

# **FROM TREE TO THEE**

## **TVWW LUMBER MANAGEMENT**

**Tellico Village Woodworkers Kiln Operations**

**July 2019**

# AGENDA

- Opening Remarks
- Program History
- Log Procurement
- Cutting Lumber
- Drying Process
- Historical Logs Available
- Lumber Pricing
- Lumber Sales
- Q&A



# KILN HISTORY

Prior to 2011 the Club air dried lumber

Up to 3 stacks could be dried

Each layer had to be sprayed for bugs

Stacks got 4-6' high

Covered with chipboard

Weighted down with cement blocks

Lumber quality was mixed...

Lots of splits

Lots of warping



Dave Breen: King of the Stack

# KILN HISTORY

In Sept 2011 the process changed

- A club member donated funds to buy a Nyle LM200 kiln
- The POA donated a metal shed as a building base
- Because of the acidic fumes coming from the drying wood...
  - Special interior paint was needed
  - Stainless steel screws were used as fasteners
  - Outlets and other fixtures needed to be steel
- Kiln capacity is around 700-800 board feet



# KILN HISTORY: STORAGE ADDITION

In April 2014 the club built a kiln storage addition

It addressed the issues of....

- Excess good lumber that did not sell.
- Over saturation of some types of lumber
- Recognizing the lumber demand around Toys 4 Tots
- That individuals need lumber on other than sale dates
- Allowing excess logs to be cut vs. allowing them to sit
- Storage for donated lumber.



# **THE LUMBER MANAGEMENT PROCESS**

# LOG PROCUREMENT

## 1. Donations

### Log Sources

- From cleared lots
- From a land owners
- From a tree service
- From the POA
- From an individuals

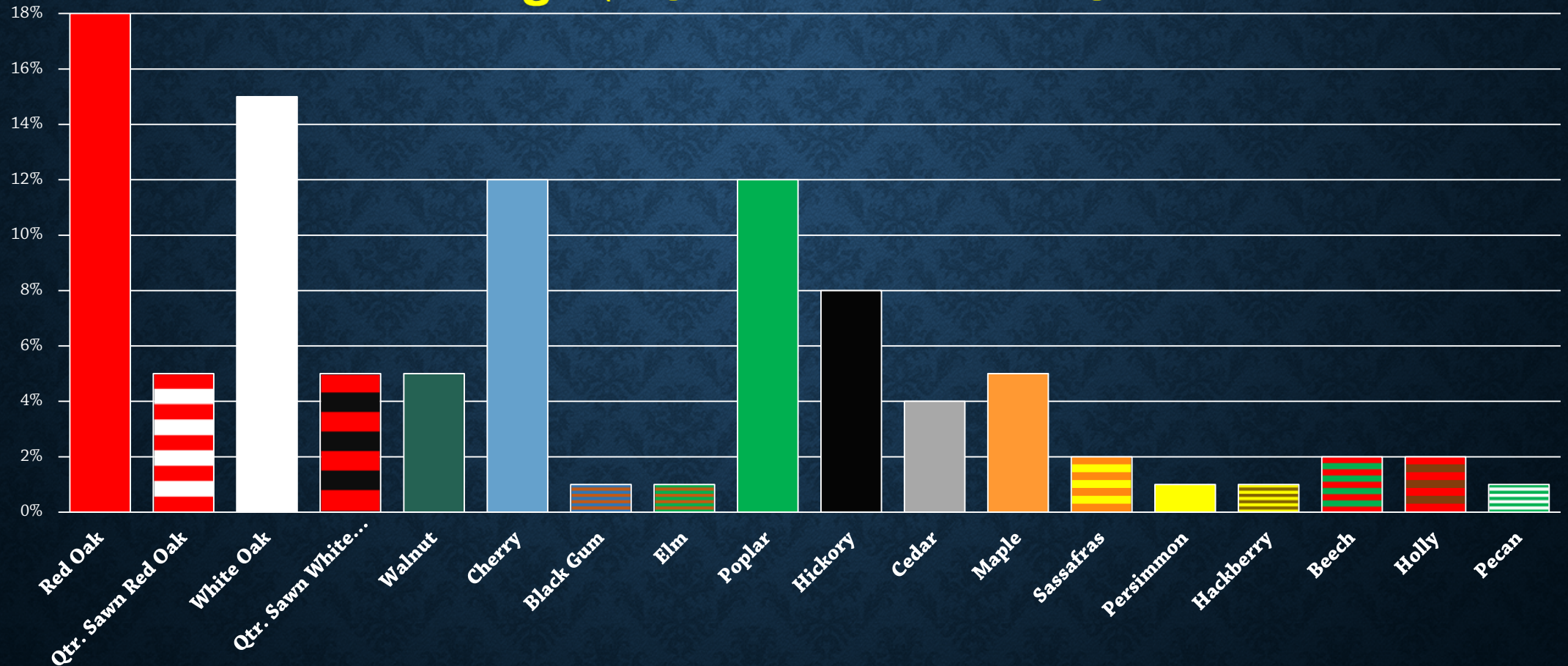
### Lumber

- From individual donations



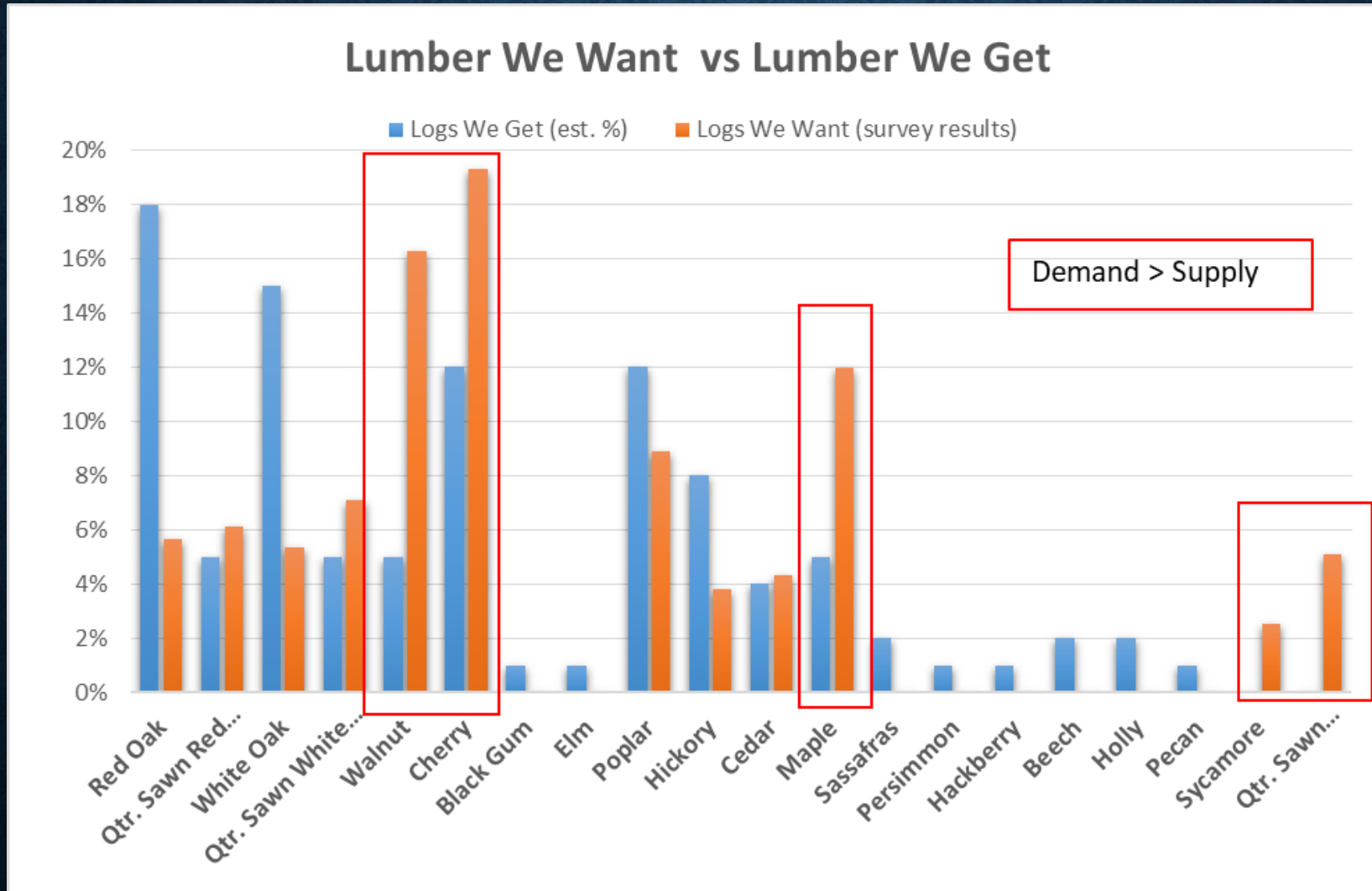
# SUPPLY OF LOGS

**% of Logs** (Rough Estimate ... Colors Denote Log End Paint)





# DEMAND vs SUPPLY



# LOG PROCUREMENT

## 2. Purchased

- From a Tree Service
  - Recently for the 1<sup>st</sup> time, we purchased logs
  - Wood offered to all members
    - though a pre-buy plan
    - sight unseen.
  - (23 members took part in this purchase)
- From an Individual
  - Selling dimensioned lumber
  - Club purchase
  - Donations

# CUTTING

Automated Plain Sawing with Jayson



Manual Quarter Sawing with Jacob



## CUTTING LARGE SYCAMORE



# Tellico Village Woodworkers Sycamore Tree Cutting 5/7/2019



Whole end had to be cut off – Barbed wire wrapped inside

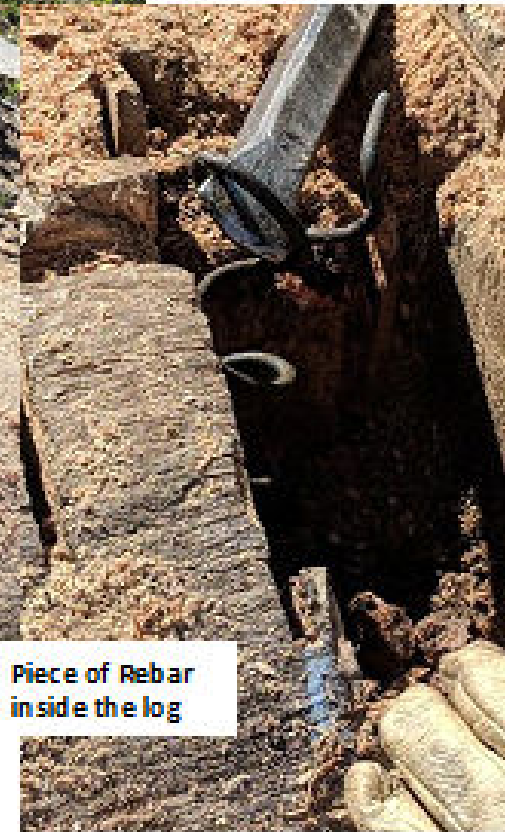


There were 3 hardened steel spring tines buried deep within the tree. Also, nails, bolt and barbed wire

# Tellico Village Woodworkers Sycamore Tree Cutting 5/7/2019



Went through  
3 saw blades



Piece of Rebar  
inside the log



Spring Tine

# CUTTING PROCESS



- Log is Selected
  - Placed on Saw, Lifted & Rotated Onto Saw Bed
    - Log is Squared as Boards are Cut
      - Saw hydraulically Rotates Log Blank
        - Cut Lumber is Manually Offloaded From Saw
          - Lumber Placed in Trucks to be Taken To Kiln



# CUTTING: MEMBERS NEEDED TO HELP

1. Cutting logs to 9' lengths
2. Painting log ends
3. Checking for & removing any metal
4. Off loading waste trim boards
5. Shoveling sawdust into a pile
6. Off loading cut lumber
7. Loading lumber into trucks
8. Transporting lumber to kiln
9. Off-loading lumber at kiln
10. Cleaning sawdust from lumber
11. Stacking and sticker-ing lumber in kiln



# DRYING PROCESS

- Why do we dry
- Moisture
  - Free water
  - Bound water
- Minimize degradation while drying
  - Cupping
  - Checking
  - Cracking
  - Molds
- Drying Methods
  - Air Drying
  - Kiln Drying



# DRYING PROCESS

- Ensure even air circulation through stack
  - Stickers
  - Stacking
  - Baffles

Manage temperature and humidity

- Dry and wet bulb probes
- Guidelines for initial settings by wood group and initial moisture content
- Guidelines for rate of drying
  - Group 1 woods like pine – moisture wicks easily – dry quickly to minimize mold formation
  - Group 3 woods like oak – quickly first few days --  $\leq 1\%$  per day to minimize stress build-up

“Bug Kill” at end of cycle – 24 hours at 140°F to kill any live beetles or larvae

Lower temperatures and let air continue to circulate to allow moisture levels to equalize

# DRYING PROCESS

- Daily monitoring during dry cycle
  - Adjust temperature / humidity
  - Re-fill water bottle for wet bulb
  - Treat any mold
  - Verify proper kiln operation
- Remote monitoring now in operation
  - Augment daily visits
  - Hourly record
  - High temperature alarming

# LUMBER PRICING WHY \$1 PER BOARD FOOT?

Club Lumber Management  
Objective

... to provide Club  
members quality lumber  
at the lowest price that  
will cover costs.

Average Kiln Statistics per Load

- 1200 BF in maximum load
- Average 1000 BF.
- Average yield is about 75%
- About 750 BF is sold
- Average 4 cuttings per year

# LUMBER PRICING

Cost		Cost/Yr Assuming # Cuttings Per Year			
		1	2	3	4
Kiln Space Rental (per yr)	\$ 200	\$ 200	\$ 200	\$ 200	\$ 200
Kiln Amortization (per mo)	\$ 50	\$ 600	\$ 600	\$ 600	\$ 600
Sawyer (avg per cutting)	\$ 275	\$ 275	\$ 550	\$ 825	\$ 1,100
Electricity (avg per cutting)	\$ 175	\$ 175	\$ 350	\$ 525	\$ 700
Kiln Maint. (per yr)	\$ 300	\$ 300	\$ 300	\$ 300	\$ 300
<b>Total Cost Per Year</b>	<b>\$ 1,000</b>	<b>\$ 1,550</b>	<b>\$ 2,000</b>	<b>\$ 2,450</b>	<b>\$ 2,900</b>
Cost/BF (assuming 750 BF/cutting)		\$ 2.07	\$ 1.33	\$ 1.09	<b>\$ 0.97</b>

# Lumber Pricing

- Current Pricing for TV Kiln Dried Lumber is significantly below market costs

TVWW vs Market Cost Comparison			
Type of Wood	TVWW Cost	Market Cost (FAS 3Qtr 2-6" wide)	Source
Walnut	\$1.00	\$7.30	**
Cherry	\$1.00	\$4.94	**
Hickory	\$1.00	\$2.46	**
Maple	\$1.00	\$4.48	**
Poplar	\$1.00	\$2.15	**
Pine	\$1.00	\$2.20	**
Cedar	\$1.00	\$3.16	**
Red Oak	\$1.00	\$3.09	**
Qtr. Sawn Red Oak	\$1.00	\$8.25	*
White Oak	\$1.00	\$3.75	**
Qtr. Sawn White Oak	\$1.00	\$10.00	*
Sycamore	\$1.00	n/a	
Qtr. Sawn Sycamore	\$1.00	\$8.00	*

Source: \*Hearnes Hardwoods \*\*Cline Brothers

# LUMBER SALES

**Sale times:** The board plans the dates and times based on:

- 1) When the lumber will be fully dried.
- 2) When members (responding to our survey) are most able to participate.
- 3) When the sale will not interfere with POA operations.
- 4) When the weather looks promising.
- 5) When a kiln management member and a sales manager are available.

**Price:** The board sets the price



# LUMBER SALES

**Sale announcement:** Via meetings, Newsletter, e-mails

**Sale preparation:**

- 1) Kiln is unloaded and lumber is displayed in the area by the kiln.
- 2) Special cuts
- 3) Donor lumber



# RECENT WOOD SALE (WORMY OAK AND DONATE LUMBER)



# LUMBER SALES

## The sale:

- 1) Lottery system.
- 2) Selection process
  - Number of boards
  - Rotation
- 3) Unsold lumber

## Club opportunities to pre-buy lumber:

- 1) Club can decide to buy logs
- 2) Cost to club--cost to members.
- 3) Survey of interest
- 4) Members pre-buy specific # bf.
- 5) Club use of pre-buy deposits
- 6) Club buys specific number of logs
- 7) Pre-buyers do the work.
- 8) Usable bf determined--board by board
- 9) Each board marked with bf
- 10) Boards selected for members
- 11) Shortages refunded
- 12) Excess sold later to membership

# Q&A

- How many saw-blades does it take to cut a large sycamore into lumber?
  - Answer: 6
- Why does some of our kiln dried wood warp?
  - Answer: To frustrate TVWW members
- Who has the next question?
  - Answer: We will soon find out?

# Leads For Lumber Management

- Coordinating with POA- Bob Fagerlin
- Obtaining Logs – Bob Fagerlin
- Log End Painting – Charlie Anderson
- Lumber Pricing – Board
- Scheduling Lumber Cuttings and Sales: Board
- Lumber Cutting – Bob Fagerlin
- Club Chain Saw Ops & Maint. – Dick Hoffmann
- Kiln Ops & Maint. – Bruce Barbre
- Lumber Sales – Lloyd Donnelly