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KENTUCKY FRUIT NOTES

W. D. Armstrong, Horticulturist, Editor

KENTUCKY FRUIT GROWERS TO MEET JANUARY 25-26 AT LEXINGTON

Plan to Attend!

The Kentucky Horticultural Society, with the College of Agriculture cooperating, will hold its 83rd annual convention on January 25 and 26 at Lexington in connection with the Farm and Home Week. The meetings are to be held in the Agricultural Experiment Station Building on the University of Kentucky campus; and, being scheduled in connection with Farm and Home Week, it will give those in attendance an opportunity to come early and take advantage of the well-rounded, educational program to be presented at the Farm and Home sessions as well as to attend the horticultural discussions. This fact should appeal to a great many fruit growers, for in a majority of the cases they are also interested in and are carrying on other lines of agricultural activity besides horticultural. This fact combined with a very attractive horticultural program should encourage a large and enthusiastic attendance.

Several widely known, out-of-state horticultural workers will attend the meeting and enter into the dicussions. One of these is Dr. G. W. Darrow who is in charge of strawberry work with the U. S. Department of Agriculture. He will lead the discussion on the latest developments in strawberry production and the improvement of strawberries. This should prove to be very valuable to strawberry growers. Another out-of-state visitor will be Professor A. H. Teske, Extension Horticulturist of the state of Virginia. He will lead in the discussion on apple and peach production trends in his state and newer fruit growing developments there. His discussions should be of great interest, as Virginia is one of the heaviest fruit producing states. Mr. G. C. Oderkirk of the U. S. Department of Agricultural Biological Survey will also be in attendance and lead a very important discussion on the control of mice in the orchard. The fact that many growers have suffered heavy losses from mouse injury in the past, coupled with Mr. Oderkirk's experience and fine work in this field should combine to make this an outstanding part of the program.

At 11:00 A. M. each day the horticultural group will meet with the general group at convocation. On these two occasions they will have the opportunity of hearing two men of national reputation in agricultural and university work. On Wednesday Professor C. L. Christensen, Dean of the College of Agriculture and Director of the Experiment Station, University of Wisconsin, will talk on cooperative farm organization. Dr. Christensen is a national authority on cooperatives and has laid much of the framework of the cooperative movement in Wisconsin. On Thursday, January 26, Mr.

Louis J. Tabor, National Master of the Grange, will speak on "The Four Horsemen of Recovery".

Below we print the program for the two day sessions and the one night session of the convention.

WEDNESDAY

9:00 A. M.—Seven Years' Experience Growing Peaches in Lespedeza Sod. Herman Yopp, Paducah, Ky.

9:20 A. M.—Some Newer Developments of Apple and Peach Growing in Virginia. A. H. Teske, Univ. of Va., Blacksburg, Va.

10:00 A. M.—Newer Uses of Tobacco Extract in our Spray Program. O. G. Anderson, Ky. By-Products Co., Louisville, Ky.

10:20 A. M.—How the Farm Bureau May Aid Fruit Growers. Ben E. Niles, Pres. Ky. Farm Bureau, Henderson, Ky.

11:00 A. M.—Leadership and Cooperation in Agriculture. Dean C. L. Christensen, Madison, Wis.

1:00 P. M.—Memorial. Led by Ben E. Niles, Henderson, Ky.

1:20 P. M.—Pruning Trends in Virginia Orchards. A. H. Teske, Blacksburg, Va.

2:00 P. M.—The Best Known Method of Killing Mice and Other Rodents that Injure Orchards. G. C. Oderkirk, U. S. D. A., Lafayette, Ind.

2:45 P. M.—Observations in Bacterium Pruni in 1938. Frank Street, Henderson, Ky.

3:15 P. M.—The 1939 Government Program for Orchardists. O. M. Farrington, Lexington, Ky.

Evening Session

7:30 P. M.—The Spray Program for 1939. Dr. P. O. Ritcher, Lexington, Ky.

8:15 P. M.—Newer Developments in Fruit Disease Control. Dr. W. D. Valleau, Lexington, Ky.

8:45 P. M.—Results of August Spraying of Peaches for San Jose Scale. W. D. Armstrong, Princeton, Ky.

9:00 P. M.—Business Meeting. Kentucky State Horticultural Society.

THURSDAY

9:00 A. M.—Some Strawberry Yield Comparisons in Variety Tests. C. S. Waltman, Lexington, Ky.

9:30 A. M.—Improving Production and Quality in Worth While Strawberry Varieties. Dr. G. W. Darrow, U. S. D. A., Washington, D. C.

10:15 A. M.—A Soil Building Program for Strawberries. W. C. Johnston, Lexington, Ky.

11:00 A. M.—The Four Horsemen of Recovery. Louis J. Tabor, Master of National Grange, Columbus, Ohio.

1:00 P. M.—The Process of Developing New Varieties. Dr. G. W. Darrow, U. S. D. A., Washington, D. C.

1:45 P. M.—Some Slants on Strawberry Production in Kentucky. W. D. Armstrong, Horticulturist, Princeton, Ky.

2:15 P. M.—Marketing Kentucky Strawberries. W. W. Magill, Lexington, Ky.

2:45 P. M.—Results in Fertilizing, Mulching and Spraying Red Raspberries. C. S. Waltman, Lexington, Ky.

3:30 P. M.—ADJOURNMENT.

ANNUAL MEETING—STRAWBERRY ASSOCIATIONS

The season for conventions and annual meetings is upon us. Among the other organizations that are holding their annual meetings in the near future are the strawberry associations of Kentucky. These meetings are for one day and have for their purpose the election of officers and directors of the association, the outlining of the policies of the association and the discussion of the general program of work for the year. Each association member is entitled to a vote and each association is anxious for as large a group of their members to be present at the annual meeting as possible.

Below are the dates of several of the meetings:

January 2, 1939—10:00 A. M. Monday—Marion, Ky. Crittenden County Strawberry Growers' Association.

January 7, 1939—10:00 A. M. Saturday—Greenville, Ky. Green River Growers' Association.

January 14, 1939—10:00 A. M. Saturday—Courthouse, Paducah, Ky. McCracken County Growers' Association.

Growers of the various associations and interested parties should plan to attend.

THE THREE "Ws" AND HOW OF MULCHING STRAWBERRIES

By M. P. NICHOLS, County Agent, Muhlenberg County, Greenville, Ky.

Editor's Note.—This is the type of information sent out by County Agent Nichols for strawberry growers in his county. We thought it worthwhile to pass it on to all of you. He wants it made clear that his statements are based on over 10 years' experience with strawberries in Western Kentucky and are written for Muhlenberg County conditions and are not to be considered as instructions for all of Kentucky.

Strawberries should be mulched.

Why?

1. High grade trade will not buy berries with grit or dirt splashed upon them by rain. Mulch keeps them clean.

2. Mulching helps keep weaker plants, especially in ground devoid of humus, from winter killing and pulling out by freezes.

3. Mulch in most fields greatly increases the yield per acre.

4. The size and quality of the berries are improved.

5. Mulch spread on the crown of the matted rows works between the rows by the action of the wind and rains and keeps the pickers out of the mud in the early morning and after rains.

6. Mulch helps prevent leaching and washing and finally adds fertility and humus to the ground when it is plowed under or worked in.

7. Mulch holds the soil at a more even and lower temperature in spring, thus by retarding development of bloom tends to prevent damage from late freezes.

When?

8. There can be no definite date set for mulching strawberries. But where much freezing weather occurs, it is much better to mulch in early winter rather than early spring.

9. Mulch as soon as the ground freezes; this usually occurs shortly after Thanksgiving in western Kentucky.

10. Heavy mulching before the ground freezes may result in some disease attacks, similar to damping off of plants in a hot bed when improperly and too heavily watered.

With What?

11. Straw is probably the best material to recommend generally for mulching berries.

12. Weeds or hay, but before seed set, cane pumice, shavings, sawdust, and other materials may be used if certain precautions are taken. **Use sawdust only as a last resort.** Never use leaves for mulch.

13. Any materials containing seed should be stacked loosely near the patch that it may become thoroughly wetted and heat. This insures the sprouting of the seed, and lighter materials will become better fixed and the wind will less likely blow it off the plants after spread.

How?

14. A four-pronged, short-handled manure fork is probably the best tool to use with all strawy materials.

15. If the ground is sufficiently firm, much labor can be saved by using a team and sled or wagon to haul the straw over the patch. Spread it as you go. Don't ever **pile** it on the plants.

16. One to two tons dry weight of straw per acre are the limits to stay within. On the high, poor soil with thin stands, approach the limit. On low and rich ground with a thick matted row, one ton is enough.

17. There is a general tendency to apply too much. Other material as crabgrass and other weeds may be considered as so much mulch.

18. Great care must be taken to sprinkle the straw evenly. As a general rule and a goal to strive for, straw may be applied until no leaves show at the time of mulching. But if just a few straws are moved, the leaves will show. Sawdust and other heavy tight material should be applied to only cover the ground about the plant but never the leaves.

GROWER'S COMMENTS ON STRAWBERRY CULTURE

I am much interested in the articles I have been reading in your new bulletin, Kentucky Fruit Notes. These are along the right line. A grower can't really appreciate how much a good mulch will help his crop out until he has grown a crop of mulched berries. This mulch should go on right now if it hasn't already been put on. The grower loses money on sandy and dirty berries. We ship U. S. No. 1 government graded berries and need more fine berries and less poor ones.

Fertilizer used on our berries has given us a profit every time, and growers are glad they used it. We favor early spring plantings, as these seem to give the most berries. And don't forget that grub worms like strawberries; so plow the ground real early to freeze them out by setting time.

We have found that these practices will help grow better berries, and better berry growers make a better association.

R. W. WINTERS, Marion, Ky.
Vice President, Crittenden County Strawberry Growers' Association

NEW RED RASPBERRY VARIETIES

C. S. WALTMAN,
University of Kentucky, Lexington

Four new varieties which have been introduced by the New York Fruit Testing Association have fruited this year for the first time on the Experiment Station grounds. A brief description of these varieties follows:

1. **Taylor.**—The plants of this variety are vigorous and grow quite tall and produce new plants abundantly. In ripening season, they precede Latham by a few days. The fruits are thick and meaty, long-conic in shape, firm and the quality is very good.

2. **Marcy.**—The plants grow tall and vigorously and are very sturdy. The fruit is of high quality, and the berries are exceptionally large.

3. **Newburg.**—Cane growth of this variety tends to be rather short and when the crop is being carried the canes droop considerably. The berries are firm, roundish, deep red in color and of good quality. The variety yields heavily.

4. **Indian Summer.**—This variety is an ever-bearing type, producing a fair sized crop in early summer and a later fall crop. The berries are of better quality than the St. Regis which is the common ever-bearing variety. The fruits are quite dark in color and tend to be fairly soft. In size they run fairly large. This variety seems worthy of trial for garden planting.

5. **Flaming Giant.**—This is a somewhat older variety than the ones already described but was grown in trial plantings adjacent to the above mentioned kinds. The plants are excep-

tionally vigorous and new shoots are formed very abundantly. The season of ripening is earlier than Latham and earlier than any of the other red varieties mentioned above. The fruits are small, soft and the quality is only fair.

Ripening Dates and Yields

Harvesting started June 1 and ended July 2 on the Indian Summer, Newburg, Marcy and Taylor varieties. The Flaming Giant being earlier, harvest started May 28 and was completed on June 21. The yields on plats of 50 plants each follow: Indian Summer, 97 pints; Newburg, 171 pints; Marcy, 113 pints; Taylor, 82 pints; and Flaming Giant, 70 pints. It will be seen in this group that Newburg gave decidedly the highest yields. In some variety tests at the Western Kentucky Experiment Station at Princeton the Flaming Giant fell far short of the Latham, our standard red variety for Kentucky, during the 1938 season.

THE PRUNING SEASON IS AT HAND

W. D. ARMSTRONG

All fruit growers and vineyardists, large and small, who have not done so already, will soon be busy pruning their trees, vines, and shrubs.

The great object of pruning is to develop a strong framework, take out dead and diseased wood, keep our plants growing in a shape to our liking and in a manner that has proved to do well in a particular section, and to prevent overbearing and breaking out of fruiting limbs.

A great deal of butchery has been done under the name of pruning, and truly it can be said that at present, as a general thing, less pruning per tree is being done than was the case several years ago when the severe pruning era was at its height; the trees and plants, as a rule, are doing better because of this.

In fruit tree pruning it has been found wise to head the trees low, and encourage low limbs to protect the trunks from the hot southwest sun.

In removing surplus or broken limbs it is good pruning practice to make the cuts close to the trunk and not leave stubs. These stubs are telltale evidence of poor pruning. Where a limb has been broken off well out from the trunk and one does not desire to remove the whole limb, the broken portion should be removed at the next fork or side limb below it. In removing limbs at crotches the cuts should be made slanting so as not to leave square shoulders and so the cut surface will drain and not collect moisture from rains.

Blackberry, dewberry, and raspberry pruning consists mostly of removing the old dead canes that bore last year's crop (if they were not removed immediately after harvest as is usually done) and cutting back last year's young canes that will bear this year's crop where they have grown longer than desired.

Some recent work in the spring of 1938 with Latham red raspberries at the Experiment Station at Lexington showed that when in a hedge row the number of fruiting canes was thinned down to ten canes to four feet of row that the average yield of berries was reduced 44 crates per acre. The yield on the unpruned areas averaged 269 24-pint crates per acre, while the pruned area averaged 225 24-pint crates per acre. It was pointed out by Professor Waltman in this work that while the unpruned raspberries pro-

duced the heavier yield the berries were smaller and less attractive than those produced on the pruned areas. Moisture was not a limiting factor in 1938. On dry years the pruned and thinned areas would be apt to show up better in comparison.

The trailing berries, or those that are generally tied up to stakes or a wire trellis, should be left unsupported during the winter and then tied up in place in early spring a few days before growth starts.

Grape pruning offers quite a problem, for when a grapevine is properly pruned to prevent overloading it appears to the inexperienced person to be cut literally to pieces. Here again, the old wood is removed and, with the generally used Kniffen system of training, four canes of new previous season's growth are left to be tied to the trellis to produce the 1938 crop.

Pruning, as a rule, should be finished before growth starts.

Some Dangers in Early Pruning:

An old saying often heard is "Prune when your saw is sharp." This possibly might be modified for certain sections.

Recent experiences in Kentucky and Indiana have shown that both peach and apple trees pruned heavily in the fall or early winter of 1935 were more severely injured by the low temperatures of January and February, 1936, than unpruned trees or trees pruned after that time. Professor Burkholder of Purdue recently called attention to the fact that 10-year-old Jonathan and Stayman trees heavily pruned in December, 1935, at Lafayette, Indiana, showed severe winter injury later and that 14-year-old trees of Stayman, Winesap, Delicious, Rome, Grimes, and Golden Delicious were also quite heavily pruned in December, 1935. Of this group Stayman was very severely injured; many Winesap trees were injured but to a far less extent than the Stayman. Only slight injury occurred on the Golden Delicious, and no injury at all could be observed on the Rome, Delicious, and Grimes trees.

Here we give you Professor Burkholder's conclusions: "It would seem from these observations during 1 year that when heavy pruning is to be practiced, the work should not be done until late February. Fall pruning of Stayman, Jonathan, Winesap, York Imperial, Hubbardston, and Baldwin may result in severe injury if followed by prolonged periods of sub-zero temperatures. Where the amount of pruning requires that the work be started in November or December, it would seem best to work first on such varieties as Rome, Delicious and Grimes. Still another possibility would be to confine the pruning to mature trees where the pruning cuts would be relatively small and mainly in the outer surfaces of the trees, well removed from the crotch and lower parts of the scaffold branches."

Peach pruning if often delayed until the extent of winter and spring frost killing of buds is determined. This gives the grower an opportunity to prune his trees according to the prospective crop they are carrying. Many peach growers do considerable renewing of their tree-tops when a complete crop is lost from spring frosts. Likewise, it is generally safest to delay one's grape pruning until after danger of severe winter freezing is past. This assures one of a better selection of mature fruiting canes and renewal spurs than if fall pruning had been

done, cutting away large quantities of healthy wood, and then later having some of the retained fruiting wood winter killed. This late pruning, however, puts one at the mercy of the weather man and often causes a rush in getting the job finished.

WINTER SPRAYS

By W. W. MAGILL

Winter sprays are nothing new to orchard growers. However, I would like to impress on many of our apple and peach growers, especially in Western Kentucky, the serious consideration of an unusually thorough spray this winter of 1939. In my opinion, there is more living San Jose Scale in our orchards of western Kentucky now than we have had any year since the winter of 1925-26. As to just why the scale should be worse in western Kentucky than in other parts of the state, the only reason I could give would be that the extreme sub-zero temperature of January, 1936, practically eliminated scale from Louisville, east, and the population has not accumulated thus far.

I personally know of one peach orchard in McCracken County that bore a splendid crop in 1937 and was completely killed out by scale before time to apply the dormant spray the following winter. This scale epidemic is equally as serious in the orchards of our leading commercial peach growers. So serious has it become that at least in two orchards the owners were forced to apply a summer oil to check its spread last August.

Please keep in mind that it takes an extremely thorough application to make a clean-up of the live scale.

Note.—On Aphid Injury

Due to the tremendous loss suffered by apple growers in 1938 from rosy apple aphid injury, the following article should be of wide interest. It is almost impossible to predict future infestations based on past experience, however, Dr. Ritcher reports there is a very heavy crop of aphid eggs on the apple twigs at Lexington. How general this condition is is not known, but growers should examine their apple shoots to see if the tiny black shiny eggs can be found in abundance.

APPLE APHIDS AND THEIR CONTROL

P. O. RITCHER,
Department of Entomology and Botany

Four species of aphids, or plant lice as they are called, are found in Kentucky apple orchards. The four kinds have the common names of apple-grain aphid, green apple aphid, woolly apple aphid, and the rosy apple aphid.

The apple-grain aphid is found on the fruiting clusters before and after bloom but does little damage, as it soon migrates to grasses and grain. The green apple aphid spends the growing season on the apple tree and in some years causes considerable injury to the succulent growth. It is usually found on water sprouts or grafts where it causes a severe curl of the leaves. The green apple aphid is easily controlled by adding nicotine sulfate to one of the early cover sprays.

The woolly apple aphid is mainly a pest of young apple trees, working on the roots where it causes knotty swellings. Sometimes the woolly aphid is found above ground on apple trees, but it almost always works on water sprouts in wounds or injuries and

does not attack the fruit. The woolly aphid spends part of its life cycle on the elm where it lives in galls on the leaves. For this reason, the young apple trees in the nursery should be grown as far from elms as possible.

The rosy aphid is the worst aphid of all, as most Kentucky apple growers can testify. It attacks not only the foliage but also the fruit. Aphid fruits are knotty and dwarfed and a total loss to the grower.

For several years, we carried on tests at Lexington with dormant sprays for the control of aphids. In 1936 we used lime sulfur 1-8, 2 per cent oil emulsion, pine tar oil-bordeaux-soap, coal tar oil-bordeaux-soap, and a delayed dormant spray of lime sulfur 1-8 plus ¾ pint nicotine sulfate to 100 gallons. No rosy aphids developed that year; so counts were made of apple-grain aphids on the fruit clusters.

On the coal tar oil-bordeaux-soap plot only 6 per cent of the clusters were infested while in the two check plots 47.5 and 54 per cent of the clusters were infested. The other dormant sprays gave some control but were inferior to the coal tar oil.

Growers who had trouble with rosy aphids this year are urged to try a coal tar oil dormant spray this next year. The formula we used is coal tar oil 2½ gallons to 100 gallons of water plus a 2–2–100 bordeaux plus 1 pound of tar soap. The spray was applied in March.

How to Control Rosy Aphis

Rosy aphis, as well as other kinds of aphis, may be controlled in the delayed dormant stage or in the dormant stage. Materials that can be used as delayed dormant sprays are (1) petroleum oil emulsion (3%) plus 1 pint of nicotine sulfate to the 100 gallons, or (2) petroleum oil plus cresylic acid. These materials have the drawbacks that they do not control San Jose Scale and that the time during which they can be used is very short.

For dormant treatment of rosy aphis two materials will give excellent control. These are (1) coal tar oil emulsion and (2) petroleum oil emulsion plus DNOCHP (Dinitro-o-cyclohexylphenol No. 1). The coal tar oil emulsion is unpleasant to use because it is caustic to the eyes, face and hands of the sprayman. Beside, this material will not control San Jose Scale. To control both Scale and rosy aphis, a combination coal tar oil and petrol-oil emulsion is often used. Petroleum oil emulsion plus DNOCHP is pleasant to use and will control both rosy aphis and San Jose Scale. It is used in the early spring as a dormant spray.