Vol. 1 December, 1939–January, 1940 No. 13

KENTUCKY FRUIT NOTES

W. D. Armstrong, Horticulturist, Editor

THE SPECIAL HORTICULTURAL APPROPRIATION

The work that has been carried on under the special Horticultural Appropriation since July 1938 will end June 30, 1940, unless another appropriation is made.

A request by the University of Kentucky for the continuation of this appropriation has been made and is subject to the action of the General Assembly.

GROWERS PROPOSE STRAWBERRY LEGISLATION

H. B. PRICE, Head, Department of Markets and Rural Finance, Agricultural Experiment Station

Strawberry growers of Kentucky are giving serious thought to means of improving the marketing of strawberries. Recently, meetings of growers were held at Paducah, Bowling Green, Louisville, Greenville, Covington and other commercial producing areas to consider legislation that might be requested of the next General Assembly.

Attention is being given especially to legislation that will provide (1) for proper labeling of strawberries grown in Kentucky, (2) for difinition of grades of strawberries offered for sale, and (3) for regulations of packing and offering strawberries for sale. The purpose of these proposals is to improve the quality of strawberries that are offered for sale and that are shipped to central markets.

Kentucky now ranks as a leading strawberry producing state. Its fruit has been favorably accepted in the central markets in the past. However, standards of quality and pack are continually rising, and growers are desirous of taking steps to assure packing and selling practices that will protect the good name that has been established for Kentucky grown berries and that will meet the increasing competition from other producing sections.

Growers are also expressing the need for a wider use of inspection and grading of strawberries at shipping points. Federal-State shipping point inspection, by a cooperative arrangement of the Agricultural Experiment Station with the U. S. Department of Agriculture, was given at several shipping points in Kentucky both in 1938 and 1939. The service proved so helpful both in providing a better basis of selling strawberries and in handling claims and other shipping problems, that plans are being made to extend it to other shippers in 1940.

KENTUCKY FRUIT GROWERS TO MEET JANUARY 31, FEBRUARY 1, AT LEXINGTON

The Kentucky State Horticultural Society, with the College of Agriculture cooperating, will hold its eighty-fourth annual convention on January 31 and February 1, at Lexington in connection with the Farm and Home Week. The meetings are to be held in room 205, of the Agriculture Building on the University of Kentucky Campus.

BULLETIN OF THE KENTUCKY AGRICULTURAL EXPERIMENT STATION
LEXINGTON, KENTUCKY

This convention being scheduled at this time will give those in attendance an opportunity to attend other discussions also, as the Farm and Home Week program will run from January 30 through February 2.

An outstanding out - of - state speaker will be Dr. A. S. Colby, University of Illinois, authority on small fruits, who will discuss strawberry production, bringing results of recent work in his state. Dr. Colby will also discuss Red Raspberry culture and new developments in grape culture. This should be one of the most informative sessions for both the large and small producer of small fruits that has ever been scheduled in a state meeting here.

Another welcome speaker, and no stranger, will be Mr. G. C. Oderkirk of the Biological Survey, who will discuss the latest developments in Orchard Mouse Control work. This should be most informative due to his recent work in Kentucky and surrounding orchard sections.

An outstanding feature of this year's program is to be the discussion by important growers, from over the state, of their 1939 experiences with Bitter Rot, other orchard experiences, strawberry production and marketing, raspberry, Boysenberry and grape growing.

Mr. W. C. Johnstone will bring some valuable information on cover crops. Dr. P. O. Ritcher will discuss Orchard Insects, and there will be a discussion of the 1940 Spray Service.

The whole program will have broad applications to practical fruit growing needs and should be of great importance to every fruit grower in attendance and a special effort to attend should be made by fruit men.

The program follows:

WEDNESDAY

A. J. Olney, College of Agriculture, presiding.

9:00 A. M.—Address, Mr. William Fegenbush, Buechel, Kentucky, President, Kentucky State Horticultural Society.

9:30 A. M.—Orchard Experiences; leader, Mr. W. W. Magill, College of Agriculture.
Interviewing growers from the following counties: Messrs. W. F. Wilson, Pulaski; B. L. Karcher, Jefferson; Hermann Yopp, McCracken; Joe Bray, Trimble; J. B. Jordan, Jefferson; Ben E. Niles, Henderson; D. W. Doran, Graves and Frank Street, Henderson.

10:45 A. M.—Bitter Rot; leader Mr. W. D. Armstrong, College of Agriculture. Interviewing growers from the following counties: Messrs. George Miller, Jefferson; Frank Shattuck, Caldwell; Bruce Price, Rowan; F. C. Van Hoose, Johnson; and Dr. W. D. Valleau.

11:15 A. M.—Orchard Insects, Dr. P. O. Ritcher, College of Agriculture.

11:45 A. M.—Appointment of Committee, President Fegenbush.

12:00 Noon—Lunch.
Ben E. Niles, Secretary Kentucky State Horticultural Society, presiding.

1:15 P. M.—The Orchardist and the A.C.P., Mr. O. M. Farrington, State Administrator.

2:00 P. M.—Some Cover Crops, Mr. W. C. Johnstone, College of Agriculture.

2:15 P. M.—Orchard Mice, Mr. G. C. Oderkirk, U. S. Biological Survey.

2:45 P. M.—Spray Service for 1940, Mr. Armstrong.

Evening Session

7:30 P. M.—Orchard Pictures, Mr. Armstrong — General discussion Smoker.

THURSDAY

Mr. William Fegenbush, President Kentucky State Horticultural Society, presiding.

9:00 A.M.—Home Growers' Experiences in Producing and Marketing Strawberries; Leader Mr. Magill, interviewing growers from the following counties: Messrs. Fred Fister, Fayette; Lace Wren, McCracken; Vincent Denunzio, Louisville; Paul Fehr, Cincinnati, and Prof. C. S. Waltman.

10:30 A.M. — Profitable Strawberry Production, Dr. A. S. Colby, University of Illinois.
11:15 A. M.—Business Meeting.
12:00 Noon—Lunch.
W. W. Magill, College of Agriculture, presiding.
1:00 P. M.—Some Cultural Requirements of the Red Raspberry, Dr. Colby.
2:00 P. M. — Raspberries, Boysenberries and Grapes; leader, Prof. A. J. Olney, Head, Department of Horticulture, interviewing Messrs. R. E. Moss, Boyle County; Bob Scott, Kenton County; H. H. Jones, Fayette County.
3:00 P. M.—What is New in Grape Culture, Dr. Colby.
3:30 P. M.—Adjournment.

A TENNESSEE STRAWBERRY TRIP

Interest in the Blakemore variety of strawberries has been increasing for several years in western Kentucky. The 1939 harvest season served to materially increase this interest due to the greater financial returns from this variety in comparison to the Aroma variety. This was due chiefly to its earliness, its fine shipping quality and heavy yield. Much interest and concern is also current among berry growers in the *Yellows* disease of the Blakemore variety.

The Blakemore variety is the chief variety in the large West Tennessee berry section just south of our Kentucky section. A number of alert Kentucky strawberry growers expressed their keen interest in making an inspection trip through the West Tennessee section, to study the so-called Yellows-free Blakemore strains in production there, and the general berry growing practices. Such a trip was made on November 8, leaving Paducah at 7 A. M. and returning to Paducah by 9 P. M., covering a total of 230 miles.

Those making the trip were County Agent, Joe Hurt of McCracken County, Mr. J. T. Warner, Paducah; Mr. Lester Harris, Kevil; Mr. Leonard Overby, Mayfield, three well known strawberry growers; and W. D. Armstrong, Experiment Station Horticulturist.

Stops were made at (1) the University of Tennessee Junior College at Martin, (2) R. R. McUmber farm, Greenfield, Tennessee, and (3) at the Robert Leeper farm, Jackson. At each of these places the McUmber Yellows-free Blakemore variety is being grown. A stop was also made at the farm of Mr. Denton Fly, Milan, Tennessee, where a Yellows-free strain of Blakemores selected out by the United States Department of Agriculture is being grown. At each of these places the foliage was of a uniform dark green color and no evidence of the yellows disease was seen by any member of the party. Both first year and second year patches were inspected. The high state of cultivation observed at each of these plantings was of much interest, and the unusually well developed rows of plants were a revelation. On the rolling land practically all the fields seen were terraced with wide broad-base terraces and all the rows were on the contour. Many fields were seen where straw had already been hauled out in preparation for mulching.

At a stop at the West Tennessee Experiment Station at Jackson Mr. L. A. Fister, Horticulturist there, showed the party over the extensive strawberry breeding plots and explained their program of work, and exhibited the many fine strains of strawberries that are developing in the work there. The only yellows seen during the day was at the Experiment Station planting there where an experimental planting of twenty-five yellows infested mother plants had been made along side twenty-five yellows-free plants. Of the twenty-five yellows plants

only twelve of them were growing, out of these only two had made a satisfactory number of runners. The adjoining row of twenty-five yellows-free mother plants had all lived and had produced a nice row of plants.

Mr. A. N. Pratt, Tennessee State Horticulturist, joined the party at Greenfield and accompanied it the rest of the day and acted as a guide and host to the party while in the State. Mr. Pratt pointed out that the acreage of old yellows infested Blakemores was rapidly passing out in Tennessee and that the growers had found it a money making proposition to grow the yellows-free strain and were shifting to them as rapidly as possible. He stated the Tennessee Strawberry field contest staged anually in connection with the Humboldt Strawberry Festival had been a great aid in encouraging better practices in their berry producing area.

All of the Kentucky party were much impressed with the good berry growing practices seen during the day and all agreed that it was a day exceedingly well spent. In regard to the trip, Mr. Warner stated, "This day has been a real eye-opener to me. I didn't know Tennessee had any berry growers as good as we are seeing. These are the prettiest fields of plants I ever saw. It is easy to see that some of the yellows infected plants we have here in Kentucky *did not* come from such strains and fields of plants as we have seen today." Mr. Harris remarked, "I am glad there are plenty plants of these yellows-free strains that can be had at reasonable prices. I want enough of them to set an acre or so —but believe me, I want to know where my plants come from."

WHITE GRUBS

By P. O. RITCHER

Department of Entomology and Botany

Next to crown borer, white grubs cause more damage to Kentucky strawberry patches than any other insect. Often, as in this past season, dry weather is blamed for damage that in reality should be blamed on white grubs. Grubs usually injure plants by gnawing into the crown, and devouring the roots. In dry weather only the tips of the roots may be destroyed but this is enough to kill the plants.

Grubs that injure berry plants belong to a number of species whose adults are hard-shelled, tan, bluish, or dark-brown May bettles. The adults emerge only at nights and therefore are rarely seen by growers. After dark the beetles may be found feeding on oak, persimmon, hickory, elm or bramble foliage. Some of the grubs injuring the berry plants have a 3 year cycle; one of the most common western Kentucky species has a two year cycle.

Some studies were made the past year on the common western Kentucky white grub (Ph. enhilid) which has a two year cycle. Unlike most other grubs, this species is above the plow line thruout the year. Even during winter the grubs are rarely deeper than 3 inches in the soil and plowing turns up great numbers of them. The adults of this species are also peculiar in that they fly much later in the summer than most other species. The adult beetles of this species begin to emerge the last of June, feed on persimmon and other trees at nights, and lay eggs during July. The small grubs overwinter and damage the berry plants the following spring. The large grubs spend a second winter in the soil, and become adults in June.

Strawberry plants are most apt

to be injured by gurbs if patches are set on land in sod the year before, if they are close to the food plants of the adults or if the patches are allowed to become weedy. Strawberry patches set on lond in tobacco the year before are rarely bothered by the grubs. It is usually thought that a legume crop before strawberries discourages grubs. This may be true for many legumes, but the writer has found lespedeza sods in western Kentucky heavily infested with grubs.

There is very little known about how to control grubs once they start to injure plants. The writer has found it pays to dig up plants dying from grub injury and kill the grubs before they can move on to other plants in the row. It is also possible to kill the adult beetles by spraying their food plants with lead arsenate and thus reduce the following year's crop of grubs. This last suggestion may be of interest to some McCracken County growers who have spray rigs available.

FAILURE OF FRUIT TREES TO BEAR

A. J. OLNEY, Head
Department of Horticulture

Observations of fruit plantings in Kentucky have established the fact that many of these are not producing satisfactory crops. Often failure to fruit is caused by failure to blossom; although in many cases the failure to bear is caused by the tree failing to set fruit after the blooms have been produced.

Sometimes, the cause for nonbearing is obscure, however, in most cases failure is due to one of several well known factors.

Age—Different kinds and variety of fruit vary greatly in productiveness and to age when bearing begins. Some varieties of apples may bear a little 4 or 5 years after planting, but the majority require 6 to 8 years and a few as much as 12 to 14 years. Usually pears begin to bear after 5 to 7 years; peaches 3 years; plums 5 to 6 years and cherries 5 to 7 years.

Temperature and Weather—Sub-zero temperatures often kill the fruit buds of the more tender fruits such as peaches, cherries and plums. Weak and non-vigorous trees are less resistent to cold than healthy trees.

Frost during blossom time frequently results in injury depending on the severity of the temperature and the attending conditions.

Even though no frost killing occurs, pollination may be prevented during cold stormy weather, thus preventing the fruit from setting. Pollen does not germinate at temperatures near the freezing point and rains and stormy weather may prevent the work of bees which are the chief pollen carriers. Sometimes beating rains wash the pollen away.

Poor pollination may result also because of self-sterile or self-unfruitful varieties and lack of good pollen varieties. A large part of the pollen of most apple varieties will not fertilize their own flowers, and little or no fruit will set unless pollinated by another variety. The pollen of some varieties including Winesap, Stayman, Black Twig and probably Turley are ineffective. Good pollen varieties include Grimes, Jonathan, Delicious, Golden Delicious and Rome.

Most varieties of plums and sweet cherries require good pollen varieties growing nearby to insure a good set of fruit.

Sour cherries and most peaches with the exception of J. H. Hale are self-fruitful.

In orchards that do not have satisfactory pollen varieties these may be provided by setting young pollen trees nearby or top-working

some of the trees. Since this requires several years, large bouquets from pollen varieties may be scattered thru the orchard at blooming time until the permanent pollinizers are old enough to bloom.

Nutrition—In general trees that lack vigor and trees that are overvigorous set little fruit. Low vigor is the common trouble and should be corrected by proper use of fertilizers.

Insects and Diseases—In general many home plantings, small commercial and some large commercial plantings fail to bear because of severe insect and disease attacks on foliage, limbs, blossoms, and the small fruit. As a direct result of severe apple scab infestation to blossoms and young fruit stems in 1939 many unsprayed trees lost their crop before it had a chance to set.

Adapted Varieties—Many varieties fail to respond to any and all treatments because they are not adapted to the section in which they are planted. This point stresses the importance of planting adapted varieties. Information concerning adapted varieties can be secured through the Kentucky Experiment Station and Extension Service and by visiting local growers.

ORCHARD MOUSE INJURY

W. D. ARMSTRONG

At various times in the past mention has been made of mouse injury in apple orchards. During the last few years the mouse population and injury has been increasing in several sections of the state. A number of reports of serious tree loss in the Louisville section has been received and several such orchards visited.

As a result of this tree loss and the seriousness of the mouse problem, the Experiment Station contacted the Rodent Control section of the U.S. Biological Survey and arranged for some cooperative work in this state.

On November 27, several members of the United States Biological Survey, came into Kentucky on some cooperative orchard mouse work. These men were Mr. G. C. Oderkirk, District Agent for the Biological Survey in the Central States, Mr. Don A. Spencer, District Investigator, who has been working in the New England States and Mr. Bernard Kolkana.

Two orchards in the vicinity of Princeton were examined carefully by these men and practically no evidence of mouse infestation was found. The orchard of Mr. George Miller of Valley Station, Jefferson County, was then visited because of several complaints Mr. Miller has made of mouse injury during the winter of 1938-39. In this orchard extensive meadow mouse injury was found. The orchard is in sod and supports quite a rank vegetative ground cover. Numerous runways on the surface and beneath the surface of the ground about the trees were located. Several nests were dug up which revealed the nesting places near the base of trees and large quantities of wild onions that had been gathered and stored in their nests for food during the winter. Further examination revealed extensive fresh injury caused by the mice feeding on the trunks of the trees this fall. The fresh injury seen was occurring just above and just below the surface of the soil about the base of the trees. Continued inspection in the orchard revealed that this injury was quite general in all parts of the planting and indicated that tree injury had started very early and that the mice had not waited until hard severe winter weather had set in to start feeding on the trees. Both Mr. Oderkirk

and Mr. Spencer stated this was the first fresh signs of mouse injury they had seen this fall and were surprised to see the amount of injury that had taken place to date.

Arrangements were made for these men to make some cooperative mouse poisoning studies in this orchard and the work was done the morning of November 28. Some new types of baits are being tried out in this section, by the Biological Survey, and if these prove as satisfactory as preliminary work indicates, we should have a new type of orchard mouse control program in this section of the United States, in the near future.

Finding of this severe mouse injury so early in the season should be a warning to every apple grower, particularly to those in heavy sod. Those who have suffered some injury in their plantings are quick to testify to the seriousness of the newly observed injury. Those who have not experienced mouse injury are prone to overlook the possibility of injury until serious injury has occurred.

Growers finding injury should take steps to control the mice in their orchard. Severe infestation should be reported to the Experiment Station, Lexington, and it is possible that additional cooperative control work can be arranged.

APPLE PRUNING

W. W. MAGILL

Many Kentucky apple orchards will return greater profit during the next 5 to 10 years if left unpruned. A number of our best and most successful commercial growers have pruned very little during the past 5 years. Some of them have carried out pruning experiments in their own orchard and found they decreased their yield and profits by pruning. Pruning here refers to work on the producing tree and not to the training pruning which needs to be done on the young tree, and this apparently should be reduced to as little cutting as possible.

When trying to make a decision concerning what type of pruning to do in your orchard, first consider your market outlet. What grade of apples causes your keenest competition? Our observation has been that bulk, low grade apples from the near-by states in the west, north and east constitute our leading competition, especially in October, November and early December. During the past decade these low grade bulk apples from near-by states have established the local price of apples. The same variety of apples of a U.S. No. 1 grade, ring packed in a new tub basket, would not sell for over 15 to 20 cents more per bushel on our local Kentucky markets.

Some of our Kentucky growers have kept quite accurate records of marketing costs, and find that the sale of tree run fruit (culls out) to truckers at harvest time at 40 to 60 cents per bushel constitutes a more profitable transaction than to sell the same apples, at that time, graded and packed for 75c to $1.00 per bushel; or the same apples sold after Christmas from cold storage at $1.25 to $1.40 per bushel basket.

The success of the orchard owner in past years in the control of orchard pests, especially San Jose Scale and Codling Moth may well be a controlling factor in determining the extent and type of pruning that he should give the bearing orchard. If the trees are extremely tall, such that it is quite difficult to spray the topmost branches, or if the cost of harvesting from a long ladder is prohibitive, then pruning the top back to a lateral branch so

that entire tree can be sprayed and the fruit harvested at a reasonable cost, will naturally be desirable pruning. Such "skyscraper" trees can be prevented by a small amount of constructive pruning the first 10 to 15 years of the orchard. This is done by pruning out the small inside branches that are ¾ to 1½ inch in diameter, causing the tree to develop a drooping appearance during its early years of heavy production.

Where a grower needs to economize on his orchard operation costs it is suggested that he start by doing less pruning in his bearing trees.

NOTICE

In the next issue of Kentucky Fruit Notes we will present a discussion on vegetable production by Prof. John S. Gardner, Extension Horticulturist in Vegetable work, who has been doing outstanding work in Kentucky for a number of years. The importance of vegetables in the home garden can hardly be over emphasized and the forthcoming discussion by Prof. Gardner should be of benefit to each one reading it.

EDITOR

AN INTERESTING COMMENT

Upon making an early morning call (before breakfast) upon a Graves County fruit grower to advise him of an important strawberry meeting, your Editor and your Extension Horticulturist were cordially greeted. After stating the purpose of the call and disposing of that business the conversation shifted to other fruit work.

Presently the grower stated:

"I bet you can't guess what I was doing when you came up."

Both visitors "gave up". The grower then stated:

"You know that correct apple use table that you printed in *your* last issue of KENTUCKY FRUIT NOTES, well I was copying it off on a large cardboard 18 inches square to tack up on my apple sales house door. I think that is one of the best things you ever published. It will be a big help to apple growers and consumers too. Why, nearly every day and sometimes several times a day, during apple season, women ask me what apple is best for sauce, pies or eating fresh. From now on I will just point to my placard and let the customer pick the variety that suits her needs best. This information should help us satisfy our customers and cause them to come back."

The grower was then asked if he agreed with the uses sugested for the several varieties in the table. He replied:

"Yes sir, Yes sir, all except in one place, you have Stayman listed as 'good' for eating and I think it is 'excellent' in its season."

I wouldn't be surprised if this grower wasn't right. Who was the grower that made the remarks quoted above? We might as well tell you. He was and is Mr. Leonard Overby, Mayfield, Kentucky, one of Kentuckys good fruit growers, an outstanding strawberry grower and director of the McCracken County Growers Association and one of the Graves County fruit growers who upon numerous occasions has aided in putting up prize-winning exhibits of Graves County fruit at Kentucky State Fairs.

The article and table Mr. Overby referred to was the one entitled, "Increase Apple Consumption by Proper Variety Use," which appeared in the October-November issue of this bulletin.

W. D. ARMSTRONG