Should droplines be replaced when using check valve adapters or spouts?

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The Leader Check Valve Adapter (CVA) and Leader Clear Check Valve Spout (CVS) are designed to reduce the amount of sap back towards the taphole during pump shutdown, leaks, or relaxer dumping.

Such backflow events in tubing systems not using CVA/CVS can move microbial contaminants from the tubing system back into the taphole, inducing the natural “walking” of the filter cake in trees, commonly known as “taphole drying.” The result is reduced sap flows in the second half of the sap flow season, and lower sap yields.

In addition to using CVA or CVS, the use of new (seasonal) spouts annually, periodic replacement of droplines, and perhaps regular cleaning can also reduce the negative impacts of sap backflow. The effects of all of these practices on sap yield and net profits varies as a function of the gain in sap yield and the cost of implementing these strategies.

Although replacement of droplines (including spouts) will almost always result in the highest sap production, frequent dropline replacement is fairly costly, thus net profits can be lower than other approaches.

As a result, we can conclude that changing droplines when using CVS does not improve sap yield, at least out to the maximum dropline age tested (10 yr), but does present a significant advantage over either used spouts or new spouts when operating on used droplines.

Therefore, the timing of dropline replacement when using condoms or spouts is used depends more upon how well the tubing and fittings (other than spouts) are holding up than on the desire to increase sap yield. In our experience, if tubing is starting to break down, or tubing is pulling off fittings (due to plastic fatigue), then droplines should be replaced. The timing of this will vary considerably depending upon the quality of the dropline material, thus maple producers are advised to keep a close eye on any failures that happen in older 3/16 tubing systems, particularly if they seem to be concentrated on a single cause.