

KENTUCKY FRUIT NOTES

W. D. Armstrong, Horticulturist, Editor

IMPORTANT!

Peach growers over most of the state have lost their crop of fruit from the cold weather. Those in the Jackson purchase seem to have enough fruit buds left for a partial to a fair crop in some locations. In the vicinity of Henderson the crop is lost and severe wood injury has taken place. In the Louisville and Lexington sections the crop is lost and the wood injury does not seem to be so severe.

It is difficult to determine the extent of tree injury. In general, where any wood injury occurs it is safest to delay any pruning until as late in the spring as possible. Growers should go ahead with their plans for dormant sprays to control scale and leaf curl. If either of these troubles should cause additional injury to trees already suffering from winter injury their recovery might be delayed or the trees killed. Dr. Ritcher of the Entomology department points out that it would not be safe to leave off the dormant spray on the assumption that the cold might have killed a portion of the overwintering scale.

Any new development in the peach situation that comes to light will be discussed in this bulletin.

BLAKEMORE STRAWBERRY NOTICE

Blackemore strawberry plantings that show signs of yellows among the plants during the inspection season of 1940 and thereafter will not be certified and, therefore, they will not be salable under the provisions of the Kentucky Nursery Inspection Act, according to a statement by W. A.

Price, State Entomologist. The yellows disease spreads to the runner plants from affected mother plants that are set and seriously reduces the yields of affected plantings. Growers who plan to grow Blakemore plants for sale should plant the yellows-free strains which are available at standard prices.

THE ANNUAL MEETING

The eighty-fourth annual convention of the Kentucky State Horticultural Society was held at Lexington, Kentucky on January 31, February 1, 1940 in connection with the annual Farm and Home Week program of the University of Kentucky.

The attendance was greatly in excess of expectations because it was feared the unfavorable weather would keep a great many away from the meetings. Each of the sessions was attended by representatives from various sections of the State and it has been years since the entire State was represented as well as this year.

In the presidential address Mr. William Fegenbush stressed the importance of the use of improved methods and new developments in fruit growing and called for the cooperation of all fruit growers and fruit workers in the State to help build a better fruit growing industry for Kentucky.

Mr. W. W. Magill led a discussion on "Orchard Practices and Experiences" where practical suggestions and experiences in various fruit growing enterprises were related by Mr. W. F. Wilson, Pulaski County; Mr. B. L. Karcher, Jefferson County; Mr. Terrell Bray, Trimble County; Mr. Ben

Niles, Henderson County; Dr. J. B. Jordan, Jefferson County and Mr. Frank Street, Henderson County.

A discussion of great importance and interest was the one devoted to 1939 Bitter Rot Experiences—where the troubles encountered with the disease by Mr. George Miller, Jefferson County; Mr. Frank Shattuck, Caldwell County; Mr. Fred VanHoose, Johnson County, and Mr. Frank Browning, Fleming County, were related and discussed. Dr. W. D. Valleau, University of Kentucky Pathologist, summed up the Bitter Rot discussion and stressed the importance of special vigilance in 1940 to prevent another serious outbreak of this disease should favorable weather conditions exist. He suggested removal of all mummied fruit and fruit stems from the trees and from beneath the trees. In orchards where the disease was serious in 1939 several midsummer bordeaux sprays were suggested. As a precautionary measure, a thorough bordeaux spray was suggested for all orchards containing susceptible varieties at approximately the time of the first summer spray for second brood codling moth. Varieties that suffered greatest from Bitter Rot in 1939 were listed as, King David, Golden Delicious, Jonathan, Ben Davis, Polly Eades and Rome Beauty.

Dr. P. O. Ritcher gave a very interesting and informative illustrated lecture covering the life cycles and control measures of the important Kentucky fruit and berry insects. Mr. Leonard Rouse, Senior Field Officer of the Agricultural Adjustment Administration discussed the A. C. P. as it related to fruit and berry growers and discussed the new features of the 1940 program. Mr. W. C. Johnstone gave some very valuable information regarding the use of cover crops in fruit and berry programs and discussed the value of maintaining suitable soil covering at all times to reduce soil losses by erosion and leach-

ing. The use of Balbo rye was suggested. Rye grass was discussed as one of the best prospects for winter cover crops and wider trials of it were suggested. It was stated that hairy vetch did better than crimson clover on poor soils, on poorly drained soils and also when sown late in the fall. It was stressed that for satisfactory results the vetch should be inoculated.

Several reels of sound moving pictures on Orchard Mouse Control were shown by Mr. G. C. Oderkirk of the Biological Survey. Mr. Oderkirk discussed control measures and brought them up to date, and stressed the importance of being on the alert for mouse injury in orchards after the severe weather and deep snows that we have had during January.

The orchard spray service for 1940 was discussed by Mr. W. D. Armstrong. It was stated that the Insectaries that were in use in 1939 would be used again in 1940 and that an additional one was being established in the Covington, Kentucky area, as well as some additional points. It was stated that every effort would be made to make the spray service as effective as possible, and that the Entomology, Plant Pathology and Horticultural Departments were cooperating wholeheartedly in this work.

The night session was devoted to an informal get-together at which time a number of orchard and berry pictures were projected on a screen for general discussion. These scenes had been taken during the year in connection with the special horticultural work and Extension program and were explained by Mr. Magill and Mr. Armstrong.

Thursday's program was given chiefly to small fruit topics. These started off with discussions led by Mr. Magill during which various practices of strawberry production and marketing were covered by Mr. Fred Fister, Fayette County; Mr. Lace Wren, Mc-

Cracken County; Mr. Vincent Denunzio, Jefferson County; and Mr. Paul Fehr, Campbell County. Professor C. S. Waltman summed up some of the recent strawberry work at the Experiment Station which showed that the 1938 yields were much more satisfactory than those of 1939.

Dr. A. S. Colby of the University of Illinois gave a very interesting discussion of his strawberry work in that State and stressed the important part which winter mulch plays in the strawberry production of Illinois. It was brought out that in most of the State of Illinois severe winter injury is expected and is experienced where an adequate mulch is not applied. Importance of mulch in producing clean fruit and in conserving moisture was also stressed. The importance of early setting and early continued cultivation was brought out. In discussing the working out of old berry patches Dr. Colby stated that best results were obtained when this operation was carried out immediately after commercial harvest ceased, and that where the operation was delayed unreasonably or was not performed, there were very few or no plants formed and the yield for the following year was seriously reduced. He also discourages the leaving of exposed shoulders of soil where the berry rows were reduced in size by barring-off. His experience shows that a great deal of moisture was lost from the exposed shoulders and that this soil should be worked back into a rooting space for new plants as quickly as possible.

Upon examination of the crown and roots of a number of strawberry plants that had been brought from the Paducah section of western Kentucky, Dr. Colby pronounced that they had been injured by the severe cold of mid-January and that the yields would be reduced to a certain extent depending on the weather conditions during the spring. The crowns and the roots of many of the plants examined were brownish flecked to dark brown in

color and had been taken from both unmulched and lightly mulched fields. Plants taken from the heavily mulched plots showed less of the injury and were more normal in appearance. In the afternoon Dr. Colby again led a discussion on "Some Cultural Requirements of Red Raspberries" and "Some New Developments in Grape Culture." Both of these topics were of much interest to those in attendance and a great deal of discussion was had from the floor and many questions were asked of Dr. Colby.

Professor A. J. Olney then led a growers discussion on "Raspberries, Strawberries and Grapes" which brought out many practical experiences in growing these fruits from, Mr. A. H. Jones, Fayette County; Mr. Robert Scott, Kenton County and Mr. B. L. Karcher, Jefferson County.

In the business meeting Mr. Herman Yopp of Paducah was elected President of the Society. Mr. William Fegenbush was retained on the Board of Directors as first Vice President, Mr. Marvin Eblen of Henderson County was elected second Vice-President to serve the unexpired term of Mr. Yopp and Mr. Frank Browning of Fleming county retained his place as third Vice President. Mr. Ben E. Niles of Henderson, who has most capably handled the duties of Secretary and Treasurer for the past twenty years, submitted his resignation because of other business duties. Action upon this resignation will be taken by the Executive Committee composed of the President and Vice Presidents and if they see fit to accept Mr. Niles resignation, another Secretary and Treasurer will then be elected by them.

THE 1940 COLD AND STRAWBERRY MULCHING

It is expected that the strawberry mulch trials carried on by the Special Horticultural Project will give results in 1940 somewhat different than those obtained in 1939. The weather during

the 1938-39 winter was mild and the spring was generally wet, cold and late. During the winter season of 1939-40, the fall thru December was generally dry and one of the warmest in years; however January was one of the coldest and severest months on record.

1939 RECORDS

The records, as a whole from the 1939 harvest in Western Kentucky did not show any increase in production brought about by the December mulch applications. The heaviest production came generally from the plots receiving their mulch in late March. It should be remembered however that the winter was very mild. The two and three ton applications made in December caused those plots to be several days later in blooming and in ripening. The berries were earliest, smallest and dirtiest on the plots receiving no mulch at all but the yield was quite satisfactory.

At Louisville there was little difference in yield between plots that were mulched in December and those mulched in March. The yield of mulched plots averaged about twenty-seven crates per acre more than the unmulched plots. On the heavier mulched plots the berries were larger and the picking season was longer.

1940 SITUATION

The sub-zero weather over all of Kentucky at various times during January caused a certain amount of injury to the roots and crowns of plants in a number of western Kentucky patches. This is particularly true of the fields that were free of snow during the extremely cold night of January 19, when the temperature went to 10 degrees below zero or colder, in every Kentucky berry section. From Henderson on north in the state practically all berry patches were covered with several inches of snow. Plants dug and examined at Henderson since the cold showed no sign of injury to

the crown or roots. These plants were unmulched but were protected by a covering of snow.

It is considered that berries in the Louisville, Lexington and Covington sections escaped serious injury because of their deeper snow covering generally.

LOOK FOR INJURY

Growers over the state, particularly in the western part, are urged to examine their plants to see if injury has occurred. This injury can best be located if new plants (which were rooted in 1939) are examined. The plants should be dug and cut from top to bottom through the crown. If the crown is uninjured it will be of a clear white color inside; and the uninjured roots will be a bright yellow on the outside, and a creamy white color on the inside. On the other hand, a cold injured plant will show various amounts of brown or brown-flecking through the inside of the crown and injured roots will be a dark brownish color when cut. It should be remembered that symptoms of injury can be determined more readily from "new" plants since the lower portions of the crowns of two year plants are naturally a dark red color and many of the lower roots are black.

It would be well to examine some plants that were mulched and some that were not mulched. At the time of the cold, parts of some fields were mulched and the remainder unmulched. By staking off the early mulched portion from that unmulched and observing the two through the season some important information might be gained.

Dr. Colby of Illinois, speaking before the meeting of the State Horticulture Society at Lexington, stated that when winter injured plants were used to set a new patch they were generally slow to become established and were slow to start sending out runner plants.

Several fields were observed after the cold weather where the straw for

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mulch had been hauled to the field and dumped on the rows but not spread. It would be interesting to examine some plants beneath these piles and compare them with some of the surrounding plants.

There should be a number of lessons to be learned from the present season; and after several more years of open-minded study and record-taking a substantial store of information on strawberry mulch manipulation in Kentucky should be assembled.

EDITORS NOTE: Mr. Sandefur is an experienced and capable fruit grower of Henderson County. The cold winter of 1929-30 caused a great deal of injury to the trunks of his apple orchard. Most of these injured trees were bridge grafted by him and have since apparently completely recovered. His article on bridge grafting below is based on his experience of many years and should be of great value to fruit growers generally; for reports of mouse and rabbit injury are coming in from several sections of the state.

SUCCESS WITH BRIDGE GRAFTING APPLE TREES

W. A. SANDEFUR, Robards, Kentucky

There are three injuries that we may expect to apple trees from the recent cold weather and snow. We are likely to have injury from meadow or field mice, rabbits, and also some winter injury.

By bridge grafting, these injured trees can be saved if the grower will take time to perform the bridge grafting correctly and make preparations before the buds swell. I might say that along with using poison for meadow or field mice, one of the best precautions, is to mound the trees slightly, using several shovels of dirt or coal cinders, around the base of the tree to make a good size mound. We prefer cinders and every tree in our apple orchard is mounded. I am of the opinion there is something in the cinders that mice do not like so well, and of course the mounds expose the mice to the cold unless we have an unusual deep snow. We have used very little poison bait and have had

very little mouse injury in our orchard since mounding our trees.

I have noticed that winter injury happens quite often following a deep snow with sub-zero temperatures when we have two or three days of bright sunshine while the snow is on the ground. The injury usually occurs worse on the side exposed to the sun (southwest in this section). This is due to the reflection of the sun on the snow, as well as to the direct rays of the sun upon the trunks.

Whether the injury is caused by mice, rabbits, or winter injury, bridge grafting is the best operation to use to attempt to save the trees. If there are a number of trees girdled by the mice this work can be started before the buds begin to swell or sap raising rapidly, in order to get the work done in time for maximum early summer growth.

If you start the bridge grafting early it is well to paraffin the scions to prevent them from drying out before growth starts. Make your examinations early of the number of trees to be bridge grafted and cut your scions, which should be of good vigorous growths and long enough to cover the injured part of the trees well. You can save this scion wood while pruning, and by burying the scions in well drained soil or sand, the work can be extended into very late spring, however the most ideal time for this work is just as the buds on the trees are swelling.

The scions are grafted into the tree below the injury by cutting the base or lower end of scion with a slanting cut two inches long, then make an opening at the base of the tree with a straight blade knife and push the base or heavy end of scion that you have cut slanting into the opening you have made at the base of the tree. Cut the upper end of the scion the same way and make an opening in the tree above the injury and force scion in opening as below. It is very important that

the cambium of the scion come in close contact with the cambium (which is the inner or growing bark) of the tree. Drive a small two penny nail in both ends of the grafted scion to hold it in place, and carefully cover both upper and lower end of scions with grafting wax to prevent drying out. It is also well to cover the lower end of the scions at the base of the tree with soil. Place these scions about two inches apart around the tree, or as far as the injury extends around the tree. The scions that are bridge grafted in the tree must be gone over occasionally and the suckers or side branches kept rubbed off.

Grafting wax for open air work should be made as follows: 4 lbs. Rosin, 2 lbs. of beeswax, and 1 lb. of tallow all melted together. Pour this melted wax into cold water, a small amount at a time, to cool the melted wax, and with greased hands pull this like you would molasses candy, and roll it into balls and wrap the balls in greased paper. When ready to use, these balls can be warmed up or made pliable by the hands on a warm sunny day.

When making your examination for mouse injury take a heavy pruning knife or light hammer and tap on the body of your trees and if you have loose bark you most likely have winter injury. We have saved a number of valuable trees in our orchard by bridge grafting.

APPLE SCAB

W. D. VALLEAU

The apple scab fungus is the cause of the black spots on the skin of apples, especially around the blossom end. The disease originates from spores discharged from overwintering apple leaves on the ground. These early spores not only cause infections on the young fruits but, more important, they cause infections on young leaves, and the green leaflets of the

flowers. In about eight days these early infections are themselves producing spores. The years when scab is a serious factor in apple production are those years in which rains precede the first signs of growth and occur during the early blooming period.

Experience in Kentucky has shown that those who commence spraying early in wet seasons and keep the new growth well covered thru the blooming period have little loss from scab.

The early sprays seem to be particularly important on Red Delicious because early infections occur on this variety on the tips of the Calyx lobes, or the green leaflets at the blossom end of the apple. These infections occur before the pink stage but later on in the spring spores are produced from these early infections and these are spread over the blossom end during wet periods, causing the heavy infections which distort the fruit.

It is becoming increasingly evident that scab is being controlled by early sprays put on before blossoming rather than by those applied following blossoming. This has the effect of cutting down the number of infections which in a few days will be producing spores in abundance and causing the real damage to the crop. In other words if scab sprays are to be cut down it is better to put on the early sprays, especially in wet seasons, than to attempt to control scab after primary infections have already occurred.

There seems to be no question that apple trees would be more vigorous and set heavier crops of fruit if it were not necessary to apply lime sulfur sprays. In some seasons there is evident serious injury to foliage by lime sulfur spray. Those growers who, in the past, have had good success in controlling scab by the usually recommended strength of lime sulfur can afford to cut the strength somewhat provided sprays are applied at

proper intervals and spraying is commenced early enough.

Many growers are finding it pays to start the early scab sprays as soon as any new green-tip growth starts; and in wet seasons like 1939 as many as three or four scab sprays were required before blossoming to prevent and check the early infections referred to above.

FRUIT GROWERS AND THE TRIPLE-A

W. L. ROUSE

State A. A. A. Office

The 1940 Farm Program offers farmers greater opportunities in soil conservation than ever before.

There are, in addition to the regular practices, special practices which are provided for the orchardist to help him solve the problem faced by all farmers—that of taking care of their land. The purpose of the the farm program is to conserve the fertility of the soil and at the same time maintain or increase the standard of living for farms in general.

The farm program provides payments to aid in carrying out worth while soil conservation practices. For 1940 special emphasis is being placed on those practices not always carried out but which are sound practices. The use of phosphate, ground limestone, terracing, contour stripcropping as well as the seeding of grasses, legumes, green manure crops and others are included.

Fruit growers are interested in the manner in which their crops are classified under the program in order that they may plant within their acreage allotments in 1940. First of all, the acreage on the farm is divided into two main land uses: cropland and non-cropland. Cropland acreage includes that which is devoted to depleting crops, non-depleting crops and also idle acreage in the regular rotation. The acreage devoted to strawberries is con-

sidered as depleting only when the berries are harvested for any purpose except when in a home garden. However, if the strawberries then become destroyed by water, frost, or do not bear for any reason, and are not harvested in 1940 the acreage occupied by the strawberries is then non-depleting. Any acreage of new strawberries set in the spring of this year will be considered as non-depleting.

Commercial orchards, that is orchards from which most of the production is sold, are considered as occupying non-cropland. Cultivated blackberries, dewberries, raspberries, gooseberries, and vineyards are also considered as occupying non-cropland.

In 1940 a maximum payment which may be earned in connection with soil-building practices is computed for each farm. This payment in 1940 is the calculated figure or the difference between special allotment payments and \$20.00, whichever is the larger. It is available to producers in addition to the amount earned for planting within their special crop allotments. In calculating the soil-building payment, seventy cents is allowed for each acre of cropland on the farm in excess of the acreage allotments of commercial wheat, tobacco, and other special crops. Added to this amount is \$2.00 for each acre of commercial orchards on the farm on January 1, 1940. A small allowance is also added for farms with considerable non-crop open pasture. The number of dollars in the maximum soil-building payment is divided by \$1.50 to determine the soil-building goal. The goal is expressed in units which it will be necessary to carry out before August 31, 1940, in order to earn the full soil-building payment.

Many soil-building practices which may be carried out on the farm for credit under the program are especially suitable for fruit growers.

Certainly a fruit grower would be

interested in the provision which offers him 47% triple superphosphate furnished as a grant of aid. This fertilizer can be made available to the producer if he will call at the county office and indicate his intention of using the material on green manure crops in orchards, seedings of grasses or legumes, perennial grasses, winter legumes, crotalaria, annual rye grass, and permanent pasture. One hundred pounds of the 47% superphosphate earns one unit credit of the soil-building goal. Superphosphate with a 20% analysis may also be used under the same conditions. One unit is earned for each 240 pounds of 20% phosphate applied.

Many orchardmen prefer to terrace hillsides before setting out their trees. One unit can be earned for each 200 linear feet of standard terrace with proper outlets constructed.

Fruit growers find green manure crops very helpful in building fertility rapidly. One unit is earned for each acre on which a good stand of soybeans or cowpeas is plowed or disked under. Strawberry growers especially have found this practice helpful. Orchardmen follow as a good practice a temporary mulch secured by leaving a good stand and a good growth of soybeans, cowpeas, or sweet clover on the land. One unit credit is earned for each acre so handled in a bearing or non-bearing orchard.

The mulching practice added in 1939 is still a practice for 1940. The 1940 program provides for setting out young trees or planting walnuts at the rate of 5 units per acre for an amount up to 20 units or \$30.00. This is in addition to all other payments.

To earn payments under the 1940 program the producer must sign a Farm Plan before April 15, 1940.

THE 1940 SPRAY SERVICE

Arrangements are being completed for the operation of the Kentucky Spray Service again during the 1940 season, to be carried out under the program of the Special Horticultural Appropriation in close cooperation with the Extension Horticulturist and the Entomology and Plant Pathology departments of the University of Kentucky. The headquarters for the work will again be at the Western Kentucky Experiment Substation at Princeton, Kentucky, where spray letters, notices and broadcasting material will in most cases originate.

The spray service has for its purpose to give timely suggestions on spray applications and control measures according to insect, disease and fruit development in the various sections of the state. Every grower who has a spray machine and attempts to control insects and diseases should profit by receiving and studying these spray letters. Such growers who wish to receive these spray letters should contact their county agent. Since the recent cold weather killed most of the peach crop in the state, the spray service this season should be chiefly beneficial to the apple growers.

Information regarding insect and disease activity will be gathered from codling moth emergence cage and bait trap records, peach curculio jarring records and from examination of apple scab leaf samples sent in from over the state. Additional information will be collected at the main Experiment Station and at the Substations. The information sent out will be a combination of the facts gathered from over the state from the Experiment Stations and that from near-by portions of surrounding states. The success of this work depends to a large degree on the cooperation of those sending in the information to be worked into the reports.