

Non-Timber Forest Products (NTFP)

Maple Syrup, Ginseng, Christmas trees and Chestnuts



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Twitter - @yooperforestry



NTFP — Ways to diversify income

- Each of the systems can be scaled to fit:
 - Off farm job
 - On farm schedules
 - Growing labor force
 - Or desire to keep family member
 - Available ground, timber etc.
 - Impending retirement from day job
 - Estate transition

Maple: This does not have to be costly !!!!

Drill
Spiles
Collection bucket
Sap storage
Boiling pan and fuel
Syrup filter and storage





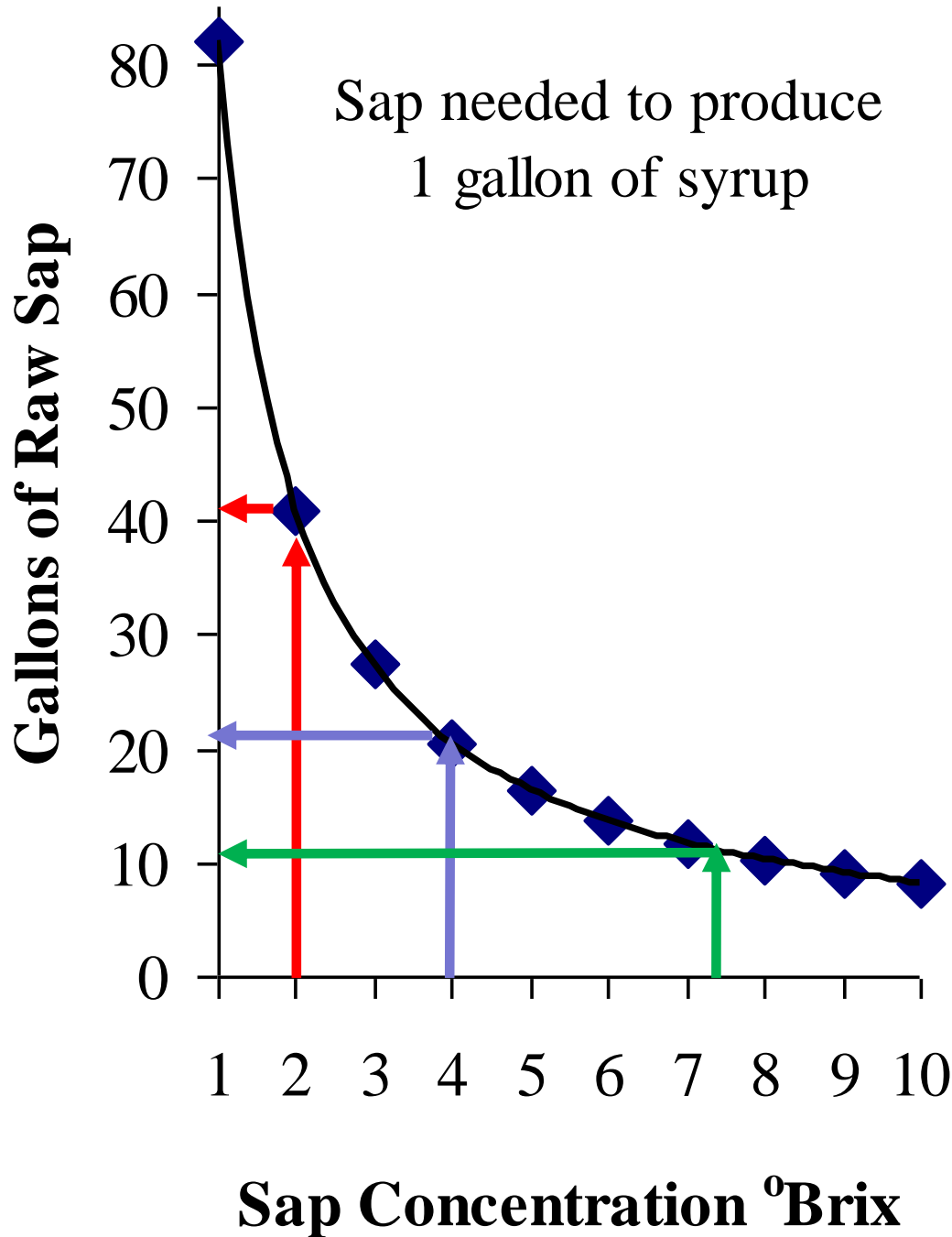
- Sap bag – 25 cents each – disposable
- Sap bag holders – \$7-10
- PVC sap bag holder – 30 cents
- Spiles – 30-50 cents
- Buckets / lid – \$15-18





San Storage





The Rule of 86

It takes a lot of sap to
make one gallon of
syrup!



Boiling sap takes lots of time and fuel!!!

1 tap = 10-15 gallons of sap per season = 1.5 quarts of syrup



Checking the Density

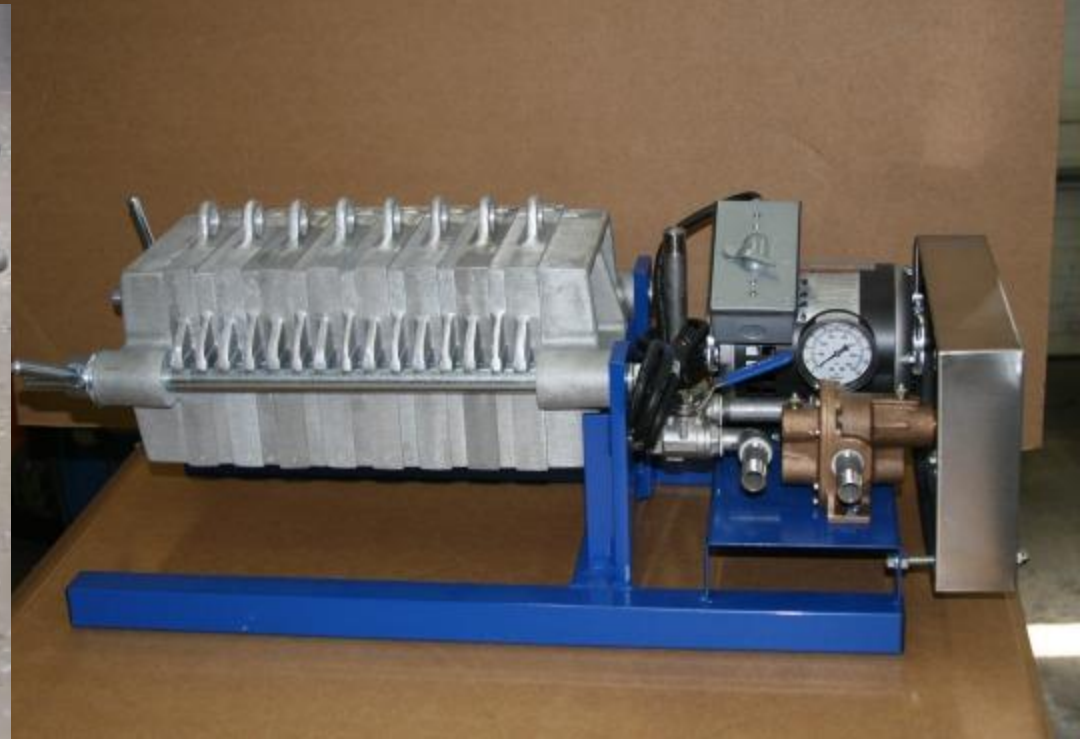
- Always use hydrometer
- Always use “hot”
 - If it is less than 66% the syrup will ferment and spoil – jug will explode
 - If it is over 68.5% the syrup will crystallize



Filtering the Syrup



rs
e filter inside the



Grading Syrup



Light Transmittance (%T)

- Golden 75 +
- Amber 50-74.9%
- Dark 25-49.9%
- Very Dark < 24.9%

- 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



Raising Ginseng in your woods!

- *Panax ginseng* – Asian ginseng
- *Panax quinquefolium* – American ginseng
- Not Siberian, Brazilian, or Indian Ginsengs
 - No/limited ginsenosides compounds

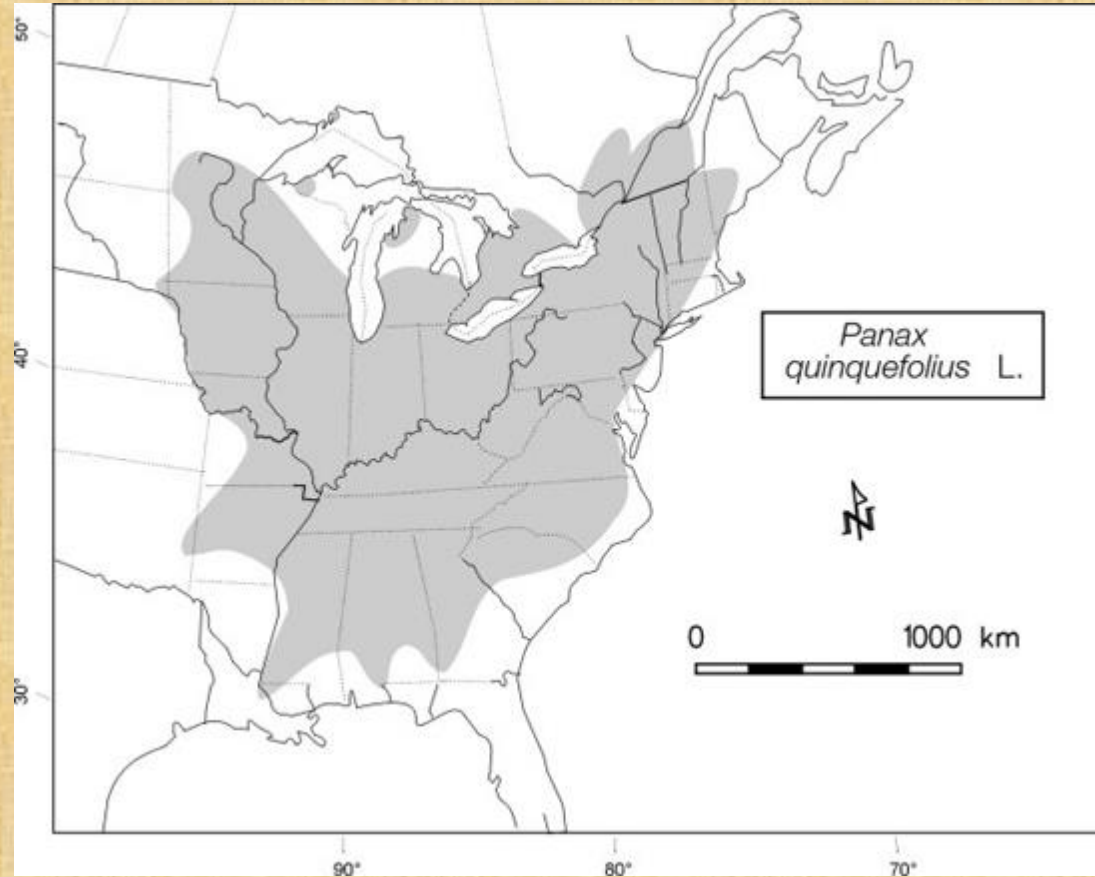
Panax quinquefolius

- Perennial, herbaceous and long-lived
- Regrows from root
- Annual stem
- Compound leaves
 - Ovate & serrated
 - Form “prongs”
- Flower spike



Distribution

- Native to eastern North America
 - Ontario & Quebec
 - New England
 - Appalachia
 - Ozarks
 - Upper Midwest



Seed Production

- Flowers in May/June
- Ripen in August
- 1-3 seeds in berries
- Stratify 18-22 months
- Germinate in May

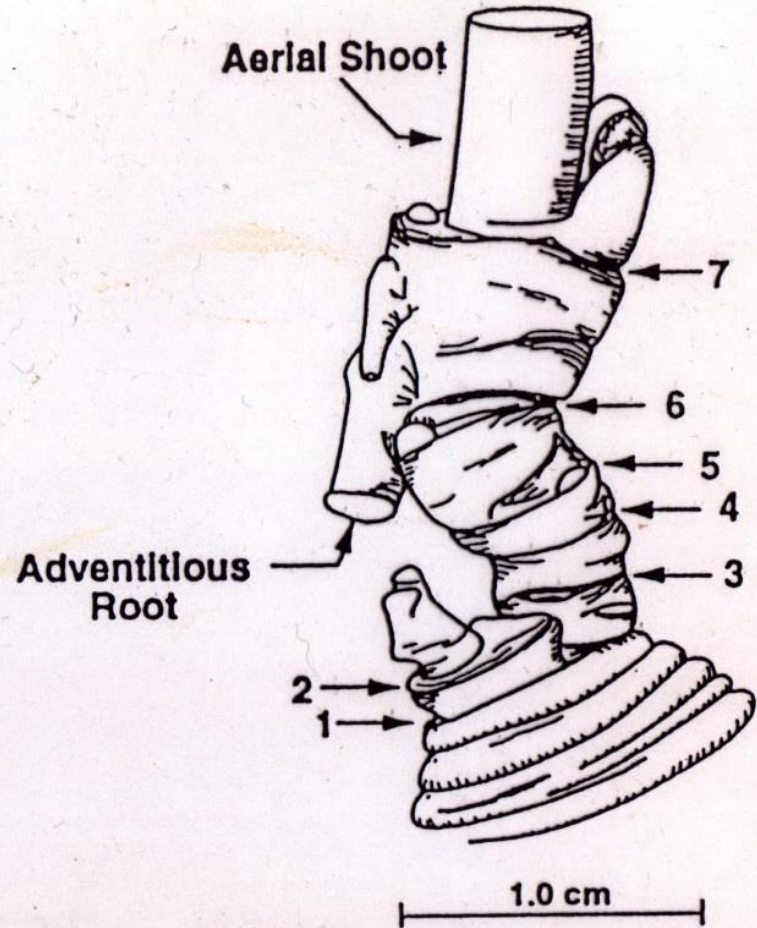
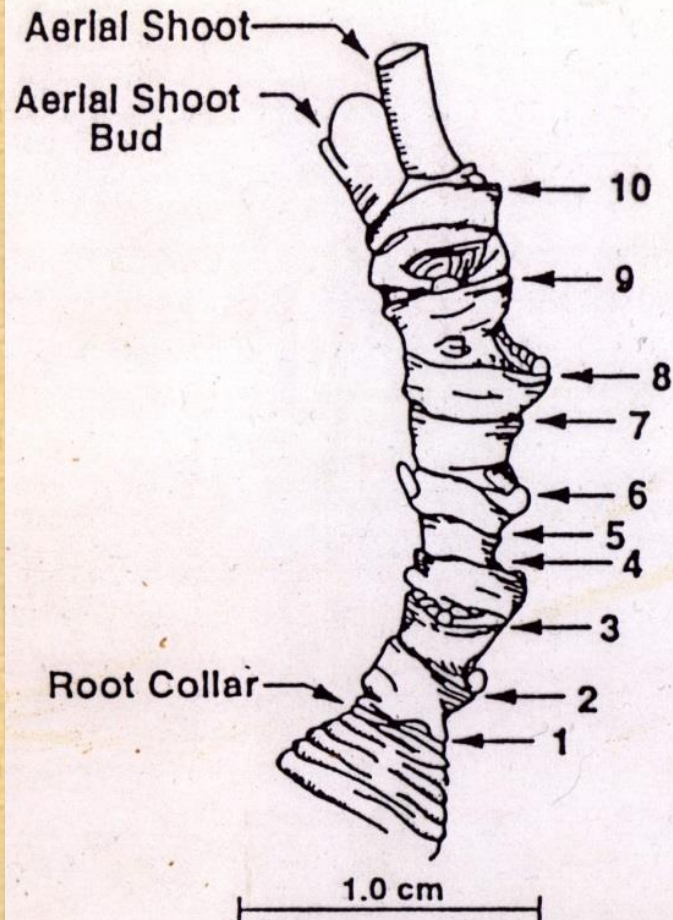


Prong Development

- 1 year seedling
 - Trifoliate, 2-3”
- 2 year plant
 - Single prong, 4-7”
- 3 - 6 year plants
 - Two prongs
- 7 - 9 year plants
 - Three prongs
- 10 to 11 year plants
 - Four prongs, 20-24”



Aging Roots



Preferred Conditions

- Hardwood forest
- North to east slopes
- 5-20% grade
- 75% shade or more
- Cool and moist

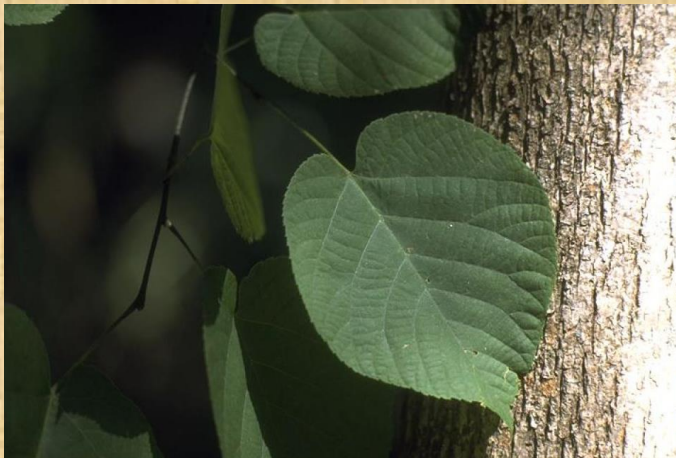


Preferred Soils

- Loamy to sandy loam
- High organic matter
- Well drained
- 4.5 - 7 pH
- 4000 lbs/acre calcium
- 95 lbs/acre phosphorus

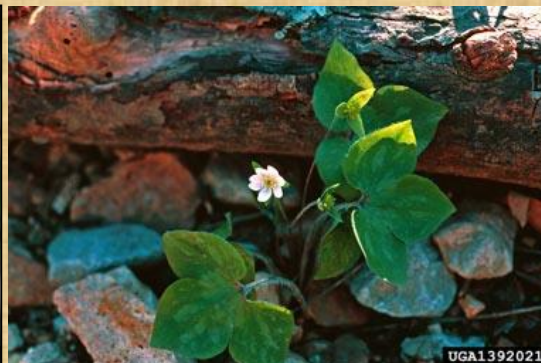
Overstory Indicators

- Sugar maple, *Acer sacharum*
- Basswood, *Tilia americana*
- Black walnut, *Juglans nigra*
- Red Elm, *Ulmus americana*
- Red oak, *Quercus rubra*



Understory Indicators

- Maidenhair fern, *Adiantum pedatum*
- False Solomon's seal, *Smilacina racemosa*
- Rattlesnake fern, *Botrychium virginianum*
- May apple, *Podophyllum peltatum*
- White baneberry, *Actaea pachypoda*
- Hepatica, *Hepatica acutiloba*
- Blue cohosh, *Caulophyllum thalictroides*



Understory Indicators

- Jack-in-pulpit, *Arisaema triphyllum*
- Christmas fern, *Polystichum acrostichoides*
- Goldenseal, *Hydrastis canadensis*
- Blood root, *Sanguinaria canadensis*
- Leeks, *Allium tricoccum*
- Trillium, *Trillium spp.*
- Wild ginger, *Asarum canadense*



Woods Cultivated

- Natural shade
- Forest soils
- Leaf mulch
- Raised beds
 - Growth form not as desired
- 6-9 year rotations
- 48 lbs/acre of seed
- 600 lbs/acre of root
 - Worth \$150-\$250 / pound
- Deer fence
- You need a Ginseng Growers License from MDARD
 - August 15th of each year (\$25)
 - State Ginseng Coordinator 231-922-5233



Wild Simulated

- Natural shade
- Forest soils
- Leaf mulch
- No Tillage
- 9-12 year rotations
- 20 lbs/acre of seed
- 160 lbs/acre of root
 - Worth \$400 - \$700 / pound
- Deer Fence

- You need a Ginseng Growers License from MDARD
 - August 15th of each year (\$25)
 - State Ginseng Coordinator 231-922-5233



Wild Ginseng

- Becoming rare across its range
- Harvest is currently banned in Michigan
 - (\$600 - \$1000/lb)



Seed

- Must be stratified!
- Plant in the late fall / early spring
 - 1/2" deep
 - Hand plant
 - Broadcast
 - Machine planter
- 4000 - 6,500 seeds/ lb.
- \$125 - \$140 / lb.



Fertilizer

- Test soil every 2-3 years
- Need 1,000 lbs/acre Ca
 - Add 50lbs/1,000 sq. ft
 - Limestone for pH < 4.5
 - Gypsum for pH > 4.5
- Need 95 lbs/acre P



Planting Beds

- Mix organic matter and/or fertilizers
 - 4 - 6' wide
 - 6 - 9" tall
- Plant seeds
 - 6 - 9" rows
 - 1' apart
 - Broadcast
- Mulch 1 - 3"



Harvesting

- Loosen soil 8 -12” around root
- Dig by hand with spade or “sang” hoe
- Keep fine root hairs attached
- Follow regulations



Washing

- Rinse don't soak
- Brush don't scrub
- Leave "skin" on
- Don't remove all the soil



Drying

- Slowly dry
- Stable humidity
- Air circulation
- Below 100° F
- Space roots apart
- Remove rotten roots



Drying

- Roots will shrink
- Lose 1/3 green weight
- Should break crisply
- Keep roots intact



Producing Seed

- Harvest ripe berries
- Ferment & depulp seed
- Stratify in sand
 - Root cellar
 - Bury in screen bag or boxes



Production Guides



- **ISU Forestry Extension Series F400, F401, F402 & F403**
- Beyfuss, R.L. (Undated) "The Practical Guide to Growing Ginseng." Robert Befuss RR 1, Box 126 N, Freehold NY 12431
- Davis, J.M. 1997. Ginseng: A Production Guide for North Carolina. North Carolina Cooperative Extension Service. AG-323.
- Persons, W. S., & Davis, J. 2005. Growing and Marketing Ginseng, Goldenseal and Other Woodland Medicinals. Asheville, NC: Bright Mountain Books Inc.
- Pritts, K.D. 2010. Ginseng: How to Find, Grow, and Use North America's Forest Gold. 2nd ed. Mechanicsburg, PA: Stackpole Books

How to find more information

IOWA STATE UNIVERSITY INDEX A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

ISU Search Go

FORESTRY EXTENSION



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[Program Schedules](#)

NOW IS THE TIME TO ORDER SEEDLINGS FOR SPRING PLANTING

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[Christmas tree disease & insect presentation](#)

[Trees of Iowa](#)

[Iowa Christmas Tree Growers Association](#)

[MSU Christmas Tree Pest Manual](#)

[MSU Christmas Tree Nutrient Website](#)

[Iowa Beekeepers Association](#)

[Link to Air Photos](#)

[Link to Campus Tree](#)

NREM Extension Home

Photo Gallery Index

Video Gallery Index

Frequently Asked Questions

YOUR OWN TREES

Conferences

Tree Identification

Tree Biology

Planning

Tree Planting

Care and Maintenance

Timber Management

- [F-400- Ginseng Ecology](#)
- [F-401- Ginseng Growing](#)
- [F-402- Ginseng Disease & Pests](#)
- [F-403- Ginseng Regulations](#)
- [F-337- Maple Syrup Production](#)



Christmas Trees



Christmas Trees - High Labor

1. Plant every spring
2. Shear every tree every year
3. Control weeds
4. Market every Nov.-Dec.
5. Survive for 7 to 12 years
6. Control wildlife damage
7. Control insect and disease damage
8. Protect from fire



A Year in the Life of a Christmas Tree Grower



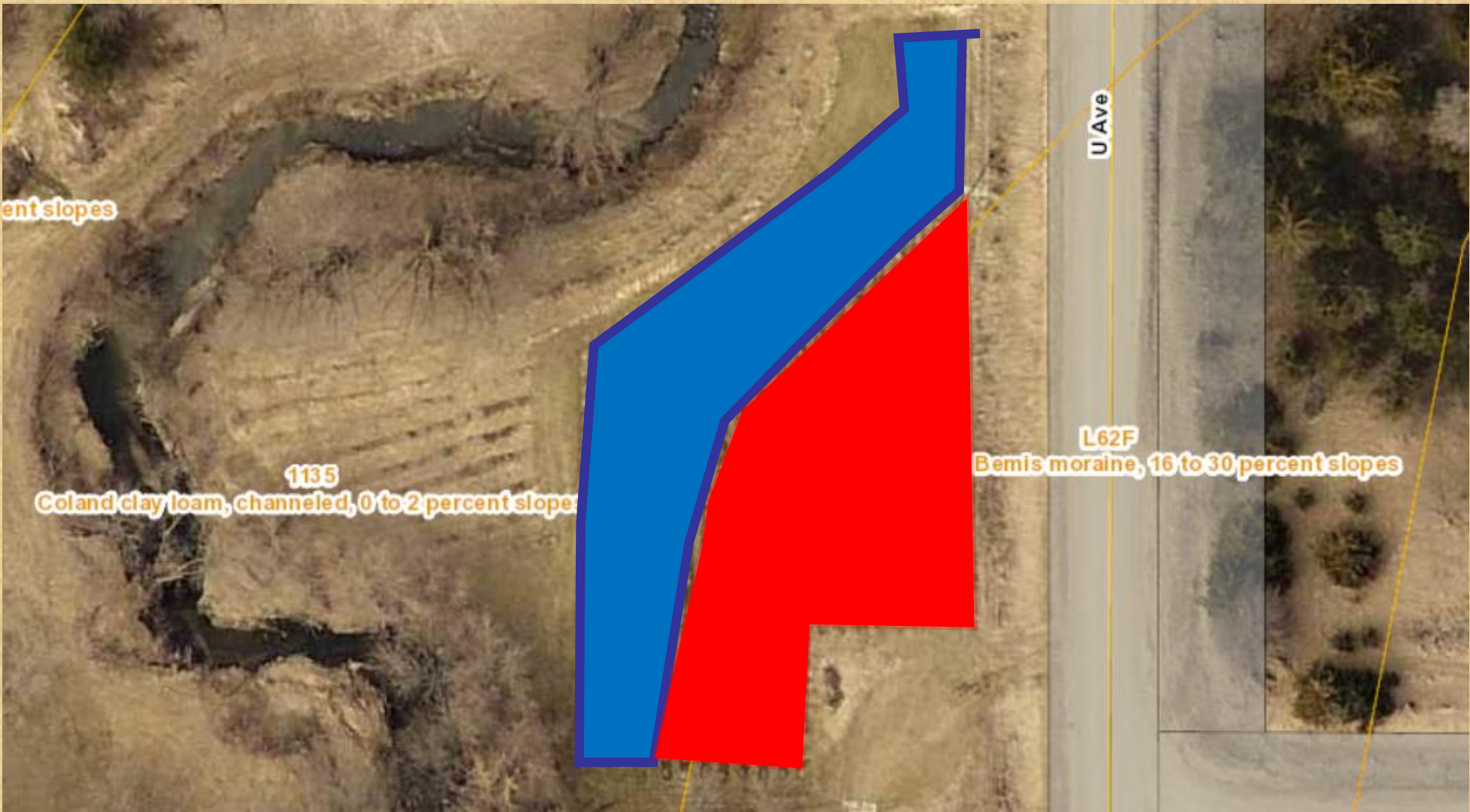
July -A

Avs

&



Beacon Soils



TREE PLANTING

Species Selection





**Scotch
Pine**



**White
Pine**



Balsam Fir



Canaan Fir

Balsam Fir

Fraser Fir

Canaan Fir



**Douglas
Fir**

August - September

Order Seedlings

MI, WI, MN seedling nurseries

- Bare root seedlings
- Plugs + 1
- Plugs + 2



August - September

Deciding What Size

- Bare root seedlings = \$0.6
- Plugs + 1 = \$1.2
- Plugs + 2 = \$1.48

2 rotations from bareroot in the same time
as 3 rotations of Plugs + 2 seedlings

Seedling Costs

Bareroot	plugs + 2
\$1.20	\$4.44

Sales

2x70=\$140	3X70=\$210
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October - November

Site Preparation





Eliminate Perennial Vegetation: GRASS

- Herbicides

Roundup 2 Oz/gal

- Tillage

Soybean fields are great

Ladino clover

Kentucky blue grass

April

Planting

- Keep seedlings cold before planting
- Soak roots for 2-4 hrs prior to planting
- Trim long roots to not J Root
- Plant at proper depth
- Roots go in the ground



April

Planting

- Machine planting (1000's per day)
- Hand (100's per day)
 - Spade
 - Auger *



Auger bits sold separately.

April - May

Fertilizing

Best before new growth emerges
and ground warms up





April

Weed Control

Roundup 1 oz/gallon – no surfactant

Princept 2 oz/gallon

Pendulum 2 oz/gallon

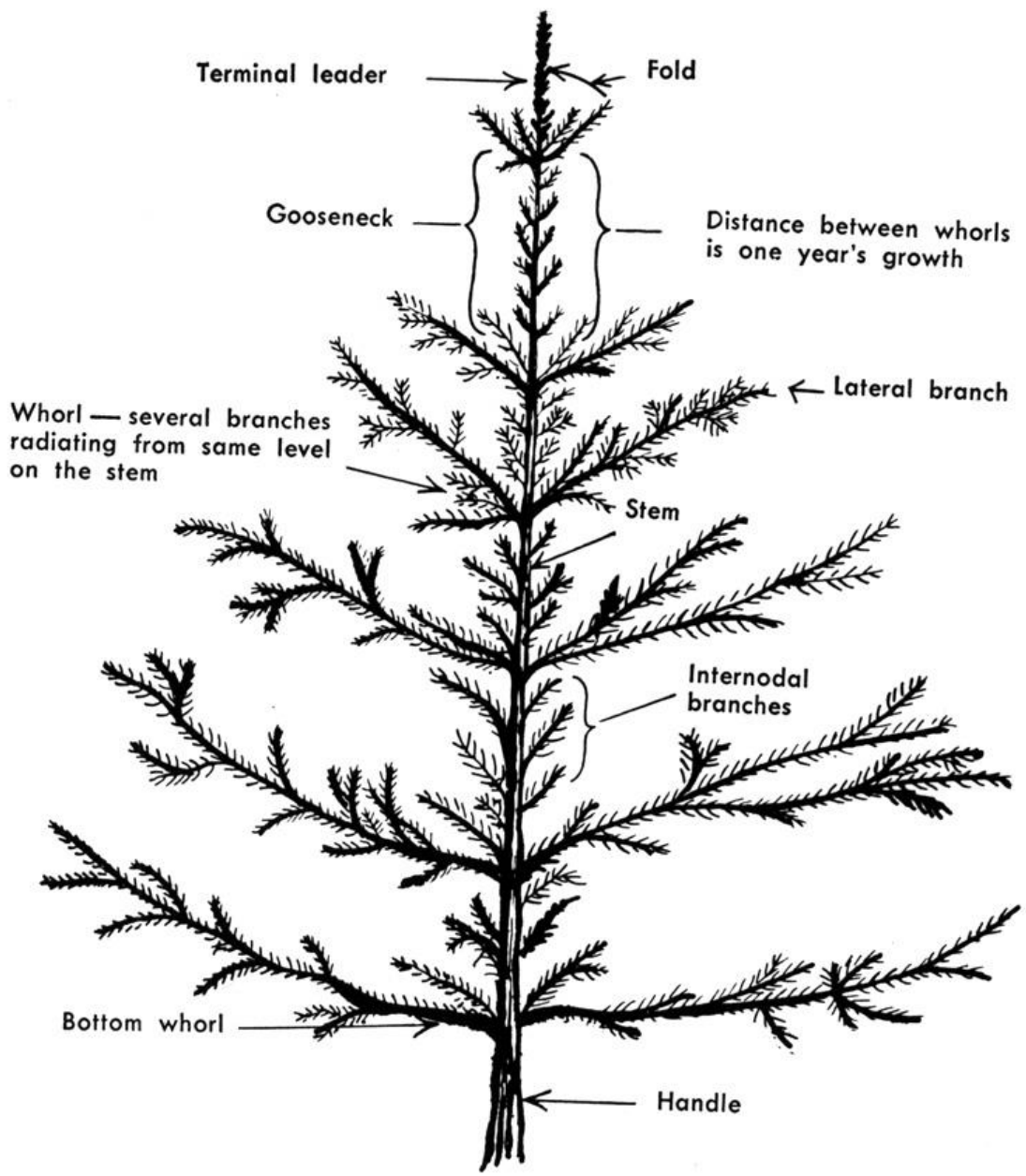




June - July

Shearing





Starts when terminal growth exceeds 14-18"

Shear every year until marketed

Basal pruning to create handle

Terminal buds only





Douglas Fir



Canaan Fir





SHEARING TOOLS

- hand clipper
- shearing knife
- sickle trimmer
- rotary trimmer





Adjust terminal: 14-16”
initially, then 8-12”

Cut at 45° angle

“Top-work” first whorl,
thin if necessary



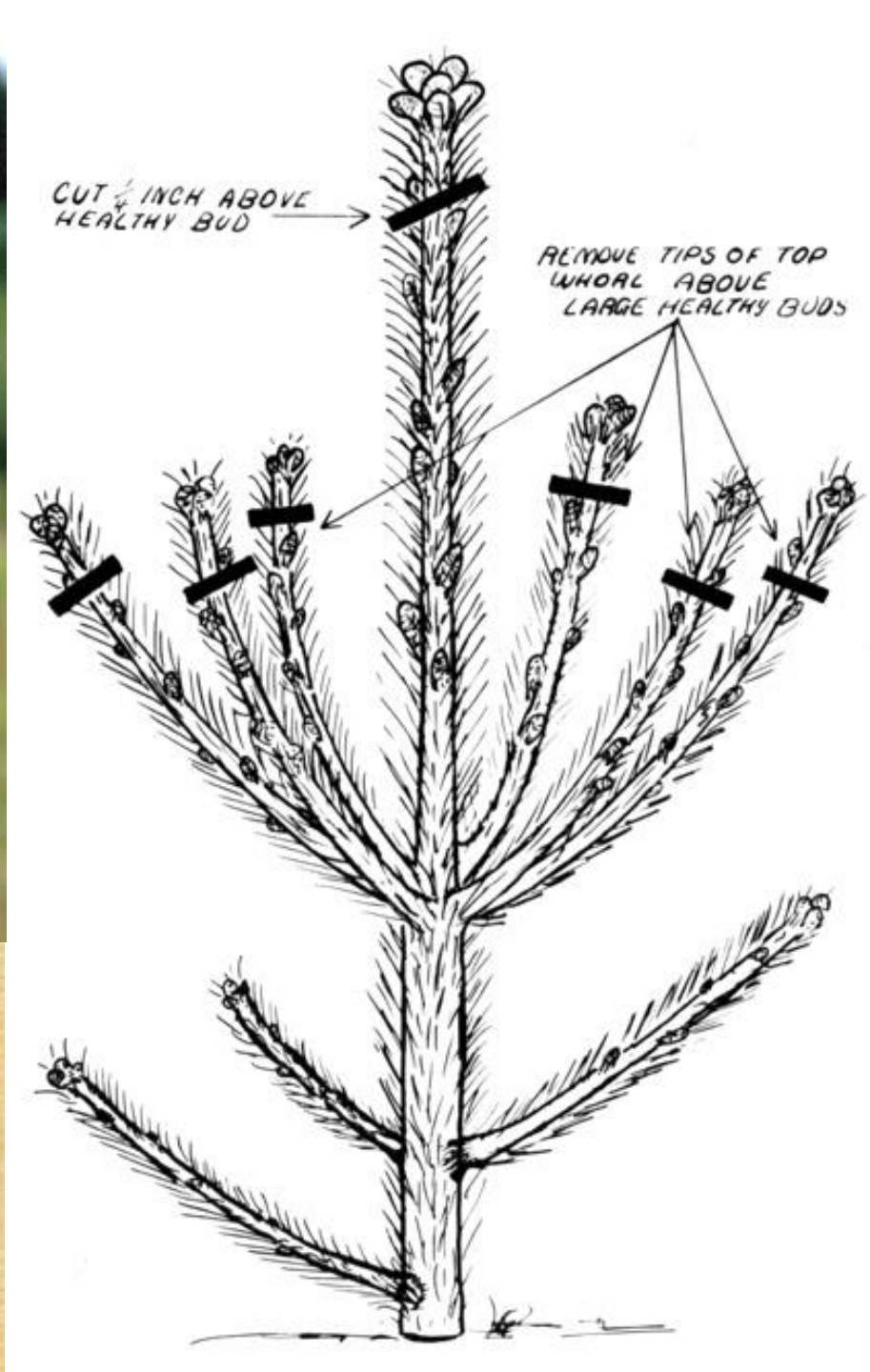












Angled cut necessary on pines

Not required on spruce or firs
because of lateral buds



Power Shearing

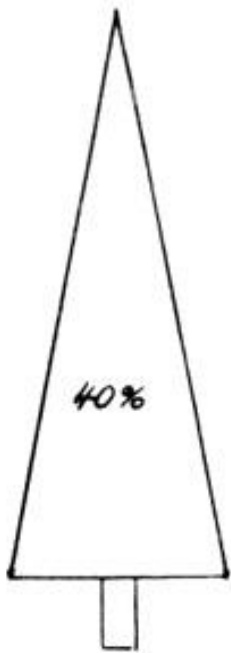




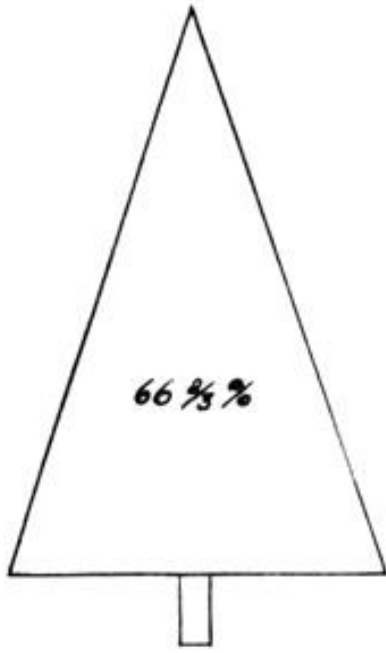


TAPER

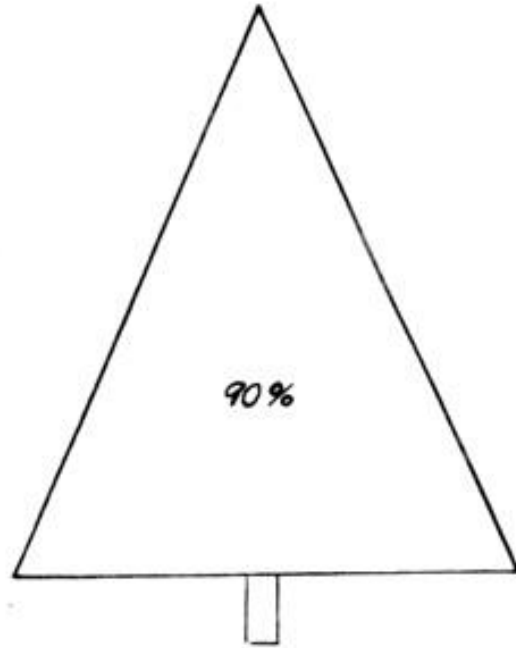
AS RELATED TO CHRISTMAS TREE GRADE



40%
MINIMUM
ACCEPTABLE
TAPER



66 ²/₃ %
IDEAL
TAPER



90%
MAXIMUM
ACCEPTABLE
TAPER

Use wide
whorl
spacing for
narrow taper

MARKETING



- Choose and Cut
 - More inputs, more \$ potentially, sales during holiday, on farm risk
- Wholesale
 - Earlier sales, known income,
- Retail Lot
 - More logistics, increased revenue



Chestnut production

- Relatively new in the US
 - 2500 acres of commercial production
 - Europe and Asia consume the most
 - US imports \$20-25 million worth of chestnuts
- Be wary of the production numbers online
 - The are always inflated!
- Don't mix Chinese and other varieties

Chestnuts have climate and soils requirements

- Well drained soils
- pH of 5-6.5
- Good Air drainage (no frost pockets)
- Access to irrigation
 - Not critical but provides more consistent crops
- Deer & Squirrel can be issues.

MSU – FBIC Chestnut Trial

- 7 acres (500 trees)
 - 12 varieties
 - 8 production
 - 4 pollinators
 - 20-25ft spacing
 - Drip emitter irrigation
 - Fertilizer after establishment year
- Survival, growth, insect & disease issues, production (lbs/tree/variety), costs (planting, weed control, irrigation, mowing, harvesting)