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KENTUCKY FRUIT NOTES

W. D. Armstrong, Horticulturist, Editor

THE BULLETIN

At a recent horticultural meeting a publication policy for this bulletin was suggested that would provide an issue each month during the first half of the year when activities in fruit and berry growing are at their height and interest is at a high pitch, and two issues to cover the remaining summer and fall work. The new year is being started with these suggestions in mind. Other suggestions would be welcome from concerned growers. As has been stated before, the policy of this publication is to try to serve all of the best interests of fruit growers of Kentucky.

Previous Issues

This is the sixth issue of "Kentucky Fruit Notes." What have the others contained? It often does us good just to sit down and reflect on how our time has been spent, and this applies to all of us. We quote from an opening remark in the September issue: "This bulletin will contain some articles that are only of present interest. Some of the material will be of lasting interest, however, and will be of as much value in a year or more as they are at present. Such articles are the 'Crown Borer Control of Strawberries' in the last issue and 'Some Interesting Facts Concerning San Jose Scale' and the report on 'Spacing of Aroma Strawberry Plants' in this issue. It is strongly suggested that a place be provided to file these bulletins away for future reference after they are read. Should this be started now, many can have a complete set, adding each issue as it comes out."

It still seems that these remarks are worth heeding, and there are no doubt some few who have followed these suggestions. Those having done so have a modest start in collecting records of recent horticultural information and happenings in Kentucky and other happenings and developments of interest to Kentucky growers.

Below we list the titles of the various articles published in the first five issues. Many of these could be read over and reviewed with profit, for it is a common failing of all of us to forget most of what we read from day to day. If, besides reading this issue, we would look up the back issues too and reread all the articles of interest to us, it would double the value of this bulletin to us.

Regarding Strawberries:

BULLETIN OF THE KENTUCKY AGRICULTURAL EXPERIMENT STATION
LEXINGTON, KENTUCKY

ANNUAL SHORT COURSE

Western Kentucky Experiment Substation

Princeton, Kentucky

FEBRUARY 23-24

The eighth Annual Short Course of the Western Kentucky Experiment Substation, Princeton, Kentucky, will be held Thursday and Friday, February 23 and 24. These annual short courses have become events of great interest to farmers and agricultural workers of western Kentucky. They serve as a so-called get-together for the discussion of the results of 1938 and previous years' work and for the laying of plans for the activities of the coming year. Many agricultural leaders will be present to discuss their various lines of work.

Of special interest to fruit growers will be the afternoon session of February 23 devoted entirely to berry and fruit growing and insect

and disease control. This is the first time a session has been devoted entirely to fruit discussions; and it is hoped that this session, as the other sessions, will be well attended.

The program follows:

THURSDAY, FEBRUARY 23

9:30 a. m.—Progress in the Study of Tobacco Diseases—Dr. W. D. Valleau, College of Agriculture, University of Kentucky, Lexington, Kentucky.

10:15 a. m.—The Agricultural Conservation Program for 1939—Mr. O. M. Farrington, State Executive Officer, A.A.A., Lexington, Ky.

11:10 a. m.—Address—Dr. Thomas P. Cooper, Dean of College of Agriculture, University of Kentucky, Lexington, Ky.

12:00—Lunch.

1:00 p. m.—Strawberry Production in Western Kentucky—Mr. W. D. Armstrong, Horticulturist, Western Kentucky Experiment Substation, Princeton, Kentucky.

1:30 p. m—The Control of Strawberry and Fruit Insects—Dr. P. O. Ritcher, College of Agriculture, University of Kentucky, Lexington, Ky.

2:00 p. m.—Fruit Disease Developments—Dr. W. D. Valleau, College of Agriculture, University of Kentucky, Lexington, Ky.

2:30 p. m—High Points in Orchard Management—Mr. W. W. Magill, College of Agriculture, University of Kentucky, Lexington, Ky.

FRIDAY, FEBRUARY 24

9:30 a. m.—Reducing Our Grass and Clover Failures—Dr. E. N. Fergus, College of Agriculture, University of Kentucky, Lexington, Ky.

10:15 a. m.—The Most Profitable Utilization of Increased Hay and Pasture Production—Professor E. S. Good, College of Agriculture, University of Kentucky, Lexington, Ky.

11:10 a. m.—This Business of Farming —Mr. Ben Kilgore, Executive Secretary of Kentucky Farm Bureau Federation, Louisville, Ky.

12:00—Lunch.

1:15 p. m.—Results of Limestone and Fertilizer Tests on the Substation Farm—Mr. S. J. Lowry, Superintendent, Western Kentucky Experiment Substation, Princeton, Ky.

2:00 p. m.—The Agricultural Outlook for Kentucky Farmers in 1939—Dr. H. B. Price, College of Agriculture, University of Kentucky, Lexington, Ky.

2:45 p. m.—Tour of Stock Barns and Pastures (weather permitting).

MULCHING RASPBERRIES

Reports from the U. S. D. A. horticultural workers and from several state experiment stations indicate that some fine results have been had, so far, from growing of raspberries in a heavy straw mulch.

The plan generally is to mulch the patch heavily with 4 or 5 inches of straw about the time it comes into bearing. The first few years after the mulch is applied it is important to add some additional nitrate fertilizers (200 lbs. per acre) to replace some of the nitrates taken up by the rotting straw. Each year an additional dressing of straw is applied to the top of the mulch to keep the mulch thick.

This mulching helps to conserve the soil moisture. This is a very important factor in growing raspberries in Kentucky, as dry weather during picking often cuts our yields heavily. The mulch also helps keep the soil cooler. This is a great help to raspberries, particularly in the South, as they in general do better in regions where there is a cooler soil temperature; and they suffer extensively from the warm and hot soil that we have for various lengths of time during most summers.

The mulch also does away with the need of all future cultivations and will smother out the greater part of weeds and grass as well as give a firm footing for pickers, help keep the berries clean on canes that bend to the ground, and helps reduce soil erosion by washing, as

well as to catch the rain and increase the amount of water that soaks into the soil under the mulch. The straw offers a fire hazard which has to be considered in dry times.

Work soon to be published by the Kentucky Experiment Station at Lexington showed a remarkable increase in yield and growth of new canes on Latham raspberries from a heavy application of strawy manure, 20 tons per acre. Where available this manure treatment, along with some additional straw, should be a splendid first treatment to establish the mulch and no additional nitrates would be needed.

Raspberry mulching work is being enlarged at the Kentucky Agricultural Experiment Station at Lexington and at the Western Kentucky Experiment Substation at Princeton this season, and some additional work in several locations over the state is contemplated. A red raspberry mulching plot is also being started by the Missouri State Fruit Experiment Station at Mountain Grove, Missouri, which will furnish some additional information about raspberry mulching in the near future.

This is the first of several discussions and articles on raspberry mulching that will be published. Dr. Darrow of the U. S. Department of Agriculture recently stated that it seemed the mulching of dewberries and blackberries should also prove profitable.

ANNOUNCEMENT OF STRAWBERRY MULCHING PROJECT

It is a generally recognized fact that mulching plays an important part in the production of high-grade strawberries. Kentucky is definitely in the strawberry business, hence the more facts we know about mulching, the greater will be the benefits from its proper use.

There are a great many general ideas in regard to the value of mulching strawberries, the right times for applying this mulch, and the proper amounts to apply. Realizing these many differences of opinion, an attempt is being made to get some specific information in regard to various mulching practices.

This study is located in the strawberry producing areas with *six* commercial growers. The growers are: H. Olges, Louisville, Rt. 4; Frederick Beyer, Paducah, Rt. 2; Lester Harris, Kevil; Johnny Warner, Paducah, Rt. 6; J. L. Brien, Benton, Rt. 6; and J. L. Overby, Mayfield, Rt. 5.

In these studies three different amounts of mulch are being used, and these are applied at three different times. The first plots were mulched about December 22, the other two sets of plots to be mulched at six week intervals from that date. This will make the second mulching date come the week of February 1, and the third series will come the week of March 13. At each location a few plots are being left unmulched for comparison.

At each mulching date one set of plots will receive one ton per acre, one set two tons per acre, and one set three tons per acre. The set-up then, in short, is to apply straw to different plots at the rates of one, two, and three tons per acre at six-week intervals starting December 22, 1938.

The records to be taken on these plots consist of the winter injury to the different plots from heaving and freezing, frost damage to blossoms, effect of time and amount of mulch on blooming date and harvest dates, and length of harvest season. The size of berries throughout harvest, total yield, and freeness of berries from dirt and sand will be recorded.

These records should give some facts for the season at hand and will no doubt vary from year to year; so several years' records will be needed before any specific conclusions can be drawn.

This work is being watched closely by growers in the several localities, and general interest in mulching is on the increase.

It is planned to have meetings at the various mulch test fields at the time of the last mulching. These will be for the purpose of studying the condition of the plots mulched earlier and to see the last mulch applied. The dates for these meetings, which will be about March 15, will be announced by the county agent in each section.

A FIRE BLIGHT TREATMENT FOR PEARS AND APPLES

A recent circular (No. 62) from the Tennessee Agricultural Experiment Station, Knoxville, Tennessee, entitled "Fire Blight Canker Treatments" by Dr. Brooks D. Drain gives some valuable information on the treating of this disease by a method used there in Tennessee with success for several years.

Fire blight has long been a scourge to those particularly in the South who attempt to grow pears and apples. For years there was no particularly effective treatment for the disease, and large sums of money have been spent by the different state institutions searching for adequate control measures.

The disease lives over winter in an occasional canker on the larger limbs and sometimes on small twigs. In the spring drops of sap, containing the disease bacteria, ooze from these cankers. These bacteria are spread by insects and rain to new shoots, foliage, and from blossom to blossom, causing new infections. The disease is worse during wet years like 1938 then in dry years like 1936.

Bordeaux spray in full bloom

It has been found recently that a great portion of the blossom blight infection can be prevented by a light Bordeaux (1–3–50) spray during full bloom.

Canker Treatment

To remove the disease from the old cankers which are the seats of infection is very important. For many years the practice has been to clean out the cankers down to healthy bark and then treat the area with some disinfectant. The work done in Tennessee and California shows that much more satisfactory results can be had by painting a zinc chloride solution over the diseased area. This is more rapid and less expensive. The solution penetrates the canker and kills the bacteria. It is pointed out that the solution can be used in winter or in summer and should not be applied to foliage or current season's (new) growth, as it will cause serious damage to the tender growth. It is recommended that new twigs and shoots that are affected be broken off several inches below the infections to stop the disease from going on down these shoots and entering larger limbs or the crotch of the tree.

The zinc chloride solution is painted on with an ordinary paint brush (1½-inch size is convenient). The tree should be examined systematically, painting over each canker and 8 to 10 inches above and below it. Small infected limbs should be painted all around. The bark should be dry when treated to prevent dilution of the preparation.

"The Station has found the 43 per cent solution safe and effective on the older wood. A 53 per cent

solution may be used on very old and thick bark. A 33 per cent solution is sometimes used on young trees and roots.

"Following are directions for preparing 43 per cent zinc chloride solution: Add 3 ounces of concentrated hydrochloric acid to 2 pints of hot water in an enamel kettle, and dissolve in this mixture 6 pounds of dry zinc chloride powder. Commercial grades of the chemicals may be used. The solution may be heated to boiling, if necessary, to dissolve all of the zinc chloride. After cooling, add 7 pints of denatured alcohol. This solution may be kept for several years if stored in tightly stoppered bottles to prevent evaporation."

"Workmen usually carry a damp cloth to wipe their hands, as the chemicals are irritating to the skin. A small amount of washing powder added to the damp cloth or wash water will neutralize the solution and check the caustic effect on the skin. It has been found that brushes used in applying the zinc chloride solution will last longer if rinsed in washing-soda water at the end of each day's work."

Note.—The above treatments for fire blight are worth trying and represent progress. Those interested in receiving the circular from which the above was taken can request it from the Tennessee Agricultural Experiment Station, Knoxville, Tennessee.

BROWN ROT MUMMIES

W. D. Valleau

Brown rot mummies on the peach tree are one of the means of carrying the brown-rot fungus from one season to the next. The fungus is alive in the mummied fruit and it is also probable that it has spread from the rotted fruit into the twig carrying a canker in which the fungus may be alive. If mummies have been left on the tree over winter it would be well during pruning to remove not only the mummy but the twig to which it is attached and thus reduce the amount of this type of carry-over. While it is best to remove the twigs and mummies from the orchard and destroy them at pruning time yet these mummies of last year's crop which are knocked from the tree during the winter are not likely to be a source of infection until a year from that spring. At that time the mummies which have become partly buried in soil or sod can send out vase-shaped honey-colored mushroom-like growths at about the time peaches come into bloom. The fruiting bodies produce spores in vast numbers. These spores may cause blossom blight or may cause infections in leaf curl affected twigs and leaves, and probably cause other types of infection not yet recognized. These early spring infections undoubtedly carry the fungus from spring to near the harvest time when fruit infections occur. Complete removal of rotted peaches from the trees and ground in the fall is desirable but where this is not done, thorough discing just before blooming will disturb the mummies sufficiently so that they will not produce spores that season. When spring discing is not employed it is much more necessary to remove all rotted peaches from trees and the ground at harvest time and destroy them.

STRAWBERRY POINTERS

(1) Spring nitrate fertilizer

It is generally recognized as unprofitable to make spring applications of nitrogen on bearing strawberry fields. Such applications have been tried out many times with unsatisfactory results. Some

results generally obtained are about as follows: A larger and heavier leaf and stem growth is obtained causing more shade, poorly colored berries and a tendency for the berries to rot; especially during wet seasons. The berries are soft and watery and are considered very poor for shipping. This last fact should be of great importance to most Kentucky growers, as most Kentucky berries are shipped out of the state.

On the other hand, summer or early fall applications (August or September) of a nitrate fertilizer have proven very helpful, as this increases the leaf area and encourages the development of large crowns and fruit buds, which will produce a heavy crop of fruit the next spring. Where these summer or fall applications have not been made it is too late to do anything about it now. An attempt to make up for the fall application by making a spring nitrate application would be a mistake.

(2) Early setting of strawberry plants

The strawberry loves moisture and a cool temperature and grows best when these are present. This makes early planting an important factor in establishing a fine bed of plants early in the season. Land plowed in the fall can be quickly fitted for planting in late February or early March when the weather permits. Efforts made in carrying out early planting practices are repaid many times by better plant growth and by getting ahead of the strawberry crown borer.

"PEDIGREED" STRAWBERRY PLANTS

A. J. Olney

Frequently, strawberry plants are advertised with the claim that they are pedigreed. Sometimes such plants are purported to be a new or improved type of the variety.

Many strawberry growers would like to know if pedigreed plants are superior to other plants, if they do represent new types and if the extra cost that is usually charged is justified.

Usually, it is understood that the mother plants for such stock were selected individuals, found here and there in the field, which seemed to be superior to the others. With certain kinds of plants this method of selection has resulted in improvement. How do strawberries respond to this method? A review of work done on this point, by a number of experiment stations in the United States and Canada, shows that improvement of strawberry varieties has not resulted from a general selection of "best plants". As an example, the Missouri Experiment Station (Bulletin 131) found that continuous selection for high yield over a period of 15 years gave no consistent gain in productiveness of plants propagated from heavy yielding plants over those propagated from low yielding plants. Plant breeders tell us this result should be expected as long as the stock is healthy, because strawberries are propagated asexually and not from seed. If a "running-out" disease were present, such selection probably would help to eliminate it. Thus it would seem that about all that could be claimed for "pedigreed" plants would be that care was taken to select good plants of the variety for propagation purposes. If purchase is to be made from reliable firms, no advantage is apparent and extra cost would not seem warranted. This is not to say that new or improved types of plants may not be found. Such plants are sometimes called "Sports". They are very rare and

if they occur will be found as a single plant which should be isolated for propagation. Usually, several years are required to make certain that the new characters are constant and distinctive from the original variety. In any selection of best plants to be used for propagation purposes, the chances are remote that "Sport" plants will be found among them.

CODLING MOTH CONTROL BY ORCHARD SANITATION

P. O. Ritcher

The period during which codling moth can be controlled by spraying is a very short one. The fact that the worms which give rise to next year's crop of codling moth hibernate in the orchard for eight months should make growers realize the importance of control by methods other than spraying.

Favorite wintering places for worms are in cocoons spun under bark, in punky wood and knot holes, in split branches, or in crotches and pruning stubs of the apple trees. Other worms are found on exposed roots, in dried apples, in old prunings, old baskets, liners, insecticide sacks and other litter. Many worms are found in packing sheds.

Scraping the rough bark from trees will destroy many worms, especially if the scrapings are collected and burned. Scraped trees may be banded later. Old hoes or mower blade sections may be used to make good scrapers.

Trees in many orchards have old wounds resulting from the splitting of the trunk, breaking of branches, or poor pruning. These are often partly filled with rotten or punky wood. Such places should be cleaned out and a suitable dressing applied.

Some orchards are littered with prunings, strips of old bands, bits of baskets and crates, fertilizer sacks, pieces of old clothing. All such rubbish should be cleaned up and burned.

Growers are familiar with the fact that worms are worse around buildings and packing sheds. This is because the gathering together of picked fruit of all grades allows many worms to leave apples and seek shelter nearby. The next year, the buildings and vicinity make a fine distributing point for moths back into the orchard. Screening of packing sheds and fruit exchanges is the best way to keep these moths from starting a new crop of worms. Since many moths in packing sheds come from worms which spun up in apple crates, subjecting crates to steam will kill the worms.

CARLOAD WEIGHTS

The West Virginia, Virginia and Pennsylvania Hort. societies have joined together in seeking to reduce the size of minimum carloads of apples from 30,000 to 24,000 pounds. Appeals were made to several railroads serving that territory to aid in securing the reduction. Their argument is that the 24,000-pound car of 480 bushels is easier for both dealers and growers to handle than the 30,000 pound car containing 600 bushels.

This publication is a part of the services rendered by the Melton-Cleveland bill, passed by the 1938 Kentucky General Assembly in special session, which authorized and appropriated a Special Horticultural Fund to be administered by the Kentucky Agricultural Experiment Station of the University of Kentucky. This bill provides for horticultural services to the fruit and berry growers of the state.