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AGRICULTURAL EXTENSION SERVICE

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PART I.

REPORT OF BOYS' AGRICULTURAL CLUB WORK IN NORTH CAROLINA.

HISTORY OF THE CLUB WORK.

The Boys' Corn Club was the first organization for the junior members of the farm family, and was inaugurated for the purpose of teaching the boys on the farm a few fundamental facts relating to successful agriculture and have them apply these facts to growing an acre of corn under the direction of a supervising agent. The purpose from the beginning was to organize these clubs in connection with the rural schools, and this plan has been closely adhered to in North Carolina.

The work was first begun in North Carolina in the spring of 1908, almost simultaneously by the State Department of Agriculture and the forces of the Farmers' Cooperative Demonstration Work. Confusion having arisen in the State because of two organizations doing the same work, it was found best to organize all the Corn Club Work under one direction. In the year 1912 an arrangement was perfected by which all the Corn Club Work was so placed.

In the spring of 1914 the Poultry Club Work for both juniors and adults was started in North Carolina under a cooperative arrangement between the Animal Industry Division of the North Carolina Experiment Station and the Bureau of Animal Industry at Washington.

In the fall of 1914 the organization of Pig Clubs for the children of the farm was taken up. This work was also done cooperatively by the Animal Industry Division of the North Carolina Experiment Station and the Bureau of Animal Industry at Washington.

The growth of the Agricultural Club Work has been marked; from an enrollment of a few hundred in the Corn Club it has increased to an enrollment of five thousand five hundred members in all of the three clubs—Corn, Pig, and Poultry—in 1915.

REORGANIZATION.

At the beginning of the year 1915 a rearrangement of the work was perfected, by which all the Boys' Club Work was placed under the direction of an agent in charge, the work to be known as the "Boys' Agricultural Clubs." Under this arrangement the Pig Club and Poultry Club Work are conducted jointly by the Animal Industry Division of the Experiment Station and the Office of Boys' Agricultural Clubs, the agent in club work having the direction of all field activities, and the agents in Pig and Poultry Club Work being associated with the Animal Industry Division when in the office, looking to this Division for all technical instruction.

Since its reorganization the work has progressed satisfactorily. Quite a good deal of duplication has been prevented, and economy in time and money effected. All lines of club work are more closely linked up and a continuity of action accomplished that otherwise could not have been.

We have in operation in the State today the Boys' Corn Clubs, the Pig Clubs, the Poultry Clubs, the Crop Rotation Clubs, a few members each in the Peanut Club, Potato Club and Cotton Club, and the Negro Boys' Farm Clubs.

CORN CLUBS.

In the Corn Club Work the interest has been more definitely manifested by the decided increase in number of boys who have completed the year's work and sent in reports. There is also considerable improvement in the matter of keeping reports and writing a history of the work. A very encouraging fact is, that of the boys reporting fifty per cent state that they have cover crops of clover, rye, or oats on their acres for 1916. The fact that the following twelve boys grew one hundred bushels and more of corn per acre at less than twenty cents per bushel is proof positive that they have been following good methods:

Ledford Hall, of Rowan County, produced	**141.4 bu. at 11.2c.**
Edgar Wilkins, of Alamance County, produced	**112.3 bu. at 12.4c.**
Hallie Bowling, of Durham County, produced	**111.0 bu. at 14.7c.**
Earl Smart, of Macon County, produced	**132.2 bu. at 18.4c.**
Austin Sain, of Lincoln County, produced	**103.5 bu. at 12.9c.**
Worth Lynn, of Wake County, produced	**100.5 bu. at 13.0c.**

Talvis Shearon, of Wake County, produced..... 119.1 bu. at 16.0c.
Freedom Higgins, of Yancey County, produced..... 106.4 bu. at 14.6c.
John Smart, of Macon County, produced..... 112.5 bu. at 18.5c.
Ed. Miller, of Surry County, produced..... 119.0 bu. at 19.4c.
Christian Luther, of Buncombe County, produced..... 104.4 bu. at 19.6c.
Algernon Alexander, of Buncombe County, produced..... 100.0 bu. at 12.7c.

PIG CLUBS.

In the Pig Club Work, under the efficient direction of Mr. J. D. McVean, emphasis has been placed upon the raising of pure-bred breeding stock for the State rather than upon the growing of meat hogs, as the producing end of the swine industry has been sadly neglected. Economy of production through the use of grazing crops and farm wastes has been stressed. Corn as the sole ration for hogs has been discouraged as being too expensive and poorly balanced. The need of mineral foods has been impressed as the means of bringing about strong bone and large frames on which to spread the muscles during the growing period, and the fat during the fattening period for meat hogs. Disease prevention has been taught; this through demonstrations in sanitary measures and such preventive means as anti-hog-cholera serum. Simple but effective remedies for lice, mange, and internal parasites have been taught the members. The value of good breeding and good individuals has been emphasized, but the need of proper care, feed and management has been equally stressed. Results obtained indicate that the instruction given is bearing fruit.

POULTRY CLUBS.

The year 1915 was really the second year of Poultry Club Work in North Carolina, but not a great deal was accomplished the first year. Mr. Allen G. Oliver took charge of the work at the beginning of 1915 and, with telling results, has pushed it, especially along such practical lines as the best time for hatching the young chicks, care and feeding of the young chickens, proper feeding of the farm flock, emphasizing the value of green feed to make it profitable, and the proper housing of the poultry.

There have been enrolled during the year more than one thousand members, some of these members being ladies of the farm. Th showing made by the boys and girls at the fairs was very encouraging. Because of the modern poultry houses constructed and shown at these fairs in the State, there will be hundreds of comfortable poultry houses built on North Carolina farms.

METHODS OF ENROLLING.

In order to reach as many of the boys and girls as possible, and also to link our work up with the public schools of the State, each fall we mail in bulk to every County Superintendent of Public Instruction enough letters, already enclosed in franked envelopes, to be mailed to each school in his respective county. These envelopes contain a letter to the teacher, a blank for the names and addresses of boys and girls between ten and eighteen years who are interested in club work, and a self-addressed franked envelope in which to send names to this office. Most of the superintendents cooperate with us by mailing these out to their teachers. When these names are received from the teachers, we mail to each boy and girl a letter explaining the purposes of the club work,etc., and urge them to sign and return the membership card which is enclosed, indicating the club or clubs they desire to join. We also send this letter and application card to all members of the previous year, and all whose names are sent to us by County Agents and other interested citizens. No one is enrolled until the signed application for membership is received.

INSTRUCTIONS TO MEMBERS.

Each month, and frequently twice a month, we send to all members a one-page circular letter advising them about the work they are to do at that particular season. We try to give them the advice when they can use it.

In addition to the circular and personal letters of instruction, whenever possible we visit the members individually and in groups at schools, and advise them concerning the handling of their crops, pigs, and chickens. Bulletins and circulars of the Extension Service and the United States Department of Agriculture are mailed frequently to the members.

SHORT COURSES FOR CLUB MEMBERS.

During the summer of 1915 thirteen club schools, of from one to two days each, were held in as many counties. At these schools all the men of the club work were actively engaged in teaching the boys, in the simplest way possible, the fundamental principles in plant and animal growing.

In addition to these county schools, there was held at our State Agricultural and Mechanical College, August 17-20, a Short Course for members of the Agricultural Clubs. There were in attendance upon this Short Course 222 boys and one Corn Club girl, all paying their own expenses. The rooms at the college were, of course, free. This school extended from Tuesday morning through Friday. The forenoons of each day were devoted to lectures by members of the college faculty and Experiment Station staff; so the boys were given a taste of real college life. The afternoons were devoted to excursions over the college and Experiment Station farms, and to trips over the city as guests of the city of Raleigh. The evenings were given over to illustrated lectures on agricultural subjects. The boys seemed to enjoy every minute of the time, and, although there were some boys only ten years of age in attendance, and from practically every section of the State, not one thing happened to mar the success of the occasion. They went away full of enthusiasm and with the determination to some day complete their education.

CROP ROTATION CLUB.

There has been added for the year 1916 the Crop Rotation Club. In this the boys are urged to sign an agreement to follow a definite rotation system for not less than three years, using two or more acres. The first crop in each rotation is to be corn. The Agronomy Division of the Experiment Station is cooperating in suggesting the rotations suited to the various sections, and the fertilizers to be used.

In this club we insist upon the parents giving the boy all the profit after deducting the cost of growing the crop. We really think every parent should be glad to do this in all the club work.

NEGRO BOYS' FARM CLUBS.

During the year 1915 a department of Negro Boys' Farm Clubs was added, with John D. Wray as agent. This work is to be done in cooperation with the Agricultural and Technical College at Greensboro and the Office of Boys' Agricultural Clubs at West Raleigh. The agent is to devote himself to the organization of clubs among the negro boys between the ages of ten and eighteen years, and to the supervision of the same. His headquarters are to be at the Agricultural and Technical College, Greensboro, and he is to report to this office. For the first year he will urge his members to confine their efforts to corn growing.

CONCLUSIONS.

Although the practical results of club work in dollars and cents are the most tangible, the greatest value of the work lies in the giving to the boys and girls of the rural districts an enlarged vision of the possibilities of the farm, and the directing of their thoughts along lines that lead to a more attractive, more wholesome, and more complete rural life. Through the various clubs conducted by the Extension Service, thousands of boys and girls are given an insight into the workings of Nature in the plants and animals they are growing.

The club work offers an opportunity to get a hold upon the life of the neglected boy of the farm, and to show him that by following a few simple laws of science and by working in harmony with the laws of Nature, he is able to grow better corn, better pigs and better chickens than he would do otherwise. When a boy succeeds in doing anything better than his fellows, he is inspired with a desire to do even bigger things.

There is nothing which furnishes the teachers of the rural schools so fine an opportunity to link up the school work with the lives of the folks in the district, and to vitalize the teachings of the text on agriculture, as the club work. Not every teacher can have a school garden or school farm, but there is not a teacher in the State to whom the opportunities of the club work are denied. There is no doubt but that the child is going to be more interested in applying the lessons learned to the production of plants and animals in the club work, than to growing crops on the school farm where there is only a general interest.

Summary of North Carolina Corn Club Work, 1915.

Total number of boys enrolled in State	3,504
Total number of boys reporting in State	1,318
Total number of bushels reported in State	70,062.5
Total cost	$30,611.85
Total profit	$39,450.65
Average cost per bushel of boys reporting	43.6c
Average number of bushels per acre of boys reporting	53.2

95 of the 100 counties had members enrolled.
88 counties with members reporting.
12 counties not represented in report only had a total membership of seventeen (17).
In 1915, 37 6-10 per cent of enrollment reported.
In 1914, 21 3-10 per cent of enrollment reported.
In 1915, 50 boys made 100 bushels and above; their average yield being 111.7 bushels.

Summary of North Carolina Pig Club Work, 1915.

Total enrollment	768
Total eligible to report	647
Members known to have pigs	454
Breeding pigs reported	193
Meat pigs reported	201
Eighteen sows and litters, with 103 pigs, reported.	
Herd boars reported	8
Registered pigs reported	55
Members known to have used grazing crops	153
Members attending short courses (schools for club members)	79
Average age of members (years)	13.01

The following are the averages for members reporting:

Initial weight of pigs for meat (pounds)	33.8
Final weight of pigs for meat (pounds)	269.7
Initial cost of pigs for meat	$4.28
Cost per pound of gains on meat pigs	$ .052
Rate of daily gains (pounds)	.971
Initial weight of all pigs (pounds)	36.04
Present weight of breeding pigs (pounds)	204.2
Present value of breeding pigs	$31.58
Initial value of breeding pigs	$ 8.654
Gain on breeding animals	$44.026
Gain on meat animals	$ 7.76
Gain by those using grazing crops	$22.60
Gain by those not using grazing crops	$10.44

81½ per cent of reports from organized counties with 80 per cent membership.

18½ per cent of reports from miscellaneous counties with 20 per cent membership.

Total profit on all hogs (assuming them all to be up to the average of those reporting), $10,056.77.

Summary of Poultry Club Work in North Carolina, 1915.

Total enrollment	1,056
Total eligible to report	842
Total number of members reporting	327
Total number of chickens raised	14,965
Total value of chickens raised	$11,237.50
Total prize money won by members at fairs	$ 496.00
Total number of brood coops made	230
Total number of new hen-houses made	56

Statistical Report of All Agricultural Club Workers, 1915.

Miles traveled by rail	45,691
Miles traveled by other conveyance	5,995
Meetings held and addressed	377

Attendance at meetings	59,697
Official letters written	6,850
Circular letters written	134
Circular letters mailed	206,560
U. S. Department bulletins mailed	38,000
N. C. Experiment Station and Extension Service bulletins mailed	7,000

PART II.

ARITHMETIC PROBLEMS BASED UPON AGRICULTURAL CLUB WORK.

The following fifty problems have been prepared for supplementary work in rural schools, and will be supplied to the teachers of the State upon request.

We believe, by furnishing the children in the rural districts these simple agricultural problems, based upon the information asked for in the reports on club work, we are not only helping the club members in making out their reports, but are also helping all the children to see the relation between arithmetic and life on the farm. These problems will be of value to those teachers who are trying to make the school serve the whole community life.

The problems based upon the Pig Club Work were prepared by Mr. J. D. McVean, formerly Pig Club Agent in North Carolina, and those based upon Poultry Club Work were prepared by Mr. A. G. Oliver, Agent in Poultry Club Work.

PROBLEMS BASED UPON CORN CLUB WORK.

1. A Corn Club boy's rows are 200 yards long; the rows are 4 feet apart. How many rows will be required to make an acre which is 4,840 square yards?

2. A Sampson County boy has 66 rows of corn; the rows are 4 feet apart. How long should the rows be to make an acre containing 43,560 square feet?

3. A boy has 69 rows in his corn patch 70 yards long; his corn stands 18 inches apart in the drill or row. Should he get a perfect stand, how many stalks would he have?

4. Counting 125 ears to the bushel of shelled corn, and his corn averaging an ear to each stalk, how many bushels should the acre in Example No. 3 make?

5. Should the boy lose 10 per cent of his stand by having poor seed, granting each stalk should produce the same amount of corn per stalk as in Example No. 4, how much corn should this same acre produce?

6. If corn is worth $1 per bushel, and the seed corn for the above acre could have been tested and a stand secured by the boy's working two hours, how much could this boy have made per hour by testing his seed corn?

7. If a boy has 9,550 stalks of corn per acre, and each stalk produces an average of ½ pound of shelled corn, what would be the yield upon the acre?

8. A boy's corn is 18 inches apart in 4-foot rows, and the stand is perfect. What would be the difference in per acre yield, granting that in each case the yield per stalk is the same, were the rows 5 feet apart?

9. A Corn Club boy selects his seed corn in the field, and saves 43 bushels of select seed; he sells this corn for $107.50. What does he get per bushel?

10. Were he to get 75 cents per peck for his seed corn, what would he receive for the corn in the ninth problem?

11. A Union County boy produced 62 bushels of corn, worth $1 per bushel; the land rent was $5; preparation and cultivation, $12.75; fertilizer and manure, $26; harvesting, $3.25. What was his net profit? What the cost per bushel of the corn?

12. A Corn Club boy wants to use $10 (amount allowed to purchase commercial fertilizer) to buy acid phosphate and cottonseed meal; acid is selling at $20 per ton and cottonseed meal at $40. Dividing his money equally, how much of each can he buy?

13. How many pounds of 16 per cent acid phosphate and cottonseed meal analyzing 7½ per cent ammonia would be required to make a ton of 8—3 fertilizer (8 per cent phos. acid and 3 per cent ammonia)?

14. If nitrate of soda is selling for $70 per ton, how much will $6 purchase?

15. How many pounds each of phosphoric acid, potash and ammonia in a ton of 8—4—4 fertilizer. What is the total amount of plant food? (8 per cent phos. acid, 4 per cent ammonia and 4 per cent potash.)

16. Green crimson clover contains ¾ of 1 per cent ammonia. A good growth of crimson clover will produce about 4 tons of green clover per acre. When ammonia is worth 20 cents per pound, what would the ammonia in a 4-ton crop of clover be worth?

17. A Corn Club boy produces 8,472 pounds of shelled corn upon his acre, but upon moisture determination it is found to contain 20 per cent moisture. How many bushels of dry shelled corn, 10 per cent moisture, did he make?

18. A boy in Buncombe County produced 6,243 pounds of ear corn per acre; 100 pounds in the ear shells out 85 pounds of shelled corn. How many bushels of shelled corn (56 pounds to the bushel) does he make?

19. A Wake County boy produced 14 wagon loads of corn upon his acre; the loads (corn and wagon) average 2,350 pounds; the wagon weighs 1,300 pounds. How many bushels of shelled corn did he produce, provided the corn shelled out 85 per cent grain?

20. A boy who had not been in the club used a bull-tongue plow to cultivate his corn, going six times to the row. A Nash County Corn Club boy used a riding cultivator, working a row at each trip across the field. It took one hour to go over the acre, one trip to the row. Each cultivated his corn three times. Valuing the horse's time at 5c per hour, and boy's time at 10c per hour, how much does it cost each to cultivate his acre?

PROBLEMS BASED UPON PIG CLUB WORK.

1. A boy secured a pig on April 20th which weighed 35 pounds; on December 1st it weighed 293 pounds. What was the increase in weight? What was the rate of gain per day (average daily gain)?

2. A pig weighing 35 pounds was put on feed on May 1st by a Pig Club boy; the record was kept until December 1st; the pig gained .97 pound per day. What did the pig weigh on December 1st?

3. During the time covered by a boy's records on his pig he found that his pig increased 225 pounds at a total cost for feed, labor and pasture of $9.42. What did each pound of gain cost him?

4. A boy's pig was on permanent pasture for 77 days at a cost of 10 cents per month; the pig was on rape (grazing crop) 45 days at a cost of 25 cents per month; during the time, the pig ate 40 pounds of shorts (wheat middlings) at a cost of $1.80 cwt., also 56 pounds of corn at $1 per bushel; the boy spent 22 hours at 10 cents per hour in caring for and feeding his pig. What was the total cost of handing the pig during the 122 days?

5. If the pig in Problem 3 weighed 46 pounds at the start of the record-keeping and gained ⅞ pound per day, what did it weigh at the end of 122 days? What did each pound of gain cost?

6. A pig gained 240 pounds during the time covered by the record; it weighed 38 pounds at the time the record started. What did it weigh when killed?

7. If the pig in Problem 6 dressed out 78 per cent of its live weight, how much meat did the boy have to sell? If he sold the meat at 11 cents per pound, how much money did he get for his pig?

8. Would he have secured more or less money (and how much) for his pig if he had sold it for 9 cents per pound, live weight, allowing $1 for killing his pig?

9. A boy fed kitchen slops to his pig at an average rate of 1½ gallons per day; these slops were charged to the pig at 1¼ cents per gallon; he fed his pig for 7 months (30 days per month). How many gallons of slops were fed? How much was the charge for slops?

10. A boy's pig consumed $10 worth of grain, $5 worth of kitchen slops, and $3.40 worth of pasture; his labor charge was $5; his sow was worth $40; he sold 7 pigs at $5 each, and won $11.50 in prizes at the fair. What was his gain in the Pig Club Work for that year, assuming his sow to have been worth $20 when the record work began?

11. Skim milk weighs 9 pounds per gallon and is worth 30 cents per cwt., or 2½ cents per gallon. A pig should be fed 3 pounds of skim milk to each pound of corn. If a boy fed his pig according to these instructions for 147 days, and the average amount of corn fed was 2 pounds per day, how much did the corn cost him at $1 per bushel? What was the value of the skim milk or buttermilk fed?

12. At the end of the year, when a Pig Club member completed his record, he found that he had charged the pig with grain feed as follows:

    May 1—100 pounds shorts, listed at $1.80 per cwt.
    July 15—100 pounds shorts, listed at $1.80 per cwt.
    September 1—100 pounds shorts, listed at $1.80 per cwt.
    May 1—1 bushel of corn (70 pounds in ear), listed at $1 per bushel.
    June 5—1 bushel of corn (70 pounds in ear), listed at $1 per bushel.
    July 10—1 bushel of corn (70 pounds in ear), listed at $1 per bushel.
    Sept. 1—1 bushel of corn (70 pounds in ear), listed at $1 per bushel.
    Oct. 2—1 bushel of corn (70 pounds in ear), listed at $1 per bushel.

    What did his grain feed cost him?

13. If a boy spends 15 minutes a day for 6 months (30 days per month) in caring for and feeding his pigs, and charges 10 cents per hour for the work, what will the charge be for labor as it appears in his record at the time he makes his report to the State Agent?

14. The business summary of a boy's Pig Club record appears as follows:

Expenses.		Receipts.	
Original cost or value of pig at time record starts	$5.00	Present value of brood sow	$35.00
Charge for pasture and grazing	1.40	Six pigs sold for $5 each	30.00
Charge for grain and by-products	9.00	Prizes won	10.00
Charge for labor	3.00		

    What was his total profit? What per cent on investment did he make?

15. A pig weighed 60 pounds when the record started; it weighed 255 pounds after 160 days. What was the average daily gain?

16. The initial value (original cost or value) of a pig was $8.65; the pig, at the end of the time covered by the report, cost him $27.50 (including initial value, cost of grain, pasture, labor, etc.). What did the gain on his pig cost?

17. If the pig gained 350 pounds during the time covered by Problem 18, using the cost of gain as found in that problem, what did each pound of gain cost the boy?

18. A pig weighed 35 pounds when the Pig Club record was started; it gained 1.07 pounds per day for 180 days. What did it weigh at the end of that period?

19. A pig for breeding purposes cost a Pig Club boy at the end of the year $32, including original cost, grain, grazing, pasture, labor, etc.; during that time the sow increased $30 in value; she had a litter of 7 pigs, which sold for $6 each; she won $7 as a prize at the fairs. What was the total income from the sow? What did the boy have as profit for his year's work?

20. A Pig Club boy who had grazing crops for his pig during the year made a profit of $22.40; a neighbor boy, also in the Pig Club, had a litter mate of the pig owned by the first boy, but had no grazing crops; his profit was $10.67. What was the value of grazing crops to the boy?

PROBLEMS BASED UPON POULTRY CLUB WORK.

1. A boy buys a sitting of 15 White Plymouth Rock eggs for $1.50; the hen hatched 14 chicks, but smothered 3. What did each chick cost?

2. What did this boy's brood cost the day they were hatched if he paid 5 cents for insect powder to dust the hen, 5 cents for a box in which to set her, 10 cents for feed, and spent two hours labor at 10 cents an hour?

3. He raised the 11 chicks up to the time they weighed 3 pounds each; he then sold 2 of the cockerels for 16 cents per pound. How much did he get for the 2 cockerels? What would the remaining 9 chicks have brought if sold at the same price?

4. A Catawba County Poultry Club boy has 9 chicks which he raised to maturity, and finds that he has put in 8 hours work at 10 cents an hour; he has paid 10 cents for charcoal and oyster shell, 25 cents for oatmeal, and 42 cents for wheat and mixed food, but finds he has 4 pounds of wheat left, which cost him 3½ cents a pound. How much did these chicks cost?

5. A Mecklenburg County Poultry Club girl raised a brood of 14 chicks which she finds cost her 25 cents each; she sells 3 cockerels at 17 cents per pound, the cockerels weighing 3½ pounds, 3 pounds, and 4½ pounds respectively. How much did she receive for the cockerels sold? How much has she invested in the 11 chicks left?

6. A girl has a flock of 14 pullets which were hatched March 15th; they began to lay October 18th. How old were they when they began laying?

7. A flock of 16 pullets laid 9 eggs each day from October 18th to December 23d. How many eggs did they lay during that time?

8. The above eggs were sold for 2½ cents each. How much did they bring the owner?

9. On Christmas day, 3 hens are set on 15 eggs each, which eggs are worth 3 cents apiece; each hen breaks 2 eggs. What will the chicks cost when hatched, were you to charge 5 cents for insect powder, 15 cents for feed for the hens while sitting, and 25 cents for labor?

10. Fourteen pullets laid 8 eggs a day during November, 9 eggs a day during December, and 10 eggs a day during January; eggs were sold for 25 cents a dozen. How many eggs did they lay during this time? How much cash was received?

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