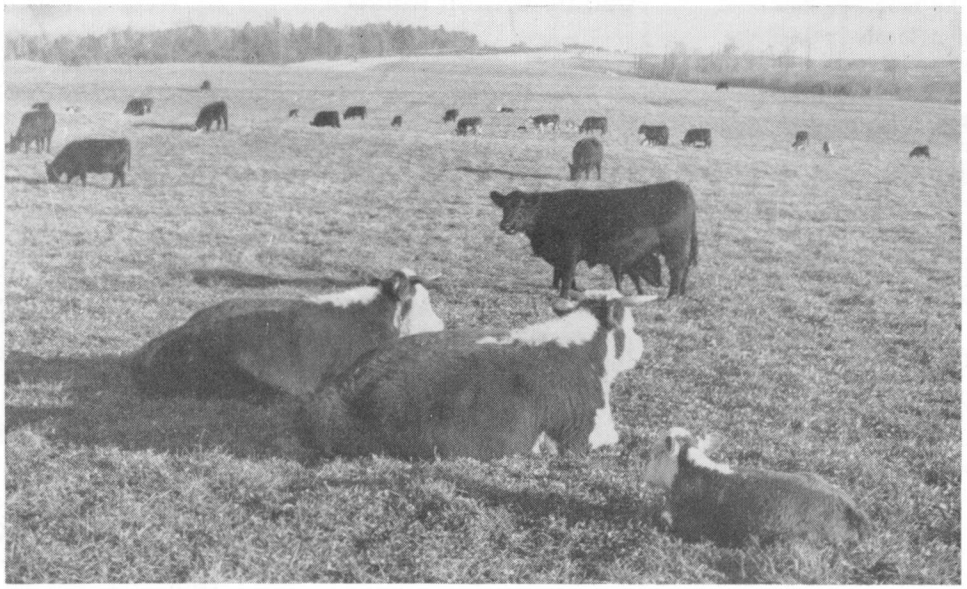
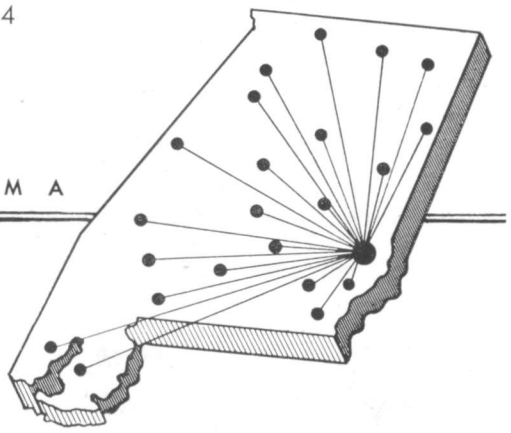
HIGHLIGHTS *of* AGRICULTURAL RESEARCH



In this issue—Fall and Winter Grazing for Alabama . . . Insect Damage to Corn Can Be Greatly Reduced . . . Safe Storage for Crops . . . Research System Serves All of Alabama . . . Effect of Depth of Seedbed Preparation on Cotton Yields . . . More Eggs for Fall Market . . . Portable Pens for Raising Calves . . . Beef Breeders Aided by Sire-Testing Program . . . Factors Affecting Prices of Livestock and Livestock Products.

VOL. 1, No. 2 — FALL 1954

SERVING ALL of ALABAMA



AGRICULTURAL EXPERIMENT STATION SYSTEM
of the
ALABAMA POLYTECHNIC INSTITUTE

Research Units Form System

SERVING ALL OF ALABAMA

E. V. SMITH, *Director*

On the cover of each issue of HIGHLIGHTS is – "Serving All of Alabama." It is a continuing reminder of the duties of your Agricultural Experiment Station System. The map on the cover diagrams the System's organization and related parts. To be aware of how it serves the State through agricultural research, it is necessary to understand the interrelationships of the research units shown on the map.

The Main Station, located at Auburn, is the nerve center or headquarters of the System. At the Main Station are the subject matter departments dealing with production of crops and animals, engineering, insects and diseases of plants and animals, farm economics, forestry, home economics, and publication of research results. Located here are scientific laboratories where basic and applied research of state-wide importance is done. Also at the Main Station are most of the highly trained scientists needed to plan and conduct technical experiments. This concentration of technical staff and scientific laboratories has been found to be an economical organization for the solution of the varied agricultural problems.

Radiating from the Main Station like spokes from a hub are lines to 23 outlying research units. Eight dots represent the Black Belt, Gulf Coast, Lower Coastal Plain, Piedmont, Sand Mountain, Tennessee Valley, Upper Coastal Plain, and Wiregrass Substations. Two others represent the Chilton Area and North Alabama Horticulture Substations. Field experiments are carried out on these substations. These usually deal with problems that are peculiar to the area and that differ from those in other areas because of differences in soil, climate, topography, and crops grown.

Each substation is under supervision of a superintendent who has one or two assistants. Because of the breadth of the problems to be attacked, the superintendents and the Main Station scientists cooperate in planning and carrying on experiments at the substations.

Six of the dots represent Experiment Fields that are located on lesser soil areas having peculiar problems. These fields, as well as the Plant Breeding Unit and the Foundation Seed Stocks Farm, are under supervision of the Department of Agronomy and Soils. Another 5 dots represent Forestry Units located on several of the State's major forest types. The Forestry Department is responsible for the research on these units.

Last, the dot west of Mobile Bay represents the Ornamental Horticulture Field Station, which is supervised by a resident plant pathologist who cooperates with other scientists at the Main Station.

Thus, the map diagrams the interrelationship of research units forming the Experiment Station System of the Alabama Polytechnic Institute. Together they are "Serving All of Alabama" through agricultural research.

INSECT DAMAGE TO STORED CORN

Can Be Greatly Reduced

W. G. EDEN, *Entomologist*

For every 50 bushels of corn produced in Alabama, farmers "donated" 11 bushels to stored grain insects. This loss is estimated to have totaled nearly 16 million dollars a year during the last 5 years.

Insects that cause the most damage to stored corn are the rice (corn) weevil and the Indian and Angoumois grain moths. Other important species are the Mediterranean grain moth, the dark and yellow mealworms, and the cadelle. The rice weevil and grain moths attack corn in the field, especially in the southern half of Alabama. Brought into the crib with the corn, they continue to feed on the stored grain. Mealworms and cadelle attack corn after it is put in the crib.

Loss from these pests can be greatly reduced by proper use of control measures. Research on their control has been done by the API Agricultural Experiment Station for many years. Actually, stored grain pest control begins with selection of proper varieties. However, only measures that can be used on the 1954 crop are given here.

DATE OF HARVEST. Stored grain insects begin to damage corn in the field as soon as it begins to dry. Since damage continues while corn is in the field, it should be harvested as soon as dry enough to store.

CRIB PREPARATION. Proper preparation of crib before storing grain is very important. The crib should be cleaned completely and inner surface sprayed. Recommended are 2½% sprays of DDT, methoxychlor, or TDE, either as wettable powders or emulsion.

If the corn is to be fumigated, the crib must be made as nearly air tight as possible. An economical, practical way is to line inside with 15-pound asphalt felt storm sheeting.

FUMIGATION. Fumigation is an effective way of killing insects in stored corn. In southern Alabama, corn should be fumigated about 2 weeks after storage. In northern Alabama, fall fumigation may not be necessary unless the corn is infested when harvested. Fumigation should be done when weather is warm and insects are active (not under 65°F.).

These fumigants are recommended:

(1) A 3-to-1 mixture of ethylene dichloride and carbon tetrachloride applied at rate of 6 gal. per 1,000 cubic feet in steel bins and 7½ gal. in wooden bins.

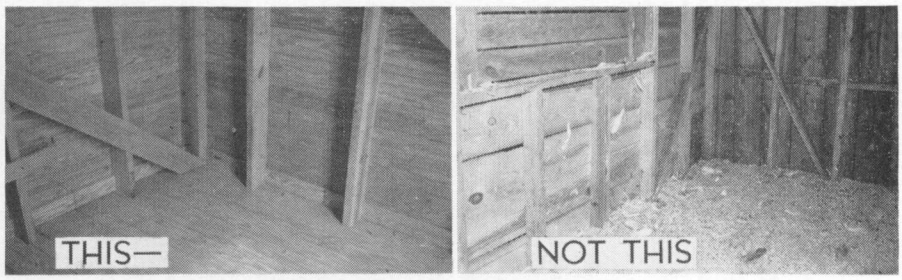
(2) A 4-to-1 mixture of carbon tetrachloride and carbon disulphide applied at rate of 5 gal. per 1,000 cubic feet in steel bins and 6¼ gal. in wooden bins.

(3) Methyl bromide applied at rate of 1 lb. per 1,000 cubic feet in steel bins and 1¼ lb. in wooden bins.

Since gases from fumigants are toxic to all animals, care should be taken to prevent exposing them to the fumigant during and immediately after application. The fumigated grain is safe to feed to livestock after the bin has been thoroughly aired.

Stored grain should be examined at monthly intervals for re-occurrence of insects. Fumigants have no residual effect, and insect populations may build up. A second fumigation is frequently necessary in late spring.

For more detailed information, write API Agricultural Experiment Station, Auburn, Ala., for copy of Leaflet 40, "Control of Insects in Stored Grain."



Research Results Show

FARM STORAGE IS SAFE AND PROFITABLE

J. L. BUTT, *Associate Agricultural Engineer*

DID YOU, like many Alabama farmers, sell your corn last fall for around $1.10 a bushel ($30 a ton) and buy it back this spring for about $1.60 ($45 a ton)? Or, did you sell corn for $30 a ton last November that would have brought $45 in March?

If you did, you lost enough in price difference to buy and erect a storage bin on your farm that would last you 20 years or more. Actually, some farmers have "paid" for storage in price spreads on corn, oats, soybeans, and other crops for several years and still don't have bins.

Price spreads occur every year, but vary in a greater or lesser degree depending on yield and supply in your local market.

Prospects for this year point to urgent need for additional on-farm as well as off-farm storage space. Because of storage space now taken by the 1953 crop, government officials say that with normal yields this year our total supplies may reach an all-time record level.

With development of hybrids adapted to Alabama, closer spacing, and higher applications of nitrogen, corn is becoming increasingly important as a grain crop. This shift in corn from a subsistence crop to one for market or sale through livestock brings up the question of on-farm storage. Also increased acreages in soybeans point up the need in some areas for both on-farm and off-farm storage.

Storage Factors to Watch

Results from experiments by the API Agricultural Experiment Station show that you can store grain safely without loss in quality if you give attention to (1) moisture content of grain, (2) insect control, and (3) trash in grain. Excess trash, especially green, wet materials, should be removed before putting grain in storage structures, which should be rodent and bird resistant and tight enough for fumigation.

Most important is the proper moisture content at time of storage. For safe storage up to one year, maximum moisture levels for Alabama are: shelled corn, 12%; oats and wheat, 11%; soybeans and cottonseed, 10%.

Materials

You may erect satisfactory structures from a number of different materials. Thus far, no preference in type of material is indicated by the experiments, which show that such structures can be built for around 35 to 50 cents per bushel of space. Be sure the bin is built to support heavy weight and side pressure of the stored grain.

Equipment

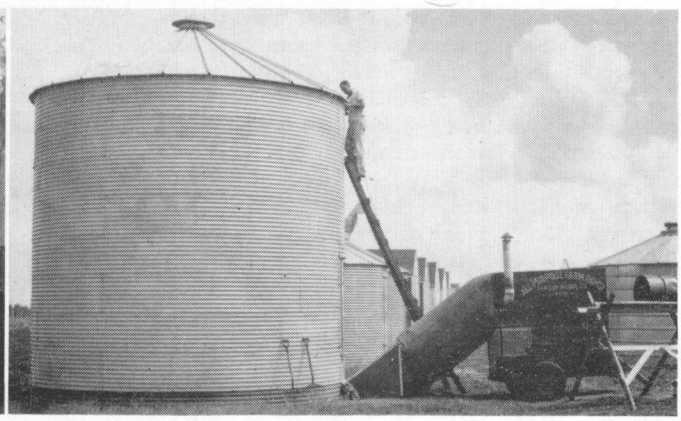
There are grain elevators available that will fill a 1,000-bushel grain bin for around a nickel's worth of electricity. An elevator of this type is almost a must if you have much grain to handle.

Where grain crops are harvested early to prevent field losses they may not be dry enough for safe storage, and a means of removing excessive moisture is needed. Driers that can be towed from bin to bin or farm to farm are available for this purpose. Satisfactory results have been reported from small ventilating equipment for drying crops not too wet, especially fall-harvested crops that usually have fairly dry curing weather. In some areas, crop driers and elevators are bought on a cooperative basis by neighboring farmers.

Government Financing

If funds are needed to buy storage facilities, your Agricultural Stabilization and Conservation Committee can lend up to 80% of cost of bins and up to 75% of that of drying or ventilating equipment. These 4% loans may be repaid over a 3- or 4-year period. New regulations permit you to write off the investment costs as Federal income tax deductions over a 5-year period.

EDITOR'S NOTE: For more details on storage, write API Agricultural Experiment Station, Auburn, for Leaflet 41, "Storing Shelled Corn in Alabama."



Fall and Winter

GRAZING FOR ALABAMA

W. R. LANGFORD, *Associate Agronomist*

WANT EARLY FALL GRAZING? Then your best chance is with one or more of the small grains — oats, wheat, or rye. Or, if you have well-managed stands of Ladino clover or orchardgrass, these perennials will supply early fall grazing after your summer pasture has begun to fail.

FIG. 1. Vigorous fall growth of small grains compared with other winter grasses at Prattville Field.

Results of experiments at substations and experiment fields throughout Alabama indicate that the best grazing programs possibly should include both winter annuals, such as oats and wheat, and such cool-season perennials as Ladino clover and orchardgrass. Each of these groups has certain advantages over the other.

Annual forage crops grow off faster and furnish earlier grazing than new seedings of perennials, which when well established recover quickly after dormancy or after being grazed. Well established cool-season perennials produce earlier fall grazing than even the most vigorous annual crops.

Studies are in progress at 12 locations throughout Alabama to determine what crops are best adapted for fall and early winter grazing in each section of the State. Many winter annual grasses and legumes are seeded in pure stands and in mixtures on small plots at each location. They are planted on well-prepared seedbeds and fertilized uniformly at high rates. Seasonal growth and total forage yield of each crop or mixture are determined by frequent mowing.

Results of these tests indicate that a number of crops and crop combinations are similar in total growth but quite different in seasonal growth. These differences are shown in the accompanying table. Adapted varieties of small grains have consistently produced more forage in the fall than any other annually seeded winter crop in the test (Fig. 1). Rye planted September 3 on the Piedmont Substation produced more forage by early November than was produced by either ryegrass, rescuegrass, or crimson clover by mid-March. The latter crops produced more than small grains after early March, making the total production for the season about equal. These crops were even later and far less productive where planted on a poor seedbed or where stands were obtained by natural seeding.

Crimson clover planted with small grain added very little to the total yield; but in mixture with ryegrass, it constituted about one-half of the forage. Crimson clover failed to compete successfully with the vigorous fall growth of small grains. Furthermore, even after the growth rate of small grains declined in late winter, crimson clover produced very little grazing (Fig. 2).

FIG. 2. In combination with oats (left), crimson clover supplies very little grazing even in late winter. With ryegrass (right), it furnishes good grazing. This picture was taken January 26, 1954.

FIG. 3. Growth of cool-season perennial grasses in November, Piedmont Substation.

Tests of cool-season perennial grasses and legumes at several locations show that the soil and climatic requirements of these crops restrict their growth to fertile soils. Orchardgrass and Ladino clover thrive on the most fertile soils of northern Alabama and the Piedmont area. Under skillful management, these crops provide high-quality grazing during the period immediately following the decline in growth of summer pastures and preceding the growth of fall-seeded winter annuals (Fig. 3).

Alfalfa is one of our most productive forage crops. Adapted varieties have produced 4 to 6 tons of hay per acre annually for a period of 4 years or more on the heavier soils in northern, central, and southern Alabama. Continuous close grazing of alfalfa for long periods depletes the root reserve, thins the stand, and reduces the yield. However, it may be grazed for short periods without serious damage to the stand. Varieties of alfalfa recommended for Alabama are Kansas Common, Oklahoma Common, Buffalo, Atlantic, Williamsburg, and Narragansett.

PERFORMANCE OF WINTER GRAZING CROPS AT THE PIEDMONT SUBSTATION, 1953-54 SEASON

Crop[1]	Pounds of dry forage per acre				
	Nov. 6	Feb. 1	Mar. 12	Apr. 15	Total
Atlantic oats	925	421	800	2,087	4,233
Abruzzi rye	1,552	743	689	1,210	4,194
Coker 47-27 wheat	906	731	523	736	2,896
Crimson clover	0	96	1,249	2,342	3,687
Italian ryegrass	0	211	800	2,552	3,563
Rescuegrass	0	204	551	2,938	3,693
Oats + crimson	1,086	436	822	2,542	4,886
Oats + vetch	957	406	714	2,204	4,281
Ryegrass + crimson	0	313	1,637	2,277	4,227
Rye + crimson	1,302	542	822	2,033	4,699
Wheat + crimson	839	589	969	2,076	4,473
Rescue + crimson	0	304	1,580	1,998	3,882

[1] Planted September 3, 1953; fertilized with 1,000 pounds 0-16-8 per acre at planting, and top-dressed with 40 pounds nitrogen per acre in October and March.

How Cotton Yields Are Affected By

DEPTH OF SEEDBED PREPARATION*

T. E. CORLEY, C. M. STOKES, F. A. KUMMER, *Department of Agricultural Engineering*

DOES DEPTH of seedbed preparation affect growth and yield of cotton?

In a study of two Alabama soils, results of tillage tests indicate that neither growth nor yield of cotton is affected to any extent by depth of seedbed preparation.

Several methods of seedbed preparation, consisting of varying depths, were compared for 5 years on Greenville fine sandy loam near Prattville and for 2 years on Decatur clay at the Tennessee Valley Substation near Belle Mina. The treatments included shallow preparation (less than 5 inches), medium (5 to 7 inches), and deep (more than 7 inches). Shallow preparation was obtained on the Greenville soil with a disk harrow, disk tiller, subsweeps, and rotary tiller; and on the Decatur soil the same types were used, except a heavy disk was substituted for the disk tiller. Medium treatments consisted of using the disk plow and moldboard plow on both soils; the Graham Hoeme chisel plow on the Greenville soil; and the Till-Mor spiral tiller on the Decatur soil. On both soils, deep tillage was achieved with the Oliver TNT plow and the chisel subsoiler followed by disk plow.

Subsoiling was done at a depth of 18 inches, approximately 21 inches apart. It was done on the Greenville soil in the spring the first 2 years and in the fall the last 3 years, and on the Decatur soil in the spring for 1 year and in the fall and spring (different plots) for 1 year.

* This study was conducted in cooperation with the Soil and Water Conservation Research Branch and Tillage Machinery Laboratory Section of the Agricultural Engineering Research Branch, A.R.S. of the U.S.D.A.

COMPARISON OF COTTON YIELDS AS AFFECTED BY TILLAGE DEPTH ON TWO ALABAMA SOILS

Soils and treatments	Yields of seed cotton per acre					
	1948	1949	1950	1951	1952	Average
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
Greenville fine sandy loam						
Shallow	1,178	666	1,643	1,125	1,725	1,267
Medium	1,219	783	1,682	1,121	1,612	1,283
Deep	1,192	854	1,878	1,127	1,703	1,351
Decatur clay						
Shallow		1,815	1,574			1,694
Medium		1,799	1,572			1,685
Deep		1,752	1,540			1,646

Results

Results were inconsistent from year to year in regard to effect of tillage depth on plant characteristics; consequently, they are considered in relation to the weather. The 1950 growing season was exceptionally wet in July and subsequent cotton growth was unusually rank. Rainfall for 1951 was far below average, except for a period of heavy rainfall in mid-August when bolls were beginning to mature and open. Rainfall distribution on the plot areas during the other years was about normal.

YIELD. Greenville fine sandy loam. Contrary to the generally accepted theory that deep tillage is most beneficial during a dry season, data in the table show that the greatest benefits of deep tillage were obtained during the wet season of 1950 and practically no benefits resulted from deep tillage during the dry year of 1951. In 3 of the 5 years, there were no important differences in yield due to tillage depth; the 5-year average showed only slight differences, with the deeply tilled plots producing the highest yields and the shallow tilled plots the lowest.

Decatur clay. Tillage depth had practically no effect on yields for this soil (see table).

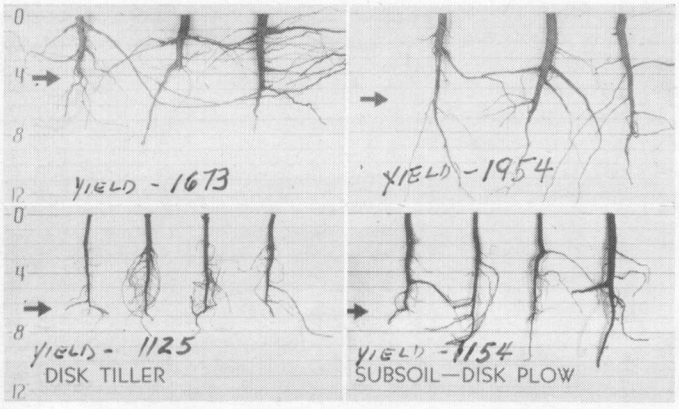
PLANT HEIGHT. Tillage depth appeared to have little direct effect on the height of plants grown on either soil.

WEEDINESS. Although all plots were "laid by" clean in 1950 (the only year data were obtained), results showed differences in weediness at harvest time on both soils. In general, those treatments that most completely inverted the soil had the lowest weed count.

ROOTING DEPTH. In 1950, the difference in relative rooting depth was highly significant between deep and shallow treatments for both soils, as well as between the deep and medium treatments on the Greenville soil (see photo). Tillage depth had more direct effect on relative rooting depth than on yields or plant heights.

In 1951 and 1952, there were only small differences due to tillage treatment. Although deep tillage favored root growth in 1951, the plants were small and all roots were long and tapered regardless of treatment (see photo). In 1952, the plants were large and all roots were long and tapered.

Thus, for cotton grown on these two Alabama soils, depth of tillage had no appreciable effect on growth or yield.



1950 Wet Year

Effect of tillage depth on root formation in two different seasons.

1951 Dry Year

PORTABLE PENS SUPERIOR for RAISING CALVES

K. M. AUTREY, *Head, Dairy Husbandry Department*

For years colds, pneumonia, and internal parasites have been roadblocks to dairy herd improvement in Alabama. In some cases, dairymen have suffered losses of 50-75% of their replacement heifers.

Research covering a three-year period has shown that at API Agricultural Experiment Station the "portable pen system" is superior to the conventional barn system.

Developed by the USDA Regional Animal Disease Research Laboratory, Auburn, portable pens, 5 x 10 x 3 feet, with half of pens covered with sheet metal, have been used several years. Individual calves, housed in these pens, which are moved to clean ground each 7 days, can be raised nearer free of internal parasites than in any of several systems tried by that laboratory.

In 1950, a series of calf management tests was begun jointly by the Dairy Husbandry Department and the Laboratory. In each of the tests, 16 calves were divided into two groups. One was housed in individual portable pens placed on an area not contaminated by older animals. The other was assigned to a calf barn with individual pens and a common exercise lot of 15 x 40 feet. The calves were chiefly of Jersey breeding. All were fed a limited amount of milk with alfalfa hay as chief roughage.

In the first 2 years, the portable-pen calves (birth to 4 months old) made an average gain of 102 lb. per calf, or about 30% (24 lb.) more than that of the barn-raised calves.

In the 3rd-year test, barn-raised calves (birth to 6 months old) averaged 161 lb., or 8% heavier than the average of the portable-pen calves.

The most important difference between the two groups was that practically all barn-raised calves suffered from colds and diarrhea one or more times; several had pneumonia, and one calf died. Only one portable-pen calf contracted a cold in the three tests, and it required no treatment.

More important than the small difference in growth rate between the two groups the third year was the reduced amount of coccidiosis and other internal disorders among the barn - raised calves. This improvement is believed the result of keeping the exercise lot scraped and free of all grass and weeds throughout the test. This was not done the first 2 years. Undoubtedly, contaminated forage in the lot contributed to the spread of parasites and disease germs among the barn-raised calves.

From the 3 years' results, the following conclusions and recommendations are made:

(1) It is easier to raise calves free of colds, pneumonia, and scours in outside pens than inside a barn.

(2) Calves can be safely housed in outside pens even at temperatures as low as 8° F. (as in Auburn, November, 1950). Little or no bedding is needed even in winter, provided pens are moved weekly and placed on well-drained ground.

(3) Calf area must be kept free of contamination by older animals.

(4) If calves are raised in a barn and run together at a young age (under 5 to 6 months), sanitary precautions are very important, and care must be taken to prevent sucking habit.

MORE EGGS FOR MARKET IN THE FALL

D. F. KING, *Head, Poultry Husbandry Department*

Strict culling, correct feeding, and proper use of artificial lights mean more eggs in the basket in the fall when hens naturally are inclined to stop laying.

For the most profitable rate-of-lay, small, unthrifty, late-maturing pullets should be removed from the pullet flock by the time laying starts. Only the large, vigorous pullets that begin laying first should be kept in the laying flock.

Well-bred hens fed corn alone will lay only about 90 eggs each a year, according to results of tests conducted by the API Agricultural Experiment Station. These tests show, however, that if the ration is properly supplemented with proteins, vitamins, and minerals, similar hens will lay 200 or more eggs per year.

Poultry farmers can usually obtain the needed proteins, vitamins, and minerals for their birds by one of two systems. First, a regular commercial laying mash of about 20% protein may be fed daily in unlimited quantities and grain may be fed by hand during mornings and evenings at the rate of 10 to 12 pounds per 100 hens per day. These mashes contain the protein and vitamins necessary to balance a grain ration for laying hens. The second system involves use of protein supplements, either 26 or 32%. If cheap grain is available, poultrymen can use these supplements and feed their hens satisfactorily for high egg production. The usual method for feeding these supplements is to allow hens to eat free choice from three different hoppers – one of whole corn, one of whole oats, and one of commercial supplement.

Oyster shell or ground limestone and grit must also be supplied. Surveys of Alabama poultry farmers show that many fail to supply minerals for eggshell formation, which results in lowered egg production and soft-shelled, unmarketable eggs. There seems to be no major difference between oyster shells and limestone particles for laying hens. Insoluble grit, such as coarse sand or granite grit, also should be available to aid in grinding whole grains in the gizzard of the hen.

Green feed cut daily and fed to hens is a good source of many vitamins and proteins. It will also reduce the amount of bought feed required by the hens by at least 5%. Fall crops, such as turnips, collards, rape, oats, and crimson clover, have been found to be good if fed daily at rate of 3 to 5 pounds per 100 hens.

Mature hens are also stimulated to lay during short fall and winter days by use of artificial lights. Tests at Auburn show that hens lay best when the length of day is increased periodically throughout the fall and winter. This can be done by using electric lights each morning, starting in August and gradually increasing the amount of light used until the pullets are receiving 14 to 16 hours of light each day by January. Hens in their second year of laying require more stimulant than pullets. If the flock consists mainly of old hens, the lights may be increased until all-night lights are being used by mid-winter. In either case, light equal to 1 watt per hen should be supplied to obtain enough intensity to stimulate the hens.

Other management practices, such as supplying warm water during cold periods and feeding pelleted mash or moist mash at noon each day, will aid greatly in increasing egg production during the fall and winter when eggs are usually scarce and high in price.

Factors Affecting Farm Prices of
LIVESTOCK AND LIVESTOCK PRODUCTS

BEN T. LANHAM, JR., *Agricultural Economist*

THE PRICES you get for your livestock and livestock products depend upon the supply of those products in the market, marketing costs and charges, and the amount of take-home pay of consumers.

For the most part, livestock enter marketing channels for processing and/or storage. Later they are sold at retail in varied forms of products and by-products. The prices you receive, therefore, are based on the prices of all of these products minus the many marketing costs and charges that occur between your front gate and the consumer.

Retail prices of livestock and livestock products and per capita disposable income (income less taxes) follow much the same up-and-down pattern. The amount that consumers spend for meats, for example (see chart) is closely related to their take-home pay. Thus, when production is high and farm prices are low, the consumer spends the same proportion of his income for meat but gets more for his money. If production is low and prices are high, the consumer eats less meat.

From year to year, consumers spend about the same percentage of their income for food. However, high-wage earners buy more livestock and livestock products and spend more for these products than do low-income consumers.

Marketing Costs Remain Constant

While consumers spend a constant proportion of their incomes for livestock and livestock products regardless of market supply, farm and retail prices do not always change in the same direction or at the same rate in response to changes in production. Marketing costs per unit of livestock products sold, such as pounds of meat and dozens of eggs, tend to remain the same regardless of the quantity sold. Consumers spend slightly less per unit for these products when supplies are large than when they are small. The deduction of large per-unit marketing costs, therefore, results in sharp reductions in per-unit farm prices. Thus, you often receive a smaller total return when production is large than when it is small.

Factors Affecting Prices

Factors that affect prices of individual livestock and livestock products vary widely, depending upon the particular product. Among these are amounts and distribution of income among consumers; conditions under which the product is produced and marketed; restrictions on production, marketing, storage, etc.; and the nature of the product itself.

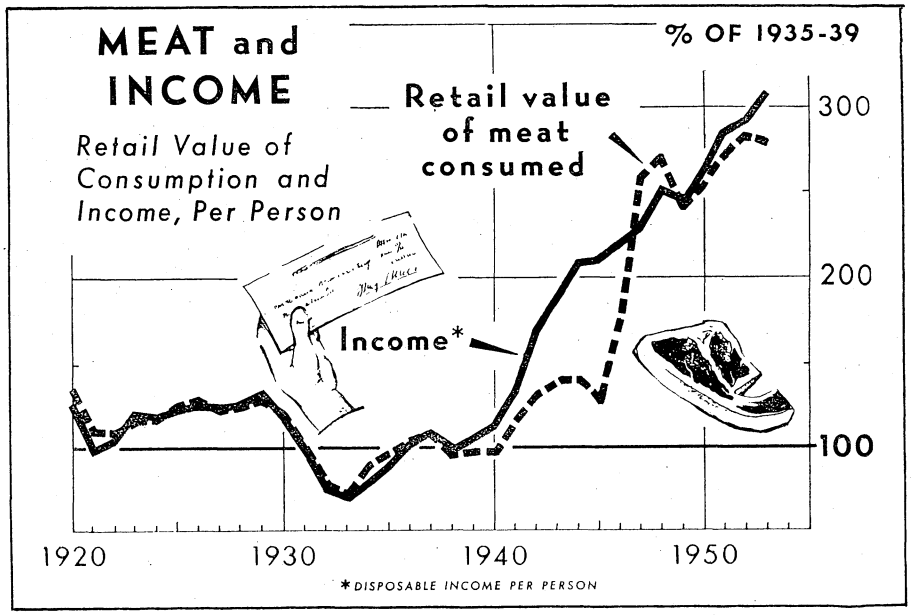
Hog prices, for instance, differ between markets and areas because of differences in supplies, weights, buyer competition, method of sale, and marketing and transportation costs. In most areas, there is a direct relationship between production and prices of hogs and corn. For example, hog production increases during periods of high hog prices and cheap corn.

As with hogs, beef cattle prices are based on value of products obtained from them. And, because of the way consumers spend their food dollar, prices of higher grade beef will rise more than prices for lower grades during a period of rising consumer income. But when incomes decline, consumers of top grade beef are more likely to buy other meats, such as lamb, pork, and chicken, rather than use lower grade beef. Therefore, during lower consumer income periods, demand for lower grade beef may be proportionately higher than for the higher grades.

Poultry meat requires less processing than most meats. Hence, there is less spread between farm and retail prices than in the case of most other meats.

Egg prices were once highly seasonal. In recent years, however, extreme fluctuations have been leveled off. For the most part, this has come about by commercial producers applying research results, substituting year-round egg production for the old high springtime production. Contributing also to some extent have been developments in storage and processing, and agency buying. Thus, more constant supplies of eggs are on the market for consumers.

Whether changes in practices based on research mean savings in dollars and labor must always be determined before being recommended. Therefore, putting the economic yardstick to technical research will continue to be highly important in solutions to changing problems faced by farmers, marketing channels, and consumers.



HIGHLIGHTS
of
AGRICULTURAL RESEARCH

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New and Timely PUBLICATIONS

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

BUL. 288. Production and Sale of Milk in Alabama's Piedmont is mainly an analysis of farm organization as it relates to production and sale of milk for manufacture.

BUL. 289. Factors Affecting Germination of Runner Peanuts is an analysis of data on factors affecting the germination of runner peanuts obtained from farms in Alabama's Peanut Belt.

BUL. 290. Cost and Returns to Commercial Egg Producers explains factors affecting cost of production and lists recommended practices for reducing production costs of eggs.

CIR. 115. Factors Affecting Pecan Yields cites conditions found to limit production and lists recommendations that will help offset such conditions.

LEAFLET 35. Suggestions for Pruning Southern Pines (illustrated) tells about what pines to prune, when and how to prune, and cost of pruning.

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

Beef Breeders Aided By

STATION'S SIRE-TESTING PROGRAM

K. E. GREGORY, *Associate Animal Breeder*

High quality calves that make rapid gains mean more profits for every cattleman in Alabama. To produce calves with these characteristics, the breeder must use bulls that have the ability to transmit these qualities to their offspring.

Although most purebred breeders can do a good job of selecting for conformation, they are often unable to select bull calves that grow into sires that will get the fastest gaining calves. To help these breeders overcome a part of this problem, the API Agricultural Experiment Station began a performance testing program of young bulls in November 1951. In the three years that the program has been underway, 49 cooperators have entered 133 bulls in the performance testing program at Auburn.

The objectives of the program are to identify individuals and strains of beef cattle that have ability to gain rapidly when full-fed under uniform conditions and that are superior in conformation items that contribute to carcass desirability.

Ability to make rapid gains has been shown to be highly hereditary, in that bulls have a tendency to transmit their own performance to their offspring to a rather high degree.

Although performance testing does not fully evaluate total performance, it supplements information that a breeder can obtain rather easily and aids in the evaluation of individuals to be kept for breeding.

The performance testing program is open to all purebred breeders of the recognized beef breeds in Alabama. Young bulls eligible for entry must be between 7 and 13 months of age and must be eligible for registry in one of the recognized breed associations. They are brought to the Experiment Station and fed for a 2-week preliminary period before the 154-day test period. The bulls are self-fed a growing ration for the entire period. Feed and veterinary costs of the test are paid by the cooperating breeders and other costs are paid by the Department of Animal Husbandry and Nutrition.

The bulls are weighed at the begining and end of the trial and at 28-day intervals throughout the trial. All bulls are evaluated for conformation at the end of the trial.

In 1951-52, 19 bulls on rate-of-gain tests made an average daily gain of 1.94 pounds, ranging from 1.54 to 2.50 pounds per day. In 1952-53, 46 bulls on test gained an average of 2.34 pounds daily, ranging from 1.48 to 3.18 pounds per day; and 68 bulls in the 1953-54 test gained daily an average of 2.47 pounds with a range of 1.33 to 3.40 pounds per day.

At the close of each test, a field day is held and a complete summary of the results is made public. In 1953 and 1954, sales were held in connection with the field day; the sale order of each animal within a breed was determined on the basis of weight per day of age and conformation score.

In 1953, 34 bulls sold for an average of $375, and in 1954 the average price of 57 bulls sold was $331. Bulls with the highest total score in the test brought the top prices, indicating that buyers paid close attention to individual performance.

NOTICE to PUREBRED BREEDERS

Any purebred breeder of the major beef breeds desiring to participate in the 1954-55 sire-testing program should contact the president or secretary of his respective breed association. Entries (7 to 13 months old) must be listed by October 1. The listed bull calves must be delivered to the API Agricultural Experiment Station, Auburn, by November 1. The official 154-day test will start after a 2-week preliminary feeding period.

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