Assessing the Commercial Potential of a Site for Maple Sap Collection

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These 9 variables are intended to help a potential commercial maple producer evaluate the relative merits of one or more selected woods for profitable maple production. A poor or medium rating does not mean that the woods should not be tapped but that production costs in money or labor will likely be higher or greater investments will be necessary to allow the sap collection to be established relative to other sites. Some problems may be avoided if the potential producer is a creative problem solver. Small-scale producers and hobby producers have less emphasis on financial return, so these variables are relevant but perhaps not weighted as heavily.

1.   Tapping Density (Number of Taps Per Acre)

Mark a center point in the sugarbush for a circular plot with a radius of 26.4'. This is a 1/20th acre plot. Measure out the circle and count 1 tap for each tree 10" diameter or more, and count each tree you will double tap (usually 18 to 20" diameter) as 2. Total this count for each plot and divide by 20. The same process could be used on a 1/10th acre plot (radius = 37.2') and multiple by 10.

Alternative
Use the third page of this guide to "point sample" trees with an angle gauge or prism. This process is faster and gives equally valid results. Video link
https://www.youtube.com/watch?v=ovaHN7spfdQ

Input these estimates of tap density per acre into the cost spreadsheet to obtain a cost per tap evaluation. It can be found at www.Cornellmaple.com. The goal is to have at least 50 taps per acre.

Good 40+ taps per acre
Medium 20 to 40 taps per acre
Poor 1-20 taps per acre
Remediation – N.A., or thin sugarbush to increase growth and diameter of smaller maples

2. Soil types: Use your area soil maps
      (http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm)
Good – well drained, moderately well drained,
Medium – excessively well drained, somewhat poorly drained
Poor – poorly drained
Remediation – N.A.

3. Health and Quality of available trees (see indicators below)

Good – healthy trees, rapid tap hole closure, canopy not closed,

Medium – tree health mixed, canopy closed, few indicators of poor health

Poor – crown dieback, thin crowns, numerous trees with indications of poor health

Remediation – Thin to reduce abundance of medium and poor quality trees, favor maple on better soils

Indicators of unhealthy trees:

- Stem defects: insect scars, fungus, weak forks,
- Crown: upper crown dieback, thin crowns, live crown ratio less than 30%, recent defoliations
- Butt/root: exposed roots due to erosion, skidder damage, stem scars

4. Access:

Distance between collection site and sugarbush:

Good - sugar house or open road (normally kept open all winter) downhill and within 1000'.

Medium - sugar house or open road (normally kept open all winter) downhill and within 2000'. Seasonal road (may be seasonally maintained by the maple producer) is downhill and within 2000' of the collection site. Open road, sugar house or seasonal road level with the production woods.

Poor – No obvious access so road must be constructed by the producer. Production woods downhill from open road, sugar house or seasonal road. Greater than 3000' downhill to collection site.

Remediation – N.A., install new road, move sugar house, or lease site for collection tank

5. Access to and within the sugarbush:

Good – access roads throughout for maintaining tubing, thinning and woods to the woods and within the woods

Medium – access roads to the woods

Poor – no current access roads to the site; limited or low quality interior trails

Remediation – install roads or trails, commercial harvest with emphasis on quality well-located roads

6. Availability of electricity – important with vacuum not for buckets or gravity

Good – Electric readily available. Access to collection site is readily available if maintaining a generator

Medium – Electric within 500'. Access to collection site requires maintenance if using a generator

Poor – Access to the collection site is very limited if maintaining a generator

Remediation – Use buckets, install road for easier access to generator, or extend mainline for easier generator location

7. Steepness of site – for tubing

Good – gradual downhill to the collection site B slopes (3 to 8% slope)

Medium – steep enough to be difficult in some places OR too flat for good tubing drop A slopes
  (0 to 3% slope) and C slopes (8 to 15% slope)

Poor – Access difficult due to steepness D and E slopes (>15% slope)

Remediation – N.A., or install roads on contour for easier access. Steep slopes may favor 3/16"
tubing designs.

8. Needed Management:

Good - No canopy thinning or understory vegetation management needed

Medium - Light to medium thinning of canopy trees or understory vegetation management
needed

Poor - Significant thinning or understory vegetation management needed

Remediation – thin woods by crop tree release or basal area reduction, or manage undesirable
vegetation

9. Associated vegetation:

Good - Few evergreen trees, little or no interfering understory species, mostly deciduous, ~25%
  of basal other than sugar maple

Medium - Some evergreen trees, some interfering understory, 10% to 25% basal area other
  than sugar maple

Poor - Significant evergreen trees present, less than 10% basal area other than sugar maple,
  significant interfering understory: multiflora rose, honey suckle, other thorn trees,
  briers, beech, poison ivy

Remediation – Thin woods to enhance species composition, or control interfering species

Point Sampling for Number of Taps per Acre

Use the angle gauge or prism to count the number of trees, by diameter class, at several points. Record all your tree counts on one form. Record how many sample point you visit. Multiple the "tree count" for each diameter by the "multiplier" and record the product in the "#taps/diameter" column. You can double the "multiplier" for trees $\geq$ 18" if you plan to use two taps. Total the final column and divide the sum by the number of points you visited. This is an estimate of the number of sugar maple trees per acre available for tapping.

Number of Sample Points Visited = _____

Tree Diameter Mid-point (DBH, inches)	Tree Count	Multiplier	# Taps/Diameter
10 (9 to 11)		18.3	
12		12.7	
14		9.4	
16		7.2	
18		5.7 (x 2)	
20		4.6 (x 2)	
22		3.8 (x 2)	
24		3.2 (x 2)	
26		2.7 (x 2)	
28		2.3 (x 2)	
30		2.0 (x 2)	
		TOTAL =	

Total # taps / Total # sample points = _____ / _____

= _____estimated number of taps per acre