

PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

JUNE 10, 1997



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The Most Important Task in a Young Orchard

Submitted by William H. Tietjen, Warren County Agricultural Agent

The following article by Dr. Rob Crassweller, Penn State Specialist in Pomology was excerpted from Fruit Times Newsletter 16:8.

For the past few years we have been talking about different training systems and pruning techniques at winter meetings, twilight orchard tours and in our publications. I do not believe that there is one perfect training system for apples. The ideal system will vary depending upon the individual grower's needs, skill, and cultivar. However, there is one task that is important in all individual tree style training systems. Regardless of whether you train trees to a central leader, vertical axe, slender spindle or some other system, all should begin with the proper clothes pinning of the young developing shoots. Placing clothespins to establish horizontal crotch angles the first growing season will pay off more than any other training technique you do. Clothespins placed at this time of year while the new shoots are tender and green will eliminate what I call 'shear-training' later. Shear-training is training done with a pruning shears. It usually is practiced to 'bench out' a shoot that grew too upright. These shear-trained limbs are weaker. The act of cutting to force more horizontal branches can also locally stimulate unwanted growth, further delaying flower and fruit production. The few minutes you spend on orienting that branch angle in the summer after planting allows the establishment of a horizontal branch that is strong and able to support a good load of fruit in later years.

Clothespins should be placed as early as feasible. Some use a guide of placing the clothespins when the shoot growth equals the length of the clothespins. In theory that is a pretty good rule, but you must be prepared for differential growth rates. In some instances not all trees will need clothespins at the same time. However, by this time of year you should be able to tell which shoots, even though they may still be shorter than the clothespin, will make the scaffolds you want for later years. I tend to clothespin as many shoots as possible at one time in case I lose one of the shoots to animal or mechanical damage. Around the middle of July, after about 12-18 inches of growth, I revisit the trees I clothes pinned and then remove unneeded branches. Once a shoot has begun to lignify at the base the angle is set and if the shoot tip is damaged it can still continue to grow. I firmly believe that this little bit of effort on newly planted trees is important for early fruit production and profit. If you do nothing else in your new orchards, this exercise is worth the effort. □

Compatibility of Diazinon AG600 WBC with Captan

Sridhar Polavarapu, Ph.D., Entomology and IPM

It has come to our attention that Diazinon AG600 WBC when tank-mixed with various formulations of Captan may cause phytotoxicity on blueberries. When Diazinon AG600 WBC is tank mixed with the wettable powder formulation of Captan (Captan 80 WP), the main problem is clogging of the screens and nozzles of the sprayer with a white sediment (precipitate). It is also possible that this combination is slightly phytotoxic, especially where excess spray volumes are applied or where residues have accumulated around the calyx end of the berries.

A more serious problem appears to be with the combination of Diazinon AG600 WBC with the liquid formulation of Captan, Captec 4L. This mixture may cause phytotoxicity to both leaves and berries. The phytotoxic symptoms on berries may range from deep purple blotches to circular depressions on the berries, especially where residues have collected near the calyx end of the berries. On leaves, brownish purple spots may be seen especially on the underside of the leaf surface. Captec 4L should not be used in combination with oil, strongly alkaline materials, or solvent-based formulations of organophosphate insecticides. Captec 4L label also advises against using spreaders that cause excessive wetting. Read and follow all instructions on the labels of all the products that you are mixing for spraying.

We suggest *not* to use **Diazinon AG600 WBC** in combination with both **Captan 80 WP** and **Captec 4L** until we know more about what is causing the phytotoxicity. We are running some quick tests to learn more about the causes of phytotoxicity. In the mean time if insecticide applications are required to manage aphid populations, use one of Malathion, Asana or Lannate. Diazinon AG600 WBC by itself should be safe to use on blueberries. Therefore, if you are not including Captan/Captec in the spray, you may still be able to use Diazinon AG600 WBC for aphid and fruitworm control. □

Training Young Peach Trees in SNJ

Jerome L. Frecon, Gloucester County Agricultural Agent

It is time to start training trees on some farms. Newly planted trees should be "lifted". This means removal of all buds and shoots on the trunk to the first scaffold branches. The height of the first branches should be 20-25 inches above soil line. The wounds created by this lifting will heal nicely since the trees are growing rapidly.

If your trees haven't been headed at planting, this should be done immediately if you are going to train the trees to an open center system.

Most trees planted in March and April have many nice shoots. Four to five should be selected, spaced equidistant up and down and around the trunk. Making this selection now will improve branch angle and give the scaffold branches a head start on growth.

Two year trees would also benefit from June pruning. If scaffold branches were not selected in the dormant season, this should be done now. Three to four good scaffold branches is ideal.

Upright shoots and "polls" should be removed from the center of the tree to expose the center to light for flower bud initiation. Hopefully the trees will have 1 to 1 1/2 boxes (38 lbs) of fruit next summer. Doing this training now will reduce the number of bench cuts and large cuts of uprights during the second dormant season. All cuts made now will heal over quickly and are being sprayed regularly with a fungicide to provide protection from canker. □

More on Peach Thinning in SNJ

Jerome L. Frecon, Gloucester County Agricultural Agent

Last week I discussed thinning relative to spacing of the fruit. On trees with a lighter set and good early fruit size, closer spacing or other factors should be considered.

If the tree is healthy, 6 years and older (and peaches are now at least 1 1/2"), these trees can be thinned to 800 to 1000 peaches. Big, vigorous trees may even carry up to 1200 fruit. Of course, these trees must have adequate soil moisture from rainfall or supplemental irrigation throughout the year. If they don't, then more fruit should be removed later.

Another method of estimating fruit spacing is the leaf to fruit. Thirty five to forty healthy leaves will produce a good 2 1/2" and up peach. This method is harder to use because when thinning is being done, new leaves are constantly being produced. Leaves on shoots, spurs, and suckers each contribute differently to fruit growth, so the ratio of leaf to fruit has to be weighed depending on where leaves are produced.

Also, in spacing fruit apart, the best sized fruit is on the top, or "sunlight exposed" area of the tree. Weaker, less exposed shoots generally produce smaller fruit. These should be thinned harder with fruit further apart.

Where growers are planting trees closer together, as the planting gets older, they are getting a higher percentage of smaller fruit because it's produced on weaker wood. Sunlight is so important, not only to initiate more flower buds, but also to grow strong, leafy shoots that will size fruit. Spacing too closely without adequate sunlight, not only reduces yields, but also fruit size. □

Peach Rusty Spot and Powdery Mildew Review

Norman Lalancette, Ph.D., Tree Fruit Pathology

Observations at several commercial peach orchards as well as in research blocks reveal the presence of two powdery mildew diseases: **rusty spot** and **powdery mildew**. Incidence of these diseases this season appears to be higher than last year, hence this review.

Although the weather has been cool, it has also been relatively dry, which is favorable for powdery mildew fungi. These pathogens do not require free moisture to initiate infection.

◆ Identification

Currently, the more prevalent disease is **rusty spot**, which is suspected of being caused by the apple mildew fungus, *Podosphaera leucotricha*. Early symptoms on peach fruit are small, circular orange to tan lesions. Since this apple fungus does not grow well on peach, it rarely sporulates and so lesions do not appear "powdery". These lesions enlarge as the fruit expands, eventually leaving a rusty-colored patch of dead epidermal cells.

Powdery mildew of peach and nectarine is caused by the fungus *Sphaerotheca pannosa*, which also causes powdery mildew on roses. Although this fungus infects leaves and shoots as well as fruit, disease has only been observed so far on fruit. Fruit lesions consist of white, circular spots that may enlarge and coalesce. Unlike rusty spot, powdery mildew lesions sporulate profusely, giving the lesions a three-dimensional, powdery appearance. As the fruit ages, the epidermal tissue becomes necrotic and appears scabby at maturity.

◆ Disease Management

Disease control is implemented by application of fungicides and by managing inoculum sources on alternative hosts. Both of these actions should be performed to effectively control these diseases. Furthermore, any cultural practices that promote air movement and lower humidity are beneficial in reducing mildew infection.

Orchard sprays should begin at petal fall and continue through the early cover sprays on a 10-14 day schedule. Although fruit are only susceptible to powdery mildew until pit-hardening, the effect of fruit age on **rusty spot** susceptibility is unknown. However, fungicide timing studies indicate that spray applications need to be performed at least until the second cover spray.

If you have these diseases, especially **rusty spot**, chances are you've been using sulfur for control. In a less weather-favorable year, sulfur would be adequate. However, the relatively dry spring combined with the mild winter results in above average conditions for infection. Under these circumstances, Nova is the best material for control of both diseases.

◆ Alternative Hosts

For peach **rusty spot**, **powdery mildew** should be controlled in any nearby apple orchards since these orchards provide the inoculum. The sterol inhibiting fungicides Bayleton, Procure, Rubigan, and Nova are excellent for controlling mildew in the apple orchard. Also, peaches should not be planted adjacent to mildew susceptible cultivars such as Rome Beauty, Jonathan, Cortland, or Idared.

Rose bushes are an alternative host to peach and nectarine pow-

dery mildew. If you haven't noticed, look along the edges of any woods or hedge rows that border your peach blocks. Chances are, you'll find "wild" multiflora rose bushes that are currently flowering (small white flowers in bunches). Many of these bushes are infected with *S. pannosa* and are therefore inoculum sources for your peaches or nectarines. Either destroy these bushes or spray them with any of the apple mildew fungicides listed above.

The relatively mild winter may have allowed a higher population of the powdery mildew pathogens to survive on their alternative apple and rose hosts. Both pathogens overwinter as mycelium in dormant buds. Thus, management of these inoculum sources is important for keeping stone fruit blocks healthy. □

Fruit Meeting Calendar

June 12, 1997 - NJ Strawberry Research Trials Open House, 6:00 p.m., Snyder Farm, Pittstown, NJ. Contact: Dr. Joe Fiola 609-758-7311.

June 22-24, 1997 - "International Dwarf Fruit Tree Summer Orchard Tour", Leominster, Massachusetts. Contact: Mr. Charles Ax, 14 South Main Street, Middleburg, PA 17842, 717-837-1551.

June 25-26, 1997 - "State Horticultural Association of Pennsylvania Summer Educational Orchard Tour"— Orchards in Berks County, PA (approx. 65 miles from Southern NJ). Contact: Maureen Irvin, 697 Mountain Road, Ortana, PA 717-677-4184. Call to register by June 2.

Fruit IPM

Dean Polk, IPM Agent, Fruit

◆ Peach

Oriental Fruit Moth (OFM): Very few adults are present, since we are between first and second adult flights. Third to fourth instar larvae were observed in apple fruit at Cream Ridge. Trap counts should increase in another 1 - 2 weeks as these larvae pupate and start to emerge as adults.

Green Peach Aphids (GPA): Aphids have either left for alternate hosts, or have been controlled by insecticides. No further sprays should be needed, especially if Lannate has already been applied.

Catfacing Insects: Plant bug nymphs are maturing, with more adults seen this week compared to last week. Fresh catfacing injury is present, especially when associated with plant bug counts above 11 to 12 per 50 sweeps and weedy ground covers. This is also the time of season when we see frequent mowing. If the ground cover contains broadleaf weeds, the mowings are likely to encourage insect movement into the trees resulting in fresh plant bug injury.

Tufted Apple Budmoth (TABM): June 11-12 are target dates for the second alternate middle application for TABM in southern counties (625 DD). The first treatments are due in central counties on 6/11-12, in Hunterdon County on 6/15, and in Warren County around 6/19-20. See last newsletter for treatment suggestions.

Rusty Spot: New rusty spot lesions are still becoming visible on susceptible fruit in both northern and southern counties. Conditions that are favorable for mildew on apples are the same conditions that are favorable for rusty spot on peach. Maintain applications of Nova on sensitive varieties. See article in this issue on Rusty Spot and Powdery Mildew Review.

◆ Apple

Tufted apple budmoth (TABM): See timing listed under peach, above.

Codling moth: The first treatments will be due in Hunterdon County around 6/10. Treatments were due in Warren County on 6/8. A second treatment should be applied 2 weeks after the first application (full cover), or 2 alternate middle sprays 7 days apart. Additional insecticide treatments are justified whenever trap counts remain in excess of 5 moths per trap.

Apple scab: A high infection period was recorded on 6/2 with 1.27" of rain. This was the last primary infection period. Growers who do not have scab in their orchards

should change to a summer disease program. Remember that EBDC's have a 77 day pre harvest period, so the middle of this month is the last treatment for many growers in southern counties. Reduced rates of Captan/Ziram of 2.5 to 3 lb of each, offer good summer disease control in most cases. Captan alone at a full rate gives slightly better black/white rot control, plus improved bitter rot and sooty blotch/fly speck coverage. Captan plus Benlate gives the best overall summer disease control. However, Benlate is often best saved for treatments made during August. Two sprays of Benlate are best used during this month, and its toxic effect on mite predators is minimized at this time.

Tree Fruit Pest Degree Day Accumulations Since 1st Catch - 6/09/96

Site	Biofix/1 st Catch Date & DD - OFM		Biofix/1 st Catch Date & DD - TABM		Biofix/1 st Catch Date & DD - CM	
Hammonton - At. Co.	3/25	done	5/2	524	5/9	304
Hardingville - Glou. Co.	3/30	done	4/30	556	4/30	374
Bridgeton - Cumb. Co.	4/7	done	5/1	551	5/2	357
Princeton - Mercer Co.	4/17	done	5/12	415	5/5	311
Oldwick - Hunt. Co.	4/21	done	5/17	338	5/16	227
Hackettstown - War. Co.	4/28	done	5/22	266	5/9	269
Spray target after biofix/1st catch	200, 400 DD	after biofix (1st generation)	Alt Mid Appl. at 490, 625, 763, 898 (1st brood), and 2228, 2415, 2605, 2795 (2nd brood)	250 DD plus 2 weeks later (1st generation), 1250-1300 DD plus 2-3 weeks later (2nd generation)		

◆ Blueberry

Leafrollers and other Leps: Leafroller larvae were present in 11% of our samples, but above treatment level in only 3 samples.

Cranberry fruitworm (CBFW): Trap catches appear to have peaked this past week. Larvae should be emerging from the eggs that were laid over the past week to 10 days. Treatments should be applied this week if not already done so. Treatments of Diazinon, Imidan, Lannate, or Guthion should be applied.

Aphids: Aphid levels increased since last week. Over half our positive samples now show active colonies. Relatively poor control was observed late last week after an Asana application.

Trap Averages

South Jersey Tree Fruit

Week Ending	RBLR	STLM	TBM-A	CM	AM	OFM	TBM-P	LPTB	PTB
5/2	30.8	885	0.06	0.04	—	56.9	0.08	—	—
5/9	25.3	1177	4.5	1.0	—	39.5	3.0	—	—
5/16	7.0	822	30.2	2.6	—	12.9	50.6	0.7	—
5/23	2.8	478	33.8	9.3	—	18.3	40.4	28.1	0.02
5/30	0.8	270	43.4	3.7	—	9.6	50.2	19.1	0.05
6/6	0.0	96	34.1	1.9	—	5.8	40.0	30.2	0.2

North Jersey Tree Fruit

Week Ending	RBLR	STLM	TBM-A	CM	AM	OFM	TBM-P	LPTB	PTB
5/2	40.2	1080	0.0	0.01	—	3.3	0.0	—	—
5/9	22.2	980	0.0	0.3	—	26.2	0.0	—	—
5/16	10.7	902	1.0	1.3	—	6.0	0.1	0.1	—
5/23	2.0	157	1.9	1.2	—	4.1	0.6	0.9	—
5/30	2.4	252	5.8	2.6	—	6.7	2.6	0.5	0.1
6/6	0.3	26	3.0	3.1	—	4.8	2.3	5.3	0.6

Blueberry

Atlantic Co.

Week Ending	RBLR	OBLR	CBFW	SNLH	BBM
5/2	107	—	—	—	—
5/9	27.5	0	0	—	—
5/16	7.4	0	0.5	—	—
5/23	1.5	0	2.6	—	—
5/30	0.5	0.5	12.0	—	—
6/6	0	3.1	8.1	—	—

Burlington Co.

Week Ending	RBLR	OBLR	CBFW	SNLH	BBM
5/2	33.4	—	—	—	—
5/9	14.0	0.2	0	—	—
5/16	5.6	0	0.3	—	—
5/23	1.8	0	0.9	—	—
5/30	0.06	0.4	5.6	—	—
6/6	0	0.4	2.9	—	—

Weekly Weather Summary

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 77 degrees at several locations on the 6th and 41 degrees at several locations on the 6th and 9th. Weekly rainfall averaged 1.16 inches North, 0.88 inches Central, and 0.57 inches South. The heaviest 24 hour total was 1.42 inches at Long Valley on the 2nd to 3rd. Estimated soil moisture, in percent of Field Capacity, this past week averaged 90 percent North, 87 percent Central and 77 percent South. Four inch soil temperatures averaged 59 degrees North, 59 degrees Central and 58 degrees South. The following table contains meteorological information since the start of the growing season March 1st. The table is updated each Monday.

Weather Summary For The Week Ending 8 Am Monday 6/ 9/97											
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON	
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC	
BELVIDERE BRIDGE	1.08	10.58	-1.96	75	46	58.	-8	316	-164	82	
CANOE BROOK	.83	11.47	-2.25	77	44	59.	-7	442	-1	83	
CHARLOTTEBURG	1.07	13.88	.23	77	41	56.	-8	271	-52	79	
FLEMINGTON	1.39	12.44	-.58	76	43	57.	-10	324	-140	86	
LONG VALLEY	1.47	13.04	-.96	75	42	56.	-8	273	-95	87	
NEWTON	1.13	10.96	-1.24	72	44	55.	-10	190	-185	88	
FREEHOLD	.60	11.74	-1.18	76	44	57.	-11	394	-144	81	
LONG BRANCH	1.13	13.42	.22	64	44	55.	-12	396	-87	80	
NEW BRUNSWICK	1.21	14.66	1.97	75	44	58.	-11	426	-151	90	
PEMBERTON	.39	13.01	.65	77	43	57.	-11	556	-11	59	
TOMS RIVER	.98	12.37	-.49	69	42	55.	-10	404	-84	81	
TRENTON	.95	13.83	2.12	75	42	57.	-12	426	-188	76	
CAPE MAY CRT HSE	.40	11.99	.64	66	44	55.	-12	457	-90	67	
DOWNSTOWN	1.17	12.28	.66	73	42	56.	-13	456	-182	74	
GLASSBORO	.23	14.77	2.32	73	44	56.	-13	505	-113	70	
HAMMONTON	.96	13.12	1.00	75	41	55.	-14	442	-167	65	
POMONA	.45	13.21	2.07	69	41	54.	-14	450	-83	79	
SEABROOK	.54	13.24	2.39	73	44	57.	-12	509	-134	63	
ATLANTIC CTY MRINA.	.27	9.42	-1.18	63	49	56.	-11	445	-59	64	
WOODSTOWN	.80	13.07	.75	75	43	59	NA	541	NA	NA	
WES KLINE — GDD BASE 40 PINEY HOLLOW											
This Week	114	(Ending 06/09/97)									

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