Vol. 4 Fall, 1951 No. 5

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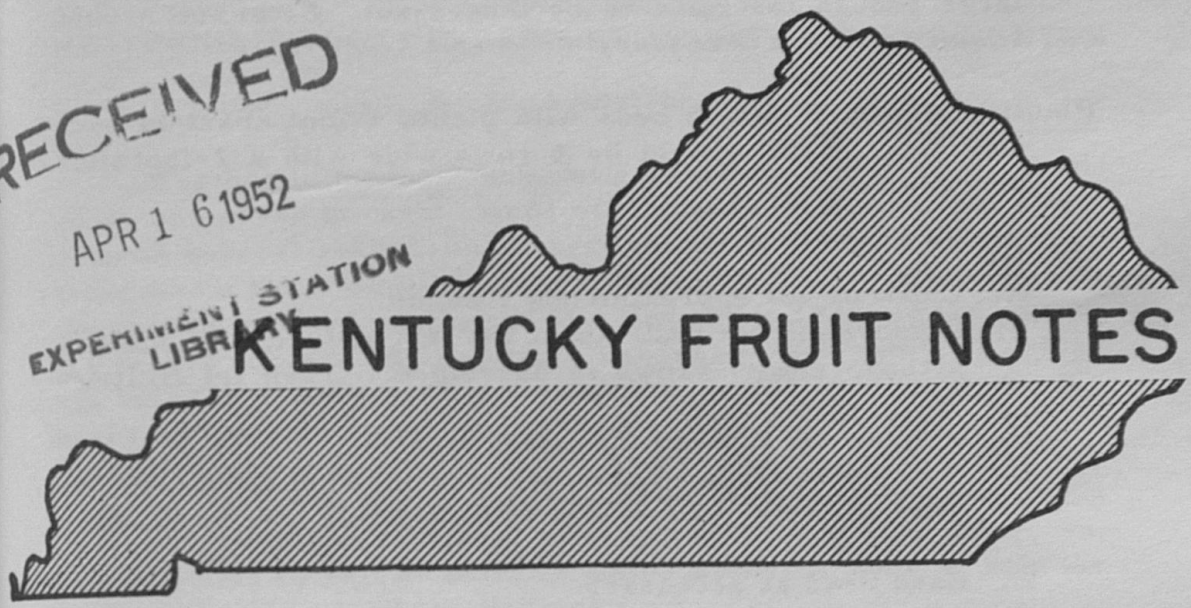

# KENTUCKY FRUIT NOTES

## EVERBEARING STRAWBERRIES FOR THE HOME GARDEN

C. E. Chaplin

Until recently the Experiment Station has not recommended everbearing strawberries for Kentucky because they were not productive enough during the summer months; in fact, they were called "never bearers" by many people. A new method of culture, however, developed by W. P. Judkins[1] and a grower in Ohio, now makes everbearers much more promising. It was reasoned that the everbearing plants had been unproductive because they used most of their food and energy in the production of new plants, and that if the forming of runners was prevented a larger crop should result. The new method therefore consists of close planting, no runners, mulching, and irrigation. First-year production records of 7,000 to 13,000 quarts per acre have been obtained with this system at Lexington. Irrigation is almost essential during most years. Expenses for plants run very high unless one raises one's own plants. A large amount of labor also is required.

Directions are as follows:

Ground preparation:

Apply manure, if available. Plow, preferably in fall. Prepare good bed and plant in early spring.

1/ Formerly with Ohio State University; now with Virginia Polytechnic Institute.

Kentucky Agricultural Experiment Station
University of Kentucky
Lexington

Planting: Plant with crown flush with surface of ground hole large enough for roots to be fanned out. Firm soil around roots. Water if necessary.

Planting distance: Set in beds with plants 1 foot apart in each direction. Beds should be 4 rows wide with a 2-foot alley between beds.

Culture:

A. Cultivate for approximately 1 month.
B. Remove bloom until about the last of June, or until a strong, sturdy crown is developed. Then let fruit develop.
C. Remove all runners throughout season.
D. Mulch with 1" to 1 1/2" sawdust of any kind about 1 month after planting. Plots should be entirely free of weeds at this time.
E. Hand weed as necessary.
F. Pick every other day.
G. Irrigation is necessary most years. During dry summers even this method of culture is not satisfactory unless irrigation is practiced. Irrigate often with a medium amount of water rather than soaking the soil less frequently. Morning or mid-day is the best time to water.

Size of plot: If moisture conditions are favorable, 200 plants should furnish 80-100 pints of fruit during July, August, September, and part of October, or until frost.

Varieties: Gem, Superfection, and Streamliner have been tried at Lexington; the first two were superior. Brilliant, 20th Centruy, and Red Rich have done exceptionally well in Ohio.

## THE MEADOW NEMATODE IN STRAWBERRIES

C. E. Chaplin

Meadow nematodes, which are microscopic worms, have been found in many strawberry plantings and are suspected to be causing considerable root damage. Experiments have been set up, at the Experiment Station in Lexington, in an effort to learn how best to combat this pest. Evidence, obtained to date seems to indicate that several treatments may be helpful in the control of nematodes. Fall plowing appears to reduce the nematode population materially. Summer fallowing and cultivated crops preceding strawberries in the rotation appear to be very promising aids in nematode control. Use of soil fumigants is being investigated but no recommendations can yet be made.

# 1951 STRAWBERRIES AT WESTERN KENTUCKY EXPERIMENT SUBSTATION, PRINCETON

W. D. Armstrong

Weather Influence: The wet growing season in 1950 resulted in one of the thickest stands of plants (heaviest matted rows) seen in several seasons in all sections of the State. Fortunately, there was a thick snow covering protecting the berry plants during the record subzero weather of late November 1950 and also during the record subzero spell of early February 1951. Such weather without the snow covering would have virtually destroyed the berry crops as well as young wheat, alfalfa and other types of ground cover. Following a wet and early spring in 1951, dry weather started in May and continued through strawberry picking season in western, southern, and central Kentucky, cutting expected yields by half or more. Rains came in time to help the berry harvest in northern Kentucky.

Variety Performance at Western Kentucky Experiment Substation, Princeton: Variety yields at the Princeton Substation in 1951 in number of 24-quart crates per acre are listed below:

| | Crates |
|---|---|
| Blakemore | 104 |
| Tennessee Beauty | 100 |
| Fairland | 98 |
| Temple | 93 |
| Vermilion | 85 |
| Tennessee Shipper | 81 |
| Aroma | 71 |
| Tennessean | 69 |
| Armore | 64 |
| Sioux | 25 |

In Kentucky, Blakemore is still the leading commercial and home-use variety, followed by Tennessee Beauty which has replaced Aroma. Tennessee Shipper also is now a well-established commercial variety over most of Kentucky.

Fairland, Temple, and Vermilion are all three resistant to the red stele root rot disease and can be grown satisfactorily on land infected with that serious disease. The varieties grown generally in Kentucky are subject to red stele and cannot be grown satisfactorily on infected fields. These three varieties are not firm enough to be first-class commercial berries, but are satisfactory for short hauls, local sales, home use, and quick freezing.

Tennessean, the newest introduction from Tennessee, was disappointing this year because of its low yield, soft berries, and dark red color which made it less attractive. Also, during a

heavy frost at the start of the bloom period, Tennessean had a greater number of buds killed than Blakemore, though Blakemore had more blossoms open at the time.

Armore, a new variety from Missouri, was low in yield, being below Aroma.

Sioux, a new variety from the West, made the poorest row of plants (in a favorable growing season), the poorest yield, and the berries were long and soft. It is definitely not adapted to western Kentucky conditions.

Tennessee 866, a variety not listed above, made a yield of 132 crates per acre, the highest yield of all in 1951. This is a soft berry, adapted only to home use, local sales, and processing. For the last three years, it has led all varieties in production at Princeton, and size is good. Plants are not on the market yet but it is interesting because of its high yield, good size, and unusual quality.

Cold-Storage Plants Compared with Fresh-Dug Plants: Strawberry plants of Blakemore, Tennessee Beauty, and Tennessee Shipper dug in early winter and placed in cold storage were set in plots in early spring along with plots set to fresh dug plants, with four replications of each. The cold-storage plants of Blakemore and Tennessee Beauty outyielded the fresh-dug plants by 9 crates and 14 crates per acre respectively; but fresh-dug Tennessee Shipper plants outyielded the cold-storage plants by 4 crates per acre. These results show that properly handled cold-storage plants are as satisfactory as fresh-dug plants. Digging plants in early winter is an important means of avoiding crown borer, which begins to infest plants in March. Use of storage plants is also an aid to growers in getting their planting done early in the spring.

## PEACH TREE BORER CONTROL WITH SPRAYS

J. G. Rodriguez and W. D. Armstrong

Control of the peach tree borer is practicable in commercial peach orchards by appropriate spraying of the tree trunks in summer. This type of application provides a safe and speedy method of control and many growers have adopted the method entirely.

Because a population of peach tree borer has such a wide variation in size, or developmental stages, and because emergence extends apparently from late June or early July, through September in the latitude of Western Kentucky, it was deemed important to investigate the effectiveness of a control program utilizing two or three spray applications at about monthly intervals. An experiment to study this point was conducted at the Western State

Hospital orchard[1] at Hopkinsville, Kentucky. Unfortunately a heavy rainfall occurred at the time when the last application was due in September, making operations impossible for two or more weeks, and thus preventing the third application. All plots, therefore, received only two applications.

EXPERIMENT. The orchard was an 11-year old planting, situated on Decatur silt loam, and was observed to be heavily infested with both the peach tree and the lesser peach tree borers.

Wettable powders of the following materials were used at the designated amount per 100 gallons of water: 4 pounds of 50-percent DDT, 2 pounds of 25-percent parathion, and 2 pounds of 25-percent EPN-300. These were applied to plots of 3x4 trees, which were replicated four times, on July 13 and August 7, 1950. The following Spring on April 20, two trees chosen at random from each plot, were "wormed" in order to determine the control obtained.

RESULTS: The following table summarizes the results obtained from the peach tree borer control test:

| TREATMENT | Total Borers Found per Replicate (2-tree sample) | | | | Total Borers (8 Trees) |
|---|---|---|---|---|---|
| DDT, 4 lb, 50% | 1 | 0 | 1 | 0 | 2 |
| Parathion, 2 lb, 25% | 0 | 0 | 1* | 0 | 1 |
| EPN-300, 2 lb, 25% | 0 | 0 | 3 | 6 | 9 |
| Check, no treatment | 18 | 26 | 4 | 19 | 67 |

* Borer found dead in burrow.

CONCLUSIONS: Under the conditions of these tests, DDT and parathion were superior to EPN-300. Moreover, two sprays gave virtually complete control of the peach tree borer. It should be noted that while there was a relatively heavy infestation of lesser peach tree borer during early summer of 1950, examination of the trees "wormed" failed to disclose obvious burrows of the lesser peach tree borer in the treated trees. The larvae were found beneath the soil surface, or at the soil line, in the treated plots but large numbers of both the lesser peach tree borer and peach tree borer were found well above the ground line on the

1/ The assistance of Mr. Dudley Johnson, assistant farm supervisor, Western State Hospital, in this work is gratefully acknowledged.

check plots.[1] It is indicated, therefore, that a heavy spray run-off be allowed to take place when spraying if complete control is to be attained.

## LESSER PEACH BORER NOTICE

W. D. Armstrong

Many winter-injury cankers have developed in the crotches of young peach trees. These cankers are oozing gum; as is the usual reaction to trunk and crotch injuries of any kind. In many cases observed in the fall of 1951, these gummed-up crotches have become infested with the lesser peach tree borer, which works in wounds and cankers above ground. These borers continue their feeding during the warm days of the winter and then finish feeding and mature during the spring. The presence of saw-dust like frass in the gum around the cankers and wounds is a sign that these borers are present. Where these borers are numerous, they can cause serious tree damage if they are not stopped.

Probably the best method of control that is effective during the winter is to treat such areas with a solution of P. D. B. (Para-dichloro-benzene) in miscible spray oil. This miscible (treated) spray oil can be bought by the gallon from spray dealers.

Directions: Dissolve 2 pounds of P. D. B. crystals in one gallon of the miscible oil. This will take several hours. Then add enough water to make up to 2 gallons. Paint the mixture onto the gummy, borer-infested areas. There is no need to scrape off the gum and frass before treatment.

It should be pointed out that only the gummy or infested areas should be treated and that the tree may be injured if the material is brushed carelessly over large areas of healthy bark.

It is suggested that peach orchards be examined for the presence of these above-ground borers and that treatment be made at the earliest possible time, preferably on a warm day.

For additional information see Circular 487.

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1/ Of the 79 borers "wormed" from the trees on April 20, 1951, 6 had already pupated. These proved to be pupae of the lesser peach tree borer; adults began emerging from these pupae on April 30.

Authors Note: Recent work in New York shows that parathion is more effective than DDT in controlling the lesser peach tree borer.

## PEACH YIELDS, PRINCETON, 1951

W. D. Armstrong

The subzero weather of early February 1951 killed virtually all peach fruit buds in orchards over the commercial sections of Kentucky except in a few spots in Western Kentucky. The peach variety orchard at the Western Kentucky Experiment Substation at Princeton came through with a crop on some of the hardier varieties.

Of the varieties that fruited, the following produced a full crop: Mamie Ross, Veteran, Cumberland, and Triogem.

Varieties that produced a medium to partial crop (enough to spray and care for) were Halehaven, Marigold, Alton, Vedette, Viceroy, Dr. Burton, Ideal, Georgia Belle, Hiley, Summercrest, July Heath, Erly Red Fre, Barbara, and K-53.

Those producing only an occasional peach (1 to 10) were Sunhigh, Golden East, Fair Beauty, Golden Beauty, Golden Jubilee, Fisher, Lizzie, White Hale, Ambergem, Afterglow, Nectar, Snider Elberta, Elberta, Redhaven, Eclipse, Dixired, and Raritan Rose.

Varieties that had absolutely no fruit in 1951 on mature trees were: Gage, Prairie Schooner, Prarie Clipper, Prarie Rambler, Golden Gem, Short, Tena, and July Elberta.

## CONCORD GRAPE VINES RESIST SUB-ZERO WEATHER

W. D. Armstrong

During February 1951 temperatures of approximately 25 degrees below zero occurred in the grape-variety planting at the Western Kentucky Experiment Substation at Princeton. These temperatures killed to the ground the vines of most varieties. However, all the vine of Concord, the standard black grape of the East survived along with their canes (last year's growth). Although there was heavy bud killing at the nodes (joints) on the Concord canes, enough buds grew and set fruit to produce a crop of near-normal size. Only about 30 percent of the joints produced new growth; however, as the vines were not pruned there was a large expanse of 1950 canes from which new growth originated.

Canes of the Fredonia variety, an outstanding new, early ripening black variety also survived and had enough live buds to produce a partial crop on unpruned vines. Other varieties, of less interest in Kentucky, that withstood the cold weather and produced a partial crop were Caco, Van Buren, Norton, and Westfield. Varieties that were killed to the ground, however, grew sprouts from the roots, and new vines could be rebuilt from these in two or three seasons.

It was especially gratifying that Concord and Fredonia, two of the varieties whose fruits have been most outstanding, also proved to be hardy enough in vine to survive the very severe winter of 1950-51. These two varieties can be planted with reasonable assurance that they will not be winter killed. However, most varieties if planted on well-drained sites can be expected to survive all but the most severe winters.

## DORMANT SPRAYS IMPORTANT THIS WINTER

W. D. Armstrong

As a result of the record sub-zero weather of February 1951, a number of Kentucky orchard men failed to apply a dormant oil spray, for fear of causing additional tree injury, since it is a well known fact that dormant oil sprays have caused additional damage when they were applied just before or just after sub-zero cold periods. Also, due to the fact that most Kentucky peach orchards received no summer sulfur sprays, there would be a special need for a dormant spray to head off serious peach leaf curl damage. Recent experiences in Kentucky and nearby states have shown that heavy sprays and dusts of sulfur for summer control of brown rot will also control peach leaf curl the following spring without the use of a dormant fungicidal spray. However, where the summer spray applications were not applied to peaches, as in 1951, there is a special need for fungicidal dormant sprays.

Since the 1951 season was warm and favorable for the increase of scale insects, growers who have a scale problem should make preparations for a dormant oil spray on both peaches and apples. Where an oil dormant spray is to be used, experience has shown that it is safer to wait until February to make this application than to do so in December before heavy winter weather sets in. For apples, a 2 or 3 percent dormant oil emulsion spray or miscible oil spray, well applied, will take care of the scale insects as well as eggs of the European red mite. When a DN material is added to this mixture, eggs of the rosy aphid will also be controlled. For peaches, a 2 or 3 percent dormant oil spray combined with a 4-4-100 bordeaux mixture, applied before any growth starts in the spring, will control peach leaf curl and will also go a long way toward checking scale.

Where scale is not a problem in peach plantings, a dormant spray for leaf curl will still be needed and this spray of either 4-4-100 bordeaux mixture or six gallons of liquid lime sulfur per 100 gallons can be applied safely in either the late fall after the leaves come off or early spring before growth starts. The reason this spray is absolutely safe in the fall is that it contains no oil. As a final word of warning to all orchard men: Consider your dormant sprays for 1951-52.

Where parathion has been used extensively in Kentucky peach or apple orchards for two or three summers, there are indications that scale is well under control, and that no dormant spray against scale will be needed during the winter of 1951-52.

## TREE AND SHRUB DAMAGE FROM 1950-51 SUB-ZERO WEATHER

W. D. Armstrong and N. R. Elliott

The sub-zero weather of late November 1950 and of early February 1951 caused serious winter injury to fruit trees in the western two-thirds of the state, and also to some shrubs and landscape plantings. In some cases the trees and shrubs were killed to the ground or snow line and never leafed out. In other cases, they leafed out and grew part of the season before part or all of the plant withered and died. Still others did not show the effects of cold-damage until fall.

Peaches: Damage was most evident in fast-growing young trees. Many of these from three years to six years of age were killed outright or injured in the crotches or on part of the trunk; often on the southwest side. Where areas of bark were completely killed, depressions developed there, often followed by a flow of gum from such areas. Many of these young trees have such serious crotch injury that the trees will be weakened, their bearing ability reduced, and their life shortened. Older trees showed little or no crotch or trunk injury from the cold, though most of them in western Kentucky suffered internal browning (called blackheart). This will cause the main limbs to be brittle and to break under a heavy load of fruit. Many mature peach trees and sour cherry trees in dooryard and roadside plantings were killed outright.

Apples: Most mature apple trees over the state, apparently suffered very little real cold injury and in most cases bore a good crop of fruit in 1951. However, many young apple trees (ages 3 to 10 years) of the Stayman, Red Delicious, Winesap, Rome Beauty, and Paducah varieties died during the summer, and many more have serious trunk and crotch injury. Golden Delicious and Grimes were injured to a lesser extent.

Varieties that apparently resisted injury to young trees were Jonathan, Black Ben Davis, Yellow Transparent, and Lodi.

Landscape Notes: Over the state, much of the less hardy hedges were killed to the snow line. However, the Amor River North hedges survived. Many Arbor Vitae Shrubs died as well as Rose of Sharon, Pussy Willow, Box Wood, Abelia, and Nandina. Other trees that were killed or seriously injured by the sub-zero weather were: Weeping Willow, Lombardy Poplar, White Mulberry, and Mimosa. Many hybrid tea and clinging

roses were also killed to the snow line, but the hardier Florabunda and the moss roses survived the cold.

## ORCHARD MOUSE WARNING

W. D. Armstrong

During the severe winter of 1950-51, orchard mice caused greater tree damage than during recent years. In addition to damage of small trees, many larger trees of both apples and peaches were seriously damaged or killed by mouse injury at the ground level or to the under-ground parts. Present indications are that the mouse population is again high this fall, and every orchardist should take prompt action to see that these pests are bought under control in the orchards. In various plantings, damage was caused by the pine mouse which works in burrows and damages trees below the surface of the soil, and also by the meadow mouse that travels on the ground and causes damage at or above the ground line.

Control measures for each of these serious pests consist of using poison baits. One bait is made of apple chunks coated with the Zink Phosphide Rodenticide; another such bait consists of Strychnine-treated oats. If fall baiting has not ridded the orchard of mice, the baiting should be repeated in the winter. Instructions for orchard mouse baiting have been published many times in the Fruit Notes and other farm papers, and most orchard men are familiar with the process. However, detailed instructions can be secured, if needed, through the College of Agriculture and Home Economics, Lexington. The poison bait can usually be obtained through dealers handling seeds and orchard supplies or can be secured through the College of Agriculture and Home Economics, Lexington, or the Fish and Wild Life Service, Raleigh, North Carolina.

## HINTS & OBSERVATIONS

W. W. Magill

### Does This Apply to You

Who should plant commercial strawberries in 1952? Only the families who are quite sure they will need a few hundred dollars extra in 1953. Where there is a "will" there is usually a "way".

### Available on Many Kentucky Farms

Freshly cleared new ground usually makes an excellent site for a strawberry patch or field.

## Expensive

Several Kentucky berry growers found through experience in 1951, that a sod or pasture field - planted to strawberries resulted in failure - due to injury by grub worms and plant lice.

## Short Memory

Just a few years ago some apple trees in Kentucky produced over $100 worth of fruit per tree. Yet some growers are considering using the bull-dozer on them now.

## Still Hungry

Meadow and Pine mice like the flavor of tender apple bark, and poison is still more economical than valuable apple trees.

## Successful Blossom Thinning

Proper chemical sprays applied in petal-fall or ten days later on Golden Delicious and Transparent scored a "home run" in several Kentucky orchards in 1951. One grower expressed his results as follows: "20¢ worth of spraying saved $5.00 worth of thinning labor."

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Articles for "Kentucky Fruit Notes" are assembled under the direction of W. D. Armstrong, Horticulturist, Kentucky Experiment Station, who is located at the Western Kentucky Experiment Substation, Princeton, Kentucky



2300 - 12-51