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KENTUCKY FRUIT NOTES

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FRUIT OUTLOOK FOR 1939

Fruits in General

"Domestic production of all fruits is expected to average higher for the next 5 years (1939–43) than the average for the 1934–38 period. Indications point to significantly larger supplies of grapefruit, oranges, tangerines and lemons. Moderate increases are in prospect for pears, peaches, plums, cherries and prunes. Apple production for the 1939–43 period will probably show a slight decline.

Fruit prices during the next few years will be dependent largely upon the changes in supplies and consumer incomes from year to year. With improvement in consumer buying power, gross sales of all fruits can be expected to increase. This does not mean that growers of all fruits can expect prices to increase regardless of production. In fact, with the burdensome supply of citrus fruit that is in prospect for the next few years, orange and grapefruit growers may expect prices to continue low.

Apples

The 1938 apple crop of 130,328,000 bushels is more than one-third smaller than the 1937 apple crop of around 211,000,000 bushels.

Storage holdings as of November 1 for 1938 are given as 29,600,000 bushels. This compares with 31,400,000 bushels for November 1, 1937. In 1937 large quantities of apples were held in common storages of various kinds. This year common storage stocks are small, and have largely moved into consumption.

Apple tree numbers continue to decline. It is estimated that, if the present decline continues, the number of bearing apple trees will be about 74,000,000 in 1940, and in 1945 about 66,000,000 trees. Low apple prices in recent years, drought, freezes and wind damage have increased removals. Home orchards have contributed heavily to the decline in tree numbers in the past. In the future, removals will be heavier in marginal orchards. Northwest production has passed the peak; in the Central States production is expected to remain about the same; in the East the trend is downward.

Indications are that apple production for the United States as a whole will be downward, with the annual production by 1945 of 140,000,000 bushels as compared with the present average annual production of 150,000,000 bushels.

Apple production in the United States in 1939 is expected to be larger than the 1938 crop.

Peaches

During the last four years there has been a sharp increase in peach plantings. This is especially true of the important peach producing states in the South. The large increase in plantings continued in 1938.

As a result of the sharp increase in peach plantings in the important peach growing regions, the average

annual peach production in the United States is expected to be larger during the next 5 years than the average of 51,000,000 bushels of the last 5-year period. Burdensome supplies may be expected in 5 or 10 years if plantings continue at the present rate. Even with the present number of bearing trees, supplies may be so large in seasons when growing conditions are favorable as to result in unsatisfactory prices.

During the last few years peach growers have found a ready market for their fruit at satisfactory prices. With increase in consumer income prices during the next few years, even with the increased supplies, peaches should continue to make favorable returns to the grower, except when growing conditions are above average in all peach producing sections. Then marketing difficulties may be expected.

Strawberries

The picking acreage of strawberries in 1939 will be about 197,000 acres, the largest since 1929. It is 9 per cent above the acreage harvested in 1938. Acreage increase is indicated for the second early states which include Virginia, but the added acreage is in Arkansas and Tennessee.

If the yield per acre in 1939 is equal to the 10-year average, the production for 1939 would be about 300,000,000 quarts. This would be 9 per cent larger than the 1938 production. Production in the second early group of states is expected to be larger than the 66,240,000 quarts produced in 1938.

Indications are that the 1939 strawberry crop will be marketed under somewhat more favorable demand conditions. Prices to growers in the second early states in 1938 were higher than average and higher than in 1937.''

STRAWBERRY CROWN BORER DURING FEBRUARY AND MARCH

By W. W. Magill

We have talked and published considerable about strawberry crown borer during the past few years, but I again appeal to the farmer producing strawberries, especially in southwestern Kentucky, to do some thinking and planning during the next few weeks. *By April 1st it will be too late to control the crown borer in the 1939 planting.* Why? The adult insect is now hibernating in strawberry fields around the berry plants. By the last of February this adult will be feeding on the leaves of the plant. About the middle of March the female adults will be depositing eggs (each one depositing from 25 to 120 eggs). After the eggs have been deposited in the tender crown growth it is too late to control the destructive insect for the eggs are so placed in the plant that they cannot be washed off by holding the plants under a stream of water. *What can the average grower do to control the borer?* Simply dig your plants during February, pull off all dead leaves and old runners, place the newly dug plants in a pond or in a tub of water, take a pitchfork and dip the plants up and down in the water to thoroly wash away the dirt and trash—then take the plants out and ''heel in'' on clean soil at least 200 yards from an old berry field until ready to plant in the field where they are to be grown. A number of growers, who have followed this procedure, tell me they can wash and heel in over 2,000 plants in a day. Thus, the *extra labor* involved will cost you less than $3.00 per acre of new berries planted.

How can you find out when the adult female borer will begin laying eggs in 1939? Dr. P. O. Ritcher, Entomologist of the Experiment Station who made a special study of the crown borer in Western Kentucky during 1937 and 1938, is still on the job to determine necessary facts for you. He has over 1000 adult borers in special cages in berry fields of Western Kentucky and through the cooperation of W. D. Armstrong, horticulturist at Princeton Substation, who sends the adult borers to him twice each week, beginning February 1, Dr. Ritcher examines the ovaries of the female borers under a high power microscope and can then determine when the egg laying will start. A shipment of crown borers on February 15 was examined by Dr. Ritcher and practically no development over the winter stage was then evident. We will then report to your county agent and your local agriculture teacher and furnish a news article to your local paper—urging you to dig your plants at once, if you have not already dug them.

Please recall the results of Dr. Ritcher's experiment started on Mr. Seaton's farm near Heath, McCracken County, the spring of 1937 —Plants were dug during early March (March 11–18) from a field known to have abundance of borer present. The plants were treated as described in this article. The acre field of Aromas yielded over 200 crates in 1938. Plants dug from the same source—but after the egg laying period of the female borer—when planted on clean soil —developed 100% borer (some plants had as many as 5 borers per plant) and this planting was a complete failure.

Suggestion.—Do your neighbor a big favor at no cash or labor to yourself, by telling him how to control the Strawberry Crown Borer on his farm and thus help us reduce this annual crown borer loss, of over $25,000.00, to a minimum.

THE ANNUAL MEETING

The 83rd Annual Convention of the Kentucky State Horticultural Society, the College of Agriculture of the University of Kentucky cooperating, was held at Lexington, Kentucky, in connection with the Farm and Home Week program of the University of Kentucky.

In spite of the weather the sessions were very well attended. Fruit and berry growers from 30 counties were present and took part in the meetings. Besides these, many other counties were represented by their county agents; so the information passed out will be widespread over the state. Those present received a great deal of benefit from the very inspirational program and from the private side discussions that are a part of every horticultural meeting.

Mr. William Fegenbush of Buechel, Jefferson County, a young fruit grower and farmer who has served for several years as vice-president of the Horticultural Society and president of the Jefferson County Fruit Growers Society, was elected president for the coming year. He is a public-spirited, cooperative-minded, hard-working individual. Mr. Herman Yopp, Paducah; Mr. R. D. Money, Shelbyville; and Mr. Frank Browning, Farmers, Kentucky, all horticultural leaders in their respective sections, were elected vice-presidents. Mr. Ben Niles, Henderson, who has served as secretary-treasurer for many years, was reelected to his post.

Due to the need for funds to carry on certain phases of the Society's work, a motion was voted to

abolish all life memberships in the Society and charge an annual membership fee of $1 per member to defray the necessary expenses of the Society and for printing the proceedings of the meetings. These will contain a great deal of horticultural information and several articles each of which will be worth more than the membership fee. It is urged that each old Horticultural Society member and those fruit and berry growers in the state that are interested in these annual reports and the Horticultural Society should send in their membership fee to the Secretary-Treasurer.

Trends in Apple and Peach Growing

One of the featured out-of-state speakers on the program was Professor A. H. Teske of the Virginia Extension Service. He stated that in line with other sections Virginia had been planting considerable acreage to peaches. Of this acreage the Elberta accounts for 70%, Hale 10%, Georgia Belle 10%; and the balance is Carman, Hiley, Golden Jubilee, and a few others. This shows, as do recent plantings in other sections, that while there is a widespread search for earlier and better varieties the growers as a whole are slow to give up the Elberta and that it is still considered the standard variety among peaches.

Professor Teske stated further that with increased peach production in the near future each grower would have to produce quality, clean fruit and do it as cheaply as possible in order to show a profit. He stated that Virginia growers have considerable of a problem in controlling the plum curculio in peaches and that they are using 3 or 4 arsenate of lead sprays, supplemented by jarring for the adults, and picking up of drops in their fight to produce worm-free peaches.

He stated further that the ethylene dichloride emulsion treatment for peach tree borers had given good results in the fall of 1938 and, due to its quickness in killing the borers, ease of application, cheapness, and effectiveness under a wider range of temperatures, thus offering more range in time of application, that its use would likely increase rapidly in the future.

Professor Teske also stated that Brown Rot was their worst disease in peaches and that it had been kept under control fairly well in 1938 by numerous spray and dust applications to fruit on the trees, and sulfur was also applied to the fruit as it went through the brushes or defuzzer to protect the fruit in transit. Growers having serious trouble with Brown Rot are using an additional spray of lime sulfur or wettable sulfur in the late pink stage just before the blossoms open with good results. Many growers are making their own wettable sulfurs for spraying, which enables them to save considerable on the spray bill. Most growers use both a winter and summer cover crop to help keep the soil covered and use a complete fertilizer on this at seeding time and apply extra nitrogen to the trees. Also some peach orchards on rough soils are doing well in lespedeza sod which helps control the erosion.

Professor Teske points out also that their better growers are striving to put up a more attractive and high-quality pack and that they are trying delayed picking of fruit, to allow more quality to develop, with good results.

Apple Trends

Professor Teske states that there is a decided movement in Virginia

to produce higher quality in apples and less culls. This is being done by eliminating poor quality varieties, such as Ben Davis, and by an increased production of the dark red strains of Delicious, Stayman, Rome, and York. These and Golden Delicious are the chief varieties being planted and because of their earlier and heavier color produce fewer culls. The Virginia grower also realizes the competition from other fruit and thinks the best way to meet it is through advertising and to continue to put a good product on the market. He states that apple trees are on the decrease in numbers and that if the apple grower will play his cards right, he looks for better apple times in 5 or 6 years.

Strawberry Highlights

Dr. G. M. Darrow, berry expert and the leader of berry work in the United States Department of Agriculture, gave a very comprehensive illustrated lecture and discussion of the various phases of strawberry growing as related to Kentucky. He stated that as a general thing most growers were paying too little attention to mulching and were getting smaller yields and too many sandy and dirty berries as a result, and that records show injury to strawberry plants can be expected when temperatures go down to 15° to 18° in November or below 10° in December. The plants can stand more severe weather without injury as the winter advances and they become more hardened. He stated weather reports showed that during the last 50 years, temperatures at Lexington had gone below 15° during one-third of the years in November and had gone to 10° or below over half of the years in December, and that while western Kentucky is a bit warmer, the records show that we can expect severe cold injury to strawberries during the latter part of November and the first part of December often enough to make it advisable to be ready to mulch during that period if severe weather threatens.

Dr. Darrow stated that much recent work in berry sections showed that practically every strawberry variety showed large increases in yield of fruit per plant as a result of limiting the number of runner plants. When the runner plants are kept 6 to 10 inches apart, each one develops a larger number of leaves and heavier crowns with more fruit buds. This makes for a heavier yield of large berries. Many growers are getting big dividends for the time they spend in spacing and in giving their fields special attention. The Blakemore variety because of its habit of making too many runner plants has given some outstanding results from thinning out the stand of plants in the row. He further expressed the opinion that in order to get best results with the Blakemore variety special care had to be taken with it. For those starting new plantings of this variety the use of plants of yellows free strains was strongly urged.

It was also stated that the Aroma variety gave less response to plant spacing than most any other variety.

In discussing the formation of fruit buds Dr. Darrow stressed the importance of getting an early set of runner plants so they would be developed enough to form heavy crowns and lots of fruit buds during September and October. The use of fertilizer as a side dressing in late August and September as an aid to fruit bud development was encouraged. A warning was also issued against the spring use of nitrogen fertilization on the bearing field. This, he said, was a

proven bad practice and was to be avoided.

Dr. Darrow stated he looked for much improvement of varieties in the next few years both by the U. S. D. A. and by some of the experiment stations, and suggested that some of the better new varieties be tried out as they become available. He suggested further that a variety should be studied and fruited considerably before large acreages in a section are planted to it.

Discussion of Mouse Injury

Prof. G. C. Oderkirk of the U. S. Biological Survey gave a very comprehensive discussion of mouse injury to fruit trees. Moving pictures were shown of the different types of mice that cause injury to trees. The two injurious kinds, the Pine mouse, and the Meadow mouse, are larger and darker than our ordinary house mouse. The Pine mouse works in tunnels under the surface and does most of its injury from the surface of the soil down along the roots and is the one that causes the greatest injury. The Meadow mouse is chiefly a surface feeder and his injury is done at or slightly above the soil surface.

Mr. Oderkirk warned apple growers to remove grass and litter from around the tree trunk for 3 or 4 feet and to examine around the trees for mouse runways and injury. He pointed out that ready mixed bait can be obtained again this year by contacting the Biological Survey, Experiment Station, Lafayette, Indiana.

Bacterium Pruni in 1938

Mr. Frank Street of Henderson discussed the serious outbreak of Bacterium Pruni in Kentucky peach orchards during 1938. It was pointed out that this injury generally shows up worse during a real wet summer or following a period of stormy weather after the foliage has been subjected to bruising and shock by high winds, hail or freezing injury. Nitrate applications to help restore the lost foliage have been practiced and were suggested. A great need for more information about this disease and for satisfactory control was strongly brought out.

Mr. W. C. Johnstone of the experiment station, and former county agent at Paducah, gave a very fine discussion of "A Soil Building Program for Strawberries". This paper is published in this issue and is called to your attention as of great interest to strawberry men.

At the spray session Dr. W. D. Valleau and Dr. P. O. Ritcher stressed disease and insect control and the importance of a thorough spraying job to combat the numerous pests.

Other interesting and instructive talks were also given and will be published in the proceedings of the convention.

Let us all get together now and work for a successful year in Kentucky horticulture.

A SOIL BUILDING PROGRAM FOR STRAWBERRIES

Wm. C. Johnstone

In discussing a soil building program for strawberries it is well to consider briefly what the soil requirements are for large yields of high quality strawberries. We had an opportunity to study these requirements over a period of several years in west Kentucky, where in cooperation with the Berry Association, the newspapers and local business men, a 200-crate-per-acre strawberry club was organized. Any farmer who obtained an average yield of over 200 crates auto-

matically became eligible to membership and was awarded a Certificate of Honor as well as cash prizes if he happened to be among the highest producers, because several prizes were offered for the higher yields.

Two hundred crates of strawberries per acre is a high yield in an area where the average yield is only about 50 crates. It is four times the yield of the average grower.

When the yields of the prospective members were checked with the shipping association and the fields were accurately measured, a study was made of the conditions which contributed to the high yields. It was invariably found that there was one of two things common in the high yielding fields: either the berries were grown on new land, that is, land that had been cleared from forest growth only a short time, or that the land had been maintained in an excellent state of fertility over a long period of time. In other words, there was a direct relationship between high fertility and high yields.

What are these characteristics of new land or of old land which promote large yields of strawberries? I would list them under two headings and say that the soil requirements are: first, a large supply of humus or organic material; and, second, a large amount of available plant food elements, such as nitrogen, phosphorus, potash, etc. Of course the soil must be sufficiently well drained so that the surplus water will readily pass into it. These, by the way, are the soil requirements for the production of practically all crops; they are the same for tobacco, for corn, for hay, and even for large yields of high quality pasturage.

Plant Foods

Any soil building program for strawberries must be a long time program; there is no short cut to making a fertile soil from a poor one. Fertility cannot be bought in bags. No amount of fertilizer can be bought to make a poor soil good. In fact, it is well known that large applications of commercial fertilizer are more effective in fertile soils than on poor ones. I do not think that a soil can economically be made fertile just for strawberries. We cannot tear down with one crop and build up with another crop. The soil building program must be a farm policy—a part of a farm management system; it must include the use of limestone and phosphate, where these are deficient, the growing of grasses and legumes, the use of cover crops, contour cultivation, the proper care of manure and plant residues.

Undoubtedly the first requirement of a long program is the use of lime and phosphate. The application of lime for the direct benefit of strawberries is doubtful, but the use of lime so that legumes will grow more luxuriously is a basic principle of soil building. Phosphorus, in liberal applications, not only promotes the growth of legumes but may have a very beneficial effect on the yield of strawberries. In one test in west Kentucky an application of 500 pounds of 16% phosphate increased the yield of strawberries 35 crates per acre. At the Princeton Experiment Substation any additional fertilizer application, other than lime and phosphate, and the growing of sweet clover, has given no increase in the yield of strawberries.

Where there is an adequate soil building program established on the farm there will probably be little or no necessity for the application of either potash or nitro-

gen. There is a serious danger, however, in the berry growing districts of Kentucky that the present system of farming is not adequate and that even with the large amounts of lime and phosphate being used a shortage of potash will be encountered unless more attention is given to the production and care of farm manure.

I wish to make it clear again that I am not recommending the use of lime for the direct benefit of berries, nor do I want to recommend the application of manure just previous to the setting of berries. My idea of a good long time farm soil program is something like this: 1st, the application of lime and phosphate; 2nd, the seeding of a good grass and legume mixture; 3rd, the use of land for hay and pasture for several years with proper care being given to the making and saving of the manure therefrom; 4th, the use of this high class sod land for the production of a clean cultivated crop such as tobacco or tomatoes, previous to which crop there should be a further application of manure and phosphorus; 5th, after the removal of such crop the immediate seeding of a winter cover crop; 6th, setting the berry crop in the following spring. A modification might be on fertile bottom lands where intense cultivation may be carried out.

In connection with a soil building program for strawberries, there are two basic principles which I wish to stress further: first, the use of a large proportion of the crop acreage for clean tilled crops such as corn, soybeans, and cowpeas is not compatible with high fertility; second, the lack of cover crops following clean tilled crops in our strawberry areas is promoting the loss of soil and fertility at a far greater rate than we are building them.

Strawberries, properly handled, are not a depleting crop. They are well adapted to contour cultivation and when planted on the contour permit very little erosion; their roots are active throughout the winter and, therefore, permit little or no leaching of plant food; early mulching also prevents erosion and adds to the fertility of the soil; and the marketable part of the berry crop removes a relatively small amount of plant food from the soil. So if the berries are properly handled, there is no reason why they should not fit in well with a good soil building program.

SPRAY BULLETIN

Plans are being perfected for a spray service to fruit growers this spring. Commercial growers of apples and peaches wanting to receive notices should notify their county agent. The development of apple scab and codling moth on apples and plum curculio and Oriental fruit moth on peaches and apples will be studied particularly close, with other insects and diseases receiving attention also. Insectaries will be operated and information collected at Lexington, Louisville, Henderson, Princeton, and Paducah. . . . Every grower should rush now to finish his dormant spray. Do not let spring catch you.

This publication is a part of the services authorized 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 act appropriates funds for horticultural services to the fruit and berry growers of the state.