Kentucky FARM AND HOME Science

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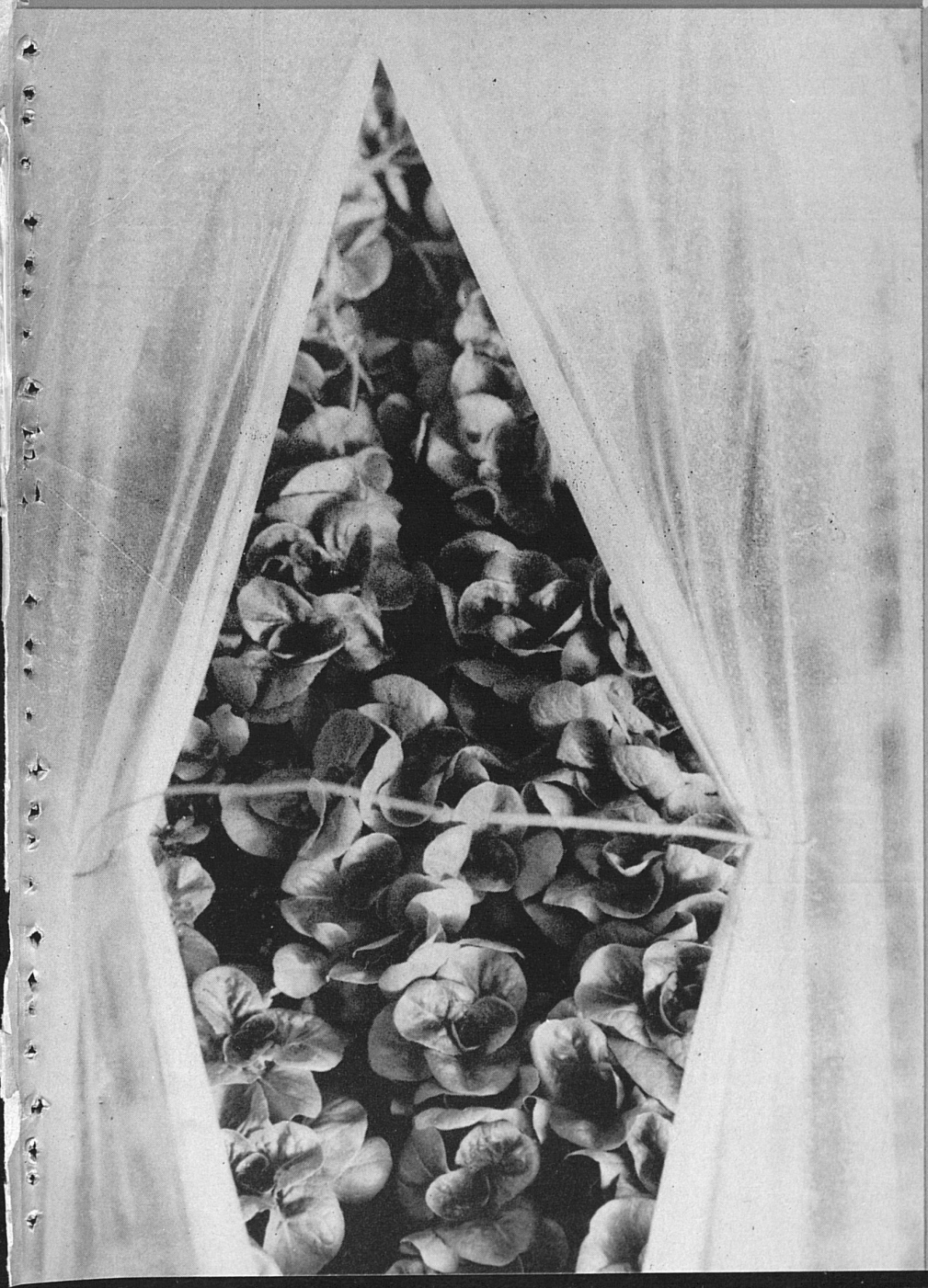

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Kentucky FARM AND HOME Science

Volume 1, Number 2 . . . . . Fall 1955

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

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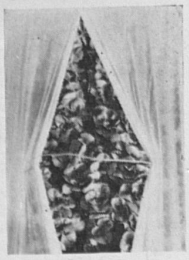
In this Issue



The Cover

. . . early-planted Bibb lettuce, growing outdoors, protected from low temperatures by a covering of polyethylene plastic. For details on the method used, see Dr. E. M. Emmert's article, "Plastic Row Covering," on page 6 of this issue.

Excess Farm Production —How Much?

By ROBERT RUDD and MILTON SHUFFETT

Many factors must be evaluated in considering magnitude of our agricultural stocks; in event of war or drouth, they may be too small.

Our excess agricultural production is, in one respect, in the same category as was Mark Twain's weather: nearly everybody talks about it. Talking about it, however, is a lot easier than trying to make an accurate appraisal as to just how large our over-production is.

Of interest in any discussion of over-production are the figures dealing with price supports and the current crop estimates.

The federal government's investment in price support for agricultural commodities reached 7.2 billion dollars by June 1955. Of this amount, over 65 percent represented farm products in government inventory, with the remainder being farm commodities under loan. The total investment increased by more than 1 billion dollars after June 1, 1954.

Crop estimates for 1955 (as of October 1) indicate record high production in oats, soybeans and hay, with a near-record crop in grain sorghum. Increases in production over last year are indicated in corn, barley, rye, potatoes, tobacco and peanuts. The total crop production for 1955 is predicted to be about equal to the total for 1948, a record year.

Requirements Vary

The foregoing facts and estimates point up the interest and concern of the nation as a whole—and farm people in particular—in the question of how large the farm product surplus is. The answer can be made only in relation to clearly stated requirements in use, and these requirements vary from year to year. Further, such requirements depend on the amount of the reserves of farm products needed to protect against weather hazards and to provide for national security, as well as the expected rate of use of the products.

If one were content with a statement of surplus which deals only with a single year and considers all sales, including price support operations, as final sales, the answer would be that farmers produced in 1954 only 1 percent more than they sold or consumed at home.[1] Such a statement, however, would hardly suffice; other features of the situation must be considered before the amount of the surplus can be accurately appraised.

Price Supports

Since the amount of products consumers can buy depends on (1) how many consumers there are and their needs, (2) how much money they have to spend, and (3) what prices they must pay, the magnitude of the excess production is related also to the price at which farm commodities are sold. Price supports come into the picture here. For some commodities such supports establish generally one limit of the price range of those commodities. Two accompanying charts, Figs. 1 and 2, will help to illustrate the situation if one assumes farm commodity government loans plus the acquired inventory of farm products in the hands of the government to be an indication of the extent production in 1954 and preceding years was in excess of use at prevailing prices.

The first chart (Fig. 1) indicates the particular farm commodities which currently make up the bulk of our surplus in government hands. Included in these amounts are both the owned inventory of the Commodity Credit Corporation and the farm commodities under loan as of May 31, 1955. The largest items are the holdings of wheat, corn, and cotton, which account for over three-fourths of the government's investment in price support. Comparison of these amounts with the recent rates of annual use provides a basis for judging the size of government stocks.

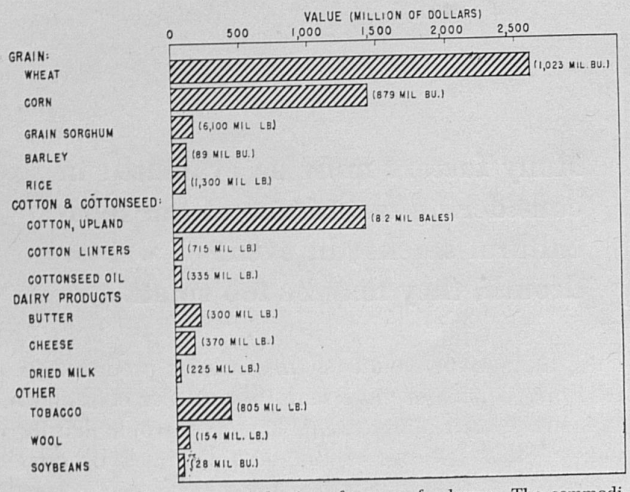
The second chart (Fig. 2) shows the importance of government holdings compared with a year's use of

(Continued on page 4)

[1] This figure is from the Farm Income Situation, FIS-151, March 1955, page 5. Farm inventories of hogs, cattle, soybeans and oats were increased in 1954.

Excess Farm Production—How Much?

(Continued from page 3)



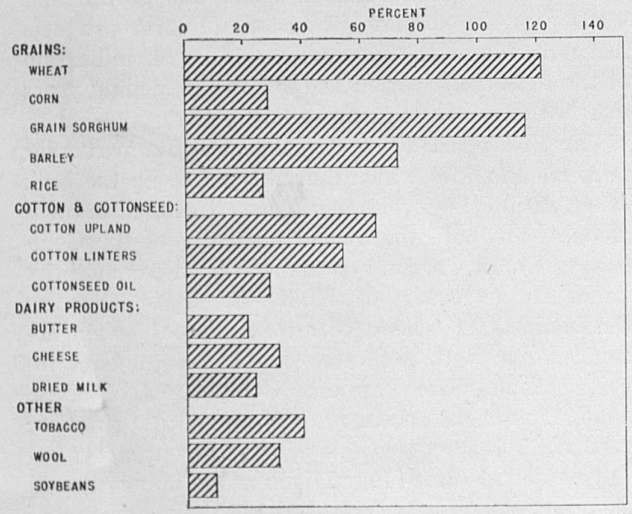
(CCC book values before deduction of reserve for losses. The commodities listed account for over 95% of government price support accumulations.)

Fig. 1.— The major farm products in government loan or ownership, May 31, 1955. The largest items are wheat, corn and cotton holdings.

farm commodities and exports. Government stocks of wheat exceed a year's use and exports by more than 20 percent, and four other products—upland cotton, cotton linters, barley and grain sorghum—are represented in government holdings by more than a half-year's use and exports.

From a different point of view, the increase in the cost value of government inventories of farm products plus the increase in CCC loans extended during 1954 can be taken as an indication of the extent of the price-supported surplus. This figure, when compared with cash receipts from farm marketings plus the value of home consumption in 1954 will give some idea of the proportion of production which was surplus in 1954, exclusive of nonsupported commodities (mainly livestock). The net increase in loan and inventory values of the CCC operations in 1954 was $1,506,644,000 while cash receipts from farm marketings plus the value of home consumption of farm products amounted to $32,164,353,000 for that same year. This would suggest an overproduction in 1954 of about 4.7 percent, without any evaluation of the current stocks position in farm commodities relative to emergency reserve needs.

At this point, it is logical to ask if the stocks of agricultural products in the hands of the CCC are too large, too little, or just right as insurance against an uncertain future. No one can answer this question with certainty. In the event of major war or a severe drouth affecting large sections of the country, the size of the stock may be too small. On the other hand, if no major war develops and if rainfall continues ample over most of the United States, those stocks may cost us far more than they are worth. One thing all of us know is that carrying any kind of reserve stock as insurance against an uncertain future involves a cost. Individually and collectively, for the country as a whole, the returns from such insurance must at least equal the cost.



(Use includes domestic consumption and exports when applicable at 1953 rates of use.)

Fig. 2.— This shows the proportion of a year's total use of the major farm products being held in government loan or ownership, May 31, 1955.

Survey Shows Growing Importance of Television

The increasing importance of television as an aid in presenting farming information is shown in results of a recent survey made by members of the Department of Rural Sociology.

In a county of the Outer Bluegrass Area, located about 50 miles from the nearest television station, over 40 percent of the farm operators in 13 neighborhoods reported that they had received some farming information from programs. Five years earlier there were virtually no television sets in the area.

Radio, newspapers, and other communication media were reported as sources of farming information about as often in 1950 as in 1955. Radio continued to be the medium most mentioned, with 85 percent of the operators saying they received information from that source. (C. Paul Marsh, James N. Young and A. Lee Coleman)

Simplified rations plus legume range show possibilities as poultry researchers seek key to

Producing Low-Cost Eggs

By JOHN BEGIN

Poultry farmers are constantly concerned with reducing costs of production, especially now because of high feed prices. Essential in producing low-cost eggs is to raise healthy, sturdy pullets and bring them into production at the lowest possible cost. This was the purpose of two experiments conducted at the Robinson Substation.

The studies were made to determine (1) if it would be practical to use a simple, cheap grain mixture along with a mineral supplement instead of a more complex type of ration, and (2) if this plan would produce the type of pullet necessary for most efficient egg production.

The production-bred New Hampshire chicks used were brooded under similar conditions, and for the first 8 weeks all birds were fed a practical 20-percent starting mash, with grain being fed free-choice during the last 2 weeks of the brooding period. Then the birds were moved from the brooder house and placed on a natural or wild type range and divided into four groups. Three groups were fed an 18-percent protein range ration and a mixture of whole corn and oats free-choice. The fourth received only the corn and oat mixture and steamed bonemeal. The feed for all birds was available in hoppers, and the birds had access to pasture at all times. They were housed in the laying house when approximately 20 weeks old, and then all birds were fed the same 20-percent protein laying mash and grain mixture free-choice.

In respect to production, the most significant difference between the birds was in the percentage of eggs laid during the high-egg-price months of September through December. During that period the pullets which had received the mash and grain outlayed those which had received grain and bonemeal by 16.1 percent the first year and by 7.5 percent the second year. At housing time the former outweighed

(Continued on page 9)

Getting sturdy pullets such as these off to low-cost production is the poultryman's goal.

EXTRA EARLY VEGETABLES PRODUCED OUTDOORS BY

Plastic Row Covering

Low-cost polyethylene plastic enables growers to plant outdoors despite 25-degree temperature; crops marketed several weeks ahead of regular plantings

By E. M. EMMERT

Growers are aware that vegetables of good market quality can be produced in low-cost polyethylene plastic greenhouses, and many are using such houses. Recent work at the Kentucky Agricultural Experiment Station shows, however, that it is possible to produce the vegetables much cheaper in the field with the use of plastic row covering.

Though one cannot grow crops outdoors in severe winter weather a plastic row covering can protect crops from temperatures down to 25°F. Consequently, growers are enabled to put plants outdoors earlier and market their crops several weeks in advance of regular outdoor plantings.

Tomatoes

Last summer during the period June 5-15, tomatoes were marketed from the Experiment Station farm at higher prices than those grown in greenhouses, and the extra returns paid many times for the cost of the plastic row covering. In a similar test in northern Kentucky, tomato plants were set in the field on April 5 and were protected from a subsequent low temperature of 25°F. by the use of plastic row covering. These plants each bore at least a pound of fruit in June, a month before the regularly planted outdoor tomatoes were ripe. The major part of the crop was harvested by the time the outside plants were in peak production. Though the total yield of the plastic-protected plants was less than that of the outside-grown plants the profit was far greater because the fruit was marketed when prices were higher and its quality was exceptionally high.

Lettuce

Early planted leaf and Bibb lettuce, protected from frost by plastic row covering, has been produced at Lexington and Ludlow in April and has brought as much as 30 and 60 cents a pound, respectively, on the Cincinnati market. As was true of the tomatoes, the quality of the lettuce was exceptionally high. In contrast, the regularly planted frame and outside leaf and Bibb lettuce reached the market much later and brought only from 7½ to 10 cents a pound.

How to Apply the Plastic

Three things are essential for the success of plastic row coverage. One must provide for ventilation, prevent wind and storm damage, and promote insulation against cold.

Either 0.0015 or 0.002 inch plastic may be used as row covering. Two kinds of wire wickets, similar to those used for playing croquet, are used to support the plastic over the plants. One is a smooth wire in the form of an oval, while the other kind is fabricated so as to have two notches into which the plastic can be tucked. The two types are placed alternately, at intervals of about 2½ feet. The plastic may be applied either as a wide, continuous sheet, extending over the wickets and held down at the edges by soil, or as two single strips, secured similarly at the edges and lapped together over the wickets.

Slits Permit Inspection of Crop

If the continuous sheet method is used, the operator cuts slits about 15 inches long in the plastic where it goes over one of the notched wickets. This is done to permit inspection and ventilation. To prevent the slits from being torn larger by wind or use, at the ends of the slits the plastic is folded laterally and small, 4-inch squares of plastic are doubled and pinned to each fold. Ventilation is obtained by tucking the sides of the slit into the notches of the notched wickets, as shown in Fig. 1. This method seemingly provides more protection from high winds than the other.

If the two single sheets of narrow plastic are used, they are secured to the ground on each side of the row with soil and lapped over the wicket by about 4 inches. A 3-foot width of plastic will be necessary for protecting either large or tall plants. The sheets are drawn tight at the top so that the lap stays closed

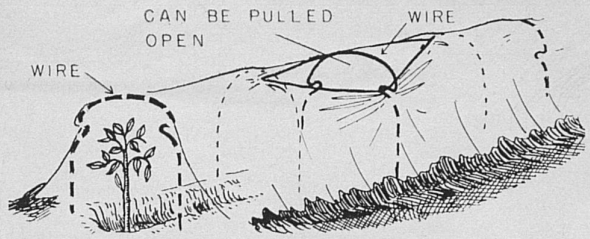


Fig. 1.— Wire wickets support the plastic over the plants. Notches in the wickets permit the plastic to be tucked back, permitting ventilation and inspection.

and are pinned with a 5-penny nail at each smooth wicket. It is essential to use a 3-by 4-inch piece of 0.003-inch plastic as a reinforcement at the point of pinning. The sheets are not pinned where they are supported by the notched wickets. It is at these places that the operator can pull open the plastic to provide ventilation, let in rain, or work with the plants. At those times the plastic is tucked into the notches provided in the wickets. Afterward the plastic can be pulled out of the notches, and it will resume its former position over the top of the wicket, making the lap virtually air tight again. Every third space can be left open at all times except on frosty nights when all should be shut. More spaces can be opened on exceptionally hot, sunny days. If the soil is dry all can be opened before a rain.

Plastic Held Down by Soil

If the soil is placed correctly on the edges of the plastic and the laps are pinned securely to hold the plastic firmly to the wickets, no damage from wind and rainstorms can occur. The soil under the edge of the plastic is dug out with a tile spade and then put on top of the edge of the plastic. By tramping on this soil, one presses it onto the plastic, which helps the soil to hold the plastic firmly. When pinning the plastic or placing the soil, one should keep the plastic stretched. This is aided by fastening the last wicket in each row to a stake driven beyond the end of the row. The wicket is drawn to the stake by short wires and is thus able to keep the ends of the plastic taut.

Two things help to provide insulation which will protect the crop on the colder nights. These are the use of exposed packed soil on each side of the row and providing for dead air space. Research has shown that heat in the soil around plants is not lost so readily if there is an area of packed, firm soil near the zone where the plants are growing.

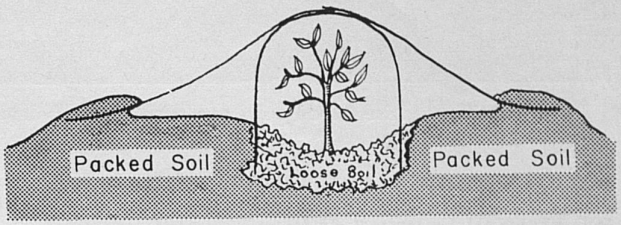


Fig. 2.— Packed soil next to the plant-growing zone helps to provide insulation and is essential for successful use of plastic for protecting plants outdoors.

Dead-air space is provided by the use of another layer of plastic pinned over the top of the first layer. The first layer is allowed to sag slightly, and the second or outside layer is stretched tightly. The two layers are needed only when one wishes to protect tender plants when severe frosts are expected. Such protection was effective at a temperature of 25°F. at Lexington. Setting tomato plants in a trench about 8 to 10 inches deep below the wickets also helps prevent frost damage.

Fig. 3.— A field scene, showing use of plastic to protect horticultural crops. The plastic is supported over the plants by wickets (left). Some of the wickets have notches into which the plastic can be tucked.

These Hampshire brood sows are thriving on a legume pasture, which reduces their need for other feed.

Save expensive concentrates for use by growing pigs; make greater use of

Good Pasture for Brood Sows

By C. E. BARNHART and T. W. CATHEY

Hog men have sometimes overlooked the advantages of good pasture for brood sows, even though they are aware of the many advantages of good clean pasture for growing pigs. Recent experiments at the Kentucky Agricultural Experiment Station indicate that pasture can be more fully utilized and will return greater economic advantages when grazed by brood sows than by any other class of hogs.

During the fall of 1954 twenty brood sows were evenly divided at breeding and placed in either a field of approximately one acre of Balbo rye or a dry lot of the same size. The rye had been cross drilled at the rate of 4 bushels per acre in August and had produced a good heavy growth when the sows were turned in on it the first of November. The sows were hand-fed twice a day a well balanced complete mixed ration. A simple mineral mixture was self fed both groups of sows. The daily amount of feed fed each group of sows was regulated so that the sows on rye and those in the dry lot gained about the same during the gestation period. The farrowing records of the sows are summarized as follows:

	Rye pasture	*Dry lot*
Number of sows	11	9
Av. no. pigs farrowed	9.9	9.1
Av. no. pigs farrowed alive	9.1	8.4
Av. birth weight per litter, lb	29.6	27.4
Av. birth weight per pig, lb	3.0	3.0
Total feed fed per sow, lb	730.0	857.0
Total feed cost per sow*	$24.15	$30.00
Feed cost per live pig*	$ 2.65	$ 3.57

* Gestation sow ration cost $3.50 per cwt. Cost of the pasture was not included in the feed cost.

It should be noted that the sows grazing the rye pasture farrowed more pigs and at the same time required less grain and supplement than the sows in the dry lot. On the basis of the total feed cost per sow, the acre of Balbo rye saved $64.35 worth of feed. That the rye provided valuable nutrients for the brood sows having access to it is suggested by the fact they farrowed 0.7 of a pig more per litter than the others.

Alfalfa-Ladino Mixture

For further study of the use of pasture by brood sows, 20 bred sows were divided equally and placed in two fields of a legume mixture of alfalfa and Ladino clover. Each field was 1.3 acres in size. The sows were all mature and had been bred about 20 days. They remained on pasture until they were due to farrow. One group was fed 2 pounds of a complete mixed ration and the other group was fed 4 pounds of the same ration each day. All sows were self-fed a simple mineral mixture.

Although the reproductive performance of the sows fed the greater amounts of feed was slightly better than that of the other group of sows, both groups farrowed very satisfactory litters. It was noted that the sows fed 2 pounds of feed each day farrowed a higher percentage of strong pigs and a smaller percentage of medium and weak pigs than did the sows fed 4 pounds of feed daily.

	2 lb Feed daily	*4 lb Feed daily*
Number of sows bred	10	10
Number of sows farrowed	10	9
Av. gain per sow, lb	65.7	85.8
Av. number pigs farrowed	10.7	11.2
Av. number live pigs farrowed	9.4	9.9
Av. birth weight per pig, lb	2.70	2.71
Total feed consumed per sow, lb	188.20	362.20
Total feed cost per sow*	$ 6.68	$12.74
Feed cost per live pig*	$ 0.71	$ 1.29

* Gestation sow ration cost $3.50 per cwt. Cost of the pasture was not included in the feed cost.

It is apparent from these data that good pasture can replace an economically important amount of grain and supplement needed by the brood sow during gestation. This is of even more importance to farmers in areas where little grain is produced. By making maximum use of pasture for the brood sow herd and putting the more expensive concentrates into growing pigs, many Kentucky hog producers can become more competitive with hog producers in grain surplus areas.

SEEK CROWNROT-RESISTANT RED CLOVERS

The dry fall did not prevent UK Experiment Station workers from testing some 20 varieties of red clover to find plants resistant to crownrot. About 10,000 plants were irrigated on a quarter-acre plot. Dr. Norman Taylor is shown here regulating a sprinkler valve.

Producing Low-Cost Eggs

(Continued from page 5)

the latter by 1.5 pounds. The grain-bonemeal-fed pullets were underdeveloped and underweight when housed, and about 2 months were required for them to build up their body weight and to get into full production. Once they were into full production they generally outlayed the pullets which had received mash and grain and also maintained a higher production rate for a longer period. The majority of their eggs came, however, in late winter and spring when prices were lowest.

As for yearly production, there was little difference between the two groups of birds. The first year there was a difference of 6.5 percent in favor of the birds that had received mash and grain, but this was reduced to less than 1 percent the following year. There was also little difference between them in respect to mortality and the amount of feed required to produce a dozen of eggs.

These results indicate that although pullets can be raised at a cheaper feed cost by using a simplified range feed, this may not be economically sound because fewer eggs are produced during the months of high egg prices. Better results might be obtained when simplified range rations are used if the birds had access to an excellent range, such as one consisting of ladino clover or other good legume.

Another problem studied at the same time at the Robinson Substation was whether production-bred New Hampshire pullets required a higher percentage protein concentrate than the usual 20-percent mash fed when the free-choice method was used. Two groups of pullets that had been fed an 18-percent range mash and free-choice grain ration were selected and divided into two pens of approximately 100 each when they were about 20 weeks old. Both groups received a whole corn and oat grain mixture free-choice, while one was fed a 20-percent laying mash and the other a 26-percent mash.

No advantage was shown in favor of the 26-percent mash during the two full laying years the experiment was conducted. For the first year egg production was 55.8 percent for the birds getting 20-percent mash and 55.7 for those receiving the 26-percent mash. The second year's figures were 54.1 and 55.0 percent, respectively. The percentage mortality and pounds of feed required per dozen of eggs were about the same. The pullets receiving the higher protein feed did consume more total protein, but it was not reflected in the results obtained.

WORK STARTED IN 1950 HAS GOAL OF

Better Strawberry Varieties

By C. E. CHAPLIN

A strawberry breeding program was begun in 1950 to develop better adapted varieties for Kentucky. The objectives are new varieties of higher production, larger size, better quality, greater firmness and disease resistance, better appearance and adaptability to special uses such as freezing, fresh market, and jam.

Approximately 50,000 seedlings have been fruited to date and over 600 selections made. Many varieties have been used in the crosses, including Temple, Sparkle, Fairland, Vermilion, Tennessee Beauty, Tennessee Shipper, Premier, Blakemore, Fairfax, Pocahontas, Dixieland, Albritton, Armore, Redheart, and Missionary.

The selections from the 1950 crosses fruited for the second test in 1954. Saved for third tests were 53 out of 238 selections. In the second test, several of these produced at the rate of over 500 crates per acre. They have been planted in replicated plots in four different locations in the state and will fruit in May 1956. At that time they will be further evaluated and only the very best ones retained for the fourth test. After the fourth test, it is hoped that one or more will be worthy of introduction.

The same procedure is being carried out with all of the selections obtained from subsequent crosses involving about 35,000 seedlings and over 350 selections.

A painstaking procedure is necessary in crossing strawberry varieties.

Worm Parasites In Cattle Studied

By J. W. DRUDGE

An increase in stomach worm disease of calves has been noted in recent years in the diagnostic records of the Department of Animal Pathology. More cases of severe worm infection, in which death losses have occurred, suggest the existence and development of more and generally higher levels of low-grade infections. Although these infections are difficult to recognize, they invariably result in some degree of unthriftiness, stunting, and ineffiicient feed utilization. Most authorities agree that these effects cause greater overall economic loss than the death losses in severe infections. Accordingly, investigations have been undertaken to appraise the role worms play as a factor in Kentucky cattle production.

During the 1954 grazing season, a study was conducted on the worm parasites in a group of dairy calves. The herd history indicated that worms were present, but the infections were generally light and no death losses had been experienced. Two groups of calves, treated and control, were utilized in the study for a simultaneous measurement of the adverse effects of the worms on the calves and the effectiveness of the treatment to control the worms. Medication of the treated group consisted of adding small amounts of phenothiazine to the daily grain ration. Gains in body weight were used as an index of the health and well-being of the animals. The level of parasitism in both groups was followed through the grazing season by periodic examinations of the feces for worm eggs and larvae. In addition, the amount of larval infestation on the pastures, both from overwinter survival and the build-up during the grazing

season, was estimated. This was done by determining the number of worms acquired by worm-free calves which were allowed to graze for short periods of time at appropriate intervals with each of the test groups.

A summary of the observations for the year shows that the treated animals acquired only one-third to one-half as many worms as the untreated or control group. In addition, the treated animals made consistently greater weight gains which indicated beneficial action from medication in the treated group. Although these results are not conclusive, surprisingly high levels of worm infection were found. More data on this problem are being accumulated by repeating this study during the present season.

Cucumber Insect Control Sought

Pests include striped and spotted beetles, flea beetles, aphids and pickle worms

By RICHARD THURSTON

A large number of insects attack cucumber plants, starting with the planting of the seed and continuing through the harvest period. For this reason a regular weekly insecticidal schedule is necessary to grow cucumbers or pickles successfully in Kentucky. The worst insect pests are the striped and spotted cucumber beetles, but flea beetles, aphids and pickle worms are very destructive in some areas and in some years. Although purified DDT gives good protection from the cucumber beetles, it is ineffective against aphids and gives only fair control of pickleworms.

In 1954 six dusts were tested on plots of pickling cucumbers at the Experiment Station farm. Each dust was applied at weekly intervals, starting when the seedlings were breaking through the ground and continuing through harvest.

1954 dust treatments	*Weight of fruit in ounces*	*% Difference from check*
3% Purified DDT	2,384	+ 32
1.5% Endrin	2,343	+ 30
1.5% Lindane	2,286	+ 26
2.5% Aldrin	2,108	+ 16
4% Malathion	1,779	— 2
215% Chlorthion	1,402	— 22
Untreated check	1,809	....

In 1955 the more effective insecticides were tested again but several of them were used as sprays instead of dusts. The chlorthion dust was used again because it gave the best kill of aphids and cucumber beetles; the poor yield in 1954 was the result of severe burning and stunting of the plants by the 2.5 percent chlorthion dust. Because of toxicity to the plants, the chlorthion dust was reduced in concentration, and in one treatment the 1.5 percent chlorthion dust was put on after the first three dustings were made with 3 percent purified DDT.

1955 treatments	*Weight of fruit in ounces*	*% Difference from check*
1.5% Chlorthion dust	947	— 4
3% Purified DDT dust	1,551	+ 57
3% Purified DDT dust and 1.5% Chlorthion dust	1,168	+ 18
0.45% Purified DDT spray	1,549	+ 57
0.16% Endrin spray	1,625	+ 66
0.16% Lindane spray	1,122	+ 14
Untreated check	988	....

The plots receiving the lindane and endrin dusts yielded less than that receiving the DDT dust. On the other hand, the lindane and endrin dusts controlled aphids more effectively than the DDT dust, although not so effectively as the chlorthion dusts. The plot sprayed with endrin outyielded that sprayed with DDT. The lindane spray burned and stunted the young plants, resulting in lowered yields. There was no difference in yield between the plots sprayed or dusted with purified DDT.

Because many of the insecticides effective against insects attacking cucurbits are also very injurious to some cucurbits, field and laboratory tests were conducted during the past two years to discover some of the factors contributing to this toxicity towards plots. Several insecticidal dusts were applied to seedling cucurbits in 1954. The most toxic materials in descending order of toxicity were 3 percent chlorthion, 2 percent chlorthion and 4 percent malathion. The following materials caused no plant burning: 3 percent purified DDT, 1.5 percent lindane, 1.5 endrin, and 2.5 percent heptachlor. A negligible amount of burning resulted from 1 percent chlorthion and 1 percent parathion. All the varieties of cucumbers and buttercup, scallop, crookneck, hubbard and cushaw squashes were badly burned by the most toxic materials, but the zucchini squash, cantaloupe and watermelon were almost free from injury from any of the dusts. Other field and laboratory tests with chlorthion and malathion dusts and sprays showed that seedling cucumber plants were more susceptible to insecticidal injury than plants that had started to vine; that wet plants were more easily burned by insecticides than dry ones; and that activated carbon added to the spray material could eliminate or reduce the phytotoxicity of chlorthion.

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Experiment Station Seeks Johnson Grass Control Methods

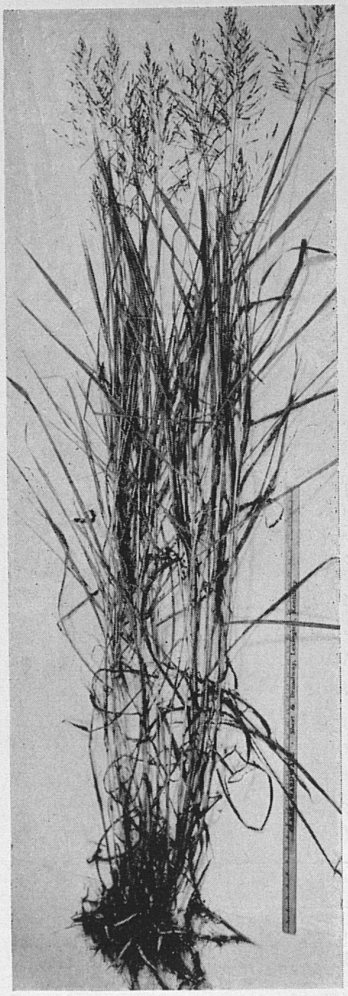
Johnson grass, a perennial noxious weed, is becoming widely spread throughout Kentucky. Thousands of acres of fertile bottom land have been virtually abandoned to the weed, and each year it is further encroaching on upland soils. Heavily infested fields become practically worthless for the growing of row crops. Even where it is possible to eradicate the weed, the cost ranges from $50 to $75 an acre.

Aroused by the situation, the Kentucky Agricultural Experiment Station has underway research designed to develop practical means of controlling the weed. These include the use of cultural practices and chemical methods, as well as combinations of the two. One of the promising methods, as revealed in preliminary findings, is a 4-step program:

1. Weakening the plants by grazing or clipping;
2. Spraying the re-growth, when 10-12 inches tall, with certain of the newer herbicides;
3. Plowing under the plants about 10 days to 2 weeks later; followed by
4. Cultivating at one-month intervals.

The use in mid-July of the herbicides, at a low rate, in this treatment permits the seeding of small grains in the fall.

In charge of the Johnson grass investigations is Prof. J. F. Freeman, of the Agronomy Department.



Johnson grass resembles sudan grass. It usually grows in bunches, with several stems growing from each root crown. The weed spreads by the underground rootstocks as well as by the seed. Several methods used to control the weed are described in a recent Kentucky Extension Service Leaflet L-157, "Controlling Johnson Grass." A copy may be obtained from your county agricultural agent or from the Bulletin Room, Experiment Station Building, University of Kentucky.