

Ask Proctor

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Will the dry weather affect syrup production next spring?

In many of the maple sap production areas it has been quite dry this summer, some for a second year in a row. We frequently are asked by producers how this might affect the sap run or sap sweetness next year. The real answer is, we can't really be sure. There are several things, however, that we do know.

First off, maple trees are fairly resistant to stress. While some amount of stress is almost always present (and may actually enhance function), it takes

a good deal to push the tree systems beyond their ability to cope. When this does happen, it usually is due to what is referred to as "multiple, interacting stresses," which push trees into a "decline spiral." Like a spin in an aircraft, once the tree is headed downhill, it can take some doing for the tree to recover.

So then, what does that have to do with drought? Well, perhaps the tree is already stressed to some degree by overcrowding, or the nutrient levels could be a bit deficient, and maybe there was some insect activity over the past few years that drew down the

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tree's carbohydrate reserves. When those low-moderate level stresses occur alone, the tree can struggle through without too much trouble, but when you add another stress such as drought to the mix, the decline can begin. If the stress is lengthy, the tree may not have enough reserves to make it through the tough patch. This may occur more often in young (crowded) trees, or in over-mature trees that have naturally slow growth rates. Decline may first be

observed as crown thinning (fewer or smaller leaves), foliar discoloration, or dieback at the branch tips. When continued, larger

branches in the crown may die, and over a period of time the entire tree may succumb. With drought, this often manifests itself first on the upper shoulder of slopes where soils tend to be a thinner and stonier. Even then, decline from drought often takes a few years to show up.

More often however, what you'll end up with due to a low-moderate drought is reduced radial and branch growth and perhaps a lower amount of carbohydrate stored in that ring (less available soil moisture means the tree has less photosynthesis to produce sugar). This isn't a real big problem, and be-

cause sap flow is dictated by the weather conditions during the spring season, and because the sugar collected in any one season is actually a mix of sugars formed over many years (a taphole may cut through 20 or more years of tree rings, with each ring contributing a variable amount of sap and sugar due to the hydraulic conductivity of each ring and the amount of carbohydrate stored in each ring), one smaller tree ring will result in only a muted effect.

So in summary, except in rare situations,

drought during the previous growing season probably won't have much detectible effect on sap yield or sap sugar content. If the drought

was severe in your area, and you're concerned you might have some decline issues, the most conservative action would be to not tap in those areas, or to tap more lightly for a few years and see if any signs of decline show up.



Photo: Mark Isselhardt