BLUEBERRY PRUNING BRUSH-UP - NO PUN INTENDED!

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Pruning is one of the few small fruit chores commonly occurring at this time of year. It is also the most "hands-on" task associated with blueberry production, other than harvesting or planting. How to get the most bang for your buck in terms of pruning? Take a minute to review key concepts below before you prune. Fine tune your pruning strategy accordingly to maximize efficiency and minimize cost expenditures both now and later in the season.

Why Prune?

Is pruning just another item on your production schedule to be checked off, or do you really take time to consider what you hope to achieve by pruning? This season, re-focus on the reasons why we prune blueberries. Pruning dollars have direct and indirect impacts on fruit dollars for the current season, and over the life of the planting. Below are some of the benefits of pruning:

1. Maintains bush productivity and vigor through elimination of older, less productive canes and rejuvenation of new cane growth.
2. Facilitates harvest by developing appropriate growth habit.
3. Increases air circulation, reducing conditions favorable for disease development.
4. Reduces fruit numbers and opens canopy to sunlight, improving sweetness and fruit size.
5. Removes winter-injured, damaged, insect-infested, or diseased plant parts.

Before You Prune

Get your equipment assembled and ready to go. Sharpen all blades. If you are using pruning guns, be sure equipment is fully operational and carry out any routine maintenance that may be needed.

Decide on a pruning schedule, based on your particular planting(s). What variety or planting will you do first? Does this particular variety need special pruning? Pruning stimulates vegetative growth. It follows, then, that weaker bushes will benefit from more pruning than vigorous bushes; they may also require detail pruning as opposed to complete cane removal. Special consideration is needed for varieties with spreading habits. In this case you may

be tempted to remove all those canes sprawling into alley ways; care must be taken to leave sufficient canes for fruiting.

Is this a young planting you are pruning for training purposes? Is it an older planting that needs to be rejuvenated? How many canes should be removed from each plant? Are there insect or disease issues that maybe re-dressed through detail pruning? How will brush from prunings be dealt with?

On to the Main Event

In general, prune to an upright growth habit with an open canopy allowing good light penetration. Do this in four easy steps. First, remove any damaged canes, i.e. winter injury, insect or disease damage, or breaks. Second, remove canes that rub against another cane, to prevent spread of canker diseases. Third, remove older canes and those canes obstructing movement through the alleys. Fourth, remove any short, branched canes within the canopy; fruit on these interior canes generally ripens too late to be harvested. Cut canes to be removed as close to the crown as possible. Avoid leaving stubs which become ideal homes for canker-causing fungi. When branches are removed, make cuts as close as possible to the main cane; avoid leaving short, stubby branches for the same reason.

Plant Stage	Pruning suggestions
1-2 year old plantings	Little pruning required. Promote vegetative growth by rubbing off flower buds in March or April. Alternatively prune off shoot tips where flower buds are located.
3 year old plantings	IF more than 2 new canes were produced previous year, leave the 2 healthiest new canes; remove the remaining new canes.
3-8 year old plantings	Continue light pruning, leaving the 2-3 best new canes from previous season, until plants reach full size. Eight year old plants should have 10-20 canes of various ages.
> 8 year old plantings	Annual removal of 8 year old canes. In general, 20% of older wood (1 out of every 6 canes) may be removed without reducing yield. Berry numbers may be lower but fruit will be larger in compensation.
Plantings needing rejuvenation	Strategy 1: Remove old, unproductive canes, leaving 2 or 3 older canes and all younger canes. IN successive years, remove up to 20% older wood until new cane growth occurs. Keep 2-3 new canes and continue to remove 20% oldest canes. Strategy 2: Cut all canes to ground level (delays harvest 3 years). Thin new canes to most vigorous 6-10 canes. Strategy 3: Summer hedge immediately after harvest; selectively remove dormant canes.

Pruning to reduce disease and insect pressure

One of the benefits of pruning referred to above is reducing disease and insect pressure. Disease pressure reduction in blueberries is a one-two punch, when it comes to pruning. Two of the most common blueberry canker diseases, Fusicoccum (Figure 1) and Phomopsis (Figure 2), overwinter in cankered wood. These fungi are also particularly adept at colonizing dead wood, particularly pruning stubs. Removal of cankered canes and avoiding cane or branch stubs during pruning will reduce the number of new infections occurring during the season. Prune out and burn diseased canes and branches, taking care to remove all infected (brown) tissue below the cankers. Cultural

practices (maintaining plant health, minimizing winter injury and early spring frost damage) and pruning out dead wood are more important in controlling canker diseases that sprays, so now is your chance! Canker disease severity and spread may be further minimized if new cankers are pruned out as they appear during the growing season.

Pruning further reduces disease development by maintaining an appropriate growth habit and opening the canopy. Cane, leaf, and fruit surfaces dry more quickly when good air circulation occurs throughout the canopy/planting, minimizing conditions favorable for disease development. This is true not only for canker diseases, but other blueberry diseases as well.

Figure 1. Fusicoccum cankers on cane.

Figure 2. Phomopsis canker, sometimes mistaken for winter injury. Inset: Close-up of fungal spore–producing structures on cane surface.

A report of another, less common blueberry disease also surfaced this past season, blueberry crown gall (Figures 3 and 4). This disease is s sporadic problem and is not frequently seen in New York plantings. It is caused by the bacterium, *Agrobacterium tumefaciens*, and may occur in propagation beds and young plantings. It is sometimes found in older plantings as well. If you happen to have this disease in your planting, take some of these precautions during pruning: 1) Prune bushes during dry weather,2) Frequently disinfect pruning equipment. A 10% bleach solution or 70% ethyl alcohol (shellac thinner) solution works for this purpose, and 3) Remove and destroy diseased tissue.

Figure 3. Bush infected with blueberry crown gall.

Figure4. Close up of gall on cane.

(Pictures courtesy W. Bertram)

Insect pressure may also be reduced through good pruning practices. Scale insect infestations are more frequently found in poorly maintained bushes. Good pruning practices go a long way toward reducing scale insect problems. Keep an eye out for the hard -covered female insects on small twigs and branches while pruning (Figures 5 and 6). If scales are present, schedule a dormant oil spray for early spring during bud swell.

Figure 5. Scale insects on blueberry cane.
(Pictures courtesy G. Loeb, NYSAES-Cornell)

Figure 6. Scale on young twig.

Insect stem galls were particularly prevalent on blueberries during the 2006 growing season and several growers reported problems with this insect pest (Figure 7). The tiny wasps overwinter as larvae in the galls (Figure 8). Adult wasps emerge in early June and lay eggs on twigs, causing new galls. Currently there are no products available for control of this insect. Your only recourse in this instance is to prune out and burn the galls now to reduce your insect stem galls next season. Watch during mid to late June and July for new galls. Prune out and destroy them as they appear. (See a movie on this pest at http://www.nysaes.cornell.edu/pp/extension/tfabp/movies.htm.)

Figure 7. Older stem gall with emergence holes; younger galls to the left and below.
(Picture courtesy K. Cox, Cornell-NYASES)

Figure 8. Insect stem gall with overwintering larvae.
(Picture courtesy J. Burth, Oswego County CCE)

Final considerations

Brush removal is an important part of the pruning process. Several options are available depending on the layout of your plantings and available equipment. One method is to chop brush in place using PTO driven equipment such as Bush Hog or a flail mower. Another option may be to push brush out of alleyways and burn, chop, or chip it off site.

Is the job done? Not quite. What remains is to take time next fall and winter to evaluate how well your pruning strategies for the 2007 worked, and determine what needs to be done in 2008 to keep those pruning dollars yielding better blueberries, and returns on your investment.

References:

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(Reprinted from: New York Berry News, Vol. 6 No. 1, January 24, 2007.)