



Factsheet #1: Temporary Winter Shelters for Fruit Trees
updated Feb 2020

Context

Gardeners and farmers in the north face particular challenges when it comes to overwintering fruit trees. While many small fruits such as blackcurrant, saskatoonberry, raspberry and haskap can survive winters handily provided there is adequate snow-cover, hard fruits such as apples require more care. Managing the exposure of a tree's different parts to safe temperature thresholds is necessary for fruiting and survival. While the hardiest apple trees can manage with no protection in Yukon's milder climatic regions, temporary shelters buffer trees against major temperature swings, discourage browsing and can protect against early emergence from dormancy if managed correctly. Snow cover is also a consideration: after a week of -45°C , ground temperatures on our property were only -20°C beneath two feet of snow. If you live in an area with predictable snow cover, temporary shelters are particularly useful in preventing cold-related damage.

Temporary Shelters

At temperatures below -40°C we see winter-kill on exposed branches and the loss of fruit buds on even the hardiest apple trees. A temporary shelter consisting of a conical frame of 3-5 poles wrapped in a tarp can buffer temperatures by ten or more degrees Celsius. This results from protection from wind and a protective layer of hoarfrost that builds up on the inside of the tarp as moisture is released from the ground over the winter, as well as insulation from snow banked around the structure. Packing snow around the outside of the tarp, provided the tarp is secure to the ground will help prevent rodent access; soil placed around the plastic is another way to seal the plastic if snow levels are usually low.

While the poles can be inserted into the ground easily before the ground freezes, it is best to wait until there is some snow cover directly around the tree before enclosing it – this will prevent desiccation. Mulches are also an option but beware of encouraging rodents. The wrap should be secure from the ground to the top. Tie off, tuck in and/or staple the top to the frame and tamp the bottom down with snow. For multiple trees close together other shapes of frames may be made following the same principles, though care must be taken to avoid collapse due to snow load.

Tarps should be opaque and light-coloured to prevent a warming 'greenhouse' effect from winter and early spring sun. Light sheets can be combined with clear poly for a similar effect, though care must be taken to ensure no transparent windows remain (see images). As the winter goes on, be mindful of snow load. These structures are not meant to be load-bearing, so clear as necessary to prevent buckling while maintaining what you can for insulation.

Shelters should be vented once the danger of serious winter cold has passed (generally late March) and peeled down as the snow melts. Frames may remain in place (useful in case frost protection is needed in-season) or be tucked away for the fall. With this regime apple trees emerge from dormancy in sync with the background vegetation.



Rodents

The long winter provides ample time for even a relatively relaxed rodent to do great damage to a fruit tree within a cozy shelter. We recommend protecting the first 6-8” of the trunk with a metal or hard plastic collar, to at least above the graft line. It doesn't have to encircle the trunk entirely, though bear in mind that a gap may provide a vertical runway for a rodent to access the upper portion of the tree. If a rodent does attack a tree, the tree can recover as long the trunk is not girdled entirely. Tamping down the snow along the outer edge of a tarp shelter deters burrowing. Keeping the frame of the shelter away from branches is ideal, again so as not to provide easy access to the upper branches of the tree, but this is not always practical.



This mature Noret apple-crab has the low-branching shrub-like form of a typical Yukon apple tree, more closely resembling its wild ancestors than the large, climbable trees of traditional orchards. The branches are flexible and get tied up each fall to fit within the frame of the poles. Usually we use building tarps, but when materials are scarce we've used what we could find, in this case a white sheet wrapped around clear poly. At this stage in the early spring the top has just been opened up so no heat buildup will occur even though the sheet has been pulled back.



Shelters can be made any size. These young trees were given simple wraps with our standard material: used tarps from the lumber yard. Note the light side faces out. These show venting and opening up shelters as the snow melts in the spring.

Take-aways

- ✓ Simple temporary shelters increase survival and fruiting of apple trees
- ✓ Light-coloured opaque tarps are ideal
- ✓ Trees can be protected from rodents by collars and well-sealed shelters