Maple Syrup Production 101

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Why Maple? Why Now

• History of maple production in Iowa
• Conversion from oak/hickory to maple/basswood
• Land ownerships change (smaller parcel size)
• Family and Community centered tradition
• Spring is syrup season
  – (warm days / freezing nights)
• Syrup self-markets!
An American tradition
Species

Sugar & Black Maple

Silver Maple
Box Elder
Manitoba Maple

Red Maple
The History of Maple
• Native Americans
  – Sugar camps
    – Wound the tree
    – Bark collection vessels
    – Hollowed log w/heated rocks
Sugar cakes or granulated sugar as year round sweetener or for trade
• Early explorers and settlers
  – New materials & new techniques
    • Kettle
    • Wooden buckets
    • Augers (1800-1810)
• Compete with cane sugar
  • (1818) ½ cost of cane sugar
• Increased efficiency
  • (1859) metal spouts, flat pans
  • (1875) metal sap buckets
• 1865-1870 changes to cane sugar refinement
• Sugar cakes $\rightarrow$ Maple syrup
• Late 1880’s - 1900
  • Equipment manufacturers
    – Modern evaporators
      » flue type design – increase production and quality
This hobby does not have to be costly !!!

Drill
Spiles
Collection bucket
Sap storage
Boiling pan and fuel
Syrup filter and storage
Drill a 5/16 or 7/16th hole with a slight upwards angle – 1.5-2” deep
Lightly tap in spile
Hang the bucket
Wait!

Tree Size vs. # of Taps

1 tap - 10 to 15”
2 taps - 16-20”
3 taps - 21-25”
4 taps => 25”

1 1/2 - 3”
The Rule of 86

It takes a lot of sap to make one gallon of syrup!
Boiling sap takes lots of time and fuel!!!

40 gallons of sap = 1 gallon of syrup
1 tap = 10 gallons of sap = 1 quart of syrup
More On Boiling

- Don’t boil the pan dry!
  - Don’t forget about it during the basketball game!
- Don’t try to “finish” the syrup on the flat pan
  - Finish on the stove in the kitchen
- Use a good calibrated candy thermometer
  - Adjust and then readjust to the boiling point of water
- Be **Careful** as syrup can foam up and over the pan!
Continuous Flow Evaporators

19% → 15% → 11% → 2%

Finished syrup @ 66% sugar

Sap enters float box
Checking the Density

- Always use hydrometer
- Always use “hot”
  - If it is less than 66% the syrup will ferment and spoil – jug will explode
  - If it is over 66% the syrup will crystallize
Filtering the Syrup

• Do Not Use Eggs!!!!!
• 8 quart synthetic cone filters
  – Use a disposable paper prefilter inside the cone filter
  – Do Not Squeeze the filter to get the last drop out!

• Plate and Frame Filter Press
Grading Syrup
• Can it hot!
  – Sealed syrup stays good a very long time
  – Glass is good but sunlight degrades color
  – Tin was best but “lead solder” was NOT
  – Stainless drums for long term commercial storage
  – Plastic maple jugs 6-10 month shelf life

Syrup Storage
• 1809 – Graves family in WNY
• 1848 – Bush family – commercial maple operation
• 1918 – Tapped 2100 buckets (basswood & cucumber)
• 1950 – Tapping 4000 buckets
Under the guise of “teaching the kids the family tradition”, Mission Creep begins!
1982

1 mile of mainline pipe
4-5 miles of lateral lines
1985
Sugar house was expanded to include a reverse osmosis machine

2007 - 2008
Expand from 2000 to 6500 taps