

FARM INCOME OF SELECTED FORMER VOCATIONAL AGRICULTURE
STUDENTS IN NORTHEAST KANSAS

by

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INTRODUCTION

Professor A. P. Davidson in the history he wrote of vocational agriculture in Kansas indicated that the first Kansas schools were recommended and approved for State and Federal funds under the Smith-Hughes Act in 1918. As early as 1923 there were sixty-four Kansas schools approved for reimbursements for agricultural schools under the State Director of Vocational Education.¹ During the 1930-1931 school year Davidson indicates 113 Kansas Vocational Agriculture Departments with teachers.²

With a history of over forty years of vocational agricultural training in Kansas it seemed reasonable to the author to expect that former students of this program would constitute a significant portion of the farm operator population. In such a situation in the state of Georgia it also seemed reasonable according to the authors of a study there to expect these former students to be demonstrating superior farming techniques in comparison with those operators with less training in agriculture.³ It also seemed reasonable to the writer that these superior techniques would be reflected in higher returns to the operator.

In a Minnesota study the writers expressed the opinion that when boys or young men consider lifetime occupational objectives, they should consider the educational program that increases their probable success. In a business

¹Allen Park Davidson, "History of Vocational Agriculture in Kansas 1917-1958," (unpublished book, Kansas State University Library, Manhattan), Section II, pp. 3, 25.

²Ibid., Section III (no pages recorded).

³G. L. O'Kelley, Jr. and H. T. Lester, Jr., "Effectiveness of High School Vocational Agriculture Instruction," Agricultural Education Magazine, 38:180, February 1966.

such as production agriculture where the investment of both human and physical resources were high, and occupational choices were not easily changed once they were made, this decision has been even more critical.¹

It was with these thoughts in mind that the writer was led to develop this study concerning the financial achievements of former Northeast Kansas vocational agriculture students.

STATEMENT OF THE PROBLEM

It was the purpose of this study (1) to survey the educational background of a selected group of Northeast Kansas Extension Farm Management Association Members; and (2) to study the relationship between former training in vocational agriculture and later financial returns from farming.

Further, it was hoped that the material in this report would help those responsible for the development and evaluation of Kansas vocational agriculture programs to fulfill their responsibilities.

DEFINITION OF TERMS USED

For the purpose of this study certain terms were used with the specific definitions as follows: (Income, expense and business analysis terms were defined following accepted Kansas Extension Farm Management Association definitions.)

Gross income. In this report, this term referred to all farm income

¹Edgar Allen Persons and Gordon Ira Swanson, "Educational Restrictions to Agricultural Success and the Relationship of Education to Income Among Farmers." Cooperative Research Report 2604, University of Minnesota, Minneapolis, 1966, p. 2.

computed by the inventory (accrual) method. This was before deductions for operating expenses and depreciation. Sales of breeding livestock and gain on machinery sales were included in gross income.

Total farm expenses. This term referred to the total of all operating expenses and depreciation with the exception of livestock depreciation. (Livestock depreciation was allowed for in the method of inventory used by Farm Management Association Members.)

Net farm income. Total farm gross income as defined less total farm expenses as defined.

Operator's return for labor and management. This term was the net farm income less a charge for the following three items: (1) 4 per cent of the net equity in the fixed capital, (2) 6 per cent of the net equity in the working capital, and (3) the estimated value of unpaid farm labor of family members other than the farm operator. This provided a measure of the operator's own earnings after giving credit to his capital and family labor.

Net worth. This term referred to the net worth of the farm business plus cash reserves that are frequently transferred into and out of the farm business. It did not include the more permanent non-farm investments such as life insurance, common stock and mutual funds.

Non-farm net income. This term referred to all non-farm income from all sources for both the farm operator and his wife. Such items as wages, salaries, interest, dividends, gifts, inheritances, royalties, and rents were included. Children's income was not included.

Vocational agriculture. Those farmers that reported two or more years of vocational agriculture in high school.

Non-vocational agriculture. Those farmers that reported less than two years of vocational agriculture in high school.

LIMITS OF THE STUDY

The study was limited to those members of the Kansas Extension Service Farm Management Association Number 4 that met the following requirements:

1. Not over sixty years old on January 1, 1967.
2. Had continuous, complete records on file with Farm Management Association Number 4 for the period 1962-1966.
3. Were not involved in a farm partnership during the period 1962-1966.
4. Devoted a major share of his time to the farm business during 1962-1966.
5. Farming operation was not interrupted by a condemnation action during 1962-1966.

PROCEDURE AND METHODS

Procedures followed. This study followed the nature of descriptive research. The source of financial data was from the individual farm records of the Kansas Extension Service Farm Management Association Number 4 in Northeast Kansas. The area covered by this association and the number of members in 1966 is indicated in Fig. 1. The educational background of the individuals was secured by a mail questionnaire. (see Appendix, Exhibit #1)

The 1962 and 1966 records of Farm Management Association Number 4 were searched for individuals that might qualify under the requirements set forth under the Limits of the Study. The questionnaire was mailed to

all 125 members that would qualify on the basis of their 1962 and 1966 records. The distribution and response of these questionnaires by counties was recorded in Table I. Further study of the 1963, 1964, and 1965 records eliminated twenty-one more farmers from the study. Four farmers had unusual changes in net worth that could not be explained. Nine farmers had incomplete records for one or more years. Four farmers had taken non-farm employment for one or more years. Two farmers had been involved in a partnership during the study period. Two farmers were found to be over sixty years of age.

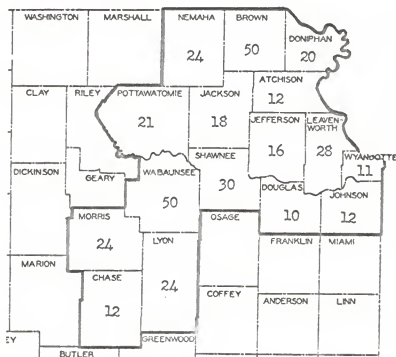


Figure 1. Membership in the Kansas Extension Service Farm Management Number 4 by counties in 1966.¹

¹Leonard C. Parker, Raymond F. Hackler, and William M. Dickson, "Farm Management Summary and Analysis Report for Association Number 4," (Extension Service, Kansas State University, Manhattan, 1966), p. 2. (Mimeographed).

TABLE I
RETURNS FROM THE QUESTIONNAIRE

County	Number of questionnaires mailed	Number of questionnaires received back	Number of records satisfactory for the study
Atchison	4	4	3
Brown	19	16	13
Chase	4	4	4
Doniphan	6	6	4
Douglas	1	1	0
Jackson	3	3	2
Jefferson	8	6	3
Johnson	2	2	2
Leavenworth	12	12	11
Lyon	10	9	8
Morris	9	9	7
Nemaha	10	8	7
Pottawatomie	6	5	5
Shawnee	11	9	6
Wabaunsee	18	16	14
Wyandotte	2	2	2
Total	125	112	91

Characteristics of the group studied. It was noted that Kansas

Farm Management Members were not representative of all Kansas farmers.

Manuel made the following observations in his 1948 thesis:

A study of the comparison of Association farms with massed data of all farms in the area revealed the following information:

1. The Farm Management Associations included more general farms, more livestock farms, and fewer crop farms than would have been expected in a sample that was really representative of the universe.

2. The farms in the Associations represented fewer tenants, fewer owners, and more part-owners than was true for Kansas farms in general.

3. Association farms exceeded average Kansas farms in almost every instance when the gross income—which measured volume of business—was compared.

4. There did not appear to be much difference between the two groups in regard to sales of crops, poultry, dairy, and their products. However, when comparing livestock sales, feed purchased, and value of machinery, Association farms far exceeded the values for average Kansas farms.

5. Association farms had a much larger investment in real estate. This appeared to be due more to the larger size of farm than to any higher priced land. In fact, in most areas Association farms showed a lower land value per acre than the average for all farms.¹

More current information from the Kansas State Board of Agriculture showed Realized Income per Farm as follows: 1962, \$4,461; 1963, \$3,945; 1964, \$4,158; and a preliminary 1965 report of \$4,919.² Average net farm income figures for all Kansas Farm Management Associations for the same years were \$8,503, \$4,731, \$4,905, and \$10,330.³

¹Milton Lloyd Manuel, "The Representativeness of Kansas Farm Management Association Farms," (unpublished Master's thesis, Kansas State University, Manhattan, 1948), p. 47.

²Kansas Agriculture, 49th Report, Kansas State Board of Agriculture, (Roy Freeland, State Office Building, Topeka, Secretary), p. 85 F.

³John H. Coolidge and others, "Farm Management Summary and Analysis Report," (Extension Service, Kansas State University, Manhattan, 1965), p. 3. (Mimeographed).

The State Board of Agriculture also reported 1,507,355 acres harvested in the Northeast Kansas Crop Reporting District in 1965 with 13,926 farms in this area in 1959.¹ This was 108 acres per farm. The 288 Farm Management Association Number 4 farms harvested an average total of 252 acres of wheat, corn, grain sorghum, soybeans, alfalfa hay and silage in 1965.²

Author's experience. The writer of this report was a former Kansas vocational agriculture teacher, a former Kansas county agent, and was an extension economist in farm management (farm management association fieldman) for Kansas Farm Management Association Number 4 from December 1, 1961 until the writing of this report. The following paragraphs on the Kansas Farm Management Association records were presented as a part of this study by the author and based upon his experience in the field.

Farm Management Association records. All records maintained by Kansas Extension Farm Management Associations for analysis purposes were computed by an inventory method of accounting. For those members that filed their income tax returns on a cash basis the method of inventory was a unit price system on breeding herds and a farm price system on other livestock, crops, and supplies. For those members that filed their income tax returns on an inventory or accrual basis the method of inventory used for analysis was the same as the method used by the individual for income tax purposes. In either situation an adjustment was made to reflect capital gain sales of

¹Kansas Agriculture, op. cit., p. 15 F.

²Leonard C. Parker and Raymond F. Hackler, "Farm Management Summary and Analysis Report for Association Number 4," (Extension Service, Kansas State University, Manhattan, 1965), p. 6. (Mimeographed).

livestock and machinery in gross farm income. In either situation purchased breeding livestock was handled in the inventory for analysis purposes. Breeding livestock could be on a depreciation schedule for income tax purposes.

The same depreciation schedules were used for analysis and income tax purposes except livestock depreciation was not used for analysis purposes. The rate and method of depreciation used was the approved rate and method that was judged to be to the greatest long run advantage to the member for income tax purposes.

Cash operating expenses for analysis purposes were the same as those used for income tax purposes.

Thirty of the ninety-one or 32.97 per cent of those in the study were on an inventory basis for income tax. Twelve of the twenty-eight or 42.86 per cent of vocational agriculture group and eighteen of the sixty-three or 28.57 per cent of the non-vocational agriculture group were on an inventory basis for income tax.

Statistical methods. The data was not subjected to statistical analysis beyond frequency distribution and the determination of central tendency as reflected by the mean. 1966 Kansas Extension Farm Management Association Number 4 data was rounded to the nearest whole dollar. This procedure was followed in the treatment of dollar data in this report.

REVIEW OF LITERATURE

There are many benefits of education other than monetary returns. Crow in this regard referred to the "Seven Cardinal Principles" as general educational objectives for all school levels. Preparation for vocation is the only one of the seven that is related to earning capacity.¹

The following part of table 168 from the Pocket Data Book U.S.A. 1967 vividly pointed out the positive relationship between years of school completed and average yearly income:

INCOME AND EDUCATION

Years of school completed	Average yearly income		
	1949	1961	1963
Males 25 to 64 years old			
Elementary:			
Less than 8 years	\$2,232	\$3,483	\$3,641
8 years	2,988	4,750	4,921
High school: 1 to 3 years	3,279	5,305	5,592
4 years	3,820	6,102	6,693
College: 1 to 3 years	4,489	7,392	7,839
4 years or more	6,236	9,530	10,062

Source: American Economic Association, Evanston, Ill., and U.S. Bureau of the Census.²

¹Lester D. Crow and Alice Crow, High School Education (New York: The Odyssey Press, 1951), p. 59.

²United States Bureau of the Census, Pocket Data Book U.S.A. 1967. (Prepared under the direction of Edwin D. Goldfinger, Chief, Statistical Reports Division, U.S. Department of Commerce), p. 151.

The U. S. Bureau of the Census yielded considerable data to substantiate a positive relationship between income and education. The writer of this report found less than adequate material in his opinion to substantiate either a positive or a negative relationship between training in vocational agriculture and farm income.

Phipps stated that "the purpose of vocational education in agriculture for farming is to educate present and prospective farmers for proficiency in farming."¹

In his 1953 book Deyoe cited the U. S. Office of Education, Vocational Division Monograph Number 21, Educational Objectives in Vocational Agriculture that was published in 1940 for the major objectives of vocational agriculture.

The listed objectives were to develop effective abilities in the following areas:

1. Make a beginning and advance in farming.
2. Produce farm commodities efficiently.
3. Market farm products advantageously.
4. Conserve soil and other natural resources.
5. Manage a farm business.
6. Maintain a favorable environment.²

In his 1965 book Phipps cited the 1955 revision of the same publication which adds a seventh statement to the preceding six. This seventh was to develop effective ability to participate in rural leadership activities.³

¹Lloyd J. Phipps, Handbook on Agricultural Education in Public Schools (Danville: Interstate Printers and Publisher, 1965), p. 5.

²George P. Deyoe, Farming Programs in Vocational Agriculture (Danville: The Interstate, 1953), p. 33.

³Phipps, op. cit., p. 13.

It appeared to the writer that the first five of these objectives were financially oriented to some degree.

With the objectives of vocational agriculture financially oriented it seemed to the writer that the financial progress of former students should be observed. A review of literature at Kansas State University failed to reveal to the writer that this type of information has been directly documented in the form of net farm income.

Roberts referred to the major objectives in vocational agriculture in the following paragraph from his editorial on evaluation:

Educators suggest that a plan for evaluation should be based on the aims and objectives of the program to be evaluated. Major objectives in vocational agriculture have been established and subdivided into abilities. When these established abilities, or their adaptations, are used in a plan of evaluation, it is necessary that desired outcomes or standards be determined for each ability. Appropriate devices, such as tests, rating scales, pupil records, surveys, interviews and evaluative criteria are then selected for measuring the extent to which the activities engaged in by pupils and teachers meet the standards reflected in the desired outcomes.¹

Some attempts to evaluate vocational agriculture have been made by examining the extent to which approved practices are followed.

Dakan and four other graduate students at Iowa State College made a study of the use made of twenty-four production and management practices by 160 farmers who had completed three or more years of vocational agriculture in high school and by 160 farmers who had not received vocational agriculture training.

Dakan reported that of the twenty-four practices in the study, vocational agriculture graduates had higher mean scores for twenty-three

¹Roy W. Roberts, "What do we want to evaluate?" Agricultural Education Magazine, 29:245, May 1957.

practices. He indicated that difference was significant at the 1 per cent level on five practices. The difference was significant at the 5 per cent level on four other practices. For the other fourteen practices the mean scores were higher for the vocational agriculture group but the differences between the groups were not significant when analysis of variance tests were made. A separate part of the study considered the extent to which farm records were kept and used in planning and management. The difference between the groups was significant at the 1 per cent level. Dakan made the following observation about the farm record portion of the study:

Because of the highly significant differences indicated between the groups in their responses to questions concerning uses made of farm records, there appears to be a possibility that many of the other reported differences may have been influenced to a greater extent than had been previously suspected by management decisions based on farm records.¹

O'Kelley and Lester reported a study of 356 Georgia farmers to determine if there was difference between former vocational agriculture students and those with no vocational agriculture training. Ninety-six of the 356 reported one or more years of vocational agriculture training while 260 reported no enrollment in vocational agriculture classes in public schools. These two groups were involved in the study.

The report indicated a significant difference at the .01 level between farmers in the vocational agriculture group and the non-vocational group in (1) number of records kept, (2) number of improved practices adopted in the swine enterprise, (3) number of improved practices adopted in the beef cattle enterprise, (4) number of improved practices adopted in

¹Edward E. Dakan, "How do Vo-Ag graduates perform?" Agricultural Education Magazine, 29:259, 261, 262, May 1957.

the corn enterprise, (5) number of improved practices adopted in the peanut enterprise, (6) number of improved practices in the cotton enterprises, and (7) a composite of all improved practices adopted for the small grain, dairy cattle, egg, vegetable, pecan, broiler and peach production enterprise with the difference favoring the vocational agriculture group in each case. There was a significant difference at the .01 level between the two groups in the total number of improved practices followed in all live-stock and crop enterprises practices that were studied when combined in one chi-square calculation.

O'Kelley and Lester concluded their summary of the University of Georgia Staff Research Project with the following observation:

It would appear that farmers reporting vocational agriculture in high school, did adopt significantly more improved practices than did farmers reporting no vocational agriculture study, but it should be pointed out before further generalizations are made that such factors as age and kind of education--both general and agricultural--received by the respondents were not held constant in the analysis.¹

Persons and Swanson reported a comprehensive study of 528 farmers that were previously enrolled in institutional on-the-farm training programs in Minnesota under the auspices of Public Law 346 and Public Law 16. The researchers emphasized that:

It should be understood that this was not a study of veteran's institutional on-the-farm training program. The veterans group was selected merely as a convenient vehicle for the study.²

The report stated that the major purpose of this Minnesota study was "to determine what part the educational component plays in devising

¹O'Kelley and Lester, op. cit., pp. 180, 181, 188.

²Persons and Swanson, op. cit., pp. 21, 102.

a predictive measure for farm success."¹

The measures of farm success that were selected were gross income, net income, and gains in net worth. Gross and net income was used as defined by the Internal Revenue Service with an adjustment for capital gains.²

It was noted that one of the conclusions stated in the Cooperative Research Project 2604 report was:

Net income as reported for income tax purposes, is not a satisfactory measure of farm success, except under specified conditions. The ability of farmers to manipulate this variable during any one year confuses the relationship to predictive variables. A long-term average of this measure, however adds stability to the measure and increases the propensity of this variable to prediction.³

A part of the results of the statistical studies and some observations of the authors of the Project 2604 report were reflected in the portion of the conclusions that follows:

Farm success is closely tied to the economic inputs in the beginning stages of the farm business. Such economic measures as beginning capital investment and farm size in tillable acres are important predictors of farm success. Those counseling young men to begin farming should be particularly aware of the importance of economic inputs and should give careful consideration to the deployment of the economic resources to insure adequate farm size.

Since age at beginning of training was significant in almost all analyses, the importance of this factor to success must be carefully weighed. While it is true that the men in this study were older than would be normally expected when a career choice was first made, it does suggest that delayed career choice in production agriculture diminishes the chances for success. While mobility out of production agriculture may and does occur at all ages, indications are that successful mobility into production agriculture should be confined to the young farm operator who has a higher probability of farm success.

¹Persons and Swanson, op. cit., p. 3.

²Persons and Swanson, op. cit., p. 23.

³Persons and Swanson, op. cit., p. 107.

The failure of aptitude scores to relate significantly to farm success should be more carefully examined. The compressed score distribution, the circumstances under which the tests were given, the constructs upon which the test was based and the selectivity of the sample may all contribute to the lack of significance in this study. It is necessary, therefore, to examine this attribute in more detail, using more refined instruments before a judgment can be made of the importance of this attribute to farm success.

The education components dealing with formal training require careful study. The relationships of these factors to farm success appear to be clouded with interactions and elements of a substitution effect.

Formal schooling shows little relationship to success in any of the regression equations, yet proves significant in the covariance analysis with gain in net worth as a criterion measure. This phenomenon suggests that a substitution element is active between the economic inputs included in the regression equation and formal schooling. It may be possible to substitute capital investment or other economic inputs for some formal schooling without reducing the probability of farm success.

Differences in the number of months spent in institutional on-farm training was not a contributing factor in the prediction of farm success. Two conflicting hypotheses can be evolved, either of which may explain this phenomenon. The participants may have been subject to a rapidly diminishing marginal return and thus, those with a limited number of months of training may have accrued nearly as much impetus for improving income as did those who were enrolled for a longer time.

The second hypothesis, and that given support by other findings in this study, suggests that it is probable that the length of time the veteran was enrolled had a positive effect upon income. The passage of time since training was discontinued has nullified any marginal gain in income potential caused by the longer training periods. The evidence points to the fact that there is a constant need for continuing programs of instruction when the subjects have had little formal schooling, and particularly in an industry that is marked by rapid upward changes in productivity prompted by a rapidly expanding pool of technological information.

The significance of recent adult instruction to farm success supports the second tenet. The number of adult classes attended during the last five years of the study was related to both gross income and yearly gain in net worth.

The significance of this finding has implication for vocational program planning. One of the important considerations to be made in predicting the success of beginning farmers is availability of systematic programs of continuing education in agriculture. Attention should be focused on adult instruction as a means of improving farm incomes for

those who have had little prior educational opportunity, and for constantly upgrading the competencies and skills of those who have had more extensive vocational training. It is feasible that the adult education programs most economically suited to improve income will be geared in part to the prior training the participant has received.

Programs of instruction, similar in design to the I.O.F.T. program as exemplified by the Minnesota Farm Management Program in vocational agriculture, may serve as the model for intensive education needed to supplement a limited formal school background or a lack of preparation in entrepreneurial skills. Other less intensive programs may best serve the farmer who desires upgrading of competencies to keep abreast of changing technology, but who has an adequate command of the economic principles needed to make sound business management decisions.

A more careful evaluation is needed of the various kinds of continuing vocational programs now offered to beginning and established farmers to determine the type of program which can provide maximum marginal economic return for the educational inputs of the community and the cooperating farmer. Care must be taken to assess both the long-term and short-term effects of educational investment to allow maximum returns from deployment of the educational resource.¹

Saupe found no correlation between years of school completed and operator's net farm income in his study of the 1959 and 1960 institutional-on-the farm records for two Iowa schools. Three explanations for this were suggested. (1) Total acres farmed was the most important variable affecting farm income, and the effect of operating a large farm tended to cover up the advantages of more education. (2) The advantages of more education appear over a period of time and since these were beginning farmers these advantages had not yet appeared. (3) The concentrated training in farming given to these young full-time farmers had tended to close any gap that may have resulted from differences in education.²

¹Persons and Swanson, op. cit., pp. 107-110.

²William E. Saupe, "Farm Record Analyses as Souce of Farm Management Guides," Appricultural Education Magazine, 34:272, 279, June, 1962.

Hemp indicated that 70 per cent of 246 former vocational agriculture students in Indiana believed their training had been helpful to them in their present jobs.¹

The literature reviewed did not reveal any significant, specific information in regard to the relationship of vocational agriculture training and net farm income.

In the opinion of the author ample evidence was reflected to substantiate the value of the program by other measures.

Cook sums up the value of vocational agriculture as follows:

Vocational Agriculture has made a tremendous contribution to the American way of life. The contribution has been primarily:

1. Increased efficiency in farming and;
2. Provided educational opportunities that have challenged our students in acquiring an integrated personality.²

¹Paul E. Hemp, "What 246 Farmer Students Think about Vocational Agriculture Training," Agricultural Education Magazine, 34:114, November, 1961.

²Claxton Cook, "Two Major Reasons for Vo Ag Success," Agricultural Education Magazine, 38:33, August, 1965.

PRESENTATION OF DATA

This report included a study of economic returns from agriculture for ninety-one selected farmers in Northeast Kansas. Table II indicates that 57.14 per cent of the total sample was in the age group from forty-one to fifty years old. For the vocational agriculture group 67.86 per cent was in this age group. For the non-vocational agriculture group 52.38 per cent were in the forty-one to fifty age group. The mean age for the twenty-eight former vocational agriculture students was 44.82 years. The mean age for the sixty-three non-vocational agriculture students was 46.92 years.

Figure 2 indicates the location by counties of the farmers in the vocational agriculture group. It was noted that 46.43 per cent of these farmers are in Wabaunsee and Shawnee counties. Figure 4 shows the mean net farm income of the sample farmers in these two counties to be less than the mean annual net farm income of \$6,981 for the whole sample.

Figure 3 indicates the location by counties of the farmers in the non-vocational agriculture group. Again it was noted that 36.51 per cent of these farmers are in Brown and Leavenworth counties. Figure 4 shows the mean annual farm net income of the sample farmers in Brown county to be \$10,083 and the mean net farm income for Leavenworth county to be \$6,576.

It was observed in Fig. 2 and Fig. 3 that 100 per cent of the Shawnee county farmers were vocational agriculture trained, 50 per cent of the Wabaunsee county farmers were vocational agriculture trained, 7.69 per cent of the Brown county farmers were vocational agriculture trained. None of the Leavenworth county were considered vocational agriculture trained.

TABLE II
 AGE DISTRIBUTION OF NINETY-ONE NORTHEAST KANSAS FARMERS WHEN
 DIVIDED BY AMOUNT OF VOCATIONAL AGRICULTURE TRAINING

Range in age group January 1, 1967	Number of farmers 2 or more years of H.S. Vo-Ag training	Number of farmers less than 2 years H.S. Vo-Ag training
31 to 40 years	4	11
41 to 50 years	19	33
51 to 60 years	5	19
Total farmers	28	63

Note: The mean age for the 28 farmers with 2 or more years of vocational agriculture on January 1, 1967 was 44.82 years. The mean age for the 63 farmers with less than two years of vocational agriculture was 46.92 years.

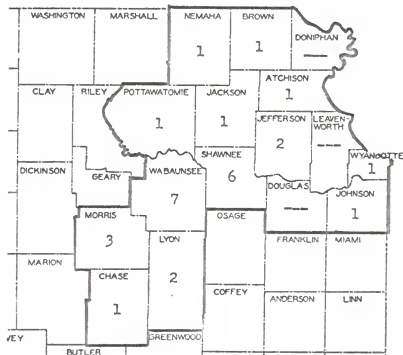


Figure 2. Location by counties of the twenty-eight farmers that received two or more years of vocational agriculture training.

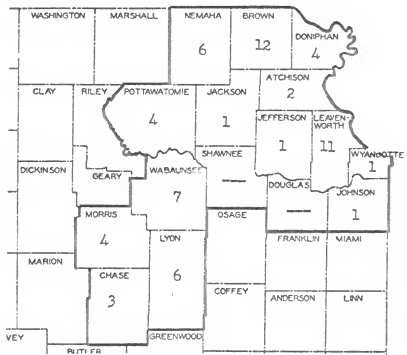


Figure 3. Location by counties of the sixty-three farmers that received less than two years of vocational agriculture training.

Table III illustrates the range and distribution in average net farm income for both the vocational agriculture and the non-vocational agriculture group. For the vocational agriculture group there was a range of \$24,849 between the lowest average net farm income and the highest average net farm income for the five year period. However, 92.86 per cent of the farmers were within the \$2,001 to \$12,000 range. For the non-vocational agriculture group there was a range in average net farm income of \$23,057 with 82.54 per cent of the farmers within the \$2,001 to \$12,000 range.

TABLE III

DISTRIBUTION OF NINETY-ONE SELECTED NORTHEAST KANSAS FARMERS
IN VARIOUS INCOME GROUPS DURING 1962-1966 WHEN DIVIDED
BY AMOUNT OF VOCATIONAL AGRICULTURE TRAINING

Range in average net farm income 1962-1966	Number of farmers 2 or more years of H.S. Vo-Ag training	Number of farmers less than 2 years H.S. Vo-Ag training
0 - \$2,000	---	4
\$2,001 - \$4,000	5	12
\$4,001 - \$6,000	10	16
\$6,001 - \$8,000	5	14
\$8,001 - \$10,000	3	7
\$10,001 - \$12,000	3	3
\$12,001 - \$14,000	---	3
\$14,001 - \$16,000	---	1
\$16,001 - \$18,000	---	2
\$18,001 - \$20,000	---	---
\$20,001 - \$22,000	1	---
\$22,001 - \$24,000	---	1
\$24,001 - \$26,000	---	---
\$26,001 - \$28,000	1	---
Number in group	28	63

Table IV reveals the difference in selected measures of the farm business. The mean annual operator's return for labor and management was \$575 higher for the vocational agriculture group. This is 14.58 per cent higher than the non-vocational agriculture group. The mean annual non-farm income for the non-vocational agriculture group and their wives was \$331 higher than the vocational agriculture group.

The mean annual increase in net worth for the 1962-1966 period was \$322 higher for the vocational agriculture group than for the non-vocational agriculture group.

The efficiency of the business as measured by the total expenses per \$100 gross income was virtually the same for both groups. The difference was less than one-fourth of 1 per cent.

The size of the farm as measured by the number of crop acres was thirty acres or 9.77 per cent larger for the non-vocational agriculture group.

TABLE IV
 SELECTED MEASURES OF ANALYSIS OF THE FARM BUSINESS FOR
 NINETY-ONE SELECTED NORTHEAST KANSAS FARMERS
 WHEN DIVIDED BY THE AMOUNT OF VOCATIONAL
 AGRICULTURE TRAINING (1962-1966)

Analysis measure five year period (1962-1966)	28 farmers with 2 or more years of H.S. Vo-Ag training	63 farmers with less than 2 years H.S. Vo-Ag training	All 91 farmers in study
Mean annual operator's return for labor and management	\$4,520	\$3,945	\$4,121
Mean annual non-farm net income	943	1,274	1,172
Mean annual increase in net worth	3,428	3,106	3,205
Mean total expenses per \$100 gross income	76.04	75.93	75.97
Mean crop acres per farm	307 A.	337 A.	328 A.

Table V presents the mean annual income and expense items for all ninety-one farmers and for the vocational agriculture and non-vocational groups. For the vocational agriculture group 72.94 per cent of their total gross farm income came from livestock and 27.06 per cent comes from crop and miscellaneous farm income. For the non-vocational agriculture group 61.27 per cent of their total gross farm income is from livestock while 38.73 per cent was from crops and miscellaneous farm income.

The mean annual gross farm income for the vocational agriculture group was \$2,912 higher than the gross farm income for the non-vocational agriculture group. The mean annual total farm expenses for the vocational agriculture group was \$2,246 higher than the expenses of the non-vocational agriculture group.

In this study of ninety-one farmers that were selected by the limits set forth in this report the vocational agriculture trained farmers had a \$666 higher mean annual net farm income for the five year period (1962-1966) reflected in their Kansas Farm Management Association records than the non-vocational agriculture trained farmers.

It was not the purpose of this report to study the effect of general education. However, it was noted that the mean annual net farm income of the sixteen farmers that did not graduate from high school was \$5,616. The fifty-one farmers that terminated their formal education as a high school graduate had a mean net farm income of \$7,047. The twenty-four farmers that indicated some kind of formal college training had a mean net farm income of \$7,742. The mean annual operator's return for

TABLE V
 FIVE YEAR (1962-1966) AVERAGE ANNUAL INCOME AND EXPENSES FOR
 NINETY-ONE SELECTED NORTHEAST KANSAS FARMERS
 WHEN DIVIDED BY THE AMOUNT OF
 VOCATIONAL AGRICULTURE

Mean annual income and expense items (1962-1966)	28 farmers with 2 or more years of H.S. Vo-Ag training	63 farmers with less than 2 years H.S. Vo-Ag training	All 91 farmers in study
Gross income from livestock	\$22,664	\$17,251	\$18,917
Gross income from crops and misc.	8,406	10,907	10,137
Total farm gross income	31,070	28,158	29,054
Total farm expenses	23,628	21,382	22,073
Mean annual net farm income	7,442	6,776	6,981

labor and management was \$3,008 for those that did not complete high school and \$4,341 for the high school graduates. Those with some college training had a mean operator's return for labor and management of \$4,987.

All ninety-one farmers completed eight grades. The highest level of education was the master's degree.

SUMMARY AND RECOMMENDATIONS

It was the purpose of this report to survey the educational background of a selected group of Kansas farmers and study the relationship of former training in vocational agriculture and later financial returns from farming.

The study was limited to those farmers that were members of the Northeast Kansas Farm Management Association and met the five limits established on page five of this report.

The information on educational background was secured by mail questionnaire. The financial information was obtained from individual farm records maintained by Farm Management Association Number 4 for analysis purposes. All Farm Management Association records were maintained on an inventory basis for analysis purposes even though 67.03 per cent of the ninety-one farmers in this study were on the cash basis for income tax purposes.

A review of reference material at Kansas State University failed to reveal to the writer any substantiated information regarding either a positive or negative correlation between high school vocational agriculture and later financial returns from farming. Several research studies reported a significant correlation between the number of approved practices followed and training in high school vocational agriculture. Other studies reveal that former students in vocational agriculture believe their training was valuable to them.

Previous studies with veterans groups to determine the relationship of education to farm financial returns indicate the difficulty of eliminating the differences in the many other variables besides education that affect financial returns. It is also difficult to find a satisfactory measure of financial success on farms except those enrolled in some adult educational farm record program. When a study is done with a group of this kind there is the possibility that this training may tend to eliminate any differences there were because of a difference in previous training.

In this study of ninety-one farmers that were selected by the limits set forth in this report the vocational agriculture trained farmers had a \$666 higher mean annual net farm income for the five year period (1962-1966) reflected in their Kansas Farm Management Association records than the non-vocational agriculture trained farmers.

The vocational agriculture group also excelled the non-vocational agriculture group in gross income from livestock, total gross income, operator's return for labor and management, and increase in net worth. The non-vocational agriculture group excelled the vocational agriculture group in gross income from crops and miscellaneous income, non-farm net income, and the number of crop acres per farm.

In this study the writer observed that other variables than education may have distorted the results of this study. In this study 7.69 per cent of the Brown county farmers had received training in vocational agriculture. In Shawnee county 100 per cent of the farmers had training in vocational agriculture. The mean net farm income of the Brown county farmers was \$10,083 while the mean net farm income for the Shawnee county farmers was

\$6,322. It might have been that this difference in income was caused by a variable or variables other than education. Weather was an example of one variable that affected Shawnee and Brown counties in 1963. The Farm Management Association Number 4 Summary and Analysis Report for 1963 states "with the exception of Nemaha and Brown, and parts of a few other counties, the drouth affected incomes to a marked degree." The report further indicates Shawnee county had the driest year on prior records. A Weather Bureau map was reproduced in that report to illustrate the difference.¹ Other unrecorded variables such as community lease arrangements, and soil characteristics may have a differential effect on separated counties. It was beyond the resources of this study to evaluate all of the variables that may affect income. It was recognized that the only variable held constant was high school vocational agriculture training as defined in this report.

The author of this report recommended there should be further research on this subject. With the increase in adult farm management programs and an increase in other farm record programs with other agencies and private concerns adequate income and financial data should be more available.

¹Earl Means and Leonard Parker, "Farm Management Summary and Analysis Report for Association Number 4," (Extension Service, Kansas State University, Manhattan, 1963), p. 5 (Mimeographed).

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APPENDIX

Exhibit #1 - Mail Questionnaire

1301 Tenth Street
Wamego, Kansas 66547

Dear

I am making some studies on the relationship of formal education in agriculture to financial progress in farming. I expect these studies to help identify the educational background that will best equip a young man to be a successful farmer. Part of these studies will be to fulfill the requirements for a Master's Degree.

You were selected for these studies because you are one of a small group of independent, active farm operators with more than 5 years continuous membership in Farm Management Association Number 4.

I would appreciate it if you would answer the following five questions and return this to me in the enclosed envelope by June 1, 1967. The results of the studies will be available to you through you fieldman. Your individual records will remain confidential with your fieldmen.

1. Please give your age as of January 1, 1967. _____
 2. Did you graduate from high school? (yes or no) _____
If you did not graduate from high school, please give the number of years of school that you completed. _____
 3. Please give the number of years that you took vocational agriculture in high school. (none, one, two, three or four) _____
 4. Please give the number of years of veterans-on-the farm training you have received. (none, one, two, three or four) _____
 5. Did you attend college? (yes or no) _____
If you did attend a college please list the name of the institution, the number of years you attended and your major field of study.
-

Thank you for your cooperation.

Very truly yours,

Leonard C. Parker
Farm Management Assn. #4
Fieldman

FARM INCOME OF SELECTED FORMER VOCATIONAL AGRICULTURE
STUDENTS IN NORTHEAST KANSAS

by

LEONARD CALVIN PARKER

B. S., Kansas State University, 1952

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1967

The purpose of this study was to survey the relationship between former training in high school vocational agriculture and later financial returns from farming.

Part of this descriptive research project consisted of a review of selected literature that was related to the purpose of this study. The selected literature failed to reveal to the writer any substantiated information regarding the relationship of high school vocational agriculture training and later financial returns from farming. Several research studies reported a significant correlation between the number of approved practices followed and training in high school vocational agriculture. Other studies reveal that former students in vocational agriculture believe their training was valuable to them.

This was followed by the selection of 125 members of Northeast Kansas Extension Farm Management Association Number 4 as possible subjects for the study. The study was limited to full time, individual farm operators, not over sixty years old, with five years continuous records in the Farm Management Association. Farming operations that had been interrupted by condemnation action were also eliminated from the study, A mail questionnaire was used to survey the educational background of these farmers. There were 112 completed questionnaires returned.

The source of financial data for the study was from the individual farm records maintained for analysis purposes by the Farm Management Association. More detailed examination of these records produced ninety-one records that were suitable for the study. These records were all maintained on an inventory basis even though the farmer was on the cash basis for income tax purposes.

The data in this report was not subjected to statistical analysis beyond frequency distribution and the determination of central tendency as reflected by the mean.

The ninety-one farms were divided into two groups on the basis of the number of years of vocational agriculture taken in high school. There were twenty-eight farmers that had two or more years and sixty-three farmers with less than two years of vocational agriculture.

For the vocational agriculture group there was a range of \$24,848 between the lowest average annual net farm income and the highest average annual net farm income for the five year period. This range was \$23,057 for the non-vocational agriculture group.

The vocational agriculture group exceeded the non-vocational agriculture group in gross income from livestock, total gross income, operator's return for labor and management, and annual increase in net worth. The non-vocational agriculture group exceeded the vocational agriculture group in gross income from crops and miscellaneous income, non-farm net income, and the number of crop acres per farm.

In this study the vocational agriculture trained farmers had a \$666 higher mean annual net farm income for the five year period reflected in their records than the non-vocational agriculture farmers.