Kentucky FARM AND HOME Science

Issued quarterly by the Kentucky Agricultural Experiment Station

Volume 5

Number 2

Spring 1959

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Vol. 5, No. 2 . . . . . Spring 1959

A report of progress published quarterly by the Kentucky Agricultural Experiment Station, University of Kentucky, Lexington

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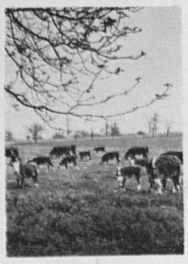
The Cover



These Hereford cows and calves on the Mereworth Farm in Fayette county are part of an 800-cow commercial herd. The cows are used primarily for the production of feeder calves. The Mereworth herd is one of more than 100 herds enrolled in the UK beef herd performance testing program. This program offers Kentucky beef producers their greatest opportunity for increasing profits rapidly and economically. Experience indicates that the weaning weights of feeder calves are increased about 25 pounds a head per year through use of a breeding program based on performance testing. (Photograph by Robert C. May.)

Kentucky Research Results in Brief

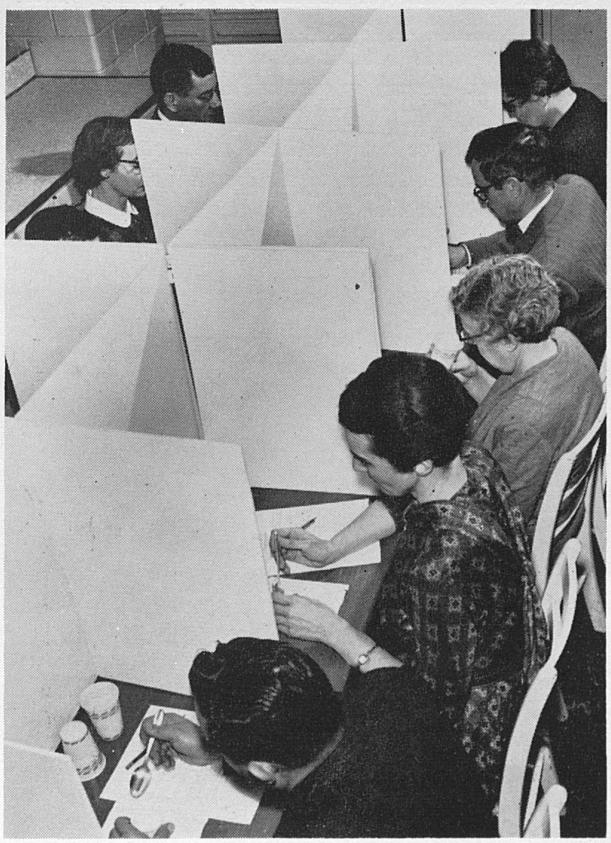
By FRANK B. BORRIES, JR.

PESTICIDES DID NOT HURT FLAVOR OF STRAWBERRIES

Pesticides used on strawberries grown at the Kentucky Agricultural Experiment Station had no "apparent detrimental effect" on the flavor of the berries, a research taste-panel decided.

In fact, the panel found that when taste differences were observed in two instances, the pesticide-treated samples were judged better-tasting than the others.

The tasting work was carried out last year by Mrs. Doris Tichenor, home economics graduate student, to check the effect of pesticides (bug-killers, fungus-killers, mite-killers) on strawberry flavor. Thirteen chemicals were used, each mixed with Captan, a fungicide; later, eight more materials were added to the spray program and samples checked. Associated with Mrs. Tichenor in conducting this project were Carl E. Chaplin, Department of Horticulture, and J. G. Rodriguez, Department of Entomology and Botany.



The taste panel in action. Members of this taste panel evaluated frozen and preserved strawberries from plants that received various pesticide treatments. Purpose of the partitions was to promote objective reactions.

"None of the materials tested had any apparent detrimental effect on the flavor of frozen strawberries, even on those samples harvested one day after spraying," the panel reported. "In two instances, when differences were observed the pesticide-treated samples were judged to be significantly better-flavored than their untreated controls."

This was true, the panel reported, even for strawberries which were harvested one day after spraying and then frozen.

When an extra eight materials were added to the panel range, plus five fungicide treatments—for a total of 26 selections—only two materials (TDE and Mitox) were found to differ in taste from the controls. These were samples of berries that had been sprayed one day before harvest. The differences were not judged to be off-flavors however.

* * * *

CHINESE CHESTNUT PLANTING AT QUICKSAND DOING WELL

When a form of blight wiped out the American chestnut tree about 25 years ago, foresters turned to the Chinese chestnut as a possible replacement. They believed it was resistant to the blight.

Apparently they figured correctly. A planting of Chinese chestnuts, made at the Quicksand Experiment Substation in Breathitt county, is doing very well some 16 years after introduction.

O. M. Davenport and Milton Noble, Experiment Station foresters, said the Chinese chestnuts were put in at the rate of 1,200 seedlings per acre. Now, some 16 years later, about 90 percent of the original plantings are still alive.

Originally more than 20 percent of the seedlings died back, the foresters said, but later they came back in new sproutings. They are now excellent trees though some of them have low-enough forks to reduce their usefulness as lumber trees.

(Continued on Page 8)

Beef from Cow and Calf Plan Operations Has Possibilities, Research Work Shows

With price concessions, consumers indicate they would take large quantities of "baby beef"

By C. D. PHILLIPS and W. Y. VARNEY

Consumers' taste in beef can change rapidly. For example, beef produced from heavy milk-fed calves weighing from 450 to 650 pounds sold readily at prices equal to the more mature beef during World War II. However, such beef sold only at a distinct discount when meat became more plentiful after the war. Many recent studies have shown that the demand has changed from highly finished or prime beef cuts to the leaner cuts.

The lower price received by producers for the milk-fat calf was a blow to many Kentucky farmers who had shifted to the "cow and calf" plan of beef production during and following World War II. The grass economy on most Kentucky farms, with a shortage of concentrate feeds, is admirably suited to the "cow and calf" plan of beef production. The carcass from such a milk-fat calf, which usually grades high, good, or choice, does not have so much marbling or the deep red color of choice mature beef. Because of this, often it does not fit the present beef grade standards and is graded "heavy-calf" instead of beef.

Many retail stores which handled beef from the "cow and calf" plan of beef production have discontinued its sale. Many store operators say that buyers complained that the meat was tasteless, tough, and dry and, consequently, were not repeat buyers. Meat market operators also said the beef from the milk-fat calf was strictly a seasonal product as it was available only during the fall months. Because of these reasons, many stores have not handled this beef in recent years.

At the University of Kentucky, "palatability panels" were conducted in an endeavor to find out just how satisfactory such beef is in comparison with more mature beef. Flavor, tenderness, and juiciness of meat produced from 400 to 475, 500 to 575, and 600 to 700 pound milk-fat calves were compared with beef from a 1,000 pound fed steer of similar grade. These tests did not prove conclusively that one was more acceptable to the "panel" members than the others in the

Grade beef cows and their calves raised on the Kentucky Cow and Calf Plan in Woodford county. These choice calves, without creep feeding, averaged over 650 pounds at market time.

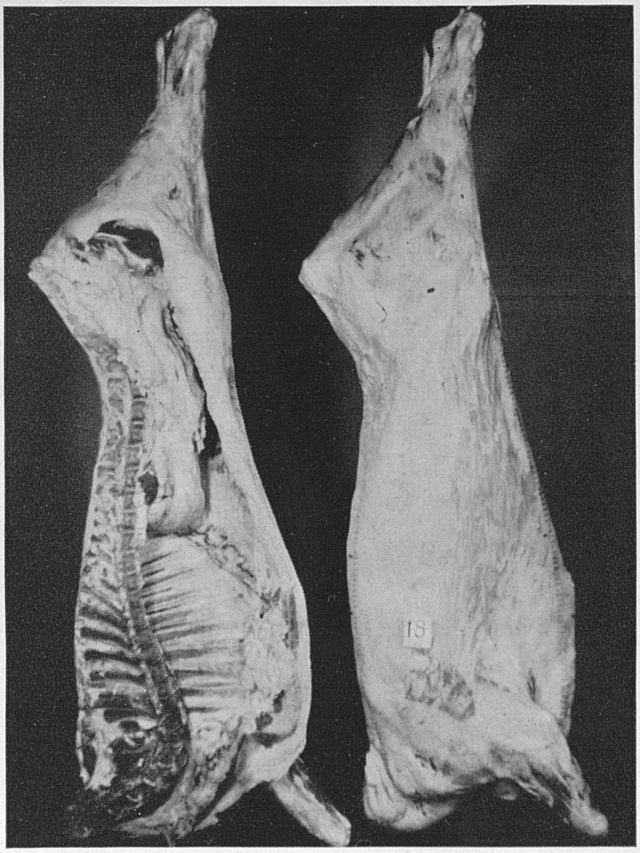
case of flavor and juiciness. Beef from the lighter weight animals usually was more tender.

Several years ago one large chain store organization carried on a merchandizing experiment with this milk-fed calf beef. This organization advertised special sales of "Baby Beef" and priced various cuts from 5 to 10 cents below similar cuts of mature choice grade beef. The sales were quite successful.

Arrangements were made with one large chain organization and several independent grocery stores located in Owensboro, Louisville, and Lexington to attach a questionnaire on prepackaged meat advertised as "Baby Beef." Over 2,000 such questionnaires were placed in packages. A total of 257 or about 14 percent were returned. The "Baby Beef" was sold at all stores as a special weekend sale, at prices ranging from 10 to 15 cents below the price of regular mature beef cuts.

More than 87 percent of those answering the questionnaire indicated that this was a "repeat" purchase. About the same percentage indicated that the main reason for purchase of the "Baby Beef" was the lower price. Some gave two reasons for purchasing the "Baby Beef." About 35 percent gave size of cut as the second reason for purchasing "Baby Beef." They said the smaller sized cuts from the smaller animals more nearly fitted their demand than the larger sized cuts from the more mature animals.

A typical product of the Kentucky Cow and Calf Plan ready for market at over 700 pounds and grading Choice.



The meat from heavy milk-fat calves produced by the Kentucky Cow and Calf Plan has the size, tenderness, and freedom from waste fat that most housewives prefer.

The majority of the respondents, 75 percent, indicated that they thought that the price for similar cuts of "Baby Beef" should be less than for mature beef. Only 14 percent stated that the price should be about the same, while 2 percent indicated they would be willing to pay a higher price.

Flavor was rated excellent by 27 percent and good by 57 percent of the respondents. Several of the respondents made the comment that they could see no difference between the flavor of the "Baby Beef" and mature beef when both were properly seasoned. As far as tenderness was concerned, 36 percent replied "very tender" and 43 percent replied that it was "tender." Several stated that they used tenderizer and the meat was excellent.

The "cow and calf" plan fits well into the grass economy of the state. If such "Baby Beef" calves can be sold at satisfactory prices an expanded program would substantially increase farm income. Many stores at present are not handling the product. However, this one large chain organization has proven conclusively that with some price concession consumers will accept and buy large quantities of "Baby Beef."

Efficient use of solar and ground heat enables raising of crop in plastic greenhouse when outside temperatures are down to 3° F.

Lettuce Grown—No Heat Cost

By FRANK B. BORRIES, JR.

Vegetables need heat—natural or artificial—to grow but Kentucky Agricultural Experiment Station horticulturists had surprisingly good results this year with a plastic field greenhouse that got a crop of lettuce simply by trapping solar and ground heat and conserving it.

E. M. Emmert, who conducted the trial, found that once, when the temperature outside the house was only 3 degrees F., the temperature under an inner floor covering of plastic was 38 degrees F., or 35 degrees higher.

The plastic ground cover inside the greenhouse consisted of two sheets of ¾-mil thick plastic stretched on a light wire frame about 18 inches above the ground. The cover could be lifted for inspecting the crop or harvesting. An aisle was left down the middle of the house for access. The top sheet of the ground cover was stretched fairly tightly; the one underneath was draped loosely over the frame. This gave a dead-air space between the two sheets which acted as a heat cover. (See drawing on opposite page.)

Horticulturist Emmert inspecting evidence of possible snow damage to plastic field greenhouse similar to one in which lettuce was produced without use of artificial heat.

The whole greenhouse was about 5 feet high, though Emmert now recommends a height of 5½ to 6½ feet. The roof covering consisted of a double layer of plastic, one ¾-mil thick inside the frame and another 2 mils thick outside. His rafter spacing originally was 4 feet apart; however, this requires a heavier plastic, the 4-mil thick type. Two-foot raftering can use the 2-mil thick plastic, Emmert says.

He used no artificial heat at all. Instead, he utilized sunny days (for solar heat) for the initial warming; compacted the soil by watering, which allowed transfer of heat much better than loose soil; and took advantage of ground heat arising from depths of a foot or two.

Emmert also found that when the soil was worked up and left loose, the ground heat stayed in the ground. When the soil was compacted by watering, the heat filtered through and heated the air immediately above. Loose soils keep the ground heat from escaping. For example, in the winter observers have noted that a plowed field will keep its snow cover longer than a compacted field for the same reasons,

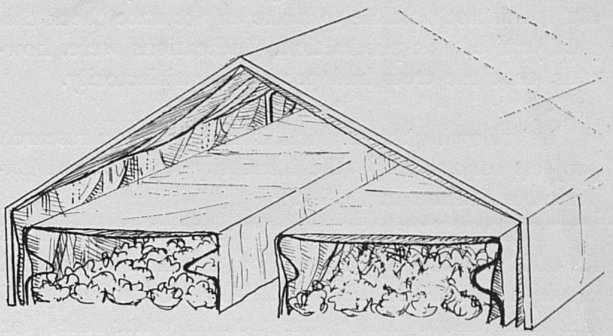
Lettuce growing in a plastic greenhouse without artificial heat. Note wire frames on which the inside plastic is supported.

i.e. the loose-structured soil keeps the ground heat from rising.

During extremely cold weather, Emmert found the lettuce did not grow. But when warm spells and thaws occurred, it did grow. This led him to conclude that, on the basis of early trials, vegetable production may be commercially possible and profitable up to as late as Christmas and could start as early in the "spring" as February 14. And this was his aim: Vegetable production when produce is in very short supply on the market—and grown without the cost of artificial heat.

The extra sheet of plastic over the ground cover was added to insure quality and to help the crop grow. Lettuce grown without the aid of any inner plastic ground cover browned up quickly and lost quality when it did grow. Under a single layer of ¾-mil plastic, the lettuce grew but had a tendency to turn brownish at some stages. Neither crop could be marketed.

But the lettuce crop under the double layer of inner plastic did not brown at all. When it was cut, it brought from $2 to $3 a basket according to the prevailing market.



This sketch (not to scale) shows the essential elements of the plastic greenhouse within a plastic greenhouse. It is recommended that the height be about 6 feet, each side of the roof about 6 feet, and the height of the sidewalls about 2½ feet.

The lettuce grown in this plastic field greenhouse was marketed when produce was in short supply. Note the center aisle to permit access and the plastic on each side, supported by wire frames.

Research Results in Brief

(Continued from Page 3)

Average diameter of the trees at the end of 1958 was 2.5 inches. Because of squirrel activity in the forest, it was not possible to make an accurate check this past year of nut production. Indications were, however, that the trees had produced satisfactorily.

* * *

The following are extracts from reports on research projects conducted by the Kentucky Agricultural Experiment Station in 1958-59:

WEED-KILLERS—Pelleted weed-killer chemicals showed promise when used on aquatic weeds and brushy areas. Materials were 2,4-D and Fenuron granules and pellets. They were used on water lilies, for one, with good results.

* * *

ARMYWORM—Five materials, applied as "early applications" were effective against the armyworm pest. The materials were Aldrin, DDT, Dieldrin, Sevin and Thiodan.

* * *

SHEEP-SHEARING—Shearing ewes at an early date, such as mid-April, may be helpful in bringing the ewes into a breeding state.

* * *

HORMONE DUSTS—Hormone dusts were useful on tomatoes. They induced higher yields than sprays in some cases and were easier to apply.

* * *

TERRAMYCIN IN FEED—The antibiotic terramycin, added to poultry feed at the rate of 200 grams per ton, apparently helped egg production.

* * *

WORM-KILLING BACTERIA—A bacteria used to control hornworms in tobacco worked very well last year. It was added to water and sprayed on plants. The hornworms contracted a fatal infection.

* * *

GRAIN-FED CALVES—Grain-fed dairy calves outgained similar calves given pasturage only. The grain-feds had more in-the-withers height, heart girth and weight.

* * *

PHOSPHATES COMPARED—Calcium metaphosphate and the standard superphosphate did equally well in a three-year test on phosphorus sources in an alfalfa test.

* * *

PLASTIC MULCHES—Black plastic mulches were superior to clean cultivation for both early and late crops of ornamental asters.

* * *

GRASS-LEGUME MIXTURES—A grass-legume mixture did as well in yield as a straight grass plot liberally dosed with ammonium nitrate.

* * *

HILLSIDE PASTURES—Steep hillside pastures on the Eden Shale farm in Owen county gave greatly increased production when legume-seeding, moderate disking and adequate fertilization were included in management.

* * *

MEADOW SPITTLEBUGS—Thiodan, an insecticide, controlled the strawberry plot pest, meadow spittlebug, in an outstanding manner.

* * *

DWARF CORN HYBRIDS—Dwarf hybrid corns did no better than regular size hybrids in tests last year. At higher rates of stalks per acre, the dwarfs' yields were not significantly better than the regulars.

* * *

BURLEY WEED CONTROL—Six herbicides, used either shortly before or shortly after burley crops were transplanted from beds, gave varied results in weed control.

* * *

CORN WEED CONTROL—Applying weed control materials to land newly planted to corn—a "pre-emergence" treatment—showed varying results. Some materials gave nearly 100 percent control; others as low as 60 percent.

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