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Why Are Co-Dominant Stems so Troubling?

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One of the most common problems arborists encounter while assessing trees is the presence of “twin trunks.” Technically called co-dominant stems, these twin-trunked trees are often hazardous and require prompt attention.

Some of the reasons co-dominant stems are problematic include:

- **Narrow branch angles are weak.** Well-formed branches feature several layers of overlapping wood at their junction point. The trunk produces some of this wood, while the branch produces the rest; the result is a very strong point of attachment. But because co-dominant stems are not proper branches, they lack the overlapping layers, and therefore the strength of proper branch junctions.
- **Co-Dominant stems often feature included bark.** Co-dominant stems grow and develop as they would if they were single leaders, meaning that they produce not only xylem (wood), but also phloem, cambium and – most importantly – bark. As the two stems grow wider, some of this bark becomes **trapped inside the junction**.

The bark further compromises the integrity of the joint, increasing the chances of failure.

- **Co-Dominant stems lack branch protection zones.** Branches have an area inside the wood near the branch-trunk junction called the bark protection zone. This zone is rich in protective chemicals that help to prevent pathogens from spreading to the trunk from the branch. Normally, when a branch suffers a problem, the branch protection zone works as a dam, keeping out the invaders until the branch can be jettisoned. Because co-dominant stems lack these zones, diseases can travel down the stem and infect the rest of the tree. Unfortunately, this also makes the removal of one stem problematic.
- **They often cause the tree to die following breakage.** Few trees with co-dominant stems survive the (non-deliberate) loss of either stem. Because they lack branch protection zones, and the loss of a large stem typically causes a massive wound, such trees are inundated with pests, pathogens and fungi.
- **They inhibit the development of proper form.** When co-dominant stems form, they both act like the tree's central leader. This often prevents the tree from attaining a typical height, and because both stems are trying to produce a full canopy, the branches and foliage become overcrowded.

In many cases, removal is the best course of action for trees with co-dominant stems, but some co-dominant trees are stable and healthy enough to leave as they are. In some cases, it is possible to provide additional support to co-dominant stems, which reduces the potential for danger. Additionally, very small trees, which do not represent a significant safety issue, rarely require removal or drastic pruning solutions.

Given these and other problems co-dominant stems represent, you should contact an ISA-certified and TCIA-accredited arborist to assess your tree as soon as possible. Only a tree care expert can assess the situation and recommend a prudent course of action.