Sugar Maple Management Highlights for the Region

from the

North American Maple Project (NAMP)

NAMP is an international study involving the United States and Canada to evaluate the condition of sugar maple throughout the region.

Are sugarbushes as healthy as other sugar maple stands?	NAMP has found that tree health (as measured by crown condition) is similar in sugarbushes and untapped sugar maple stands.
Are sugarbush trees more vulnerable to stress than untapped stands?	NAMP has found that sugar maple trees under both types of management responded the same to stress.
How much dieback is "normal" for sugar maple trees?	Over 90% of sugar maple trees monitored in NAMP have 0 to 15% crown dieback. Most of these trees are healthy and have an excellent chance of long-term survival, barring any significant future disturbance.
What is a "normal" mortality rate for sugar maple trees?	NAMP data shows that sugar maple trees die at a rate of 1.2% per year. There are some differences between overstory trees (0.9% die per year), and understory or suppressed trees (2.0% die per year). These results are similar to other studies on sugar maple mortality rates.
Should unhealthy trees be salvaged?	Crown condition can be used to indicate which trees will be surviving into the future. NAMP has followed tree health and survival over a seven-year period. Trees with 20-35% crown dieback had a 90-99% chance of survival and an 80% chance of returning to a healthy condition. Trees with more than 35% crown dieback had a 65% chance of dying or remaining unhealthy. These predictions could vary according to the cause of dieback. For example, trees with thin crowns due to insect defoliation are more likely to recover than trees stressed by poor site conditions. So, salvaging would be justified where dieback exceeds 35%.
Is it important to avoid injury to tree boles and roots during logging or sugaring?	NAMP information indicates that major bole and/or root damage may result in tree mortality. Crown dieback of 50% or greater is associated with bole and/or root damage. By avoiding injury to trees during thinning, sugaring or other entries, your opportunity for maintaining tree health is improved.

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Is tap hole closure important to tree health?	Trees that close tapholes rapidly following the sugaring year produce more clear sapwood for future tapping. NAMP data shows that trees with greater than 35% dieback close tap holes more slowly. High dieback can be used as a signal to limit the number of tap holes. NAMP has found that vigorous trees tend to have fewer than 2 open tapholes in the summer following tapping.
What are the effects of insect defoliation and adverse weather conditions on tree health?	The impact of stress from defoliation or adverse weather on trees depends on many factors, such as the condition of trees prior to the disturbance, the site where trees are growing, and the timing and duration of the disturbance. NAMP results show that trees in areas defoliated by pear thrips or forest tent caterpillar for 1-3 consecutive years, and areas experiencing drought conditions for 2 years, had significantly thinner crowns, but normal foliage returned after 1-2 years. In these types of situations, where trees are exposed to a single stress agent for a short duration, tree recovery is expected to be good.
Is acid deposition stressing our maples?	NAMP has found that trees growing in areas with high levels of acid deposition have thinner foliage than those growing under medium and low acid deposition levels. While more long-term information is needed to understand this association, these results do indicate the possibility that sugar maples stressed by wet sulfate and nitrate pollutants have reduced leaf area.
Why is it economically important to maintain a healthy sugar maple forest, and how can it be accomplished?	Healthy trees translate into good growth, higher sap volume, and more resistant trees. Once a stand starts to decline it is difficult for the overstory trees to recover. There is some evidence (i.e. a Vermont study) suggesting that there is increased abundance of weedy ferns (hayscented) in stands with high dieback, which makes it difficult to promote future regeneration. A healthy stand begins with the site. Sugar maples grow best on loamy, well-drained soils, with pH values of 5.5 to 7.3. While sugar maples grow on a variety of soils and sites, less healthy trees can be expected on less favorable sites. Maintaining health will depend in large part on forest management practices. While tapping trees does not adversely affect health, avoid overtapping trees to maintain adequate new wood growth for future tapping. Delay thinning in woodlots with serious insect, disease or weather damage to avoid additional stress.

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