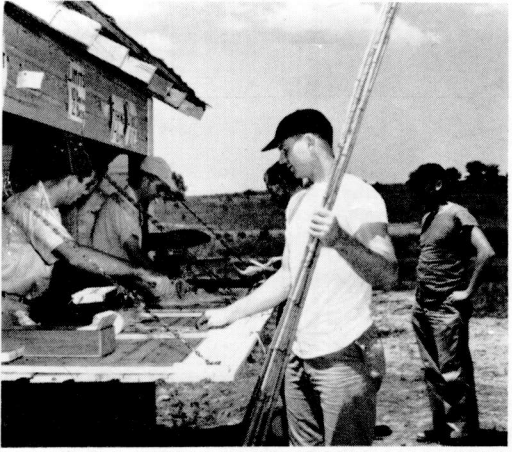

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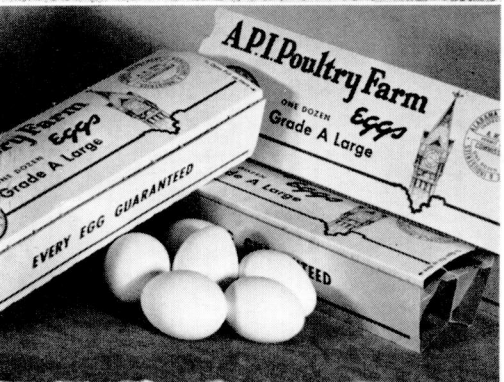


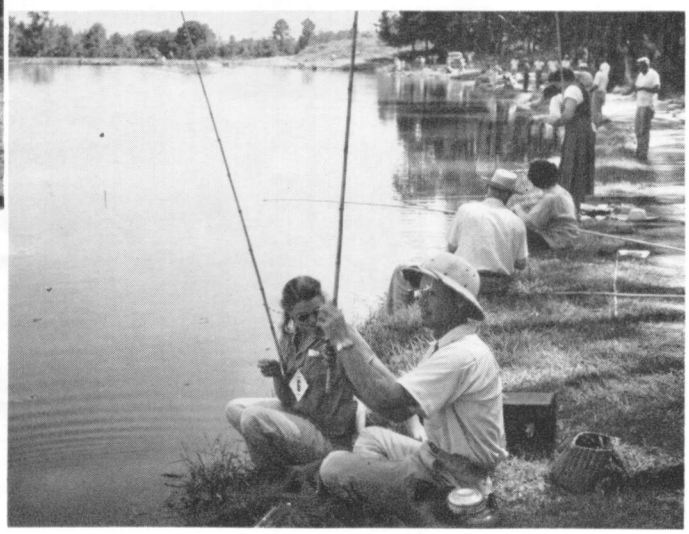
Highlights of AGRICULTURAL RESEARCH

A Quarterly Report of Research
Serving All of Alabama

AGRICULTURAL EXPERIMENT STATION SYSTEM *of the* ALABAMA POLYTECHNIC INSTITUTE

CONTENTS

At left, fishermen buy permits at booth for fishing in API experimental ponds. Later they have their catch weighed to determine pond production. Below, an annual average of 4,290 permits to this 26-acre well managed pond was sold during 8 years. This furnished enjoyment and relaxation to the fishermen and income to the owner.



Growing demand for FISHING PERMITS *on farm ponds*

E. E. PRATHER,
Associate Fish Culturist

ONE HUNDRED and fifty dollars per acre annual income from farm ponds!

Research results at the API Agricultural Experiment Station show that a well managed pond will furnish good fishing for the sale of 150 to 200 permits per acre annually.

Farmers can expect increased demands from their city cousins for fishing rights. Surveys already indicate that nearly 500,000 fishermen in Alabama spend an average of $75 each per year for fishing. Some of this is paid to Alabama pond owners, 2,500 of whom pocketed a half million dollars for fishing in 1957.

The API Station began experiments in public fishing in 1942. This research has involved not only sale of fishing, but also fertilization, supplemental feeding, species combinations most desirable for stocking, maintenance of population balance, corrective restocking, weed and algae control, and control of fish diseases and parasites. Each of these items can affect the success of any fish pond.

In selected experimental ponds at Auburn, public fishermen usually had a choice of ponds in which to fish. Permits were sold for either $0.50 or $1.00 each and entitled the fisherman a catch of 15 bluegills and shellcrackers and 4 bass. Records were kept of the number and weight of fish caught by each fisherman, method of fishing used, and length of time fished. Results from three commercial type, fertilized ponds stocked with bluegills, shellcrackers, and largemouth bass are given in the table.

RETURNS FROM PONDS

Acres	Yr.	Total permits sold yr.	Permits sold per acre	Total catch per year
		No.	*No.*	*Lb.*
22	7	3,058	139	2,684
26	8	4,290	165	3,978
12	6	2,100	175	1,812
Average	7	3,149	160	2,825

Demand

Even with more than 15,000 ponds and lakes in Alabama, many people still do not have places to fish free and are willing to pay for fishing permits. There is considerable demand for public fishing on a pay basis, especially near the larger cities and in areas where there is a minimum of available fishing water.

Anglers prefer to fish in ponds where fishing is good and where they can catch fish of a harvestable size easily. However, fish populations are dynamic and frequently change rapidly. One of the big problems of pond management is keeping fish populations in proper balance. This is necessary for ponds to continue producing good crops of harvestable fish over a long period. Good fish ponds in the experiment provided adequate fishing for 150 to 200 permits per acre annually. On some ponds a charge of $1 per permit did not seem excessive to most fishermen. The $1 rate is now commonly charged by most farm pond owners in Alabama.

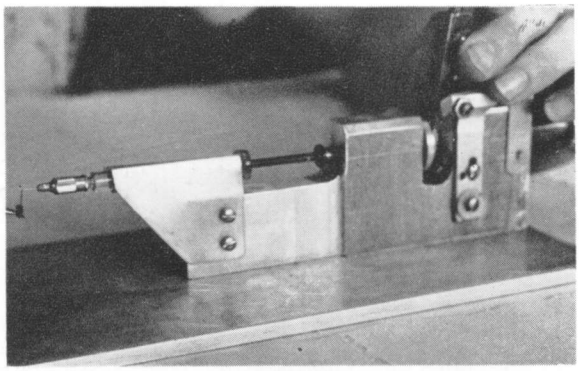
Yield Per Acre

Although the maximum catch of fish in some ponds has been as high as 300 lb. or more per acre in one year, the average catch is nearer 150 to 200 lb. In tests at Auburn, it was found that up to 125 lb. of fish could be harvested easily from each acre by public fishermen. However, much heavier fishing was required to harvest 225 lb. per acre annually. Tests show that in heavily fished ponds about one-half of the weight of fish present is caught by hook-and-line fishing each year.

Even the best fish ponds have their troubles, too! During the first year, especially, heavy fishing often results in 50% of the annual catch being removed in the first couple of days the pond is open to fishing. However, fishing success rapidly declines following such an occurrence. Fortunately the population usually recovers sufficiently from the shock to provide good fishing in subsequent years.

Are Alabama BOLL WEEVILS *getting harder to kill?*

F. S. ARANT and GLENN F. BURKHALTER,
Department of Zoology-Entomology



Device used to administer measured dose of insecticide to an individual weevil.

DON'T BE PANICKED by tales about boll weevil resistance. Instead, learn the facts about this problem.

Resistance to insecticides means that a strain of insects can withstand larger doses of an insecticide than is needed to kill others of the same species. This resistance is transmitted to subsequent generations. Small variations in susceptibility caused by season, field conditions, and factors other than inheritence are not considered resistance.

Boll weevil resistance to chlorinated hydrocarbon insecticides (materials generally used for boll weevil control) has been reported from parts of Louisiana, Texas, Mississippi, and Arkansas. However, the areas involved make up only a small fraction of total cotton acreage.

This is not the case in Alabama. Results of studies by the API Agricultural Experiment Station show that boll weevil resistance is not a problem in the State at present.

Resistance Studies

Research has been conducted in Alabama during the past 2 years to determine the susceptibility or resistance of boll weevils to chlorinated hydrocarbon insecticides. In most of the work, measured doses of each insecticide were applied individually to 2-day-old weevils reared from cotton squares. In a few tests, mass techniques were used to expose the weevils to known concentrations of insecticides on the inner surface of glass jars. More than 35,000 weevils from 12 locations in the State have been tested. Laboratory work was supplemented each year by field experiments at three locations with chlorinated hydrocarbons and organophosphate insecticides.

Susceptible boll weevils were established in 1956 at the Gulf Coast Substation, Fairhope, for use in these studies. These susceptible weevils were compared with weevils from 10 other locations in the State to determine resistance or susceptibility.

Results

In 1956 laboratory experiments, boll weevils collected from Auburn, Courtland, Frisco City, and Lowndesboro were all relatively easy to kill with toxaphene and endrin (chlorinated hydrocarbons). At the lower dosage levels tried, weevils from these four localities were slightly harder to kill than those collected at Fairhope in areas that had received no insecticidal treatment in recent years, if ever. However, at higher dosage levels there was little or no difference. All weevils studied were susceptible to the insecticides and no resistant populations were found.

Results of laboratory studies in 1957 and field experiments in 1956 and 1957 revealed no evidence of boll weevil resistance in 12 areas of Alabama. Summarized results of the research are presented in the table.

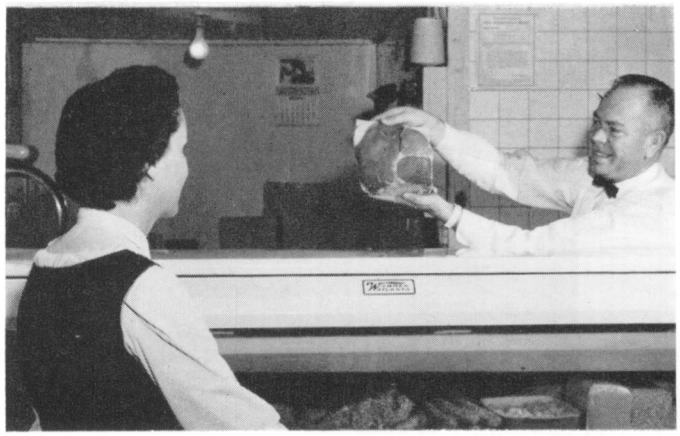
Ease of killing the boll weevil varied considerably with season of the year and food of the insects. In general, weevils were relatively easy to kill during early- and mid-summer while cotton was fruiting freely. Late in the season they were harder to kill. This fact has been known for 5 or 6 years.

Although boll weevil resistance was not found to be a problem in Alabama, it may develop as it has in other areas of the Cotton Belt. Until resistance is a factor, the recommended chlorinated hydrocarbon insecticides are still preferred for boll weevil control.

SUSCEPTIBILITY OF STRAINS OF BOLL WEEVIL FROM DIFFERENT LOCALITIES TO INSECTICIDES

Locality	Insecticides tested	Type of test	Results
Fairhope	BHC (lindane), endrin, Guthion, toxaphene	Laboratory[1 2]	Insufficient data on BHC; no resistance to others
Fairhope Station[3], Courtland	Endrin, Guthion, toxaphene	Laboratory[1]	No resistance
Carrollton	BHC (lindane), endrin, toxaphene	Laboratory[2]	Insufficient data on BHC; no resistance to others
Deatsville	BHC, endrin, Guthion, malathion, heptachlor, toxaphene	Field	No resistance
Frisco City, Lowndesboro	Endrin, Guthion, toxaphene	Laboratory[1]	No resistance
Prattville	Guthion, malathion, toxaphene	Field	No resistance
Selma	BHC (lindane)	Laboratory[2]	No resistance
Tallassee	Calcium arsenate, endrin, heptachlor, malathion, dieldrin, Guthion, toxaphene	Field on all; laboratory on endrin and toxaphene	No resistance
Auburn	BHC (lindane), endrin, Guthion, toxaphene	Laboratory[1 2]	No resistance
Crossville	BHC (lindane), endrin, toxaphene	Laboratory[2]	No resistance to BHC; insufficient data on others

[1] Individual application.
[2] Mass exposure.
[3] Susceptible weevils from Louisiana.



WHICH MEAT *gets* SHOPPERS' DOLLARS?

W. W. MARSHALL, JR., *Assistant Agricultural Economist*
M. J. DANNER, *Agricultural Economist*

THICK, JUICY STEAKS . . . golden brown fried chicken . . . pork chops swimming in barbecue sauce . . .

Any one of these foods is tempting. But which is preferred by butcher shop customers and what grade suits their fancy? What causes their selection when buying meat?

These are important questions for Alabama livestock producers. After all, pleasing meat buyers is necessary to ensure a market for the State's livestock.

A survey to find the factors that control meat buying and the kinds of meat and grades of beef preferred was recently conducted by the API Agricultural Experiment Station. Families whose principal income came from a textile mill were interviewed. A complete record of all meat purchases for the week preceding the interview was obtained.

Pork Most Popular

Pork was the most popular meat, accounting for a third of the total meat items purchased. (see chart.) Almost one-fourth of all meat purchases were beef. About one out of every 10 meat items bought was chicken. Fish were bought in a small number of cases, but fish were caught as well as purchased.

Table-ready meat products were second to pork in purchases. In most households studied, both husband and wife held jobs. The number of employed wives in the mill village surveyed was high. This indicates what is likely to happen as more wives obtain outside employment. Meal preparation must be simple but still provide appealing food. This probably accounts for the popularity of table-ready meats.

Excluding table-ready meats, 82% of all beef and pork bought required only pan frying. Beef roasts accounted for only 2.8% of all meat purchases. The items most frequently purchased were bacon, chicken, hamburger, sausage, weiners, and luncheon meats, in that order.

Less than half of those interviewed gave beef as their preferred meat, followed by chicken, pork, and fish. Percentage preferring each is shown below:

Meat	Per cent preferring
Beef	42
Chicken	30
Pork (fresh and cured)	20
Fish	8

Grades of Beef

As selected from unidentified color photographs, 51% chose the "U. S. Good" grade of beef. The lower grade, "U.S. Standard," was selected by 44%, and only 5% chose "U.S. Choice." Those interviewed could not correctly name a single government beef grade. The stamp on beef, "U.S. Inspected and Passed," had various meanings to those surveyed: "It's tender meat," "it's sanitary meat," "it's pure beef," "it's treated meat," and "it means nothing." Some admitted they did not know what the stamp meant, although a majority had seen it on beef.

Selecting Meat

Several factors affected the housewife's selection of meat.

Shopping was usually a once-a-week affair and was generally done at the end of the week. Small purchases were made during the week. Husband and wife shopped together in almost half of the families studied. A shopping list was used in 43% of the cases.

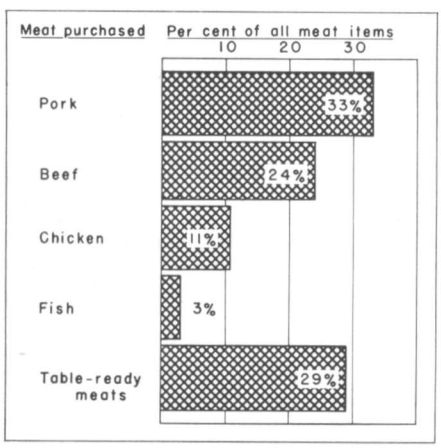
About one-fourth of the families mentioned buying meats where clerk service was available. It was not determined if such service was preferred.

Getting a tender cut of beef was named as a problem. About 70% reported no sure way of selecting tender meat. Most of the others took the butcher's advice.

Tenderizing meat was the subject of a question asked the homemakers. "Pounding" steaks and veal chops was mentioned often as a means of making meat tender. Most of the families had used meat tenderizers but did not believe them to be worthwhile.

The time available for cooking a meal was important in choosing the cut and kind of meat bought. This was especially true when the wife worked outside the home or if small children were at home. This group bought more canned meat, weiners, and luncheon meat than did families in which the wife devoted full time to homemaking.

Meat with a "lot of lean," bright color, freshly-cut look, and little fat were points used by the families studied in selecting meat. Marbling of meat – flecks of fat in the lean – was not considered desirable. Packaging and arrangement in display cases were also mentioned as affecting selections.



K. M. AUTREY, *Head*
Dept. of Dairy Husbandry
GEORGE E. HAWKINS,
Associate Dairy Husbandman

Raise HEIFERS CHEAPER *by* CUTTING OUT GRAIN

SAVING A TON of feed for each heifer raised would make a big difference in a dairyman's profits. Such a saving is possible if heifers are grown on hay and pasture only from 6 months of age to calving.

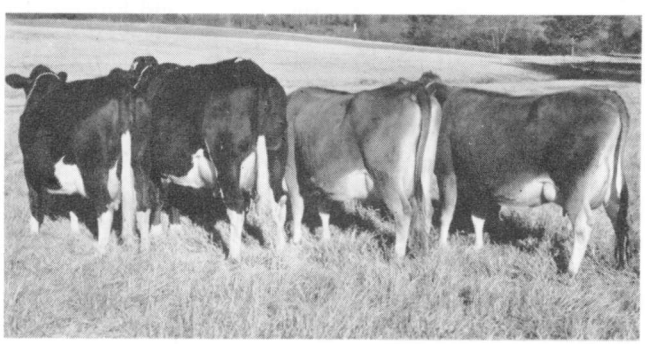
But what about growing calves without grain? Can it be done without stunting and ruining valuable animals? Will heifers grown on forage only be able to produce profitably? These are questions that demand answers before such a radical change in feeding methods will be accepted.

Auburn Study Begun

An experiment was started at Auburn in 1953 to study the value of concentrate feed (grain and cottonseed meal mixture) for dairy heifers from 6 months of age to calving. All calves were grown to 6 months of age on a "limited-milk ration," which included dry concentrates and good quality hay. They were housed in outside portable pens.

At 6 months of age the calves were assigned at random to one of three levels of concentrate feeding. One group received no grain (NG) after 6 months of age. A second group received grain (G1) to breeding age. The third group was fed grain (G2) to calving.

All animals were on comparable roughage during the experiment. Roughage was mainly Bermudagrass pasture during the summer and small grain – crimson clover grazing in part of the winter and spring. When pastures were short, various hays and grass silage were fed. Although alfalfa hay and peanut hay were fed at times, sericea hay was the main roughage much of the time.



These crossbred and Jersey cows illustrate the size difference between the no grain group and those fed grain to calving. The cow at left in each pair received no grain. The others were fed grain to calving.

Growth Rate

At 12 months of age the two groups of grain-fed heifers were heavier than the NG group. Most of this difference was overcome by the time they reached 36 months.

Measurements of height at withers showed that the grain-fed heifers were larger than those receiving no grain. By the time they reached 36 months, the G1 and G2 animals were almost identical in average height at withers and less than 4% taller than those in the NG group.

Milk Production

By the end of 1957, 59 heifers had completed one lactation period – 26 on NG, 13 on G1, and 20 on G2. Several experimental animals have not completed first-calf milk records. After calving, all cows were fed grain at the rate of about 1 lb. to each 4 lb. of milk produced.

First lactation milk and fat production averages for the heifers in each group are given in the table. Records of crossbred cows were computed separately from those of Jersey and Guernsey breeding. The crossbreds were sired by Holstein and Brown Swiss bulls. There were no major differences in production among the different groups.

Concentrate Fed

The G1 heifers ate an average of 810 lb. of concentrate and the G2 animals consumed 2,214 lb. from 6 months of age to calving. This extra grain feeding was not an economical practice, *with one important exception.* Several NG heifers that were born in the spring and went on an all-roughage ration at 6 months old during the late fall or winter months got in poor body condition during the winter when pasture was inadequate. Three calves had to be removed from the experiment because of their thin body condition. If the hay and silage had been consistently of good quality, this problem would have been less important.

MILK AND BUTTERFAT PRODUCTION OF FIRST-CALF HEIFERS RAISED ON THREE LEVELS OF GRAIN FEEDING, AVERAGE 305-DAY MILKING PERIODS

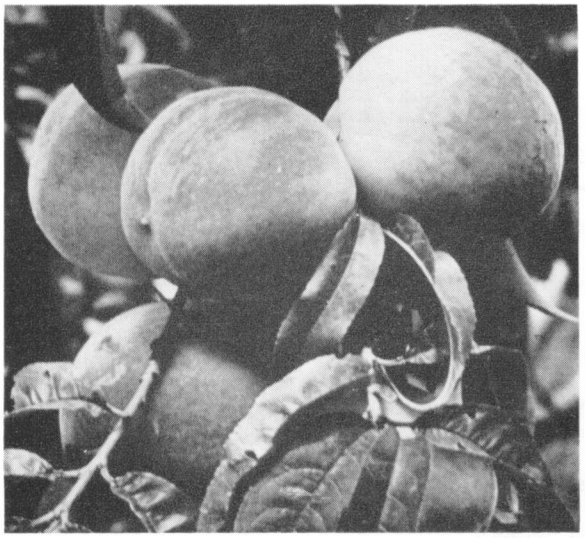
Group	Jerseys and Guernseys		Crossbreds	
	Milk	Fat	Milk	Fat
	Lb.	*Lb.*	*Lb.*	*Lb.*
NG	6,400	304	7,150	320
G1	5,740	319	7,460	324
G2	6,350	291	7,580	309

Those that went on the all-roughage diet when pastures were good grew well and showed no ill effects from the treatment.

Summary

In evaluating results of the study, these points are important: (1) although grain-fed heifers grew faster than the no-grain group, there was little difference in body size at 36 months of age; (2) first lactation milk and fat production showed no important differences among treatments; and (3) calves born in late winter or spring usually needed some grain after 6 months unless pasture was good.

Large savings can be made by taking dairy heifers off grain at 6-months-old. Quality of pasture and hay is the limiting factor.



What's to be gained from IRRIGATION *of* PEACHES

T. B. HAGLER, *Assoc. Horticulturist*
C. C. CARLTON, *Superintendent*
Chilton Area Horticulture Substation

WHAT IS THE PART MOISTURE plays in producing peaches – higher yields, early maturity, better color, larger proportion of top quality fruit?

Experiments were begun in 1956 by the API Agricultural Experiment Station to determine the value of irrigation in increasing size and market quality of peaches. Dixigem and Elberta varieties were used at the Main Station, Auburn, but only the Elberta variety was used at the Chilton Area Horticulture Substation, Clanton. Dixigem usually ripens during a period of low rainfall and Elberta ripens during a period of high rainfall.

Treatments

Treatments included (1) irrigated, thinned; (2) irrigated, not thinned; (3) not irrigated, thinned; and (4) not irrigated, not thinned. A single plot consisting of six trees was used at Clanton, with records taken from the two center trees. Single-tree plots were used at Auburn. The equivalent of 2 in. of rainfall was applied at each irrigation with applications to Dixigem May 18 and June 4 and Elberta May 18, June 6, and July 6. Rainfall at Auburn was light during the Dixigem fruit development and harvest period, but it was normal during the period of fruit development and ripening of Elberta. However, rainfall at Clanton was light during the period of fruit development and harvest of Elberta.

Fruit was harvested when "tree ripe" at Auburn (June 12 to 25 for Dixigem and July 18 to 25 for Elberta) and firm ripe for shipping at Clanton (July 19 to 23). Each fruit was graded into commercial sizes and scored for color using 1 to 10, with a score of 10 given fruits with 100% red skin color.

Results

Size and color of Dixigem peaches were improved more by irrigation at Auburn than the size and color of Elberta peaches were improved by the same treatment at Clanton. Rainfall during the period of fruit development and ripening was approximately the same at each location. Irrigation caused little or no difference in size and yield of Elberta peaches at Auburn. Rainfall at Auburn during the development and ripening period of Elberta peaches was twice that at Clanton. Irrigation hindered color development and resulted in excessive fruit rots with Elbertas at Auburn.

Effect on Yield and Size of Fruit

Irrigation did not increase the total yield of fruit, but it greatly affected the number of marketable fruits and size.

PRODUCTION PER TREE

Treatment	Dixigem		Elberta	
	Total	2¼" or above	Total	2¼" or above
	Lb.	*Pct.*	*Lb.*	*Pct.*
Irrigated, thinned	603	61	419	65
Irrigated, not thinned	575	53	478	58
Not irrigated, thinned	537	18	379	37
Not irrigated, not thinned	626	6	449	24

Only 4% of the marketable Dixigem peaches were under 2 in. in diameter where irrigated as compared with 42% where not irrigated. The total yield of fruit and the per cent measuring 2¼ in. or above in diameter for Dixigem at Auburn and Elberta at Clanton are given in production table.

Effect on Color

External color of both varieties was increased by irrigation, except for Elberta at Auburn where the rainfall was normal during the period of fruit development and ripening. Skin color of Elberta peaches from the irrigated plots at Auburn was not as good as that of peaches from the nonirrigated plots. Color ratings for Dixigem at Auburn and Elberta at Clanton are given in the color rating table.

PEACH COLOR RATING

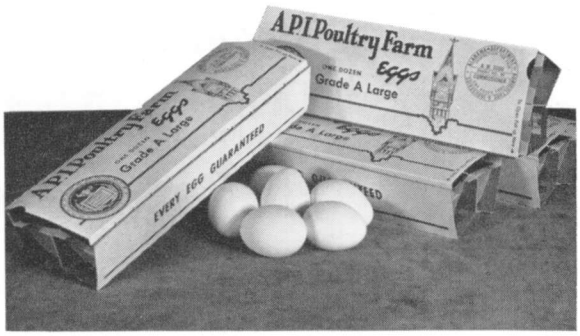
Treatment	Dixigem	Elberta
Irrigated, thinned	8.3	7.5
Irrigated, not thinned	7.0	7.3
Not irrigated, thinned	6.2	5.6
Not irrigated, not thinned	5.3	5.3

Irrigated Dixigems at Auburn and Elbertas at Clanton ripened 5 to 7 days earlier than those not irrigated. This was not true with Elbertas at Auburn where there was normal rainfall during the ripening period. At Auburn 29% of the fruit from the irrigated Dixigems was ripe at the third harvest, whereas only 7% of the nonirrigated fruit was ripe at that same harvest period.

"STIMULIGHTING" HENS

a new development for upping egg production

D. F. KING, *Dept. of Poultry Husbandry*



BY MAKING IT SPRINGTIME the year around, you can boost annual egg production 4 to 5 dozen per pullet.

This is a brand, spanking new idea in laying flock management. It has more potential for upping egg production than did the advancements in feeding and crossbreeding in recent years.

"Stimulighting"

Called "stimulighting," or light rationing, the new practice is based on what poultrymen have known for a long time – that hens produce better in the spring when the days get longer. They have believed, however, that the increase in lay was the result of longer days. This is why they have supplied extra light to give hens 14-hour work days. Actually though, the API Agricultural Experiment Station found that it is NOT the total amount of light but rather the INCREASE in light that stimulates egg production in hens.

It is also known that hens after laying under minimum light for some time can be stimulated to increase egg production. This is done by increasing the amount of light either by lengthening the time lights are on or by using more or larger bulbs. However, there are limits to this method, since it is customary to start pullets on 13- or 14-hour days and since they respond less to light increases of more than 15 or 16 hours per day. So, why not manage the amount of light supplied throughout a hen's life, it was reasoned.

In the light-rationed plan, the pullets are raised from day-old chicks to 5 months (laying age) under 6 hours of light per day. After the birds begin to lay, the day length is increased 18 minutes every week. The first week they get 6 hours and 18 minutes; the last week of the 12-month laying period the hens get 21 hours and 36 minutes of light daily.

Production Trials

In experiments by this Station, light-rationed pullets out-produced those getting normal light (14 hours per day in laying house) by 4½ dozen eggs in 12 months of laying – 270 eggs as compared with 215.

All birds in the tests were caged and received the same kind of feed, same ventilation, and had water from the same supply source. The only difference was one group was raised and managed under the normal amount of light per day, whereas the other group received rationed light.

At average 1956 U.S. prices, the light-rationed layers produced eggs worth $2.05 more per bird than did the normally lighted group. Based on average prices of 1957, one of the lowest in recent years, production by "stimulighted" hens averaged $1.75 more per bird.

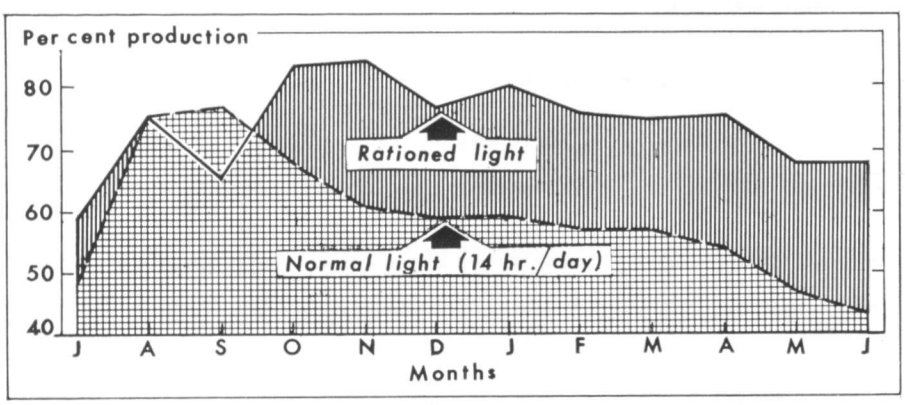
The normally lighted hens reached peak production of 77% by the 3rd month of laying period and then declined to 43% – a drop of 45%. (See chart.) "Stimulighted" layers hit peak production of 84% in the 5th month followed by gradual decline to 68% – a fall-off of about 19%. Additional groups of layers now on test follow the same pattern and further support the results from the earlier experiments.

Equipment

To use the new method, the brooder, growing, and laying houses must be made light-tight, including air vents. They must be equipped with ventilating systems and evaporator coolers to control summer temperatures. This change-over will cost about $1 per bird.

Houses can be blacked out with cardboard, light-proof plastic, or black paper. Lights (four 25-watt bulbs per 100 layers) can be easily controlled by time switches. Electricity for ventilating and lighting will cost about 71 cents per 1,000 birds per day (4¢ per kwh).

Experiments with light rationing of layers are being extended to determine effects of different amounts of light and different light schedules on further production increases. On the other hand, the 25% increase in egg lay from light management as reported here is a significant development in commercial egg production.



The difference in monthly egg production between the normal lighting system and the new "stimulighting" or rationed light method is shown above.

Planting COTTON *on* TIME URGENT *this year*

J. T. COPE, JR., *Associate Agronomist*

PLANTING COTTON at the proper time will be highly important in 1958 because good seed of recommended varieties will be scarce and expensive.

When is the proper planting time? Is early planting so important that farmers run the risk of having to replant? How late can one wait to plant without risking a great reduction in yield from planting too late?

Answers to these questions are based on results of experiments on time of planting cotton conducted at seven widely separated locations in Alabama. The data are presented in the table of yields.

The best planting time for any area covers a period of 10 to 20 days. The best planting time within this period varies from year to year. Many times yields may be drastically reduced by missing the best planting time. It is not critical that a farmer plant on a certain day each year, but only that he plant as near to the best date as soil and weather conditions will permit. He should prepare the land and buy seed and fertilizer well in advance of planting time so when weather conditions become favorable he will not be delayed.

YIELDS OF SEED COTTON IN TIME OF PLANTING EXPERIMENTS

Location and length of expt.	Planting date*		
	Early	Recommended	Late
	Lb.	*Lb.*	*Lb.*
Southern Ala.			
Monroeville, 14 yr.	984	1,095	867
Central Ala.			
Prattville, 16 yr.	1,234	1,230	1,144
Aliceville, 17 yr.	1,395	1,425	1,031
LaFayette, 8 yr.		1,148	945
Northern Ala.			
Alexandria, 6 yr.	1,180	1,218	854
Tenn. Valley, 7 yr.		1,703	1,475
Sand Mt., 12 yr.		1,385	1,369

*Planting dates ranged from March 25 in southern and central Alabama to May 25 in central and northern Alabama.

Extremely early planting is not necessary. It is often better to wait a few days in the recommended period than to run an unnecessary risk of having to replant. Planting cotton over is expensive. It usually costs $5 to $6 per acre for seed, machinery, and labor. It may cost more in 1958. Therefore, it would be better to wait until the soil is warm enough to favor rapid germination and weather prospects are for continued favorable conditions.

Late planting is worse than early planting in most cases. Late April plantings in southern Alabama and May plantings in all of the state usually yield less than earlier plantings. The average loss in yield between the last two planting dates (10 days apart) at the seven locations was 143 lb. of seed cotton. This was an average loss of about 15 lb. per day near the end of the planting season.

The best planting dates for the different sections of the State are shown below:

Southern Alabama	April	1 to 10
Central Alabama	April	1 to 20
Northern Alabama	April	10 to 30
Sand Mountain	April	15 to 30

New and Timely PUBLICATIONS

Listed here are timely and new publications reporting research by the Agricultural Experiment Station.

Bulletin 310. Silage Making Costs and Practices presents results of a 1954-55 study of farmers' experiences in silage harvesting, storing, and feeding.

Special Leaflet. General Fertilizer Recommendations for Alabama gives approved fertilizers for different crops by region of the State.

Leaflet 51. It's What Is in the Bag That Counts covers content and cost comparisons of different grades of fertilizer.

Leaflet 52. Building A Pole Barn gives detailed instructions on locating and constructing pole barns.

Free copies may be obtained from your county agent or by writing the API Agricultural Experiment Station, Auburn, Alabama.

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