14 | 100 |
| RANK | 2 | 3 | 1 | 4 | |

Selecting and caring for paint brushes. As is plainly shown here, thirty-three per cent considered that painting may be taught if time permits, while fourteen per cent said it is probably not important. This is compared to twenty-six per cent who stated that painting is important to teach.

When a review of the material in this table is made, it reveals that the skills here are not considered important as compared to some of the other skills listed on the questionnaire. Further evidence of the value of the data in Table XXVI is as follows: The frequency of response in the "Important To Teach" column runs about parallel with paints and farm buildings. It would be along the same line of thought to place

selection and care of paint brushes in the same category as paint. The percentages as expressed by the parents are very similar in the two tables.

More of the parents, thirty-three per cent, stated that these skills are desirable to teach. This compares with the twenty-six per cent who thought they are important while nineteen per cent indicated that they are probably not important to teach.

TABLE XXVI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SELECTING AND CARING FOR BRUSHES AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Selecting and Caring for Brushes | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Selecting brushes | 12 | 14 | 9 | 7 | 42 |
| Selecting cleaners | 8 | 17 | 9 | 7 | 41 |
| Breaking in new brush | 9 | 13 | 13 | 7 | 42 |
| Cleaning brush | 13 | 12 | 7 | 10 | 42 |
| Wrap and store used brush | 12 | 13 | 8 | 8 | 41 |
| FREQUENCY OF RESPONSE | 54 | 69 | 46 | 39 | 208 |
| PER CENT OF TOTAL | 26 | 33 | 22 | 19 | 100 |
| RANK | 2 | 1 | 3 | 4 | |

Glass work. A study of the information secured in Table XXVII reveals that a low of ten per cent considered this as important to teach. A very large percentage of forty-eight stated that it may be taught if time permits and eighteen per cent said it probably is not important to

teach.

Again this follows the same trend as the other summaries under the heading of Farm Buildings and Conveniences. Additional evidence of the value of the findings in Table XXVII is that a smaller percentage of the parents indicated that this is important to teach than any other group of skills listed in the entire questionnaire. If the buildings, painting and repairs are not important, then this group follows the same line of thinking.

TABLE XXVII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO GLASS WORK AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Glass Work | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Cutting glass | 6 | 7 | 20 | 9 | 42 |
| Glazing | 3 | 12 | 20 | 7 | 42 |
| Repairing windows | 4 | 11 | 20 | 7 | 42 |
| FREQUENCY OF RESPONSE | 13 | 30 | 60 | 23 | 126 |
| PER CENT OF TOTAL | 10 | 24 | 48 | 18 | 100 |
| RANK | 4 | 2 | 1 | 3 | |

Conveniences. It is worthwhile to note that this is considered as more important than glass work. More parents displayed plumbing installation as more popular than the other skills listed. Statements from some of the parents were that this is work for someone of the plumbing trade and should not be done by the farmers themselves. According to the data

from this summary the majority of the parents did not agree with this statement.

This is evidenced by the thirty per cent who indicated that conveniences are important to teach. This, along with thirty-five per cent who deemed them as desirable, gave a total of sixty-five per cent in favor of teaching them, while nineteen per cent said that they are probably not important enough to teach.

TABLE XXVIII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO CONVENIENCES AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Conveniences | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Selecting utilities and equipment | 11 | 15 | 8 | 8 | 42 |
| Plumbing installation | 16 | 15 | 5 | 6 | 42 |
| Water systems | 12 | 16 | 7 | 7 | 42 |
| Septic tank | 11 | 13 | 7 | 11 | 42 |
| FREQUENCY OF RESPONSE | 50 | 59 | 27 | 32 | 168 |
| PER CENT OF TOTAL | 30 | 35 | 16 | 19 | 100 |
| RANK | 2 | 1 | 4 | 3 | |

The next major heading on the questionnaire is Soil and Water Management. This group of competencies and understandings drew some very favorable comment from the parents of the students who will be studying these skills. The parents who completed the questionnaire are keenly aware of the importance of the conservation of soil and water. There

was no question as to the importance of this subject matter. There is very little irrigation in this community at the present time, yet many of the farmers can see the need of it in their farming program. Still there are others who do not agree with this point of view.

Surveying land. The data below are of considerable interest because the survey shows that more than fifty per cent see it as important to teach the use of the farm level. Only one of the forty-two parents said it is probably not important. This was thought to be the most useful competency listed in this group. Statements were made that the use of the farm level is important in many ways. It was felt that running levels and contours along with running terrace lines is not important, because if a farmer has a working agreement with the Soil Conservation Service, they must run them or they will not be approved. The same thing goes for laying out a farm pond.

TABLE XXIX

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO SURVEYING LAND AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Surveying Land | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Using the farm level | 23 | 13 | 5 | 1 | 42 |
| Running levels & contours | 18 | 17 | 6 | 1 | 42 |
| Running terrace lines | 18 | 13 | 10 | 1 | 42 |
| Laying out a farm pond | 18 | 12 | 9 | 3 | 42 |
| FREQUENCY OF RESPONSE | 77 | 55 | 30 | 6 | 168 |
| PER CENT OF TOTAL | 46 | 33 | 18 | 3 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

As expressed by the parents forty-six per cent said that surveying land is important. An additional thirty-three per cent thought of it as desirable to teach. Only three per cent indicated that it probably is not important and eighteen per cent stated that it may be taught if time permits.

TABLE XXX

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO WATER CONSERVATION AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Water Conservation | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Contour farming | 22 | 10 | 6 | 4 | 42 |
| Plan terraces & drainage | 18 | 15 | 4 | 5 | 42 |
| Maintaining farm ponds | 21 | 11 | 5 | 5 | 42 |
| FREQUENCY OF RESPONSE | 61 | 36 | 15 | 14 | 126 |
| PER CENT OF TOTAL | 48 | 29 | 12 | 11 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Water conservation. Based upon the above data, the following conclusion may be drawn: As expressed by the parents, water conservation is slightly more important than surveying land. Contour farming figures prominently in the farming of cultivated land in this community.

The summary above shows forty-eight per cent believe it important to teach water conservation. This is against only eleven per cent who indicate it as probably not important.

TABLE XXXI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO IRRIGATION AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Irrigation | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Measure & calculate acreage | 13 | 11 | 11 | 7 | 42 |
| Level land | 11 | 15 | 9 | 7 | 42 |
| Types of irrigation systems | 11 | 13 | 10 | 8 | 42 |
| Selecting pumps | 9 | 13 | 11 | 9 | 42 |
| FREQUENCY OF RESPONSE | 44 | 52 | 41 | 31 | 168 |
| PER CENT OF TOTAL | 26 | 31 | 25 | 18 | 100 |
| RANK | 2 | 1 | 3 | 4 | |

Irrigation. Table XXXI brings out some striking information. As stated earlier in this chapter, the parents do not think of irrigation as really important. This is probably due to the lack of a supply of water, either stored above or below ground, that is available for irrigation. Once the water is available, the writer can see a change in the thinking of the parents on this subject.

It is worthwhile to note that measuring and calculating acreage was considered more important than the other understandings listed. This is mainly due to the need for figuring acreages for crop allotments as set up by the government.

Thirty-one per cent indicated irrigation as desirable and twenty-six per cent listed it as important to teach. The percentages shown on

the opposite side of the table are twenty-five and eighteen respectively.

TABLE XXXII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO WIRING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Wiring | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Explanation of electrical terms | 21 | 10 | 8 | 1 | 40 |
| Identification of wires | 22 | 13 | 5 | 2 | 42 |
| Selecting wire sizes | 20 | 12 | 8 | 2 | 42 |
| Making wire splices | 20 | 10 | 9 | 2 | 41 |
| Selecting service outlets | 21 | 10 | 8 | 2 | 41 |
| FREQUENCY OF RESPONSE | 104 | 55 | 38 | 9 | 206 |
| PER CENT OF TOTAL | 51 | 27 | 18 | 4 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

The next and last major heading on the questionnaire is Rural Electrification. This includes wiring, locating and repairing minor troubles, and computing bills. The next six tables are summaries of the findings from this group of skills.

Electrical wiring. An analysis of the material above shows that fifty-one per cent of the parents declared this as important to teach. Twenty-seven per cent indicated that it is desirable to teach. It may be taught is expressed by eighteen per cent. Also, it was considered as probably not important by only four per cent of the parents who cooperated

on this problem. Each skill listed was checked with almost identical frequency by the parent.

More than one expressed the idea that these competencies and understandings should be performed by qualified electricians and not by just anyone who needs them done. Some considered these skills as more dangerous than other skills listed in this problem.

TABLE XXXIII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO INSTALLING SWITCHES AND OUTLETS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Installing Switches and Outlets | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Install outlet | 20 | 12 | 7 | 3 | 42 |
| Install wall switch | 19 | 13 | 7 | 3 | 42 |
| Install a three-way switch | 20 | 10 | 10 | 2 | 42 |
| FREQUENCY OF RESPONSE | 59 | 35 | 24 | 8 | 126 |
| PER CENT OF TOTAL | 47 | 28 | 19 | 6 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Installing switches and outlets. It is interesting to discover in Table XXXIII that only six per cent of the parents expressed this as probably not important to teach, while forty-seven per cent indicated that it was important to teach. Safety in these operations is as important as the skills needed in doing the jobs.

Almost every parent could think of instances where a switch needed

to be changed or a wall outlet installed. Yet they felt they were not capable of doing the job themselves. Because of the high cost of experienced labor, the needed changes were never made. Many of the parents expressed a desire to be able to do these skills themselves.

TABLE XXXIV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO ELECTRICAL LOADS AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Electrical Loads | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Locating distribution center | 11 | 10 | 13 | 8 | 42 |
| Figuring present loads | 15 | 9 | 11 | 7 | 42 |
| Figuring future loads | 11 | 12 | 12 | 7 | 42 |
| FREQUENCY OF RESPONSE | 37 | 31 | 36 | 22 | 126 |
| PER CENT OF TOTAL | 29 | 25 | 29 | 17 | 100 |
| RANK | 1 | 3 | 2 | 4 | |

Electrical loads. A study of the information secured in Table XXXIV reveals that electrical loads was not considered as important as electrical wiring or installing switches and outlets. The expression of the parents show twenty-nine per cent who considered this as important to teach, also twenty-nine per cent said that it may be taught if time permits, and seventeen per cent thought it probably not important to teach.

Some of the parents expressed the feeling that the location of the distribution center and figuring of loads should be left to the electrical company or to a qualified electrician.

TABLE XXXV

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO MINOR TROUBLES AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Minor Troubles | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Locate & correct | 19 | 12 | 6 | 4 | 41 |
| Replace fuses | 15 | 14 | 6 | 7 | 42 |
| Replace switches | 18 | 12 | 8 | 4 | 42 |
| Replace appliance cords | 16 | 11 | 9 | 6 | 42 |
| Protect electric motors | 17 | 12 | 9 | 4 | 42 |
| FREQUENCY OF RESPONSE | 85 | 61 | 38 | 25 | 209 |
| PER CENT OF TOTAL | 41 | 29 | 18 | 12 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

Minor electrical troubles. The data contained in Table XXXV are of interest because of the following: The parents expressed a desire for the need of teaching locating and correcting electrical troubles. Also most of them felt that it is less important to teach replacing of fuses. Many of them indicated that aside from the safety factor any high school boy could replace a fuse.

A total of forty-one per cent shows this competency important to teach along with twenty-nine per cent who said it is desirable to teach. This gives a total of seventy percent who expressed the desire that this competency should be taught. The other thirty per cent rated these skills as of lesser importance.

This competency was said to be better teaching information than the other competencies listed under Rural Electrification in this problem.

TABLE XXXVI

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO ELECTRICAL CURRENT AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Electrical Current | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Calculate voltage | 12 | 11 | 12 | 7 | 42 |
| Read meters | 11 | 11 | 14 | 6 | 42 |
| Compute bills | 11 | 9 | 11 | 11 | 42 |
| FREQUENCY OF RESPONSE | 34 | 31 | 37 | 24 | 126 |
| PER CENT OF TOTAL | 27 | 25 | 29 | 19 | 100 |
| RANK | 2 | 3 | 1 | 4 | |

Electrical current. The summary of the above data indicates that this competency may be taught if time permits. This is clearly shown by twenty-nine per cent stating such. This may be compared to the twenty-seven per cent who expressed it as important to teach.

Statements were made concerning the reading of meters. Most of the new meters are of the direct reading type which anyone can read without instructions. Also several indicated that the bills are compueted for them by the electric company, so the only use for this would be for a check on the electric company in case of an abnormal bill.

Electric fencing. The findings completed in Table XXXVII clearly indicate that there is definitely an interest in electric fencing. More and more of these are being used around temporary pastures. The use of this type of fence has been greatly extended by the increased area of rural

electrification as compared to using the storage battery for power.

The parents' expression shows forty-four per cent clearly stating this competency is important to teach. Another twenty-six per cent showed that it is desirable teaching information. Those that indicated it may be taught amounted to eighteen per cent. While only twelve per cent said it is probably not important to teach this in farm mechanics class in vocational agriculture.

TABLE XXXVII

DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS THAT VOCATIONAL AGRICULTURE STUDENTS SHOULD ACQUIRE RELATIVE TO FENCING AS EXPRESSED BY THEIR PARENTS

| COMPETENCY | DEGREE OF IMPORTANCE | | | | |
|---|---|---|---|---|---|
| Fencing | Important To Teach | Desirable To Teach | May Be Taught | Probably Not Important | Accumulative Total |
| Types of controllers | 20 | 11 | 7 | 4 | 42 |
| Attaching post insulators | 16 | 12 | 8 | 6 | 42 |
| Installing an electric fence | 19 | 10 | 8 | 5 | 42 |
| FREQUENCY OF RESPONSE | 55 | 33 | 23 | 15 | 126 |
| PER CENT OF TOTAL | 44 | 26 | 18 | 12 | 100 |
| RANK | 1 | 2 | 3 | 4 | |

# CHAPTER V

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter is presented a summary of the study and of the findings, conclusions which are based upon the findings, and recommendations relating to future research. Additional research might be done in attempting to set up a more complete farm mechanics layout in the future. As students in school change, parents will also change. It is possible that after a few years the situation relative to the problem will be completely changed.

### Summary

A questionnaire was sent to each of the forty-five parents of students of vocational agriculture during the year 1960-1961. Questionnaires were also sent to parents of prospective students during the same school year. The prospective students were in the eighth grade. This questionnaire contained lists of competencies and understandings of skills with columns to check the degree of importance as expressed by the parents.

Forty-two of the parents cooperated in this study by discussing and answering the questions listed. Three of the parents stated that they and their sons had changed their minds about the son's enrolling in vocational agriculture so they did not see the need of completing the questionnaire. A few were left unchecked; this was probably due to an oversight or lack of understanding of that particular skill. A number of

the parents made comments about the farm mechanics program in the school and on their farms.

The farm mechanics classes seem to have encouraged some of the students to enroll in vocational agriculture. Furthermore, this group of parents had the opinion that the entire group showed more interest in school work and in vocational agriculture in particular because of farm mechanics.

The parents of the vocational agriculture students are now more aware of the program being taught in farm mechanics. They are also aware that a much enlarged program would be possible if the equipment was available.

There were some discussions about every phase of farm mechanics, and some parents indicated that each skill listed was important to teach. Also there was discussion of a full-time farm mechanics class for students who were interested in only that phase of vocational agriculture.

One parent suggested that the grades in which a student should be eligible to enroll in vocational agriculture should be changed to grades seven through ten. It was his opinion that since fewer boys were able to become established in farming, there would be more interest in this age group. The older boys have interest in more activities and work more away from the farm so are not always available.

The parents indicated in the first two columns of the questionnaire that all the skills listed were important to teach or desirable to teach by at least fifty per cent or more except the group of skills listed under glass work. Only thirty per cent thought that this group is important to teach.

Since all of the others are considered important, the writer will have to select those indicated most important. Due to time alloted to farm mechanics work, it would be impossible to teach all of these

unspecialized skills to students in four years of vocational agriculture.

## Conclusions

The parents who cooperated in this study are a representative cross-section of the citizens in this community. They are from all parts of the school community and hold many different types of jobs. From the analysis of the data gathered from the questionnaires returned by them, it is apparent that this group is highly in favor of the farm mechanics course available as well as the vocational agriculture program. Students of vocational agriculture who have come in contact with the persons interviewed apparently made a good impression upon them.

The predominant opinion in this group is that a good farm mechanics program is an asset to any farming community or school system. Furthermore, all of the parents interviewed are backing this program one hundred per cent.

## Recommendations

It is suggested that additional research concerning problems encountered in farm mechanics be conducted. There may be problems and problem situations associated with farm shops in other communities which do not occur in this community which was surveyed. Therefore, there is apparent need for more information, possibly from other parents, in this community.

Additional information may be necessary to completely equip our farm mechanics shop to enable the writer to teach the more important skills which were indicated on the questionnaire.

The writer recommends the breaking down of the competencies into three groups for the purpose of selecting the more important competencies

and understandings to be taught in farm mechanics. This group includes the more important skills as selected by the parents who indicated by a majority of fifty per cent or more that the competency was important to teach.

These are the skills listed in the order of importance as indicated by the parents:

Arc welding

Arc welding information

Oxyacetylene welding information

Arc welding positions

Oxyacetylene welding

Pipe work

Selecting tools for farm work shop

Minor tractor repairs

Lubricating tractor and machinery

Concrete and masonry work

Electrical wiring

The next group may be taught if time permits will include the competencies which were indicated as either important to teach or desirable to teach by sixty per cent or more of the parents, but does not include the competencies which are listed in the preceding group.

They are listed according to importance as expressed by the parents:

Advanced arc welding

Surveying land

Wood working

Batteries

Water conservation

Installing switches and outlets

Sharpening hand tools

Farm fuels

Minor electrical trouble

Electric fencing

Conveniences

Building planning

Maintaining and repairing machinery

The last group of competencies were listed as not important enough to teach as expressed by the parents. This is shown by less than sixty per cent of them checking these skills in columns which were headed important to teach and desirable to teach.

This group includes the following listed in order of importance as indicated by the parents:

Painting machinery

Selecting building materials

Selecting and caring for paint brushes

Irrigation

Cold metal work

Soldering

Electrical loads

Fastening wood

Paints and painting

Providing storage and work stands

Electrical current

Sheet metal work

Glass work

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# APPENDIX A

Wynnewood, Oklahoma

Dear Parent:

I am conducting a survey to find out what jobs should be taught in Farm Shop in Vocational Agriculture classes in the Wynnewood High School.

In order to do this, I am asking that the parents of all Vocational Agriculture students for the school year of 1960-61 and the parents of all prospective students for the school year 1961-62 fill out one of these surveys.

I am enclosing a copy of the survey which I would appreciate you looking over.

I will be by within the next few days to talk this over with you and will pick up the completed questionnaire at that time.

Thank you for your cooperation.

Sincerely,

James V. Coleman

Voc. Agri. Inst.

# SURVEY FOR FARM MECHANICS

Please check the degree of desirability of teaching the following competencies and understandings in farm mechanics that you think high school students should be taught in vocational agriculture.

| | Important To Teach | Desirable To Teach | May Teach | Probably Not Important |
|---|---|---|---|---|
| **FARM SHOP WORK** | | | | |
| **Sharpening hand tools** | | | | |
| Plane Blade | ____ | ____ | ____ | ____ |
| Wood chisel | ____ | ____ | ____ | ____ |
| Twist bit | ____ | ____ | ____ | ____ |
| Auger bit | ____ | ____ | ____ | ____ |
| Jointing & filing a saw | ____ | ____ | ____ | ____ |
| **Cold Metal Work** | | | | |
| Measuring & laying out | ____ | ____ | ____ | ____ |
| Cutting threads on a rod | ____ | ____ | ____ | ____ |
| Cutting with hack saw | ____ | ____ | ____ | ____ |
| Drilling holes | ____ | ____ | ____ | ____ |
| Bending cold metal | ____ | ____ | ____ | ____ |
| **Soldering** | | | | |
| Cleaning & tinning the soldering iron | ____ | ____ | ____ | ____ |
| Soldering a seam | ____ | ____ | ____ | ____ |
| Repair small holes | ____ | ____ | ____ | ____ |
| Sweating out a wire joint | ____ | ____ | ____ | ____ |
| **Sheet Metal Work** | | | | |
| Laying out sheet metal work | ____ | ____ | ____ | ____ |
| Cutting sheet metal | ____ | ____ | ____ | ____ |
| Riviting metal | ____ | ____ | ____ | ____ |
| Folding & forming joints | ____ | ____ | ____ | ____ |
| **Pipe Work** | | | | |
| Measuring & cutting pipe | ____ | ____ | ____ | ____ |
| Reaming pipe | ____ | ____ | ____ | ____ |
| Threading pipe | ____ | ____ | ____ | ____ |
| Assembling pipe & pipe fittings | ____ | ____ | ____ | ____ |

| | Important To Teach | Desirable To Teach | May Teach | Probably Not Important |
|---|---|---|---|---|
| **Selecting Tools for Farm Work Shop** | | | | |
| Hand tools | ____ | ____ | ____ | ____ |
| Power tools | ____ | ____ | ____ | ____ |
| Arc welder | ____ | ____ | ____ | ____ |
| Oxyacetylene welder | ____ | ____ | ____ | ____ |
| **Providing storage & Work Stands** | | | | |
| Tool racks | ____ | ____ | ____ | ____ |
| Work benches | ____ | ____ | ____ | ____ |
| Tool stands (anvil, grinder, etc.) | ____ | ____ | ____ | ____ |
| **Arc Welding Information** | | | | |
| Arc welding terms | ____ | ____ | ____ | ____ |
| Selecting electrodes | ____ | ____ | ____ | ____ |
| Amperage settings for various electrodes and metals | ____ | ____ | ____ | ____ |
| **Arc Welding** | | | | |
| Striking an arc | ____ | ____ | ____ | ____ |
| Running a bend | ____ | ____ | ____ | ____ |
| Making butt welds | ____ | ____ | ____ | ____ |
| Making fillet welds | ____ | ____ | ____ | ____ |
| **Arc Welding Positions** | | | | |
| Horizontal | ____ | ____ | ____ | ____ |
| Vertical | ____ | ____ | ____ | ____ |
| Overhead | ____ | ____ | ____ | ____ |
| **Advanced Arc Welding** | | | | |
| Welding cast iron | ____ | ____ | ____ | ____ |
| Hard facing | ____ | ____ | ____ | ____ |
| Operating the carbon arc torch | ____ | ____ | ____ | ____ |
| Controlling expansion and contraction | ____ | ____ | ____ | ____ |
| **Oxyacetylene Welding Information** | | | | |
| Adjusting regulators | ____ | ____ | ____ | ____ |
| Lighting the torch | ____ | ____ | ____ | ____ |
| Adjusting the flame | ____ | ____ | ____ | ____ |

| | Important To Teach | Desirable To Teach | May Teach | Probably Not Important |
|---|---|---|---|---|
| Oxyacetylene Welding | | | | |
| Welding welding in different positions | ____ | ____ | ____ | ____ |
| Fusion welding | ____ | ____ | ____ | ____ |
| Brazing | ____ | ____ | ____ | ____ |
| Hard facing | ____ | ____ | ____ | ____ |
| Cutting with torch | ____ | ____ | ____ | ____ |
| FARM POWER AND MACHINERY | | | | |
| Minor Tractor Repairs | | | | |
| Clean, adjust & test spark plugs | ____ | ____ | ____ | ____ |
| Check & set distributor points | ____ | ____ | ____ | ____ |
| Adjust generator drive belt | ____ | ____ | ____ | ____ |
| Clean & adjust carburetor | ____ | ____ | ____ | ____ |
| Flush cooling system | ____ | ____ | ____ | ____ |
| Battery | | | | |
| Check water | ____ | ____ | ____ | ____ |
| Check for loose connections | ____ | ____ | ____ | ____ |
| Check for dead cells | ____ | ____ | ____ | ____ |
| Lubricate Tractor & Machinery | | | | |
| Remove & grease front wheels | ____ | ____ | ____ | ____ |
| Change oil & replace filter | ____ | ____ | ____ | ____ |
| General lubrication | ____ | ____ | ____ | ____ |
| Lubricate transmission and final drives | ____ | ____ | ____ | ____ |
| Grease all farm implements | ____ | ____ | ____ | ____ |
| Maintaining and Repairing Machinery | | | | |
| Locate & replace worn parts | ____ | ____ | ____ | ____ |
| Sharpening plowshares & discs | ____ | ____ | ____ | ____ |
| Repair flats | ____ | ____ | ____ | ____ |
| Painting Machinery | | | | |
| Preparing metal surface | ____ | ____ | ____ | ____ |
| Mixing the primer | ____ | ____ | ____ | ____ |
| Applying primer | ____ | ____ | ____ | ____ |
| Applying the finish coat | ____ | ____ | ____ | ____ |

| | Important To Teach | Desirable To Teach | May Teach | Probably Not Important |
|---|---|---|---|---|
| Farm Fuels | | | | |
| Gasoline | ____ | ____ | ____ | ____ |
| LP-Gas | ____ | ____ | ____ | ____ |
| Diesel | ____ | ____ | ____ | ____ |
| FARM BUILDINGS AND CONVENIENCES | | | | |
| Building Planning | | | | |
| Locating buildings | ____ | ____ | ____ | ____ |
| Building requirements | ____ | ____ | ____ | ____ |
| Selecting plans for new construction | ____ | ____ | ____ | ____ |
| Selecting Building Materials | | | | |
| For specific purposes | ____ | ____ | ____ | ____ |
| Selecting roofing | ____ | ____ | ____ | ____ |
| Kinds & grades of lumber | ____ | ____ | ____ | ____ |
| Wood working | | | | |
| Cutting rafters | ____ | ____ | ____ | ____ |
| Figuring bill of materials | ____ | ____ | ____ | ____ |
| Erecting a small building | ____ | ____ | ____ | ____ |
| Fastening Wood | | | | |
| Identifying nails & uses | ____ | ____ | ____ | ____ |
| Identification & use of screws | ____ | ____ | ____ | ____ |
| Use of bolts | ____ | ____ | ____ | ____ |
| Glues | ____ | ____ | ____ | ____ |
| Concrete & Masonry Work | | | | |
| Laying out a foundation | ____ | ____ | ____ | ____ |
| Mixing concrete | ____ | ____ | ____ | ____ |
| Finishing concrete | ____ | ____ | ____ | ____ |
| Figuring amount of concrete | ____ | ____ | ____ | ____ |
| Paints | | | | |
| Selecting paints | ____ | ____ | ____ | ____ |
| Mixing paints | ____ | ____ | ____ | ____ |
| Preparing wood surfaces | ____ | ____ | ____ | ____ |
| Applying stains & varnishes | ____ | ____ | ____ | ____ |

| | Important To Teach | Desirable To Teach | May Teach | Probably Not Important |
|---|---|---|---|---|
| **Selecting & Caring for Brushes** | | | | |
| Selecting brushes | ____ | ____ | ____ | ____ |
| Selecting cleaners | ____ | ____ | ____ | ____ |
| Breaking in new brush | ____ | ____ | ____ | ____ |
| Cleaning brush | ____ | ____ | ____ | ____ |
| Wrap & store used brush | ____ | ____ | ____ | ____ |
| **Glass Work** | | | | |
| Cutting glass | ____ | ____ | ____ | ____ |
| Glazing | ____ | ____ | ____ | ____ |
| Repairing windows | ____ | ____ | ____ | ____ |
| **Conveniences** | | | | |
| Selecting utilities & equipment | ____ | ____ | ____ | ____ |
| Plumbing installation | ____ | ____ | ____ | ____ |
| Water systems | ____ | ____ | ____ | ____ |
| Septic tank | ____ | ____ | ____ | ____ |
| **SOIL AND WATER MANAGEMENT** | | | | |
| **Surveying Land** | | | | |
| Using the farm level | ____ | ____ | ____ | ____ |
| Running levels & contours | ____ | ____ | ____ | ____ |
| Running terrace lines | ____ | ____ | ____ | ____ |
| Laying out a farm pond | ____ | ____ | ____ | ____ |
| **Water Conservation** | | | | |
| Contour farming | ____ | ____ | ____ | ____ |
| Plan terraces & drainage | ____ | ____ | ____ | ____ |
| Maintaining farm ponds | ____ | ____ | ____ | ____ |
| **Irrigation** | | | | |
| Measure & calculate acreage | ____ | ____ | ____ | ____ |
| Level land | ____ | ____ | ____ | ____ |
| Types of irrigation systems | ____ | ____ | ____ | ____ |
| Selecting pumps | ____ | ____ | ____ | ____ |
| **RURAL ELECTRIFICATION** | | | | |
| **Wiring** | | | | |
| Explanation of electric terms | ____ | ____ | ____ | ____ |
| Identification of wires | ____ | ____ | ____ | ____ |
| Selecting wire sizes | ____ | ____ | ____ | ____ |
| Making wire splices | ____ | ____ | ____ | ____ |
| Selecting service outlets | ____ | ____ | ____ | ____ |

| | Important To Teach | Desirable To Teach | May Teach | Probably Not Important |
|---|---|---|---|---|
| **Installing Switches & Outlets** | | | | |
| Install outlet | ____ | ____ | ____ | ____ |
| Install wall switch | ____ | ____ | ____ | ____ |
| Install a three-way switch | ____ | ____ | ____ | ____ |
| **Electrical Loads** | | | | |
| Locating distribution center | ____ | ____ | ____ | ____ |
| Figuring Present loads | ____ | ____ | ____ | ____ |
| Figuring future loads | ____ | ____ | ____ | ____ |
| **Minor Troubles** | | | | |
| Locate and correct | ____ | ____ | ____ | ____ |
| Replace fuses | ____ | ____ | ____ | ____ |
| Replace switches | ____ | ____ | ____ | ____ |
| Replace appliance cords | ____ | ____ | ____ | ____ |
| Protect electric motors | ____ | ____ | ____ | ____ |
| **Electrical Current** | | | | |
| Calculate voltage | ____ | ____ | ____ | ____ |
| Read meters | ____ | ____ | ____ | ____ |
| Compute bills | ____ | ____ | ____ | ____ |
| **Fencing** | | | | |
| Types of controllers | ____ | ____ | ____ | ____ |
| Attaching post insulators | ____ | ____ | ____ | ____ |
| Installing an electric fence | ____ | ____ | ____ | ____ |

VITA

James Vernon Coleman

Candidate for the Degree of

Master of Science

Report: DETERMINING THE PARENTS' CONCEPT OF THE DEGREE OF IMPORTANCE OF COMPETENCIES AND UNDERSTANDINGS WHICH SHOULD BE TAUGHT IN FARM MECHANICS IN VOCATIONAL AGRICULTURE IN THE WYNNEWOOD HIGH SCHOOL

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