THE DEVELOPMENT OF A PROGRAM FOR THE ESTABLISHMENT OF MORE PROFITABLE FARM FLOCKS IN GRASSY CREEK COMMUNITY

BY

WILLIAM CALFEE LA RUE

A Thesis Submitted to the Graduate Committee
For the Degree of

MASTER OF SCIENCE

Majoring in

Agricultural Education

Approved:

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Chairman, Graduate Committee

Virginia Polytechnic Institute
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TABLE OF CONTENTS

TABLES

FIGURES

I. INTRODUCTION

Without detailed planning the modern skyscraper would be impossible. The architect creates in his imagination the likeness and the magnificence of the building to be erected. It appears as a coordinated mass of steel, concrete and glass. The ways and means of proportioning the different elements in their proper relation to one another in order to obtain the building in reality is expressed in a plan: blue prints, bills of materials and specifications.

All agricultural workers must agree that planning is a vital phase of their work which has been neglected in the past. It is true that they have set up admirable objectives and in many cases have mentioned methods for reaching them, but have these programs been planned--planned as for building a skyscraper? One is almost forced to answer this question in the negative. Upon this premise is this study based.

The formation and execution of a planned program necessarily involves the efficiency of the various educational procedures employed and the knowledge of their proper use becomes an essential to a successful achievement.

In conducting this investigation two different groups have been kept in mind. First, it has been the aim to produce a program that would be of assistance to the Grassy Creek farmers and future farmers whose struggles for educational power in overcoming difficulties have inspired the investigator to attack this problem and whose worthy, loyal and cheerful assistance in finding facts connected with this study have, to a large extent,determined the usefulness of the work.

Second, the principal findings of this investigation are presented to fellow instructors of vocational agriculture, to the county agricultural agents and extension workers, and particularly for the use of the Departments of Poultry Husbandry and Agricultural Education as a guide to them in assisting agricultural workers in formulating local programs.

Grassy Creek community was selected in which to make this study. This community of which the Virginia-Carolina High School is the center, is located on the state line separating Grayson county, Virginia, from Ashe county, North Carolina. The map below shows its location and gives an idea of the trade territory.

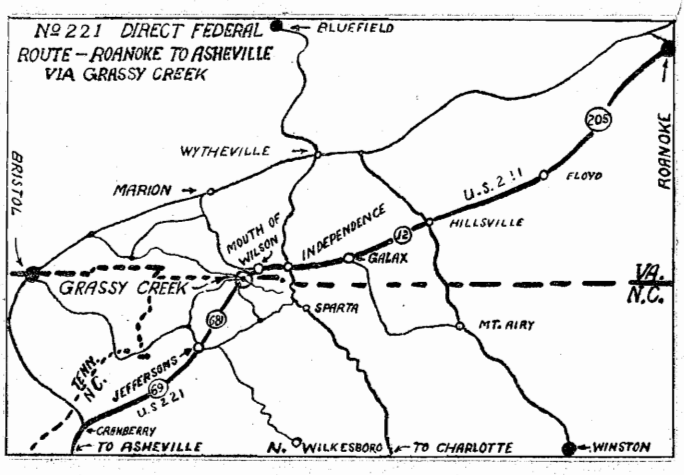

Figure 1.

Location of Grassy Creek Community

Grassy Creek community appeared to be a suitable community for the scene of the investigation because of the following facts:

1. It is about an average rural community.
2. The investigator organized a department of vocational agriculture in this community in the autumn of 1924 and with the exception of two years he has served as teacher of agriculture up to the present time.

3. Farming in the community is largely of the general livestock type, including poultry as an important farm enterprise.

4. Some very definite educational work had been done in the field of poultrying as one phase of the program of work of the department of vocational agriculture.

At the time of the organization of the Grassy Creek Agricultural Department in the autumn of 1924 the poultry industry of the community was in a very unfavorable position. Poultry was neglected and even sneered at by many of the men who depended upon the women to look after this enterprise. However, a general farm survey showed that the annual community income for poultry was approximately forty thousand dollars, or more than any other single branch of farming at that time.

During the first session a large number of the all-day students selected, studied and planned poultry enterprises for supervised home practice and while only twelve of them completed this work, the results were so favorable as to attract considerable attention and even enthusiasm on the part of several farmers as well as farm women.

As the result of this interest a poultry survey was made in the fall of 1925 which further emphasized the economic importance of poultry as well as the poor practices applied, few of which could be classed as standard practices according to standards set up in this study.

With increased interest in poultry production a number of mimeographed letters, newspaper articles, demonstrations, and talks on poultry were utilized as well as an increase in visits to farms by the teacher of agriculture and several other methods of unorganized instruction, summarized in this study for the information of the community.

In the annual preliminary report of the teacher to the State Board of Education for the year, 1924-1925, the objectives for the departmental program included:

1. Establishing standard bred flocks.

2. The care and management of farm flocks.

In 1925-1926 the objectives included the following improvable farm practices:

1. Improved housing facilities.

2. Improved feeding.

3. Establishing standard bred flocks.

During this session and the session of 1926-1927 there appeared to be very few changes in objectives.

However, in the autumn of 1927 with the interest due chiefly to the instruction offered in poultry and livestock in the all-day classes there appeared to be a demand for some progressive poultry program for the community to be sponsored by the agricultural department. This demand was indicated most prominently by the large and increasing number of calls upon the teacher of agriculture for individual poultry services. After teaching all day he has made as many as seven visits to farms in one afternoon and evening in response to requests for aid. These requests were so numerous that they practically consumed all his spare time. His services were called for until eleven or twelve o'clock at night on poultry, livestock, and other problems. This made it very difficult to find time for the many other duties and responsibilities which had to be met.

Therefore, the teacher set about making a study of the entire poultry situation with an idea of centralizing efforts in such an organized manner as to economize time and to increase the efficiency of instruction. Both the two former surveys, the general farm survey made in 1924 and the poultry survey made in 1925, were summarized, analyzed and studied. All facts gathered by observations of the teacher

and discussions with farmers were summarized and considered. Data determined through the all-day classes were evaluated, former state reports were scrutinized, and summer school notes on professional and technical information were examined. Some correspondence was conducted with the Departments of Agricultural Education of the Virginia Polytechnic Institute and North Carolina State College pertaining to the formulation of a community poultry program. (See Figure 2.) It was then that the agricultural supervisor recommended that an agricultural advisory council be organized to assist the teacher in mapping out a practical poultry program. This suggestion was carried out and proved to be exceedingly valuable.

After the agricultural advisory council was organized one of the first problems considered was that of the poultry industry in the community. The teacher of agriculture presented all the information that he had been able to gather from all sources in a carefully summarized form so that it could be readily analyzed and studied by the advisory council. It was then seen very clearly that the poultry enterprise of the community was one of the largest sources of income in the community and offered great possibilities if properly conducted. However, it was readily seen that the enterprise had not been given a fair chance and was in bad condition due to the low grade mongrel stock, poor housing and facilities, and very poor poultry practices in general. This report in abbreviated form follows:

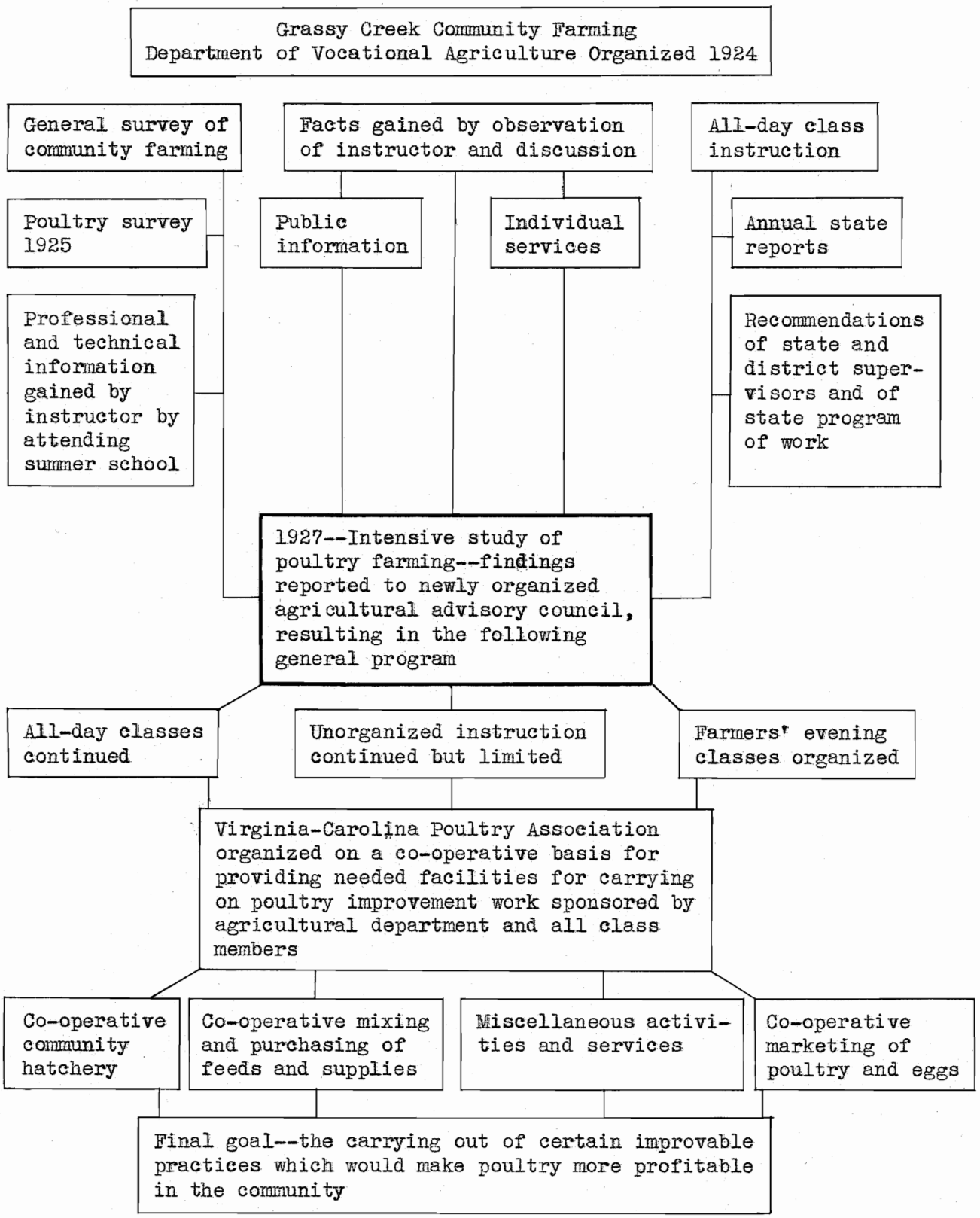

Figure 2.

Historical Development of Poultry Improvement Work in Grassy Creek Community

Report to Agricultural Advisory Council in Abbreviated Form

Source	Facts
A. General farm survey of 1924.	1. Showed poultrying was the largest single farm enterprise of community, returning an annual income of over forty thousand dollars.
B. Poultry survey of 1925.	1. Few standard practices were carried out.
	2. Production of eggs per hen was very low.
	3. Income above feed cost was very low.
C. All-day classes.	1. Properly conducted poultry enterprises proved very profitable according to the records of all-day students in their supervised farm practices.
D. Observation by teacher of agriculture and discussion with others.	1. Every farm in community had a flock.
	2. Only a few standard bred flocks in community.
	3. No attempt at co-operative effort in purchasing supplies for marketing.
	4. Distinct advantage found in situation between two trading territories with keen competition for poultry products.
	5. Impossible and impracticable for teacher of agriculture to answer all calls for individual assistance.
	6. Funds were limited and there was a demand to make poultry improvements with as little money as possible.

7. Impossible to ship in baby chicks over impassable roads without chilling.

8. Commercial feeds expensive, poor quality and not constant in supply or brand.

E. Notes on summer school work of professional and technical nature.

1. A long-time program on one phase of farming, properly planned facilities, and the reaching of a worthwhile goal.

F. State program of work. (State and district supervisor.)

1. State program included recommendation of a community co-operative activity of some type to be supervised and sponsored by local department.

2. District supervisor advised organization of agricultural advisory council and suggested poultry investigation. (Later the entire poultry program was recommended.)

G. Annual objectives of department as reported to the State Board of Education.

1. Objectives contained in preliminary report for session 1924-1925: "Agricultural education of pupils in livestock production, including the care and management of farm animals (poultry inclusive); how to realize a profit, and how to apply this knowledge by means of the project for home work."

2. The preliminary report for session 1925-26 contained: "Agricultural instruction of all-day pupils in standard poultry practices of housing, feeding, establishing standard bred flocks and demonstrating by home projects."

3. Reports for the session of 1926-27 included: "Improved practices in feeding and caring for baby chicks, improved practice in incubating and brooding baby chicks, improved housing facilities for the home flock, improved practice in feeding for egg production."

Thus it will be seen that departmental objectives for every year up to 1927 contained poultry improvement practices of some type and there appeared to be some progress although as yet there had been no real poultry program--a list of objectives does not make a program. A program must include ways and means of reaching objectives.

Therefore, the advisory council together with the teacher of agriculture mapped out a long-time program with the general objective as follows: "Every farm to have a standard breed of poultry, to improve housing, feeding and hatching, to raise broilers and pullets, all to be sponsored and stimulated through the activities of a co-operative poultry association." Later after careful study the advisory council recommended the following as a five-year or long-time program:

A. Continue supervised poultry practices in all-day class and secure co-operation of boys in promoting poultry improvement for the community.

B. Organize a farmers' evening class on poultry through which farmers might get instruction and co-operate in the community program.

C. Continue to give assistance to those individuals seeking information and not enrolled in the class so long as it does not interfere with the organized instruction and secure the co-operation of these individuals in carrying out the community program.

D. Organize a central co-operative community poultry improvement association through which the above three groups could work in later developing the following objectives:

   1. Install a co-operative community hatchery.

   2. Provide for the co-operative mixing and distributing of poultry feed.

   3. Establish a co-operative hatching egg and baby chick exchange.

   4. Engage in pooling and marketing co-operatively.

Following the long-time program, certain improvable poultry practices were included in the course of study for the all-day classes. A farmers' evening class on poultry was organized and the course was based upon the community poultry program. Interest in poultry continued to increase. The next step was the organization of the Virginia-Carolina Poultry Association with the slogan, "A Co-operative Organization Devoted to Improving the Poultry Industry by Developing More Profitable Farm Flocks."

In developing this program it soon became evident that more study and information were necessary as additional problems arose. However, the teacher of agriculture kept his advisory board, the poultry association, and the all-day and evening classes co-operating closely in overcoming the obstacles through an insistent campaign of education. As this program began to take form several convictions became apparent to the investigator and his advisory council.

Poultry production had been a profitable enterprise when properly conducted. This was proven by the splendid records of a number of the all-day class students who selected poultry for home practice and also by individuals who had received instruction in poultry and were carrying out improved practices.

Failures in poultry production were due to one of three things: a lack of interest, a lack of facilities, or a lack of knowledge. It is doubtful if interest and some other necessary qualities to success can be completely supplied by training. However, the second and third causes for failures showed possibilities of being remedied. Facilities on many farms were suitable

in so far as soil, topography and other natural conditions were concerned. Houses, lots and equipment could be supplied if the poultryman had sufficient information and capital, which was often limited and in many cases quite deficient, to secure standard bred stock. This brought up the necessity of starting the enterprise with as little outlay of money as possible. To purchase standard bred pullets of desirable breeding was quite expensive as there was little quality stock in the community which was for sale. It was finally concluded that the least expensive way was to secure baby chicks and since practically all the farm flocks had to be replaced with better productive stock it was realized that with the mortality naturally expected in brooding, and the large percent of males to be discarded as broilers, there would be required several thousand baby chicks of quality breeding. It was readily seen that the humble hen could never fulfill the task of hatching the required chicks for two reasons: First, she could not be depended upon to sit early enough in the season so that the right kind of pullets might be produced, and second, she could not put out the volume to meet the present situation which required a large unit for efficient artificial brooding. Artificial incubators were few and inefficient. It was decided that quality baby chicks of standard breeding were essential to the establishing of standard bred flocks throughout the community. It was thought that by conducting several successful demonstrations with good hatchery chicks and by giving proper instructions it would be possible to overcome the popular contention that "you can't raise incubator chicks."

No sooner had it been resolved to use baby chicks for rebuilding farm flocks than the problem of securing hatchery chicks

during the winter season was presented. For a period of four or five months of the year from November to March or April the roads throughout this section were practically impassable for anything except horse-drawn vehicles and since Grassy Creek is located sixteen miles from West Jefferson, the nearest railroad station, a period of from six to eight hours was required to bring chicks to Grassy Creek through the axle-deep mud. It was obvious that baby chicks could not stand such a trip as that through the cold which often dipped to around zero. Therefore, the solution of this problem resolved itself into a plan to secure quality eggs and hatch them at home by the establishment of a community hatchery.

Financing the hatchery was no easy matter. Several individuals believed it would be a good thing for poultrying in the community but their faith was hardly strong enough to cause them to invest any money in it. Finally the funds were advanced with the agreement that interest and profits made would be paid back each year until the cost of the hatchery was refunded. The basement of the agricultural shop building was provided in which to operate the hatchery.

The first hatch, which was intended for broilers, was put into the incubator on Christmas day, 1927, but before it came off the belief was expressed throughout the community that chicks hatched in the winter time could not be raised. This propaganda added to the "hatchery chicks won't live" sentiment, challenged the faith of even the all-day and farmers' class members but their training and improvable practices including artificial brooding doubtlessly saved the day. At any rate by the middle of January the first hatch was taken off amid a blinding snow storm and near zero

weather which made it difficult to get the chicks from the hatchery room to the various waiting brooders on the farms and even after this was accomplished there was panic on the part of at least one poultryman when he found that his second-hand oil brooder of an unknown make would not heat his brooder house sufficiently. This brooder had been secured, against the advice of the teacher, because it was cheaper. Yet it proved to be very costly in the end as well as a good demonstration of what a brooder should not be. Fortunately the others had secured approved coal brooders which suited the climate far better and were fairly successful with their first attempt in the artificial brooding of chicks.

As the news circulated that hatchery chicks were actually being raised, and raised in the winter time at that, people from far and near began congregating to see the wonder of hatchery chicks brooded by a coal stove instead of a hen. It was not uncommon to find twenty-five or thirty present on a Sunday afternoon to view with expressions of amazement the husky, healthy, fast growing chicks.

Membership in the farmers' class increased and calls came from all points for assistance in poultry work. Fortunately good prices prevailed for broilers the following spring and nearly everyone raising hatchery chicks made good money by selling off the cockerels which left them a fine flock of pullets.

Following the success of this beginning, which had been declared doubtful and hazardous by some, there was no more talk to the effect that "hatchery chicks won't live" nor that "chicks can't be raised in the winter time." Also with the definite and complete disproving of these customary beliefs a renewed confidence was born in the new era of poultry husbandry that had been entered upon.

In the meantime the feed problem had presented considerable difficulties. Commercial poultry feeds were expensive and of doubtful quality due largely to carelessness and indifference of local dealers. For instance chick mash so old it was moulded, was sold to the unwary buyer. Other instances of old, spoiled stock came to the investigator's attention. Also there was no constant supply of any particular brand. Local dealers would have first one brand and then another. Any poultryman knows what this will do for his flock.

On the other hand farmers had plenty of corn, wheat, and oats that could be mixed in the feed at much less cost than buying commercial mash. All that was needed was the addition of proteins and minerals. This need was met by the development of a concentrate mixture which was bagged 25 pounds to the bag and when the contents of one bag were mixed with one bushel each of ground corn, ground wheat, and ground oats, these made approximately a hundred and fifty pounds of first class laying mash. This could be mixed at a cost of 50% to 75% of the price asked by dealers for commercial feeds. Besides this mash was known to be of an approved formula, to contain fresh grains of good quality, and could be secured any time and in any quantity, and always the same quality. This discussion is not intended to be any indication that home mixing is better than buying commercial mash in general. There are good arguments on both sides of this question in communities where there is a constant supply of approved brands of commercial feed at fair prices. However, this discussion is intended to cover similar communities where home-grown grain is plentiful and where commercial feed is not regularly supplied with constant good quality and fair prices.

The ingredients for this concentrate as well as three other forms of poultry feed mixed were bought co-operatively in wholesale lots mixed and bagged in specially printed bags bearing the name of the Virginia-Carolina Poultry Association. This feed was mixed and distributed at cost with the exception of a small sinking fund and five cents per bag to cover the expense of distribution.

During the second spring of the community hatchery a limited supply of excellent hatching eggs was produced in the community from selected fowls. A co-operative exchange was established for the purpose of providing a local market. The price of the hatching eggs plus the price charged for custom hatching resulted in a relatively low price for chicks of selected breeding. This made it possible for patrons of the community to establish standard bred flocks of high production and at lower cost than would have been possible by mail order purchasing. The entire scheme heightened interest in the community and resulted in much more rapid improvement of a local practice.

A number of other co-operative practices were engaged in for the benefit of patrons, such as the collective buying of coal, brooders and supplies, as well as pooling poultry and eggs for market. Broilers were pooled and sold at home at a good margin above prices individuals outside the association received. A few co-operative shipments of capons brought fair prices. Turkeys were pooled to considerable advantage in 1931-32. However, the marketing has not been entirely satisfactory and the recommendations at the close of this study include going into the question of co-operative marketing more thoroughly.

It has been mentioned from time to time throughout this discussion that the all-day and farmers' classes have given the most assistance in putting on this program and carrying it out to whatever measure of success it has had. Also numerous individuals receiving instruction in some other form have made considerable progress as well as a good profit.

Thus the Virginia-Carolina Poultry Association had gradually spread its wings until they hovered the principal business of the poultry industry in a co-operative way and the chief objectives had been reached by the use of a planned program during the last five years of the eight-year period. Whereas during the first three years there was no definite poultry program resulting in no definite results nor marked progress. Just how much progress and how efficient were the different methods employed in education will be shown later.

The author hopes that with this somewhat full introduction and historical background the detailed investigation that follows will be sufficiently clear and convincing.

Acknowledgments

The investigator wishes to extend his deepest gratitude to his thesis adviser, Mr. Edmund C. Magill, Professor of Agricultural Education, Virginia Polytechnic Institute, for his thoughtful guidance and faithful assistance throughout the course of this investigation.

Many helpful suggestions were received from Dr. Reece L. Bryant, Assistant Professor of Poultry Husbandry, Virginia Polytechnic Institute, especially with reference to standard practices for poultry improvement. Mr. H. L. Moore and Mr. A. L. Dean, also of the Poultry Department, have rendered valuable assistance from time to time in the development of the poultry program of the past five years.

The investigator wishes to extend his appreciation of the personal courtesy and splendid co-operation in the work of the following: Dr. Walter S. Newman, Supervisor of Agricultural Education; Mr. J. O. Hoge, District Supervisor of Agricultural Education; Mr. Henry C. Groseclose, State and National Adviser, Future Farmers of America; Mr. H. W. Sanders, Associate Professor of Agricultural Education; Mr. Kyle T. Cox, Superintendent of Grayson County Schools; and the following principals of the Virginia-Carolina High School during the eight-year period covered by this study and during whose administration the investigator was employed as teacher of vocational agriculture: Mr. R. E. L. Plummer, Mr. G. H. Hatfield, Mr. C. M. Dickson, and Mr. F. C. Nye.

Mr. A. L. Teachey, District Supervisor of Agricultural Education in Northwestern North Carolina made many practical suggestions in setting up the actual program of poultry improvement work that was carried out in the community.

Finally, the faithful co-operation and personal assistance of the people of the Grassy Creek community are highly appreciated by the investigator, who realizes that only because of their loyal support and sincere desire for the upbuilding of this important enterprise in their community could this actual program have been executed or this thesis written.

II. THE INVESTIGATION

Object of the Investigation

The object of this investigation is threefold. The study seeks:

1. To determine the extent of progress that can be made by means of a planned program for a single basic farm enterprise in a five-year period.
2. To evaluate the efficiency of certain types of education and methods which can be utilized in such a program.
3. To develop a revised poultry educational program for Grassy Creek community.

The Planned Program Defined

A planned program differs from an ordinary program in that it includes ways and means in detail for reaching objectives set up. It may be compared to a complete blue print drawn to scale or to a complete set of specifications. Whereas an unplanned program usually consists of a few objectives set up as a goal without providing proper ways and means of reaching them. For the present study the term "planned program" refers to a community program of poultry education that was planned for and executed in Grassy Creek community during the period 1927-1932 inclusive. Work subsequent to 1927 was the result of the planned thesis program. This program was intended to provide as fully and completely as possible all the methods, devices, ways and means, in all their details and ramifications, for reaching the objectives of the program. It may be illustrated by comparison with a survey that is made before building a modern highway.

Two Groups in Mind

In conducting this investigation two different groups have been kept in mind and the objectives outlined above have been applied to both of these groups. First, a poultry program has been produced for the use of the Grassy Creek farmers and the future farmers enrolled in high school classes. Second, the principal findings of this investigation are presented to instructors of vocational agriculture, county agricultural agents, extension workers and particularly for the use of the Departments of Poultry Husbandry and Agricultural Education.

Scope of Problems

Four groups were studied representing three different types of instruction in vocational agriculture. First, all-day classes made up of high school students regularly enrolled who devoted five ninety-minute periods per week for the term of the school to vocational agriculture. Second, farmers' evening classes are made up of those individuals over sixteen years of age (more commonly mature adults) who have entered upon work of the farm and are definitely enrolled in courses of not less than ten lessons. Third, the group of individuals who were not taught in regularly enrolled classes or the unorganized group. The fourth group was composed of a number of individuals surveyed in a nearby community but who received no poultry instruction in any form. This group was included in the study for the sole purpose of serving as a check or a basis for comparison with the three forms of instruction.

The study covers the period 1924-1932 inclusive. However, the evening class group was not established and the check group was not surveyed until the year 1927.

Sources of Data

The original nature of the problem selected for this investigation precludes the possibility of obtaining extensive information from published books, bulletins, or periodicals. Census reports, and state and county records have proved of some little value in furnishing helpful information. Records of local produce dealers and farm accounts of local farmers have been of some help.

Record Books: Every vocational student in high school must keep a complete record of his enterprise in what is called a Supervised Farm Practice Record Book. Record Books have been well preserved during the latter five sessions covered by the study. These have been valuable. Some of the Record Books for years previous to 1927-1928 are missing. These Record Books were depended upon largely to supply data concerning the period 1924-1927 and to indicate progress made.

State Records: Practically all state reports made out during this period are on file and have been a reliable source of considerable information of a nature that could be used. These reports were of use in determining the progress of the period 1924-1927 as well as giving the annual objectives, and indicating standard practices completed. These reports consisted of: (1) Annual Reports; (2) Preliminary Reports on Supervised Practice; (3) Final Reports on Supervised Practice.

Local Surveys: One general farm survey had been made in 1924 when the Grassy Creek Department of Vocational Agriculture was first organized. A poultry survey of fifteen farms representing the all-day and unorganized groups was made in the autumn of 1925 but was based upon the previous year. A second poultry survey had been made in 1928,

based upon 1927-1928. This survey consisted of 42 farm flocks, including the 15 previously surveyed, and represented all four groups designated for study. In 1927 the first planned poultry program was launched and this survey represented the results of the first year of operation of that program.

Experience and Training of Instructor: In addition to rather specializing in poultry husbandry during his collegiate and professional career the investigator has had a background of practical poultry experience. Since having organized the Grassy Creek Department of Vocational Agriculture in 1924 and having been the instructor ever since with the exception of two years, 1925-1927, the investigator necessarily has secured a great many facts due to the various activities of the profession. Especially helpful observations were made from the large number of contacts with individuals while engaged in several forms of activities of providing public information. By these means it has been possible for the investigator to gather a rather complete store of information concerning not only the economic facts and the efficiency of different educational procedures but also the hereditary and environmental background of the people of the community, together with a history of the development of its agriculture since the earliest days of settlement.

Also, the investigator feels that his annual attendance at summer school at the North Carolina State College and the Virginia Polytechnic Institute during the eight-year period, 1924-1932, and his instruction in educational procedure and technical knowledge in the Departments of Agricultural Education and Poultry Husbandry, have been of inestimable value in both the conducting of the present study and also in carrying out the actual program on which this

investigation is based. The work at these institutions has all been of post-graduate caliber and supplementary to the regular four-year couse in agriculture which he completed at Cornell University, receiving the B.S. degree, previous to the beginning of the period covered by this thesis. However, a number of poultry courses were included in the under-graduate curriculum.

Methods of Procedure

In planning the procedure of this investigation, three facts relating to the objectives were considered. First, there must be a comparison between the three-year period, 1924-1927 inclusive, during which there was no planned program and the five-year period, 1927-1932 inclusive, during which there was a definitely planned program. This was necessary in order to determine the extent of progress possible by means of a planned program, as compared to an unplanned program. Second, there must be a comparison shown between the four educational groups, namely; (1) The all-day group consisting of regularly enrolled high school students who had selected vocational agriculture, (2) The farmers' evening group made up of farmers of the community, (3) The unorganized group consisting of other individuals not enrolled in regular classes who were receiving instruction in some form, and (4) The check group which was made up of individuals receiving no instruction from the agricultural teacher. Third, there must be a consideration of the results of the planned program so that a revised poultry educational program for Grassy Creek community might be worked out.

In order to determine either the progress made by use of a planned program or the relative efficiency of the educational practices used in poultry instruction it became necessary to set up certain devices to measure or evaluate the results obtained.

Measurements

In order to measure and properly interpret the findings of the study and to facilitate clearness and directness in reaching the objectives two classes of measurements were set up. Measurements indicating progress came in the first class. This class intended to reflect the efficiency of economic production, indicating progress made by the different groups during the period covered by the investigation, as:

1. Percent of flocks that are standard bred.
2. Number of hens per farm.
3. Number of dozen eggs per hen per year.
4. Feed cost per hen per year.
5. Feed cost per dozen eggs.
6. Income per dozen eggs above feed cost.

These measurements were selected because they represented the greatest factors affecting incomes or profits. There are other minor costs, but, aside from being unavailable, they are of little importance as compared with feed costs which all practical poultrymen everywhere recognize as by far the greatest cost in poultrying.

It was then realized that the real factors responsible for the success or failure of the above economic factors are the various educational procedures used to secure the use of improved or standard practices. To be able to measure the efficiency of these educational

procedures the following measurements were set up and were based upon a list of standard practices taught:

1. Number instructed in each standard practice.
2. Number carrying out each standard practice.
3. Percent carrying out practice.
4. Number of standard practices carried out.

List of Standard Practices

This list was made up of the standard practices in poultrying taught during the five-year period, 1927-1932. They follow:

Practices	Standards for each practice
1. Establishing a standard bred flock.	All birds in flock standard bred.
2. Culling flock for egg production.	Flock culled at least once per year.
3. Feeding for egg production	Using mash and scratch of an approved formula
4. Caring for breeding stock	Including mating and management.
5. Controlling diseases and pests	Treating for lice,mites and worms, and practicing sanitation.
6. Production of hatching eggs.	Eggs from selected standard bred fowls properly handled.
7. Brooding artificially.	Controlling temperature, ventilation, humidity, sanitation, and management.
8. Feeding chicks.	Using mash and scratch of an approved formula.
9. Improving housing.	Adding a modern feature such as lighting, ventilation, and insulation.

10. Fattening for market.	Pen or crate fattening with batter or approved formula.
11. Marketing co-operatively.	Pooling or selling together some quantity of poultry or eggs.
12. Caponizing.	Caponizing at least ten with not over ten per cent loss.
13. Keeping records.	Records of expenses, receipts, labor and inventory at beginning and end of year.

Methods of Instruction Used in Unorganized Group

During the investigation it was found that in order to get a thorough comparison of the results found in all three of the instructed groups it was necessary to divide the instruction according to the various specific methods of instruction responsible for having standard practices carried out. The list of poultrymen was then checked to find which of the following types of instruction was responsible for getting standard practices completed:

1. Membership in regularly organized classes.
2. Membership in poultry improvement association.
3. Printed matter, bulletins, etc., supplied by teacher.
4. Presence at a demonstration teaching an improved poultry practice.
5. Reading a newspaper article on poultry.
6. Receiving a mimeographed letter from teacher.
7. Attending community fair.
8. Taking part in miscellaneous discussions, with teacher leading, at a public gathering, etc.
9. Individual instruction by personal vist of teacher.
10. Receiving personal letter concerning poultry.
11. Securing an idea from a poster prepared by the teacher.

12. Learning an improved practice when farm survey was taken.

13. Participation in a farm tour.

14. Receiving instruction in a personal letter from teacher.

Two Other Surveys Made

In addition to the general farm survey of 1924 and the poultry surveys of 1925 and 1928, two other specific poultry surveys were made especially for this study. One of these was based on the year 1929-1930 and the other was based upon the year 1931-1932. These surveys covered 84 and 74 farm flocks respectively. These surveys were made by the investigator who was assisted by a few senior students of vocational agriculture who were especially interested in poultrying.

Effects of the Depression

The agricultural depression beginning in 1929 has not vitally affected the results of this study although it has undoubtedly had some influence. Even though prices of poultry products continued to decline, yet the prices were relatively better than for most agricultural commodites.

III. FINDINGS

The findings of this study are divided into two general groups according to the periods 1924-1927 and 1928-1932 inclusive, in order to get a comparison of the rate of progress between the two periods. During the first of these periods there was no definitely planned program of poultry education for the community. During the second period there was a definitely planned program. However, there was no farmers' evening class nor check group during the first period. Therefore, the part of the study relating to the determination of the progress made without a planned program as compared with progress made with a planned program was determined on the basis of progress made in the all-day and unorganized groups. It will be recalled that the unorganized group was made up of individuals receiving instruction who were not regularly enrolled in classes.

The Comparative Progress of the All-Day Group With and Without a Program

As has already been pointed out the most logical way to determine the amount of progress made in a farm enterprise is to examine the factors of production on a cost per unit of production basis. Therefore, the following factors were set up under which information by the four poultry surveys was summarized:

1. Per cent of flocks standard bred.
2. Number of hens per farm.
3. Number of dozen eggs produced per hen per year.
4. Feed cost per hen per year.

TABLE I

SUMMARY OF ECONOMIC FACTORS OF PRODUCTION BY YEARS FOR EACH OF THE FOUR GROUPS REFLECTING ECONOMIC PROGRESS AND EFFICIENCY, AS FOUND BY POULTRY SURVEYS

Group	Year survey based on	Number of Farm Flocks			Hens per flock	Doz. eggs per hen per year	Feed cost per		Income per doz. eggs above feed cost	Average annual income per hen above feed cost
		Standard bred	Grade	Per cent Standard bred			hen year	doz. eggs		
All-day	1924-25	2	4	33	45	5.4	0.90	0.17	0.09	.486
	1927-28	6	7	48	63.6	6.7	0.80	0.12	0.13	.871
	1929-30	25	5	84	60.3	9.3	0.61	0.07	0.16	1.488
	1931-32	20	0	100	49.4	11.5	0.45	0.04	0.11	1.265
Evening	*1924-25	--	-	---	----	----	----	----	----	-----
	1927-28	7	5	58	49.6	6.8	0.85	0.125	0.125	0.85
	1929-30	22	5	82	52.6	9.4	0.67	0.07	0.16	1.504
	1931-32	24	0	100	36	10.	0.38	0.04	0.11	1.100
Unorganized	1924-25	2	6	25	32.8	4.6	0.84	0.18	0.08	0.368
	1927-28	3	5	37	60.6	5.9	0.90	0.15	0.10	0.590
	1929-30	8	10	45	50.7	6.5	0.70	0.10	0.13	0.845
	1931-32	12	7	63	30	8.0	0.40	0.07	0.08	0.640
Check	*1924-25	--	-	--	----	---	----	----	----	-----
	1927-28	0	9	00	42.2	4.0	0.71	0.18	0.07	-----
	1929-30	0	9	00	27.7	4.7	0.60	0.13	0.10	-----
	1931-32	1	10	10	23	4.4	0.37	0.08	0.07	-----

* There was no evening class, and no survey was made of the check group during this year.

5. Feed cost per dozen eggs per year.

6. Income per dozen eggs above feed cost.

A summary of the information is given in Table I.

Increase in standard bred flocks: During the first period in which there was no program the per cent of standard bred flocks surveyed in the all-day class increased from 33 per cent to 48 per cent or an increase of 15 per cent in three years. During the second period in which there was a definite poultry program there was an increase in the per cent of standard bred flocks surveyed from 48 to 100 or an increase of 52 per cent in five years. This increased averaged more than ten per cent per year under the planned program whereas under the unplanned program the average annual increase was only five per cent. In other words progress in securing standard bred flocks was twice as fast with a planned program. Table II illustrates this fact as well as other facts concerning the all-day class and unorganized group.

Change in number of hens: The average number of hens per flock owned by members of the all-day class increased during the first period from 45 to 63.6, an increase of approximately forty-two per cent. This rapid increase was probably due to the increased interest in poultry brought about by the Department of Vocational Agriculture together with favorable prices of eggs and broilers. Also, there was the tendency to increase the volume of the enterprise faster than the various individuals' poultry information justified. This resulted during the second period in a curtailment of poultry members. After the planned program was put into operation there was a systematic campaign of culling the low producers and unprofitable birds. This culling was accentuated by lower prices of eggs in the latter part of the second

TABLE II

EXTENT OF PROGRESS MADE WITH AND WITHOUT A PLANNED PROGRAM IN THE ALL-DAY AND UNORGANIZED GROUPS ACCORDING TO THE MOST IMPORTANT THREE MEASUREMENTS

Per cent increase in standard bred flocks		
1924-1927		
All-day group	15	xxxxxxxxxxxxx
Unorganized group	12	xxxxxxxxxxx
1927-1932		
All-day group	52	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Unorganized group	26	xxxxxxxxxxxxxxxxxxxxxx
Number of dozen eggs per hen per year		
1924-1927		
All-day group	6.0	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Unorganized group	5.2	xxxxxxxxxxxxxxxxxxxxxxxxx
1927-1932		
All-day group	9.2	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Unorganized group	6.8	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Annual income per hen above feed costs		
1924-1927		
All-day group	0.678	xxxxxxxxxxxxxxxxxxx
Unorganized group	0.479	xxxxxxxxxxxxxxx
1927-1932		
All-day group	1.208	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Unorganized group	0.661	xxxxxxxxxxxxxxxxxxx

period due to the agricultural depression. Numbers were reduced from 63.6 to 49, a reduction of 14.6 which was about 26 per cent. Thus it appears that the change in the number of hens is brought about by two general forces. First, the amount and thoroughness of information relating to poultrying and second the relative price of eggs.

Rate of egg production per hen: In the all-day group during the first period there was an increase in the number of dozen eggs per hen per year from 5.4 to 6.7, an increase of 1.3 or approximately 24 per cent. During the second period the progress made in this respect was slightly over 71 per cent, the annual egg production per hen haveing increased from 6.5 to 11.5 during the period in which the planned program was ineffect. For the five-year period this would be an average annual increase in the rate of production of over fourteen per cent, whereas during the first period in which there was no planned program the average annual percentage of increase was only eight. In other words the planned program appeared to make the instruction 75 per cent more efficient.

Feed cost: During the first period in the all-day group the annual feed cost per hen decreased from .90 to .80, and during the second period it decreased from .80 to .45. The declining cost of feed was naturally caused by the declining price of feed, though some economies were affected in the all-day group by co-operative buying and home mixing, as well as skill in feeding. However, it should be noted that feed costs in the all-day group are slightly higher than in any of the other groups. An explanation of this is that the all-day group fed a better ration, and fed more of it.

Feed cost per unit: The feed cost per dozen eggs in the all-day group during the first period decreased from .17 to .12 and declined further during the second period from .12 to .04 which is slightly the lowest schedule of any of the groups studied and has been shown that the all-day group paid more for feed per hen. This seems to indicate that up to a certain extent it pays to invest in better feed and get birds to eat more feed.

Income above feed cost: In the all-day group during the first period the income per dozen eggs above feed costs increased from .09 to .13 while during the first three years of the second period there was an increase from .13 to .16. During the last two years of the second period this dropped to .11 per dozen above feed cost due to the depression.

It must be remembered that in 1924-1925 the average production per hen was only 5.4 dozen eggs which would have returned a total income per hen above feed cost of .486. Likewise the annual income by 1927-1928 would have been .871; for 1929-1930, 1.488; and by 1931-1932 the total income above feed cost per hen per year would have been 1.235. In other words the total annual income per hen above feed cost during the first period averaged .678 per year while the average for the second period was 1.205 or approximately 100 per cent greater. These facts seem to prove that the annual progress made during the period employing a planned program was about 100 per cent greater than during the period in which there was no definitely planned program. In other words there was 100 per cent more progress made by use of a planned program than without one.

TABLE III

COMPARISON OF PRACTICES CARRIED OUT, WITH AND WITHOUT A PLANNED PROGRAM IN THE ALL-DAY GROUP

Practices	First Period. Three years preceding educational program.	Second Period. Five years of educational program.	Per cent of annual increase in the second period over the first period.
Number of individuals instructed.	28	67	56
Number of individuals completing practice.	18	65	117
Per cent individuals completing practice.	60.7	93.4	54
Total number of practices completed.	75	427	242

Effect of a Planned Program Upon Practices Carried Out in the All-Day Group

Table III shows that during the first period a total of 28 individuals in the all-day group were instructed in standard improvable practices. Of this number 18 or 60.7 per cent completed the practices. The total number of standard practices completed during this period was 75. During the second period 67 individuals were instructed and 65 or 93.4 per cent completed. The total number of standard practices completed during this period was 427. The per cent of annual increase in the second period of the first amounted to 56 per cent in the number instructed; 117 per cent in the number completing; and 54 per cent in the number of individuals completing practices. Also, there was an annual increase in the second period of 242 per cent in the total number of standard practices completed over the first period.

Therefore, it may safely be assumed that the planned program has increased the educational efficiency in getting standard practices carried out in the all-day group by 242 per cent.

The Comparative Progress of the Unorganized Group With and Without a Planned Program

The increased progress made by means of a planned program has been shown as it relates to the all-day group which of course is a regularly enrolled and carefully organized group. Therefore, the unorganized group will now be examined to show what progress may be made with a group of individuals who are not enrolled in any form of regular classes but who received poultry information by one or more of the following methods:

1. Membership in poultry association.
2. Printed matter supplied by teacher of agriculture.
3. Demonstrations by teacher.
4. Newspaper article by teacher.
5. Mimeographed letters sent by teacher.
6. Presence at a community fair.
7. Miscellaneous discussions with teacher.
8. Personal visits to farms by teacher.
9. Individual letters sent by teacher.
10. Posters put up by teacher.
11. Farm survey conducted by teacher.
12. Farm tour conducted by teacher of agriculture.
13. Miscellaneous.

Increase in standard bred flocks: During the first period of this study, 1924-1927 inclusive, when there was not a definitely planned program of poultry education for the community the per cent of standard bred flocks in the unorganized group increased from 25 to 37. This was an increase of 12 per cent or an average increase per year of four per cent. During the second period, 1927-1932 inclusive, the per cent of standard bred flocks increased from 37 to 63, an increase of 26, or an average annual increase of 5.2 per cent. This was a 30 per cent increase per year during the period in which there was a planned program.

Numbers of hens: In the unorganized group during the first period the average number of hens per flock increased from 32.8 to 60.6 and during the second period the number decreased to 30. This reaction is paralelled to that of the all-day group which has already been discussed, except that in the latter case the number did not make as wild an advance nor as drastic a reduction in numbers as were made in the unorganized group.

Rate of egg production: During the first period the average annual eggs production for the unorganized group increased from 4.6 dozen to 5.9 dozen, an increase of 1.3 dozen or approximately twenty-eight per cent. This would have been an average annual increase of 9.1 per cent. During the second period in which there was a planned program the number of dozen eggs per hen increased from 5.9 to 8.0, an increase of 2.1 or approximately thirty-four per cent. This shows a smaller average annual increase than for the first period. However, this does not prove that the planned program was not more effective because aside from these figures it should be understood that during the session 1927-1928 when the farmers' evening class was organized a large number of the most efficient individuals in the unorganized group enrolled in the farmers' evening class, thereby leaving the less efficient individuals in the unorganized group during the second period. The average egg production for the last year of the farmers' evening group during the second period was 10.0. This makes an average for both groups of 9.0 dozen for that year or an increase of approximately fifty-three per cent for the second period. This would be an average annual increase of 10.6 per cent. The average annual increase for the first period was only 9.1 per cent, a difference of 1.5 per cent in favor of the second period. In other words the unorganized group, including the farmers' class members, was over sixteen per cent more efficient in the production of eggs per hen during the second period than during the first period when there was no planned program.

Feed cost: The feed cost per hen per year for the unorganized group increased during the first period from .84 to .90. However, during the second period the cost decreased from .90 to .40 per hen due chiefly to lower feed prices.

Feed cost per unit: The feed cost per dozen eggs produced during the first period in the unorganized group decreased from 0.18 to 0.15, a degree of 0.03 or an average of 0.01 per year. During the second period there was a decrease from 0.15 to 0.07 or a dedreasing 0.08 in feed cost per dozen eggs produced. This amounted to an average decrease per year of 0.016 or 0.006 more annual decrease than for the first period. In other words there was more economical e gg production during the period when there was a planned program.

Income above feed cost: The average annual income per hen above feed cost during the first period increased from 0.368 to 0.590 or an increase of 222. During the first three years of the second period this income increased from .590 to 0.845 or an increase of 255, which was 15 per cent greater than during the first period. Therefore, it is apparent that the planned program made 15 per cent greater income above feed possible. But several of the best individuals of the unorganized group joined the evening group in 1927 when it was organized. Therefore, by getting an average for both periods we find that the average annual income above feed cost amounted to .661 per hen which was an increase of .368 over the first period or an increase of 80 per cent in progress made by use of a planned program.

Effect of a Planned Program Upon Practices Carried Out by the Unorganized Group

Table IV shows that during the first period in the unorganized group the number of individuals instructed was only 12. This was increased to 45 during the second period or an annual increase of 125 per cent over the first period. The number of individuals completing practices increased from seven in the first period to 30 in the second

TABLE IV

COMPARISON OF PRACTICES CARRIED OUT WITH AND WITHOUT AN EDUCATIONAL PROGRAM IN THE UNORGANIZED GROUP

Practices	First Period. Three years preceding educational program.	Second Period. Five years of educational program.	Per cent of annual increase in second period over the first period.
Number of individuals instructed.	12	45	125
Number of individuals completing practices.	7	30	200
Per cent individuals completing practices.	58	66.6	20
Total number of practices completed.	46	103	124

or an annual increase over the first period of 200 per cent. The per cent of individuals completing practices increased from 58 in the first period to 66.6 in the second which was an annual increase of 20 per cent over the first period. The total number of standard practices carried out increased from 46 in the first period to 103 in the second or an annual increase of 124 per cent over the first period in which there was no planned program.

Thus, it seems clear that in the unorganized group the planned program created about 50 per cent more efficiency in educational methods than without a planned program. This is approximately one-half as great an increase in efficiency as was found in the all-day group.

Progress Made by Evening Group

Since the farmers evening group was not organized until the beginning of the second period when the planned program was launched it is not possible to get a comparison with the former period except as this group in the second period may be compared with the unorganized group of the first period, out of which it grew.

However, it seems worthwhile to emphasize the fact that during the second period the farmers' evening class enjoyed a very marked progress that was paralelled to the progress of the all-day group in practically all particulars. During this period the per cent of standard bred flocks increased from 58 to 100, an increase of 76 per cent. The average number of hens per flock decreased from 49.6 to 36. The number of dozen eggs produced per year per hen increased from 6.8 to 10 dozen, an increase of nearly 50 per cent. The feed cost per hen per year decreased from 0.85 to 0.38. The cost per dozen eggs for feed decreased from 0.125 to 0.04. The income per hen per year above feed cost increased from 0.85 to 1.504 in 1929-1930 which was an increase of 167 per cent in three years.

The outstanding fact about the evening group is that splendid progress was made in practically all the measures of economic production during the second period when a planned program was in operation. This progress was almost equal to the progress of the all-day group in the second period.

Summary of Facts Established Regarding Extent of Progress Due to a Planned Program

1. The extent of progress made by use of a planned program over that made without a planned program of poultry education in Grassy Creek community was found to be as follows:

   a. There was 100 per cent more progress made in establishing standard bred farm flocks in the all-day classes and 30 per cent more progress in the unorganized group.

   b. The progress made in securing a higher rate of production amounted to 75 per cent in the all-day group and about 16 per cent in the unorganized group.

   c. The progress made in securing income above feed cost was 100 per cent in the all-day group and 80 per cent in the unorganized group.

   d. Progress made in getting standard practices completed was shown by a 54 per cent increase in the per cent of individuals completing standard practices and a 242 per cent increase in the number of standard practices completed in the all-day class.

   e. Progress made in the unorganized group was shown to be a 20 per cent increase in per cent of individuals completing standard practices and a 124 per cent increase in the number of standard practices completed.

2. The extent of progress made by the evening group with a planned program was marked by a 76 per cent increase in standard bred flocks, 50 per cent increase in rate of egg production, and 167 per cent increase in income above feed per hen.

Supplementary Facts Established

1. Changes in number of hens per farm in both the all-day and the unorganized groups appear to be influenced by:

   a. The amount and thoroughness of instruction relative to poultrying and the relative price of eggs.

b. The all-day group showed more skill in feeding hens for egg production than the unorganized group.

c. Lower feed prices were largely responsible for the drop in the annual feed cost.

Efficiency of Certain Educational Methods and Devices

Thus far the principal consideration has been in regard to the extent of progress possible on a single basic farm enterprise by use of a planned program. In determining the extent of progress possible no special effort has been made to list all the influences back of the progress. However, it is generally recognized that the degree of success with which an individual meets in conducting a farm enterprise is in direct proportion to the kind of practice he employs in carrying out the various jobs connected with the enterprise. In other words the practices carried out determine the extent of progress made. This has already been proven by the fact that in the present study many more standard practices were carried out in the all-day and evening group than in the other two groups with corresponding degrees of progress. Further proof that the extent of progress is in proportion to the standard practices carried out was found in the fact that during the period in which the planned program was in operation there were many more standard practices carried out than in the period when no planned program was in use. It has already been proven that the planned program brought about a marked improvement in the extent of progress made. Therefore, when we determine how to get the various standard practices carried out most efficiently we will have found the most efficient educational methods.

The value of the planned program of community poultry education has already been shown. However, the community program covers all methods and devices of education during the period 1927-1932 inclusive. Therefore,

three types or groups of instruction, together with the check group already mentioned, have been set up for comparison as to the standard practices each was responsible for having carried out.

This part of the study has been confined altogether to the second period of 1927-1932 inclusive because of the following reasons:

1. The farmers' evening classes were conducted only during this period and therefore no direct comparison could be made with other groups in the first period.
2. The check group was not established until the second period and thus there would have been no check for the first period.
3. The data available for the first period were limited.
4. During the second period all the different educational methods used were of a more modern nature so that results secured during this period are naturally of greater value.

The efficiency of the different types of educational procedure was determined by applying the following measurements to the data secured:

1. Number of individuals instructed in standard practices.
2. Number of individuals completing standard practices.
3. Per cent of individuals completing practices.
4. Total number of standard practices completed.

Table V gives the figures for comparison between the four groups: The all-day, the farmers' evening, the unorganized, and the check groups.

Number instructed: During the period 1927-1932 the total numbers of individuals instructed in standard improvable practices were 67 in the all-day, 69 in the evening, and 45 in the unorganized group. Of those who were instructed the total numbers of individuals who completed the standard practices in which instruction was given were for the all-day group 65 or 93.4 per cent, for the evening group 64 or 92.4 per cent, and for the unorganized group 30 or 66.6 per cent.

TABLE V

EFFICIENCY OF DIFFERENT TYPES OF INSTRUCTION AS MEASURED

BY THE STANDARD PRACTICES COMPLETED, 1927-1932 INCLUSIVE

Measurement of Standard Practices	G R O U P S			
	All-day	Evening	Unorganized	*Check
Total number individuals instructed in standard practices	67	69	45	*26
Total number individuals completing standard practices	65	64	30	*8
Per cent of individuals completing standard practices	93.4	92.4	66.6	*30
Total number standard practices completed	427	332	103	*13

* Refers only to those who were surveyed but none received instruction direct.

The per cent completing is important because it indicates the rate of efficiency. We find that the all-day group shows slightly better efficiency than the evening group, while the evening group shows approximately 40 per cent more efficiency than the unorganized group in this respect. This indicated that the all-day and evening class methods of organized instruction in which individuals are enrolled in regular classes, are 40 per cent more efficient than instruction given to individuals who are not regularly enrolled in organized classes as measured by the per cent of individuals completing standard practices.

The total numbers of standard practices completed by each group were 427 for the all day, 332 for the evening, and 103 for the unorganized group. These numbers are important to indicate the scope of accomplishments. This means that although there were only about 50 per cent more individuals instructed in the organized classes than in the unorganized group, the total number of standard practices carried out in the organized groups averaged approximately 270 per cent more than those carried out in the unorganized group. By combining the two above facts it appears very reasonable to state that on the whole instruction in the organized group was at least 100 per cent more efficient than in the unorganized group. In the check group a total of 26 individuals were surveyed, none of whom had received any instruction attributable directly to the Grassy Creek Department of Vocational Agriculture. Of these it was found that by the end of the period eight individuals had completed 13 standard practices which was 30 per cent of those surveyed. This of course shows that individuals may absorb a certain amount of knowledge regardless of whether or not they receive any instruction.

The results of the check group are probably more important to service as a check on the progress made in the instructed groups. This appears to be definite proof that instruction in vocational agriculture in a community is fairly efficient in getting better farming practices carried out and consequently in causing the farming of the community to make better progress economically. Consequently, on the basis of the above figures poultry farming in the community where there was a department of vocational agriculture was approximately 200 per cent more efficient than in the check community where there was no instruction given.

Relative Efficiency in Completing Different Practices

Table VI compares the per cent of individuals instructed in standard practices who completed the 13 different practices in the three groups that were instructed as well as the check group. From a study of this table it will be seen that the different standard practices varied considerably in the per cent completed in each group. Also, it will be seen that for the same practices there was a variation in the different groups in the per cent completed.

By grouping the five practices most efficiently completed in the all-day group according to rank and then giving the rank of the same practices according to the other two groups receiving instruction we have an interesting comparison.

TABLE VI

RELATIVE EFFICIENCY IN COMPLETING DIFFERENT PRACTICES IN EACH OF THE FOUR GROUPS
1927-1932 INCLUSIVE

Practices	Per cent of Individuals Completing			
	All-Day	Evening	Unorganized	Check
1. Establishing a standard bred flock	85	90	53	0
2. Culling flock for egg production	95	89	50	16
3. Feeding for egg production	85	88	37	16
4. Caring for breeding stock	86	81	63	0
5. Controlling diseases and pests	76	80	18	8
6. Production of hatching eggs	86	79	17	0
7. Brooding artificially	91	91	0	0
8. Feeding chicks	94	94	6	0
9. Improving housing	83	89	55	16
10. Fattening for market	82	90	10	0
11. Marketing co-operatively	81	85	50	0
12. Caponizing	100	100	0	0
13. Keeping records	97	100	0	0

TABLE VII

RANK IN EFFICIENCY OF PER CENT PRACTICES COMPLETED

Serial Number	Practices	Groups		
		All-day	Evening	Unorganized
12	Caponizing	1	1	10
13	Keeping records	2	1	10
2	Culling for egg production	3	5	4
8	Feeding chicks	4	2	9
7	Brooding artificially	5	3	10

It will be seen from Table VII that the identical five standard practices ranking best in efficiency of per cent completed appear in both of the organized groups with the one exception of fourth place in the evening group. While among the five ranking highest in the unorganized group there is only one standard practice. This indicates that similar practices may be efficiently taught in the all-day and evening groups but may not be as efficiently taught the unorganized group as other practices.

In Table VIII the relative efficiency in getting each of the thirteen standard practices completed in each of the four groups has been charted for comparison. An outstanding observation of this figure is that in practically all standard practices the efficiency of instruction as measured by the per cent of standard practices completed is comparatively equal in the all-day and evening group. Whereas the efficiency in the unorganized group fluctuates irregularly but always the efficiency in per cent of standard practices completed is far below either of the other groups.

Tables IX, X, and XI are included to show the scope of each standard practice in each group as measured by the number of individuals instructed and completing each practice.

TABLE VIII

RELATIVE EFFICIENCY IN COMPLETING DIFFERENT PRACTICES IN EACH OF THE FOUR GROUPS

Practice Number	Groups	Per cent practices carried out during the period, 1927-1932	
1.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	85%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	90%
	Unorganized	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	53%
	Check		0%
2.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	95%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	89%
	Unorganized	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	50%
	Check	xxxxxxxxxxxxxxxx	16%
3.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	85%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	88%
	Unorganized	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	37%
	Check	xxxxxxxxxxxx	12%
4.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	86%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	81%
	Unorganized	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	63%
	Check		0%
5.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	76%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	80%
	Unorganized	xxxxxxxxxxxxxxxxxx	18%
	Check	xxxxxxxx	8%
6.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	86%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	79%
	Unorganized	xxxxxxxxxxxxxxxxx	17%
	Check		0%
7.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	91%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	91%
	Unorganized		0%
	Check		0%

TABLE VIII (continued)

RELATIVE EFFICIENCY IN COMPLETING DIFFERENT
PRACTICES IN EACH OF THE FOUR GROUPS

Practice Number	Groups	Per cent practices carried out during the period, 1927-1932	
8.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	94%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	94%
	Unorganized	xxxx	5%
	Check		0%
9.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	83%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	89%
	Unorganized	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	55%
	Check	xxxxxxxxxxx	16%
10.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	82%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	90%
	Unorganized	xxxxxxx	10%
	Check		0%
11.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	81%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	85%
	Unorganized	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	50%
	Check		0%
12.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	100%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	100%
	Unorganized		0%
	Check		0%
13.	All-day	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	91%
	Evening	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	100%
	Unorganized		0%
	Check		0%

TABLE IX

RELATIVE EFFICIENCY OF DIFFERENT FACTORS IN THE ALL-DAY GROUP, 1927-1932

Practices	Number of individuals instructed	Number individuals completing	Per cent individuals completing
1. Establishing a standard bred flock.	27	28	85
2. Culling flock for egg production.	37	35	95
3. Feeding for egg production.	47	40	85
4. Caring for breeding stock.	29	25	86
5. Controlling diseases and pests.	66	50	76
6. Producing hatching eggs.	29	25	86
7. Brooding artificially.	11	10	91
8. Feeding chicks.	19	18	94
9. Improving housing.	29	24	83
10. Fattening for market.	67	55	82
11. Marketing co-operatively.	67	54	81
12. Caponizing.	3	3	100
13. Keeping records.	67	65	97

TABLE X

RELATIVE EFFICIENCY OF DIFFERENT PRACTICES
IN THE EVENING GROUP, 1927-1932

Practices	Number of individuals instructed	Number of individuals completing	Per cent of individuals completing
1. Establishing a standard bred flock	29	26	90
2. Culling flock for egg production	27	23	89
3. Feeding for egg production	27	23	88
4. Caring for breeding stock.	26	22	81
5. Controlling diseases and pests.	32	25	80
6. Producing hatching eggs.	21	17	79
7. Brooding artificially	43	39	91
8. Feeding chicks	33	31	94
9. Improving housing	27	23	89
10. Fattening for market	32	29	90
11. Marketing co-operatively	46	39	85
12. Caponizing	3	3	100
13. Keeping records.	32	32	100

TABLE XI

RELATIVE EFFICIENCY OF DIFFERENT PRACTICES IN THE UNORGANIZED GROUP, 1927-1932

Practices	Number of individuals instructed	Number of individuals completing	Per cent of individuals completing
1. Establishing a standard bred flock.	30	16	53
2. Culling flock for egg production.	33	18	50
3. Feeding for egg production.	26	7	31
4. Caring for breeding stock.	16	10	63
5. Controlling diseases and pests.	45	8	18
6. Producing hatching eggs.	35	6	17
7. Brooding artificially.	6	0	0
8. Feeding chicks.	34	2	6
9. Improving housing.	18	10	55
10. Fattening for market.	39	4	10
11. Marketing co-operatively.	8	4	50
12. Caponizing.	0	0	0
13. Keeping records.	3	0	0

Further investigation in this field might develop the fact that a different general kind of standard practice could be more efficiently taught each group in the light of the per cent studied and in view of the modern tendency toward greater efficiency in educational procedure. It appears that this question offers an opportunity for a separate study.

Methods of instruction: Table XII shows the results of a part of the study designed to determine which of the methods of instruction used was most instrumental in getting standard practices carried out and which was most economical in terms of the teacher's time in each of the three instructed groups.

In the all-day group, classes meeting regularly was the only important method. This included field work and all other teaching based upon class work. This method alone accounted for getting 97.8 per cent of all standard practices carried out.

Classes meeting regularly, including visits of instructor, was also the most important method in the evening group and accounted for 278 or 85.5 per cent of all standard practices in the group being carried out. However, one other method was important in this group. Twenty-five standard practices or 7.8 per cent were carried out as a result of membership in the local poultry association.

In the unorganized group we find membership in the poultry association of most importance and accounting for 34 standard practices or 33.9 per cent. Other methods of importance in this group are demonstrations accounting for 15 standard practices or 14.7 per cent, and personal visits to farms accounting for 12 standard practices or 11.4 per cent. Next in order were newspaper articles, farm tours, community fairs, miscellaneous discussions, posters, mimeographed letters, personal letters, and farm surveys.

TABLE XII

RELATIVE EFFICIENCY OF DIFFERENT METHODS OF INSTRUCTION IN THE THREE INSTRUCTED GROUPS

Practices carried out as a result of different methods of instruction and efficiency of each method in terms of practices carried out and time of instructor consumed

Devices of instruction	All-day Group		Evening Class		Unorganized Group		Per cent instructor's time to method	Average per cent total practices completed
	No. practices completed	Per cent practices completed	No. practices completed	Per cent practices completed	No. practices carried out.	Per cent practices completed		
1. Classes meeting regularly.	491	97.8	278	83.5	0	0	60	58.3
2. Member of poultry association.	3	.6	25	7.8	34	31.2	5	13.1
3. Printed matter supplied by instructor.	1	.2	2	.6	11	10.1	.5	3.9
4. Demonstrations.	4	.8	6	1.8	15	13.8	3	5.4
5. Newspaper article.	1	.2	4	1.2	9	8.3	5	3.6
6. Mimeographed letters.	0	0	2	.6	3	2.8	1	1.1
7. Community fairs.	2	.4	2	.6	6	5.4	6	2.1
8. Miscellaneous discussion.			2	.6	4	3.7	2	1.4
9. Personal visits to farms.			0	0	12	11.	10	5.5

TABLE XII (continued)

RELATIVE EFFICIENCY OF DIFFERENT METHODS OF INSTRUCTION IN THE THREE INSTRUCTED GROUPS

Practices carried out as a result of different methods of instruction and efficiency of each method in terms of practices carried out and time of instructor consumed

Devices of instruction.	All-day Group: No. practices completed	All-day Group: Per cent practices completed	Evening Class: No. practices completed	Evening Class: Per cent practices completed	Unorganized Group: No. practices carried out.	Unorganized Group: Per cent practices completed	Per cent instructor's time to method	Average per cent total practices completed
10. Personal letters.			1	.3	2	1.8	1.5	.7
11. Posters.			2	.6	4	3.7	1	1.4
12. Farm survey.			3	.9	2	1.8	4	.9
13. Farm tour (exclusive field trips)			5	1.5	7	6.4	1	2.6
Totals	502	100	332	100	109	100	100	100

In connection with the preceding it should be noted that group instruction accounted for over ninety per cent of the standard practices carried out.

Summary of Facts Established Concerning Relative Efficiency of Different Types and Methods of Instruction

The annual income above feed cost per hen is a definite measure of economic progress. The most important factor in determining economic progress is the number of standard practices completed. It follows that the methods used to get standard practices completed may be considered as determining the amount of progress made for each period and for each group. Therefore, the relative per cent of individuals completing standard practices and the relative number of standard practices completed determine the relative efficiency of the different educational types and methods of instruction. Several facts that have been established concerning the relative efficiency of the different educational types and methods of instruction are summarized below:

1. Grassy Creek community, in which a department of vocational agriculture was established, was 200 per cent more efficient in poultry farming than a nearby community not having the advantages of this type of education, during the period of the planned program.

2. A planned program made practically all types and methods of instruction more efficient although the efficiency varied with different types.

3. Instruction in the two organized groups, the all day and evening, was about equal in efficiency. However, instruction in both of the organized groups was at least 100 per cent more efficient than instruction in the unorganized group.

4. The efficiency of instruction for each individual standard practice in both the all day and evening groups was uniformly high, while in the unorganized group efficiency was low and irregular.

5. In comparing the methods of instruction applied to each group it was found that:

   a. Instruction given to members of regular classes accounted for practically all standard practices completed in the all-day and evening groups.

   b. In the unorganized group the most important method of instruction was securing participation of individuals in activities of the poultry association. However, in this group practically all the methods of instruction secured some degree of good results.

   c. More of the teacher's time was required per standard practice completed by some methods than by others.

6. The question of the relative efficiency of instruction in different standard practices in different groups is merely touched upon in this study but it is recommended that a separate study be made in that field.

IV. SIGNIFICANCE OF RESULTS

For the purpose of pointing out the significance of the results obtained this part of the study has been divided into two parts: First, the extent of progress made by use of a planned program for education in poultrying in Grassy Creek community, and second, the relative efficiency of different educational types and methods.

Extent of Progress Due to a Planned Program

It has already been found that the three greatest factors in determining progress made in poultrying were the per cent of standard bred flocks, the rate of egg production, and the annual income above feed cost. The extent of progress varied in the different groups. Therefore, they are examined separately.

Progress in all-day and unorganized groups

By striking an average of the per cent increase in each of the above three factors it was found that the planned program accounted for approximately 100 per cent of progress in the all-day group and approximately 50 per cent of progress in the unorganized group. This means that there was about 100 per cent more annual progress in the all-day group, and about 50 per cent more annual progress in the unorganized group during the second period of this study, 1927-1932 inclusive, when there was a planned program, than during the first period, 1924-1927 when there was no planned program.

This should answer rather definitely in so far as this study is concerned the question, "How much progress can be made by means of a planned educational program for a single basic farm enterprise when carried over a five-year period?" Thus this objective has been reached.

Facts of Importance: In determining just why this result was reached several facts stand out rather prominently. First, all the different educational methods employed were favorably affected by the planned program. However, not all methods were affected in the same way. It should be remembered that progress in the all-day group was determined by the number of standard practices completed. There was an increase in the number of standard practices completed of 242 per cent in the all-day group and an increase in the number of standard practices completed of 124 per cent in the unorganized group.

Therefore, the 242 per cent increase in standard practices completed in the all-day group and the 124 per cent increase in the number of standard practices completed in the unorganized group, accounted for 100 per cent more progress in the all-day group and 50 per cent more progress in the unorganized group. Second, it should be noted that there is a ratio of 2 to 1 in each case. In other words the formulas of progress for this basic farm enterprise by use of a planned program may be written:

$$\frac{\text{Progress in all-day group}}{\text{Progress in unorganized group}} = \frac{2}{1}$$

Also:

$$\frac{\text{Standard practices completed in all-day group}}{\text{Standard practices completed in unorganized group}} = \frac{2}{1}$$

Two questions naturally arise at this point:

1. Why should the planned program cause twice as much progress in the all-day group as in the unorganized group?

2. Why did it happen that for every 100 per cent increase in progress in either group under the planned program there was an increase of 200 per cent in the number of standard practices completed?

Why more progress was made in the all-day group

In discussing the first question it should be remembered that the all-day classes are usually pretty well organized within themselves. They meet regularly. They receive regular instruction. They have a well-planned course of study to follow. They have certain well-outlined home supervised practice work. Their home work is closely supervised by the teacher of agriculture. They have access to a great deal of information and come in contact with various educational materials that the unorganized group does not. The all-day group really has a fairly well-planned program already set up. However, the planned community program stimulated, strengthened, and intensified the class program to such an extent as to make 100 per cent progress.

On the other hand the unorganized group without a community program had no program at all. All methods of instruction were haphazard, uncertain, and inefficient without the centralizing effect and stimulating spirit of common goals and common methods of reaching them. When the planned program made this contribution a great advance was launched. It furnished information in the following ways: newspaper articles, community fair exhibits, demonstrations by neighbors who were members of organized classes, etc. Therefore, it should be expected that the planned program would cause considerable progress, although not as much as in the well organized all-day group.

All these considerations and many more were of special assistance in planning the present program for Grassy Creek community and of still greater aid in making the revised program found later on in this study. The investigator would like particularly to emphasize that to make such a program a success it should be the duty of the teacher to know his community, its people, their needs, their talents, aspirations and ideals, and many other things in order to plan a program that will be most valuable. With the planned program in operation it is readily seen that the organized group should benefit a great deal more than the unorganized group. However, the planned program provided definite ways and means of aiding the unorganized group. A co-operative poultry association was organized, demonstrations in better poultry practices were held and a large number of specific methods were employed to assist this group in an orderly way. It is true that a few of these methods were also applied to the organized classes and for reasons already stated the organized classes were in better condition for making efficient use of instruction and so were able to take more advantage of the planned program than the unorganized group.

Relation of standard practices to progress

In answering the second question as to why it happened that to increase the number of standard practices completed 200 per cent there was an increase in progress made of only 100 per cent, the following reasons are given:

1. Not all standard practices completed are effective in making progress.

2. A large number of standard practices may be required to make any appreciable progress when a novice first engages in an enterprise.

3. As progress increases it becomes more and more difficult to complete additional and new standard practices that will continue the upward trend when he becomes more and more proficient.

As a basis for the first reason it is a matter of common knowledge to the farmer as well as to the instructor of vocational agriculture that in many cases standard practices have been faithfully completed but wrongly timed, or improperly applied to the farm enterprise. The matter of the judgment or reasoning power of the individual may affect the efficiency of the standard practices completed. There should be a perfect coordination of the different standard practices. The application of the standard practices should be synchronized with the particular situation for most efficiency just as the sound is synchronized with the pictures in the sound-pictures.

The second reason for this average for all four groups two to one ratio may be expressed as a corollary of the first reason. If the application of standard practices completed is only 50 per cent efficient by the average individual then there must be twice as much increase in the number of standard practices completed as there is progress made. But more practices must be carried out by the beginner because several practices such as feeding, housing, etc., are fundamental to even a small degree of success.

The third reason may be illustrated: Suppose a man starts in poultrying with all conditions and facilities fairly good with the exception of feed. The first year he feeds nothing, but lets his flock scout for itself. The hens may be able to pick up a maintenance ration but probably will not be able to secure the additional amount, and certainly not in the right proportion, of food elements for producing any appreciable quantity of eggs. However, the poultryman

begins to improve this condition the second year by feeding the flock all it will eat of home grains, part of which is ground and fed as a mash but no protein supplements added. By this one act his egg production would probably increase 100 per cent. Then suppose that the third year he feeds a completely balanced laying ration no doubt his egg production would increase another 100 per cent simply by completing one additional standard practice. Progress up to this point has been relatively easy. However, at this point he is faced with a number of problems such as better housing, range, higher production stock, more careful feeding, and many other standard practices that may be required for any great increase in progress. Therefore we see the rate of egg production slowing down and at the same time more and better practices are required to make more progress. This condition was present to some extent during the second period, 1927-1932, and retarded the progress made in relation to the number of standard practices completed. Therefore, this is another reason for the two to one ratio of 200 per cent increase in the number of standard practices completed for each 100 per cent increase in progress made. This fact probably is associated with the law of diminishing returns.

Progress in the evening group

Due to the fact that there was not an evening group during the first period when there was no planned program, it was impossible to get a direct comparison of this group between the two periods. However, the progress of the evening group has been recorded during the second period when there was a planned program and the progress made was so strikingly similar to that made in the all-day group that it is the

strong conviction of the investigator that had there been an evening class during the first period it would have acted similar to the all-day group. It is possible that a somewhat greater relative progress might have been made due to the planned program in the second period if the evening group had been organized during the first period. The educational methods employed in the evening group were similar to those for the all-day group. Since these methods under the planned program resulted in greater progress in the all-day group than in the unorganized group it seems probable that some greater progress would have been made in the evening class if it had been organized. But it does appear likely that there would have been much more progress than in the unorganized group for the reason that the evening group would necessarily have been better organized during the second period similar to the all-day group. This probably accounts for the fact that the evening group made 100 per cent progress during the period in which the planned program was in operation.

Results Relative to Efficiency of Types and Methods of Instruction

Probably the most gratifying piece of datum contained in this entire investigation in so far as the investigator is concerned, is the fact that it has been shown that the Grassy Creek Department of Vocational Agriculture has made a large and definite improvement in poultry farming in the Grassy Creek community. It should be understood, also, that poultrying is only one enterprise in which instruction was given by the agricultural department. The instruction covers all farming enterprises of the community. However, poultrying only is considered here, although equal progress was made in other enterprises.

It has been shown that Grassy Creek community was 200 per cent more efficient in poultry farming than a nearby community not having the educational advantages of a department of vocational agriculture. The practical question may be asked, "What does it mean in dollars and cents for one community to be 200 per cent more efficient than another nearby community?" It means simply this: If the Grassy Creek community receives an annual income from poultry of only sixty thousand dollars per year, the community that is 200 per cent less efficient would receive approximately one-third of the sixty thousand dollars or twenty thousand dollars annually. This would be an annual difference in income on poultry alone of forty thousand dollars in favor of the Grassy Creek community. Then, considering that poultrying is only one of a score of farm enterprises it is significant that the economic value of vocational education in agriculture in the community would be very large. Poultry is a cash enterprise and one which is susceptible to decided improvement. Some other enterprises cannot be so radically improved.

Relative efficiency of instruction in the organized and the unorganized groups

First, it was found that the efficiency of instruction in the all-day and evening groups was practically equal. The chief reason for this fact was because similar methods of instruction were employed in both groups. For instance, members were enrolled in classes meeting regularly. Printed information, demonstrations, and a number of similar methods were used in each class. Also, both kinds of classes

studied, planned and conducted home work which was supervised by the teacher of agriculture. It may be said that evening classes do not meet on an average of more than fifteen or twenty times each year, while the all-day classes meet five times each week for eight or nine months. This may be offset by the fact that members of the evening class are more mature and experienced and therefore are able to grasp the fundamentals more quickly than the all-day students. Also, the evening class students do not study as many different enterprises and therefore, put almost as much time on the enterprises studied as the all-day students. In considering this question from every angle it seems proper that the two groups would show about equal efficiency in the instruction given in poultrying. This fact may be of use in determining the relative amount of time the teacher of agriculture should give to each class on a single farm enterprise.

Second, it was found that instruction in both the all-day and evening groups was at least 100 per cent more efficient than in the unorganized group. The chief reason for this was the fact that members of the unorganized group were not enrolled in a class meeting regularly for instruction. On the other hand individual members of this group depended upon such methods of instruction as their membership in the poultry association, demonstrations by the teachers of agriculture, personal visits to their farms by the teacher, and other individual methods of instruction. However, it could hardly be expected that instruction of this kind would be as efficient as the regular class instruction in which there were class discussions of the various problems that were met with.

This part of the study clearly shows that instruction in the unorganized group is inefficient and therefore costly in terms of the teacher's time. However, the investigator feels that he has accomplished a great deal even with this group. It was especially gratifying to see a large part of the unorganized group in the first period become good members of the evening class in the second period. Also, it often happens that certain individuals cannot or will not attend evening classes but will respond to individual methods. Therefore, it is not recommended that the unorganized group be discontinued but rather to enlist all who will in some one of the regular classes and give any time that is available after other duties and responsibilities have been met, to the unorganized group. But it should be made clear to the unorganized group that any aid the teacher may render them will be secondary to that rendered to the unorganized class members.

Relative educational efficiency of different standard practices

Probably the most important reason for the high efficiency of instruction for each standard practice in both the all-day and the evening groups was because of the supervised practice work conducted in both groups. By this means the teacher of agriculture was able to check up on each individual and in this way secure the completion of a high percentage of each standard practice. It was necessary, of course, to have the supervised practice work at home studied and planned in class in order to be completed most successfully.

On the other hand the lack of definitely studied, planned, and executed supervised practice most probably accounted for the low and irregular efficiency of instruction in the unorganized group.

In other words it seems reasonable that if members of the unorganized group would study, plan, and execute a program of supervised practice there would be a higher rate of efficiency in instruction given them. Therefore, it is recommended that the Federal Board for Vocational Education be requested to consider this matter and if found feasible to allow certain individuals to become members of the evening class without compulsory class attendance but require each member so enrolled to study, plan, and conduct such a supervised practice program as is satisfactory to the teacher of agriculture. Records of this work may then be kept and a report made as in the case of evening class members.

Comparisons of methods of instruction applied to each group

In the case of the all-day group it was found that practically all standard practices completed were the result of regular class instruction, including field trips, supervised practice, and other forms of instruction connected with the all-day class. This result was expected for the main reason that group instruction as applied to the all-day class was carefully planned and organized so that other methods were not necessary to get the various standard practices completed. In other words, the course of study was based upon the needs of the students. The matter was logically arranged and clearly presented as the students were able to master the different jobs and enterprises. In this way the instruction in the all-day group as a class appeared to be rather complete.

Instruction in the evening group was very similar to that of the all-day group. The regular class instruction, including educational activities engaged in as a class, accounted for practically all the standard practices completed just as in the all-day group. Also, the same reasons may be attached to results in these two groups.

However, a different situation was found in the unorganized group with respect to the comparison of methods of instruction in this group with the all-day and evening groups. In the unorganized group there were no standard practices completed as a result of class instruction because there were no classed held nor class instruction given. The instruction, however, varied all the way from group instruction such as membership in the poultry association, with a large number attending meetings, down to strictly individual instruction, as personal visits to farms by the teacher of agriculture, with a corresponding decrease in the number of standard practices completed.

Thus, it is seen that regular class instruction was very much superior to individual instruction or even group instruction which was not particularly organized. The significant fact that seems to stand out here is that regularly organized class instruction was the principal method of instruction in vocational agriculture for the organized groups, while some co-operative activity engaged in by those individuals securing instruction but not enrolled in organized class secured the best results for the unorganized group.

Summary of Significance of Results

In summarizing the significant results of the study it should be kept in mind that this entire investigation is original work. The facts presented are specifically the results secured in Grassy Creek community. However, since this community appears to be an average community of Southwest Virginia and Northwestern North Carolina there seems to be no reason why the facts presented might not apply to other communities.

Summary of Results Relative to the Extent of Progress

The facts which have been considered the most important in this part of the study are summarized below. It will be seen that although the extent of progress in a basic farm enterprise (poultrying) made possible by use of a planned program was the chief point to be determined, several other associated facts were determined as follows:

1. Progress in the all-day group was increased 100 per cent by means of a planned program.

2. Progress in the unorganized group was increased 50 per cent by means of a planned program.

3. Progress in the evening group increased 100 per cent during the period of the planned program.

4. There was an increase of 200 per cent in the number of standard practices completed for 100 per cent increase in the extent of progress made by use of a planned program in any of the groups.

   a. Standard practices completed were only about 50 per cent efficient in their application by the average individual.

   b. The number of standard practices completed increased twice as fast as the per cent of progress made under the planned program.

   c. A point will eventually be reached beyond which it will no longer be possible to increase progress by increasing the number of standard practices completed.

5. It is recommended that any teacher of vocational agriculture, county agricultural agent, or extension worker who attempts to plan a similar program, shall first obtain all the information possible concerning the specific enterprise for the following reasons:

   a. Information back of a planned program is a prerequisite of sound progress.

   b. Ways and means of executing the planned program must be provided.

   c. Information is essential to correctly interpret trends and anticipate future conditions and needs.

Summary of Results Relative to Efficiency of Types and Methods of Instruction

In summarizing the significant facts of the part of the study relating to educational efficiency of types and methods the following appear to be outstanding:

1. The economic value of the work of the Grassy Creek Department of Vocational Agriculture was proven to be large. During the period 1927-1932, inclusive, poultry farming in this community was 200 per cent more efficient in getting standard practices completed than the check community in which there was no department of vocational agriculture.

2. Efficiency of instruction in all-day and evening classes was approximately equal because similar educational methods were employed.

3. Instruction in both the organized groups was at least 100 per cent more efficient than instruction in the unorganized group due to the fact that methods used in the unorganized group were not as effective in getting standard practices completed.

4. It is recommended that instruction be continued in the unorganized group but only on condition that they study, plan, execute, and report supervised practice home work similar to the evening class, but without the requirement to attend classes. This training prepares them for regular membership in the evening class later.

5. Efficiency of instruction in each of the standard practices was high and uniform in the all-day and evening groups, due most probably to regularly organized instruction and an effective system of supervised home practice. The unorganized group not having the advantage of the supervised home practice program and systematic instruction, showed a low and irregular rate of efficiency of instruction.

6. Instruction in regularly organized classes accounted for the principal part of the standard practices completed while instruction in the unorganized group, by means of several other methods, accounted for a few standard practices being completed.

V. CONCLUSIONS

In view of the facts established a number of conclusions have been drawn from the findings of the study. Since the investigation has been conducted with respect to the three objectives: first, the extent of progress possible due to a planned community program; second, the value and means of planning a program of education on a community-wide basis; and third, a planned program for poultry farming education in Grassy Creek community, it appears logical to list the respective conclusions as to each objective.

Extent of Progress Possible Due to A Planned Community Program

1. During the three-year period, 1924-1927, inclusive, the poultry improvement work conducted by the department of vocational agriculture in Grassy Creek community was not very effective, due to the following reasons:

   a. There was no "planned" program.

   b. There was no especial attempt to gather facts, with the exception of one general farming survey of some twenty farms and one poultry survey of approximately the same number, neither of which surveys was even summarized, analyzed nor studied.

   c. There was a lack of experience and knowledge on the part of the teacher of agriculture as to the importance and methods of securing local facts about poultry farming.

   d. There was no development of an advisory council nor other organization to work with the teacher of agriculture in planning or assuming responsibility in executing plans during this period.

2. It was shown that the efficiency of poultry production in Grassy Creek community was increased forty thousand dollars annually over that of the check community where vocational education in agriculture did not exist, during the period in which there was a planned program. (See pages 21, 43, and 65.)

a. One-third as many individuals in the check community as in the Grassy Creek community attempted carrying out standard practices.

b. Only about one-tenth as many standard practices were completed in the check community as were completed in Grassy Creek community.

c. It was shown (see Table I, page 28) that in the check community the rate of egg production increased only one-eighth as much in the check community as in Grassy Creek community.

3. The efficiency of poultry production in Grassy Creek community was increased 100 per cent during the period 1927-1932 inclusive, when there was a planned program, over the period 1924-1927 inclusive, when there was no planned program in this community.

   a. There was a substantial lowering of the cost of production:

      (1) Increase in the per cent of standard bred flocks established.

      (2) Increase in the rate of egg production.

      (3) Increase in income per unit. The income above feed cost increased 100 per cent in the all-day group, 167 per cent in the evening group, and 80 per cent in the unorganized group.

   b. There was an increase in the per cent of standard practices completed of approximately two hundred per cent by means of the planned program.

4. A community program on one farm enterprise is possible for a teacher of agriculture to the extent of:

   a. The completeness and accuracy of information on which the program is based.

   b. The comprehensive knowledge of the problems naturally expected to be encountered.

   c. The manner of executing the program so as to avoid or overcome any difficulties not previously anticipated.

5. Certain of the standard practices were carried out by more individuals than others and by calculating an average for the three groups, all-day, evening and unorganized, the standard practices are listed below according to their relative frequency of accomplishment. (See Tables IX, X, XI, on pages 50, 51, and 52.)

First.	Keeping records.
Second.	Marketing co-operatively.
Third.	Fattening for market.
Fourth.	Controlling diseases and pests.
Fifth.	Culling flock for egg production.
Sixth.	Feeding for egg production.
Seventh.	Establishing a standard bred flock.
Eighth.	Caring for breeding stock.
Ninth.	Improving housing.
Tenth.	Feeding chicks.
Eleventh.	Brooding artificially.
Twelfth.	Producing hatching eggs.
Thirteenth.	Caponizing.

6. Certain standard practices required more specific and more able instruction than others in order to get them completed.

   a. The unorganized group, in which instruction was not complete, fell down the lowest in per cent carrying out on the following four standard practices:

      (1) Feeding chicks.

      (2) Fattening for market.

      (3) Controlling diseases,and pests.

      (4) Producing hatching eggs.

   b. Two of these standard practices (Fattening for market, and Controlling diseases and pests) rank very high in per cent carrying out for the all-day and evening groups. Since instruction was fairly complete in these groups it appears that the latter two standard practices require more specific and able teaching than others in order to secure favorable reaction on the part of individuals attemtping to carry them out.

The Value and Means of Planning a Program of Education on a Community-wide Basis

1. Poultry farming in Grassy Creek community in which a department of vocational agriculture was established, was 200 per cent more efficient in getting standard practices carried out than in a nearby community not having the advantages of this type of education, during the five-year period, 1927-1932.

   a. The principal value of the check community was to show rather definitely the vast difference between the efficiency of education in poultry farming in a community where vocational agriculture was taught and a community not possessing this type of education.

2. The most effective means of education was found to be the regularly organized classes. Instruction was very efficient in the all-day and evening classes which were on the whole about equal in this respect. In both groups similar methods were used consisting of:

   a. Well-planned courses of study based upon the needs of the students.

   b. Suitable programs of supervised practice work were studied, planned, executed, and reported.

   c. Both classes were well organized and met regularly.

   d. The greater amount of time applied by all-day students was compensated for by more maturity and richer experience of the evening group members.

3. Instruction in the unorganized group was far less efficient than in the organized groups, probably due to the lack of regularly organized instruction and adequate programs of supervised practice. Several methods of instruction and influences were applied to this group. The most prominent are:

   a. Membership in a co-operative organization.

   b. Demonstrations by the teacher of agriculture.

   c. Personal visits to farms by the teacher of agriculture.

   d. Printed matter supplied by the teacher of agriculture.

   e. Newspaper articles by the teacher of agriculture.

   f. Farm tour conducted by the teacher of agriculture.

   g. Community fairs put on under the leadership of the teacher of agriculture.

4. It has been shown that a large number of unorganized group members later became members of the evening group. Therefore, it is recommended that this group be continued, even though very inefficient, but developed under somewhat different requirements as:

   a. They should study, plan, and carry out supervised practice work satisfactory to the teacher of agriculture.

   b. They should keep records of supervised practice work done.

   c. They should participate co-operatively in group activities, as buying and selling co-operatively.

   d. Their supervised practice work should be reported to district, state, or federal officials similar to reports of the evening group.

   e. They would not be required to attend classes as is necessary for enrollment in the evening group.

5. It was determine that more of the time of the teacher of agriculture was required to get some standard practices completed than others. However, the question of the relative efficiency of instruction in the different standard practices in the different groups is merely touched upon in this study. It is recommended that a separate study be made in this field.

6. Due to the success of organized instruction it is recommended that a part-time class be organized.

Principles to Observe in Formulating an Educational Program Based on a Farm Enterprise

The two periods included in this study, together with their respective objectives and plans for attainment as well as the information at hand in each case, seem to develop rather clearly certain principles that should be observed in formulating a program anywhere.

1. Principles regarding the procedure in formulating the program should be observed as follows:

   a. Something definite should be known of the early history of the community, especially the historical development of the agricultural enterprise and type of farming in question.

b. Research should be done to determine what has already been accomplished in this field that would apply to the conditions under consideration. Particularly successful programs previously executed should be given careful consideration.

c. Facts should then be gathered from all sources possible concerning the particular farm enterprise or type of farming. This information should be summarized, analyzed and studied by the agricultural worker and the facts tabulated.

d. A report of these findings should be properly presented to the advisory council, to the state department, to the district supervisor and to any local organization that might be sponsoring the formulation of a planned program.

e. After careful consideration of this report the group or organization that is going to sponsor and be responsible for the program in conference with the agricultural worker should make its recommendations which should be in line with state objectives.

f. The agricultural worker should then make up a program based upon these recommendations which may be presented later to the responsible group or organization for its approval or revision.

2. Principles regarding the program itself should be observed.

a. All such long time programs should be as flexible as possible without being indefinite. Changes are often desirable during the progress of a program. These revisions should be made annually by the agricultural worker and approved by his associates.

b. Having launched a program it should be executed as speedily and accurately as possible. Reports as to progress should also be made annually. These reports should be made to the local organization, the county, district, or state officials.

c. In the present investigation it has been found that a special organization for the particular farm enterprise in question was of great benefit and was the chief means of securing progress in the unorganized group. This organization was very important.

d. Only enterprises capable of considerable improvement should be selected for special emphasis or special programs.

e. The objectives set up as goals offer a plain target at which the agricultural worker may constantly aim.

f. All standard practices necessary to the success of the enterprise should be included in the program. It has been shown that in a given farm enterprise several standard practices are necessary to the success of the enterprise. In most cases some of these will have already been carried out when the program is formulated. Also, it has been found that some practices are more important than others. The most important ones should, of course, be given most emphasis and should be considered first in most cases. The factors which may determine which practices are to be considered first are:

(1) Relative importance of standard practices in making possible more economic production.

(2) Previous efficiency in carrying out a practice if it has been carried out at all.

(3) Facility with which practice may be learned and applied by the individual.

g. Incorporating the principles observed above, a revised program for poultry education in Grassy Creek community has been planned. An outline by which a similar program may be formulated for any similar community for a similar farm enterprise has been set up and is shown diagrammatically in Figure 3.

Supplementary Suggestions as to Initiating a Long-Time Community Program of Education in the Improvement of a Farm Enterprise

Early History: The early history of a community, including the habits, customs and traditions of its people, is a subject worthy of a separate study. The investigator believes that a careful study of the history of a community and its people is fundamentally essential to the complete success in any general, permanent change in the practices of a phase of farming, and therefore offers an opportunity for a separate investigation. However, these recommendations regarding early history are limited to the pertinent and pronounced characteristics of the phase of farming and the people concerned in the community. This was proved to be essential by the experience of the investigator and appears to have been borne out by the facts established by this study.

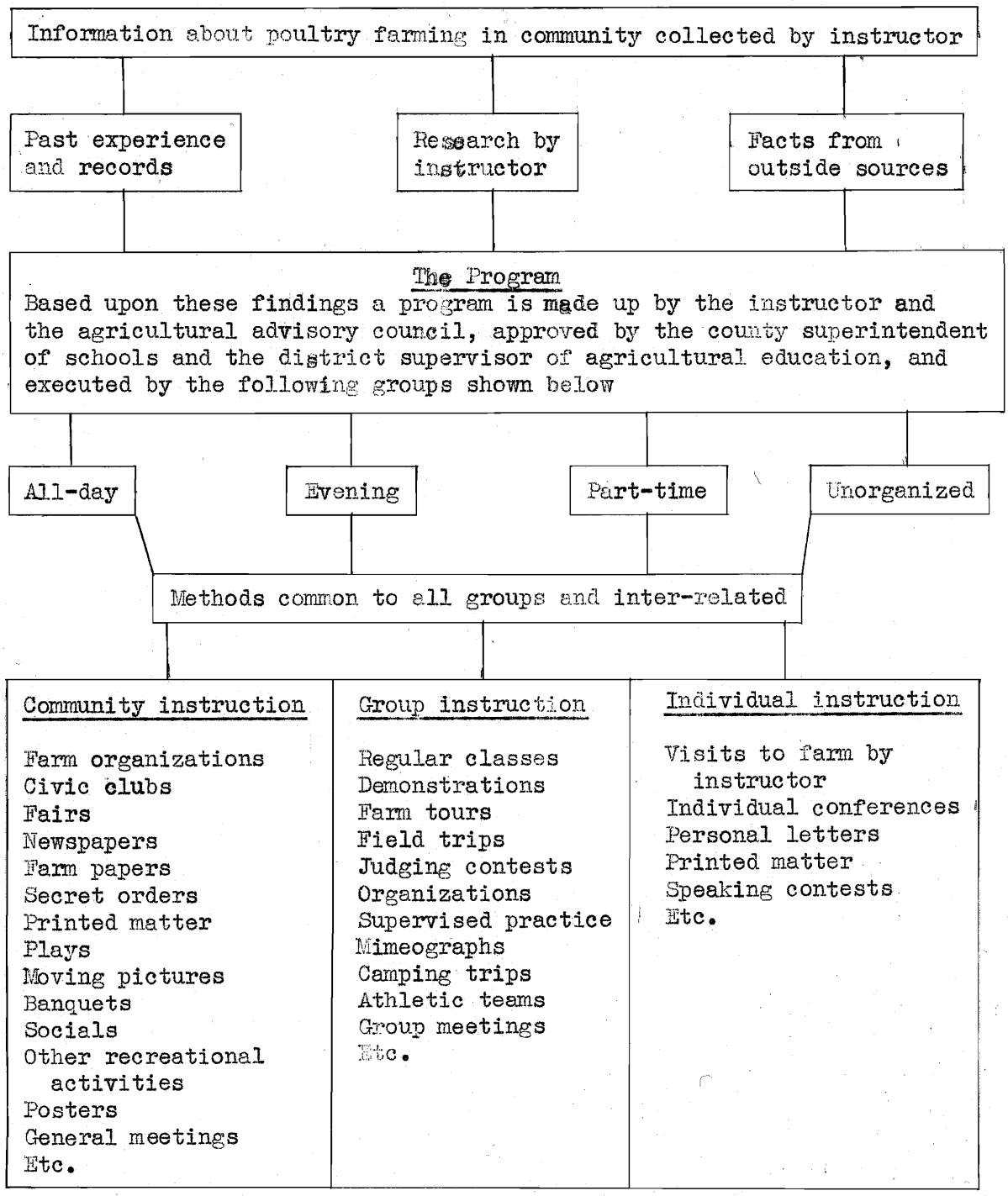

Figure 3.

An Outline For

A Program for Poultry Education for Grassy Creek Community

There are a number of steps that may be suggested for securing information about the early history of an enterprise in a community:

1. Study state and local history.
2. Study court records.
3. Study old newspapers and documents.
4. Study census reports.
5. Consult oldest citizens.
6. Study geology, geography, and topography of section
7. Study effects of crop and livestock practices followed.
8. Study practices in detail relating to enterprises being emphasized.
9. Study any farm surveys made, especially on the tnerprise in question.
10. Study any other agricultural reports available.
11. Study characteristics of the people in the community.

Research: It is highly essential to investigate all published works and plans drawn by extension workers and departments of vocational agriculture that treat similar problems. While the investigator has found few actual programs of this type it is expected that with the increased interest in the efficiency of vocational education more attention will be given to investigations in this field in the future and consequently more and more information of this type will become available. Some suggested questions which research of this kind should answer are as follows:

1. Is it specifically on one phase of farming?
2. Does it plan in detail as to ways and means of reaching goals?
3. Is sufficient preparation planned to insure success?

4. Is organization of set-up efficient?

5. Is proper timing of steps provided for?

6. Should there be any annual revision? If so, who does it?

7. Should there be any check-up or report in the locality? If so, to whom?

8. Should any organization be set up around the particular enterprise or type of farming as the demanding interest?

9. What enterprises should be selected for particular emphasis?

10. What use should the agricultural teacher make of objectives?

11. There are many farm practices necessary to the success of an enterprise. Shall all of these be tackled at once in the educational program, or if not what ones shall be selected first, second, etc.?

12. What will be the determining factors in deciding upon the practices to be considered first?

Facts from all sources: It is well to gather all data possible and later cull those which are not needed. Even details should not be overlooked here because sometimes inconspicuous data may turn out to be of the highest importance. The most reliable sources are:

1. Reports to state departments.

2. Enterprise surveys.

3. Questionnaires.

4. Enterprise records.

5. Records of dealers and truckers, or other sales agencies.

6. County agricultural statistics.

7. State agricultural records.

8. United States Department of Agriculture census reports and Yearbooks.

9. Livestock and crop market reports.

10. Enterprise trade journals.

The Program: After collecting all possible data the investigator should tabulate, study and summarize results and report to the agricultural advisory council, or other organization, and work with that group in mapping out a program based upon the results which will meet the need of the particular enterprise or type of farming. This program when completed should be presented to local and state officials for their approval and suggestions.

In the experience of the investigator it has been comparatively easy to find a need for certain phases of a program and to set up suitable goals. However, the ways and means are sometimes impossible of attainment when proper forethought, based upon accurate knowledge of the situation, has not been made. The essential difference between an effective program and one that fails is this lack of detailed information about the different forces concerned and their inter-relation. If plans are properly based upon accurate knowledge the full execution is more certain.

A Planned Program for Poultry Farming Education for Grassy Creek Community

As shown in the preceding outline and discussion the planned program was based upon the complete information as gathered from all sources relating to the poultry enterprise. The program was then made up by the teacher of agriculture and the agricultural advisory council, approved by the county superintendent of schools and the district supervisor of agricultural education.

It has been proven in this study that increase in income above feed cost is a good measure of economic progress. Also, it was shown that the number of standard practices completed was largely responsible for the amount of income above feed cost. Therefore,

in planning a poultry program for the ten-year period following this study the thirteen standard practices already set up were taken as a basis upon which to work.

Ten-Year Community Objectives with Ways and Means of Accomplishing Them

I. Establish 100 per cent more standard bred flocks by:

A. Instruction in all-day classes by having students:

1. Study the job, "Establishing standard bred flocks" in class by:

a. Determining advantages of standard bred flocks by means of:

(1) Rate of egg production.

(2) Rate of meat production.

(3) Value of eggs and meat.

(4) Amount of feed required.

(5) Other facilities required.

(6) Comparative profits possible.

(7) Personal interests.

b. Studying characteristics of different breeds:

(1) Size.

(2) Shape.

(3) Color.

(4) Disposition.

(5) Maturity.

(6) Foraging ability.

(7) Sensitiveness to exposure.

(8) Brooding qualities.

(9) Egg production.

(10) Meat production.

c. Selecting breeds best adapted to community:

(1) Barred Rocks, Rhode Island Reds, and Single Comb White Leghorns:

(a) Size.

(b) Shape.

(c) Color and plumage.

(d) Egg production.

(e) Growth or meat production.

(f) Value of eggs and meat.

(g) Amount of feed necessary.

(h) Amount of space necessary.

d. Determining method of establishing flocks:

(1) From hatching eggs depending on:

(a) Cost of good hatching eggs.

(b) Cost of incubation.

(c) Natural incubation.

(d) Artificial incubator.

(e) Small incubator.

(f) Community hatchery.

e. Securing quality hatching eggs by:

(1) Investigating production records of breeding stock.

(2) Determining if stock is free of bacillary white diarrhea and other serious diseases.

(3) Determining if the price is fair.

(4) Deciding on time to secure.

(5) Deciding how they are to be shipped.

(6) Providing protection until placed in incubator.

f. Securing quality baby chicks:

(1) Investigating production records of breeding stock.

(2) Determining if stock is free of bacillary diarrhea and other serious diseases.

(3) Determining if the price is fair.

(4) Deciding on time to secure.

(5) Deciding how they are to be shipped.

(6) Providing brooding facilities. (See brooding.)

g. Securing quality mature stock:

(1) Investigating production records of breeding stock.

(2) Determining if stock is free of bacillary diarrhea and other serious diseases.

(3) Determining if the price is fair.

(4) Deciding on time to secure.

(5) Deciding how they are to be shipped.

(6) Providing facilities. (See housing and feeding.)

2. Carry out standard practices on home farm by:

a. Presenting findings of study to parents.

b. Securing co-operation of parent.

c. Securing additional information from instructor as needed.

3. Go on poultry tour or field trip, that may:

a. Encourage students to establish standard bred flocks.

b. Teach a lesson about standard bred flocks.

c. Show the practical advantages of standard bred flocks.

4. Engage in poultry judging contests, including:

   a. Class contests.

   b. Preliminary contests.

   c. State contests.

5. Assist co-operative poultry association by:

   a. Furnishing poultry information about:

      (1) Special poultry meetings.

      (2) New facts from state poultry department.

      (3) Market information.

      (4) Securing new members.

      (5) Reducing or controlling production.

      (6) Better poultry practices especially relating to establishing standard bred flocks.

   b. Actively supporting poultry association by:

      (1) Membership in association.

      (2) Securing standard bred eggs, chicks, or mature stock or other poultry supplies co-operatively through association.

      (3) Selling poultry or eggs through association.

6. Debate or speak at group meetings on subjects such as:

   a. "Value of standard V.S. scrub stock."

   b. "Resolved: that standard bred fowls are more important than nearness to market."

7. Furnish poultry information to parents and neighbors about:

   a. Advantages of standard bred poultry.

   b. How to make farm flocks more profitable.

8. Take part in community publicity program by:

   a. Writing newspaper articles.

   b. Writing articles for Chapter Chats, the state F.F.A. magazine.

c. Supplying farm records in support of articles that may be used in farm papers.

d. Supplying human interest stories.

9. Put on standard bred poultry displays at community fair. (See fairs.)

10. Eat only standard bred chickens on camping trips and picnics because:

a. They are better.

b. The psychological moment is right for presenting a convincing argument.

B. Instruction in evening classes:

(Similar procedure as presented under "A".)

C. Instruction in part time class:

(Similar procedure as presented under "A".)

D. Instruction in the unorganized group by:

1. Membership in poultry association by:

a. Discussion in meetings.

b. Member to member conversation.

c. Co-operative activities of association:

(1) Selling activities.

(2) Buying activities.

(3) Social activities.

2. Demonstrations by instructor as:

a. Culling hens for egg production.

b. Examining a modern poultry house.

c. Mixing a balanced laying mash.

3. Personal visits to farms by instructor:

a. In response to emergency calls.

b. Voluntary calls.

c. Visits for other reasons.

4. Printed matter supplied by instructor:

   a. Bulletins.

   b. Poultry magazine.

   c. Poultry charts or pictures.

   d. Instructions for dairy or poultry job.

   e. Plans on blue prints.

5. Newspaper articles by instructor about:

   a. Some good work accomplished by an individual.

   b. Better practices that should be used.

   c. Specific information concerning a poultry job.

   d. Poultry statistics of community or county.

   e. Combination articles.

6. Farm tours conducted by instructor to:

   a. Encourage students to establish standard bred flocks.

   b. Teach a lesson about standard bred flocks.

   c. Show the practical advantages of standard bred flocks.

7. Community fairs by means of:

   a. Educational exhibits.

   b. Competitive exhibits.

   c. Review of poultry judging.

   d. Poultry talks.

8. Miscellaneous discussions with instructor around the:

   a. School.

   b. Church.

   c. Post office.

   d. Store.

   f. Mill.

   g. Doctor's office.

9. Posters prepared by instructor showing:

   a. How to control a disease.

   b. How to control a pest.

   c. Statistics about crops or livestock.

   d. How a standard practice is carried out.

10. Mimeographed letters prepared by instructor and distributed by means of:

   a. Future Farmers.

   b. High school students.

   c. U. S. mail.

   d. Gatherings.

   e. Instructor personally on rounds of community.

11. Personal letters by instructor to:

   a. Answer inquiries.

   b. Supply special information.

   c. Notify leaders about meetings, etc.

12. Farm survey conducted by instructor to:

   a. Bring the facts of conditions found more forcibly to the attention of the owner by:

      (1) Examining premises, livestock and facilities.

      (2) Questioning owner about practices.

      (3) Showing owner results of survey after tabulation.

   b. Poultry discussion between instructor and farmer in regard to standard poultry practices.

E. Community instruction by means of:

1. Farm organizations:

   a. Virginia-Carolina Poultry Association.

      (1) Membership in poultry association.

   b. Grassy Creek Sheep Producers Association:

(1) Poultry practices may be discussed as a side issue at a sheep meeting.

(2) The co-operative principles developed and exercised in one organization may apply in varying degrees to other organizations.

2. Civic Clubs:

a. Grassy Creek Community Club by:

(1) Information disseminated at meetings.

(2) Poultry as related to community problems.

(3) Eating standard bred poultry on community picnics, lunches or picnics.

b. Parent-Teachers Association by:

(1) Talks about poultry.

(2) Discussion of poultry problems by members.

(3) Having association approve poultry program.

3. Secret Orders:

a. Grange.

b. Masons.

c. Odd Fellows.

(By similar means as under a and b above.)

4. Moving pictures by means of:

a. Films from U.S.D.A. shown at:

(1) Farm meetings.

(2) Special shows.

5. General meetings, as:

a. School openings.

b. Road meetings.

6. Fairs, as:

a. State.

b. County.

c. Community, by means of:

(1) Educational exhibits.

(2) Competitive exhibits.

(3) Review of poultry judging.

(4) Poultry talks.

7. Publicity by having articles in:

a. Local weekly paper.

b. Dailies.

c. Farm journals.

d. Trade publications.

8. Recreational activities by means of:

a. General discussion.

b. Talks referring to standard bred poultry.

c. Banquets, lunches, picnics serving standard bred poultry.

9. Any other group activities of a general nature may furnish instruction that will be of value in reaching the objectives of this part of the ten-year plan.

II. Reduce the number of hens of laying age a certain per cent to be determined annually, by culling the most unprofitable birds by means of:

A. Instruction in the all-day group by:

The program for reaching the objectives for each practice is similar for each of the thirteen different standard practices. Therefore, it would appear somewhat of a duplication to repeat the procedure in detail for each standard practice. However, it cannot be too strongly recommended that any one attempting to use this or a similarly planned program should first be sure that he has throught through each standard practice for which a goal has been set up and that he understands clearly the procedure for executing the planned program for not only the one standard practice, as is here outlined, but also for each standard practice that he means to promote in his long-time program.

Finally it may be logically assumed that the teacher of agriculture, the county agricultural agent, or the agricultural extension worker, who marches forward to his task with the armor of a well organized all-day group over his breast; the protection of a closely co-operating farmers' evening group, like a shirt of mail about his loins; with shin guards as an advance of effective instruction in the unorganized group; all capped by a well-planned program as an invincible helmet, together with a gleaming sword of ambition in his trained right arm, will skilfully carve his path toward achievement in the realm of service to the American farmer.