Welcome to…

GREENSTONE'S TIMBER FORUM

March 23, 2023

GreenStone®
FARM CREDIT SERVICES

Agenda

- Michigan Association of Timbermen
- Carbon Offsets - DNR
- Timber Industry Update – MDARD
- Forest Resources Association – GLR
- Legislative Update
- MI Tech University
- Mill Updates
- AgDirect
- GreenStone Update

MICHIGAN ASSOCIATION OF TIMBERMEN

Stewards of Michigan's Forest Resources

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Timbermen Staff

Justin Knepper, Executive Director
jknepper@timbermen.org

Michelle Sears, Office Administrator
msears@timbermen.org

Michigan Association of Timbermen
7350 S. M-123
Newberry, MI 49868
(906)293-3236

Mission Statement

We are dedicated to the practice of sustainable forestry, which provides the goods and services we demand without compromising the opportunity to provide the same goods and services for future generations.

Objectives

Offer programs that reduce operating costs to improve the profitability of member firms.

Acquire greater exposure and understanding of the issues and yet untapped economic potential of Michigan’s forest industry.

Provide Michigan’s forest industry effective representation with legislators and government officials to favorably influence public policy and legislation.

Upcoming Events and Programs

48th Annual Timbermen Convention, April 20-21, 2023 at Boyne Mountain Resort

MATSIF Annual Award Banquet

SFI Continuing Education Courses

Master Logger Program Re-launch

MAT Annual Member Meeting

MAT Annual Awards Banquet

Upcoming Events and Programs

MAT Log Truck Safety Classes – SFI Continuing Education Credits

April 11 – Baraga

May 9 – Newberry

May 10 – Gladstone

June 13 – Manton

August 16 – Harrison

August 23 – McBain

FOREST INSURANCE CENTER
LOGGERS INSURANCE AGENCY
MAUCK INSURANCE AGENCY

Working Together to Meet Your Insurance Needs


LOG TRUCK SAFETY
MICHIGAN ASSOCIATION OF TIMBERMEN CONTINUING EDUCATION COURSE
WITH JIMMIE LOCKLEAR

PRESENTED BY FOREST INSURANCE CENTER'S LOSS CONTROL REPRESENTATIVE, JIMMIE LOCKLEAR

Mr. Locklear is an experienced instructor who has more than 30 years of experience in log truck safety and best practices. He has given presentations for the American Loggers Council, the Forest Resources Association, as well as most logging associations across the United States.

COURSE CONTENT

- Driver Safety
- Compliance
- Risk Control
- Best Practices
- Current and New Requirements

FOR INFORMATION OR TO REGISTER:

Michigan Association of Timbermen
7350 M-123
Newberry, MI 49868
(906)293-3236
msears@timbermen.org

EARN FOUR SFI QUALIFIED LOGGING PROFESSIONAL CONTINUING EDUCATION CREDITS

COURSE SCHEDULE

DATE: APRIL 11, 2023
TIME: 8AM-12PM
LOCATION: BARAGA LAKESIDE INN
ADDRESS: 900 HWY 41 SOUTH, BARAGA

DATE: MAY 9, 2023
TIME: 8AM-12PM
LOCATION: LMAS DISTRICT HEALTH DEPARTMENT
ADDRESS: 14150 HAMILTON LAKE RD, NEWBERRY

DATE: MAY 10, 2023
TIME: 8AM-12PM
LOCATION: LYME GREAT LAKES TIMBERLANDS
ADDRESS: 7467 CO 426 M.5 RD, GLADSTONE

DATE: JUNE 13, 2023
TIME: 8AM-12PM
LOCATION: LUTKE RENTAL HALL
ADDRESS: 9290 E 14 1/4 RD, MANTON

DATE: AUGUST 16, 2023
TIME: 8AM-12PM
LOCATION: RUNNIN GEARS, INC.
ADDRESS: 2500 MAJOR MOUNTAIN RD, HARRISON

DATE: AUGUST 23, 2023
TIME: 8AM-12PM
LOCATION: ROGER BAZUIN & SONS, INC.
ADDRESS: 240 CHERRY DRIVE, MCBAIN

Thank You to our 2023 Sponsors!

AIS FORESTRY DIVISION

MATSIF
Workers' Compensation Solutions for the Wood Products Industry

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Great Lakes Timber Professionals Association
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Introduction to Forest Carbon Credits for Loggers and Landowners

(as of March 2023…)

Mike Smalligan

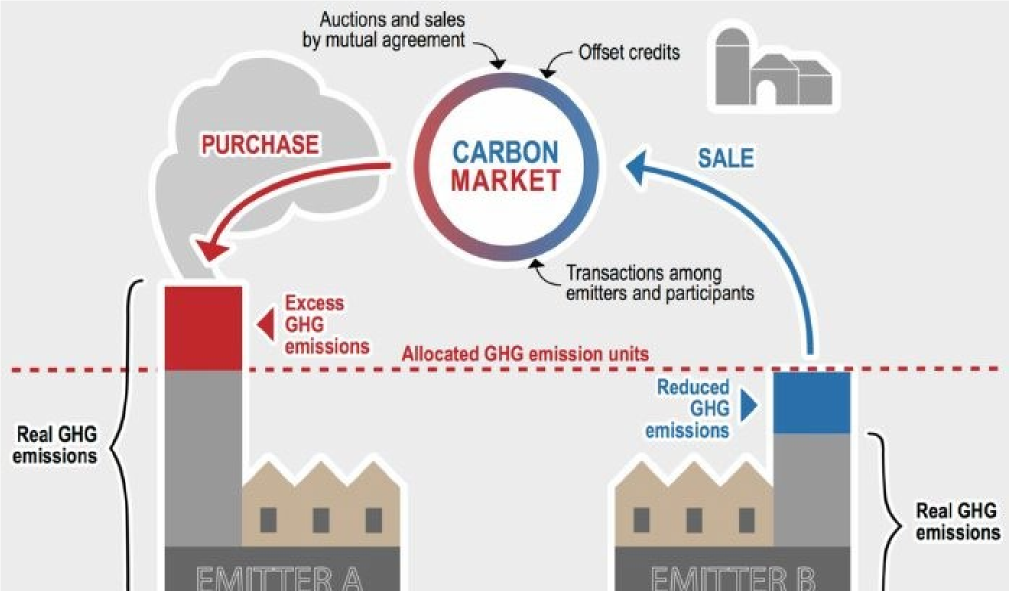
Michigan Forest Stewardship Program

SmalliganM@Michigan.gov or 517-449-5666

Recorded at YouTube.com/@MichiganSAF

Summary for Loggers

- Opportunities for Landowners
  - Forests are the good guys
  - New, but small, income stream
- Understand the Flaws and Risks
  - Tree Huggers: not "additional"
  - Loggers: very few prohibit timber harvests
  - Landowners: low price & long contract
- Don't be Afraid
  - Most allow commercial harvests
  - Small percentage of forests in carbon
    - USA: 6 of 766 million acres or 0.8%
    - MI: 800k of 20 million acres or 4%
- Forests are complex & amazing ecosystems
  - Water & wildlife & wood & carbon & biodiversity
  - SFI Principal #12 - **Continual Improvement**



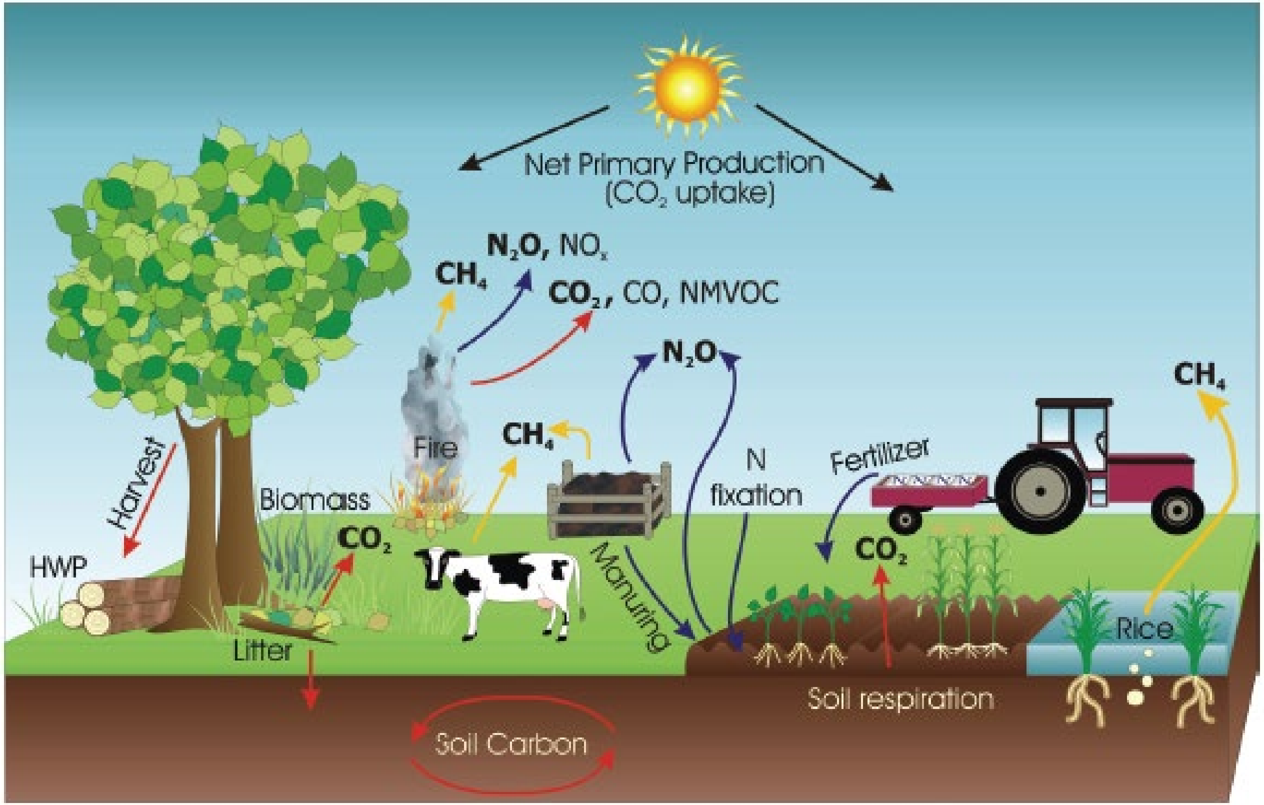
Reducing GHG emissions is very expensive $$$.

Increasing sequestration (offsets) is cheaper.

Both lower GHG in atmosphere.

Overview of Forest Carbon Credits

- Science
- Ethics
- Policy
- Markets
- Forest Carbon Programs
- Ask Hard Questions!
- Where to get Information

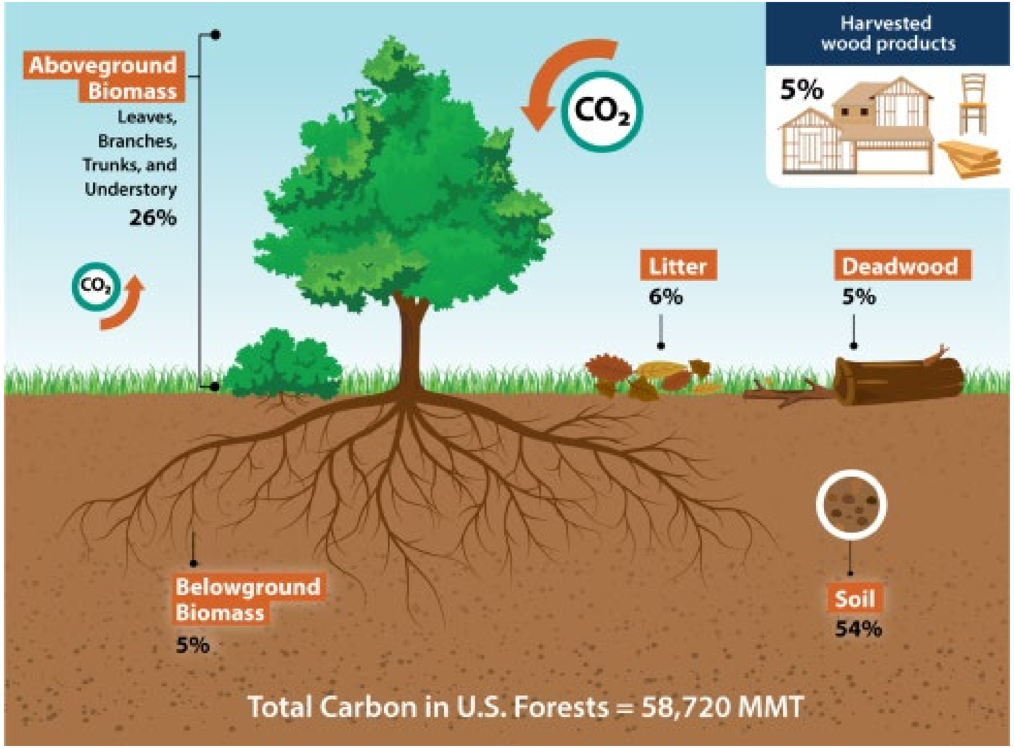


Photosynthesis sequesters carbon from atmosphere and stores it in wood.

$$6CO_2 + 6H_2O >>>>> C_6H_{12}O_6 + 6O_2$$

Science: Six Forest Carbon Pools

- Above Ground Biomass (22% of MI forests) $$
  - Herbaceous and woody
- Below Ground Biomass (4% of MI forests) $$
  - All live roots >2 mm
- Dead Wood (4% of MI forests)
  - >10 cm – standing, down and roots
- Litter (5% of MI forests)
  - Dead materials on soil surface 2 mm to 10 cm
- Soil Organic Matter (65% of MI forests)
  - Organic carbon in mineral soils to 30 cm
- Harvested Wood Products (national inventory)
  - Wood and paper in use or in landfills
  - ***Mass timber construction in Michigan!***



Science: Carbon Stocks in Michigan's Forests

- Forest carbon stocks increased 7% in Michigan since 1990
  - Forest land stable at 20 million acres
  - Biomass per acre is increasing
  - Low emissions from forest fire

- Michigan's forests sequestered 12% of our state's 2018 GHG emissions (-19.3 of +162 MMT)
  - Deforestation in tropics is 24% of global greenhouse gas emissions (AFOLU)

- Average carbon per acre in biomass
  - 27 tons carbon = 100 tCO_2e

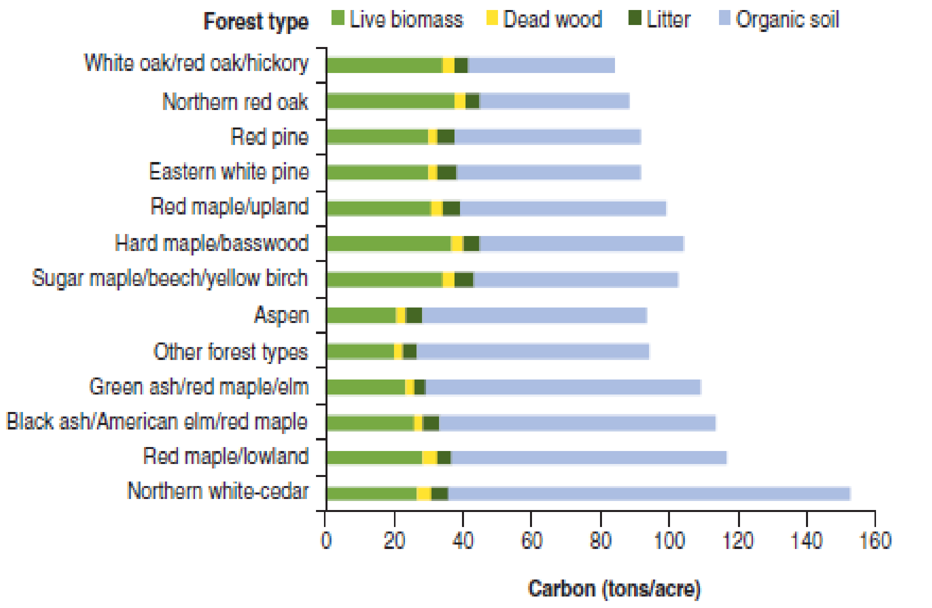
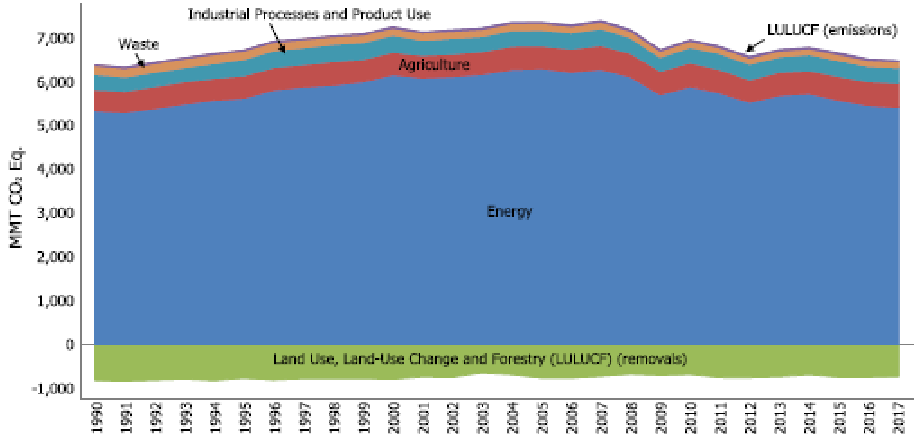


Figure 59.—Carbon stocks by forest type and category that comprise at least 2 percent of live tree aboveground carbon, Michigan, 2014.

Source: Michigan Forests 2014, by Scott Pugh et al, USFS

Science: Does climate change harm loggers?

Figure ES-12: U.S. Greenhouse Gas Emissions and Sinks by Chapter/IPCC Sector (MMT CO_2 Eq.)



- America is NOT reducing its greenhouse gas emissions
- "net zero goals" will increase demand for offsets
- Forests sequester 11% of America's GHG emissions

- Current Impacts
  - 50 degrees and rain in January
  - Frost law restrictions on February 13
  - Extreme precipitation damages roads
- Future Impacts
  - Increased insects and diseases
  - Increased risk of wildfire
  - Reduced health & productivity
  - Instable seasonal supply to mills
  - Species migration away from mills
- What have you noticed in your business?

Ethics: Environmental Justice & Limitations of Offsets

- Climate change has disproportionately harmful impacts on the global poor
  - Poor in developing world have tiny GHG emissions per capita
    - Kenya = 0.3; India = 2; China = 7; Germany = 8; *Smalligan = 12 tCO2e;* USA = 16 tCO2e
  - Poor in developing world pay a much higher price for our changing climate
    - *Poor farmers in developing world will be displaced or starve, not receive big USDA subsidies*

- Rich nations developed their economies by emitting greenhouse gases
  - Industrial revolution built on fossil fuels for the last 250 years
  - Land use change to "tame the wilderness" at continental scales (global AFOLU is still 24%)
  - "Loss and Damage Fund" at COP 27 – rich countries *[might]* pay poor countries for harm

- Critiques of forest carbon offsets
  - *Offsets are by design intended to allow polluters to pollute longer and cheaper*
  - Not additional ("IFM" does not require change in landowner behavior)
  - Forest carbon isn't truly permanent (fire, insects, wind, ice, land use change, etc.)
  - Complex and expensive to measure forest carbon – market failures for smallholders
  - Forest products are not completely carbon neutral (carbon in Harvested Wood Products)
  - *Underserved communities can't access markets and USDA programs*

Policy: How to Respond to Ethics and Science?

- 1963 – Clean Air Act
- 1972 – Clean Water Act
- 1983 – International Tropical Timber Agreement
- 1992 – Earth Summit in Rio
  - United Nations Framework Convention on Climate Change
  - United Nations Convention on Biological Diversity
  - United Nations Convention Combating Desertification
- 1997 – Kyoto Protocol
- 2003 – Chicago Climate Exchange
- 2006 – Assembly Bill 32 established cap and trade in California
- 2009 – Waxman-Markey bill passed House; Kerry-Boxer bill failed in Senate
- 2009 – Regional Greenhouse Gas Initiative for cap and trade in 11 states in northeast
- 2016 – Paris Climate Accord
- 2017 – United States Climate Alliance
- 2021 – Michigan's House Bill 5422 and 6067 to restrict DNR sale of carbon credits
- 2022 – Inflation Reduction Act *($450 million carbon, $700 million Legacy, $1.5 billion Urban)*

Policy: Michigan House Bills 5422 (2021) and 6067 (2022)

(1) A state department or agency shall not enter a contract to sell a carbon offset credit.

(2) As used in this section, "carbon offset credit" means a transferrable instrument that is certified by an independent third-party certification body to represent the sequestration or reduction in emissions of a specified amount of carbon dioxide or an equivalent amount of another greenhouse gas.

PA 451. 324.52503 Forestry development, conservation, and recreation management plan.
(3) Beginning October 1, 2018 and each year thereafter, the *department shall prepare for sale a minimum of 90% of the yearly statewide harvest objective.*

The department may sell carbon credits or ecological services from the state forest and other state-owned lands, or from lands controlled by the department, if all of the following criteria are met:

(a) The carbon credits or ecological services are verified by a third party.

(b) The sale does not prevent or restrict continued land management as outlined by the department's land management plans or strategies.

(c) Unless otherwise provided by law, the proceeds from the sale are deposited into the forest development fund established in section 50507.

Policy: Inflation Reduction Act of 2022

- $5 billion for forestry though US Forest Service
  - Section 23001 is $2.1 billion to Forest Service to improve federal forests
  - Section 23002 is $550 million in competitive grants for non-federal forests
    - $300 million for underserved landowners to access carbon markets and increase sequestration
    - $150 million for landowners to access carbon markets and practices to increase sequestration
  - Section 23003 is $2.2 billion for cooperative forestry programs (Legacy & UCF but $0 for FSP)
  - Section 23005 is $100 million for USFS administrative costs

- $22.3 billion for agriculture (~10% forestry) primarily through NRCS
  - Section 21001 is $18 billion for EQIP, CSP, ACEP and RCPP
  - Section 21002 is $1.4 billion for technical assistance
    - $1 billion for technical assistance (CPA 106 plans…)
    - $300 million for NRCS staff to inventory GHG emissions or sinks from conservation practices
    - $100 million for USDA administration costs
  - Section 22007 is $3 billion for underserved landowners

AFF was awarded a $35 million USDA Climate Smart Commodity grant in FY22 to expand Family Forest Carbon Program….

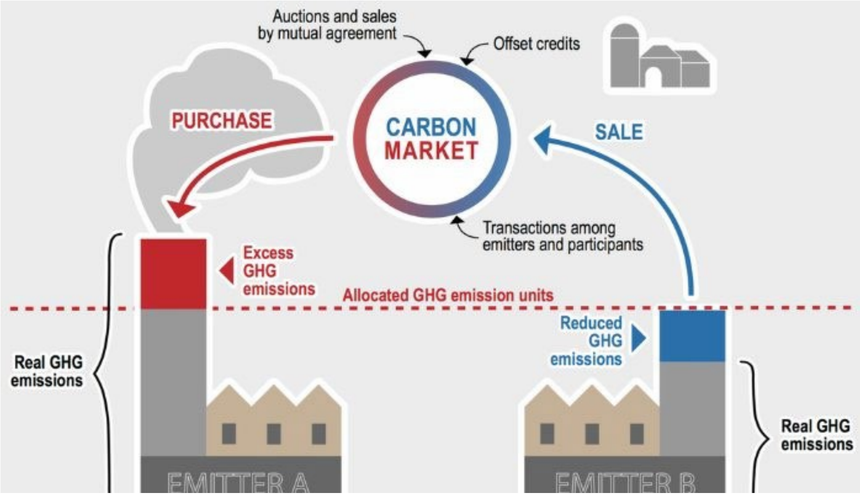
Markets: Greenhouse Gas Markets & Offset Credits

- **Two basic economic options**: Carbon Tax or Cap and Trade
  - Carbon TAX – make pollution expensive & invest in technology and adaptation (requires smart government)
  - Cap & Trade – find efficiencies in the market (innovation in private sector; *George HW Bush, acid rain in 1990*)

- Regulatory Markets (required by law)
  - EU Emissions Trading System (2005), Canada, Mexico, Australia, Kazakhstan, California (2006), RGGI (2009)
  - Legally binding requirements for polluters to reduce emissions
  - Offsets allow a polluter to reduce GHG cheaper and faster than lowering their own actual emissions

- Voluntary Markets (absence of policy)
  - Corporate social responsibility - **net zero goals**
  - Defined rules and tracking of credits on registries
  - “Opaque” over the counter (OTC) transactions – prices?

- Essential Concepts for Offsets in Markets
  - *Verifiable – can it be measured independently?*
  - *Permanent – is it really mitigating climate change?*
  - *Additional – is it more than business as usual?*
  - *Leakage – displace emissions to somewhere else?*



Markets: Registries, Standards, Methodologies & Rules

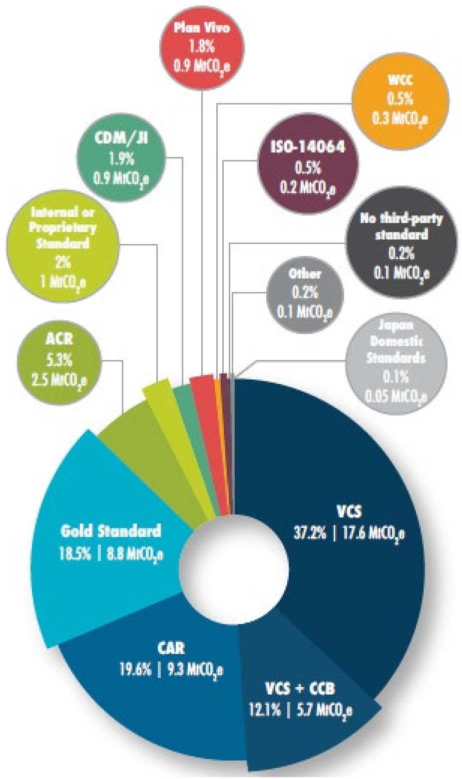
- Registries – track sale of credits (price & buyer not public)
  - AmericanCarbonRegistry.org (ACR by Winrock)
  - ClimateActionReserve.org (CAR by CA Air Res. Board)
  - Verra.org (formerly Verified Carbon Standard or VCS)
  - CityForestCredits.org

- Standards – rules for overall market & many project types

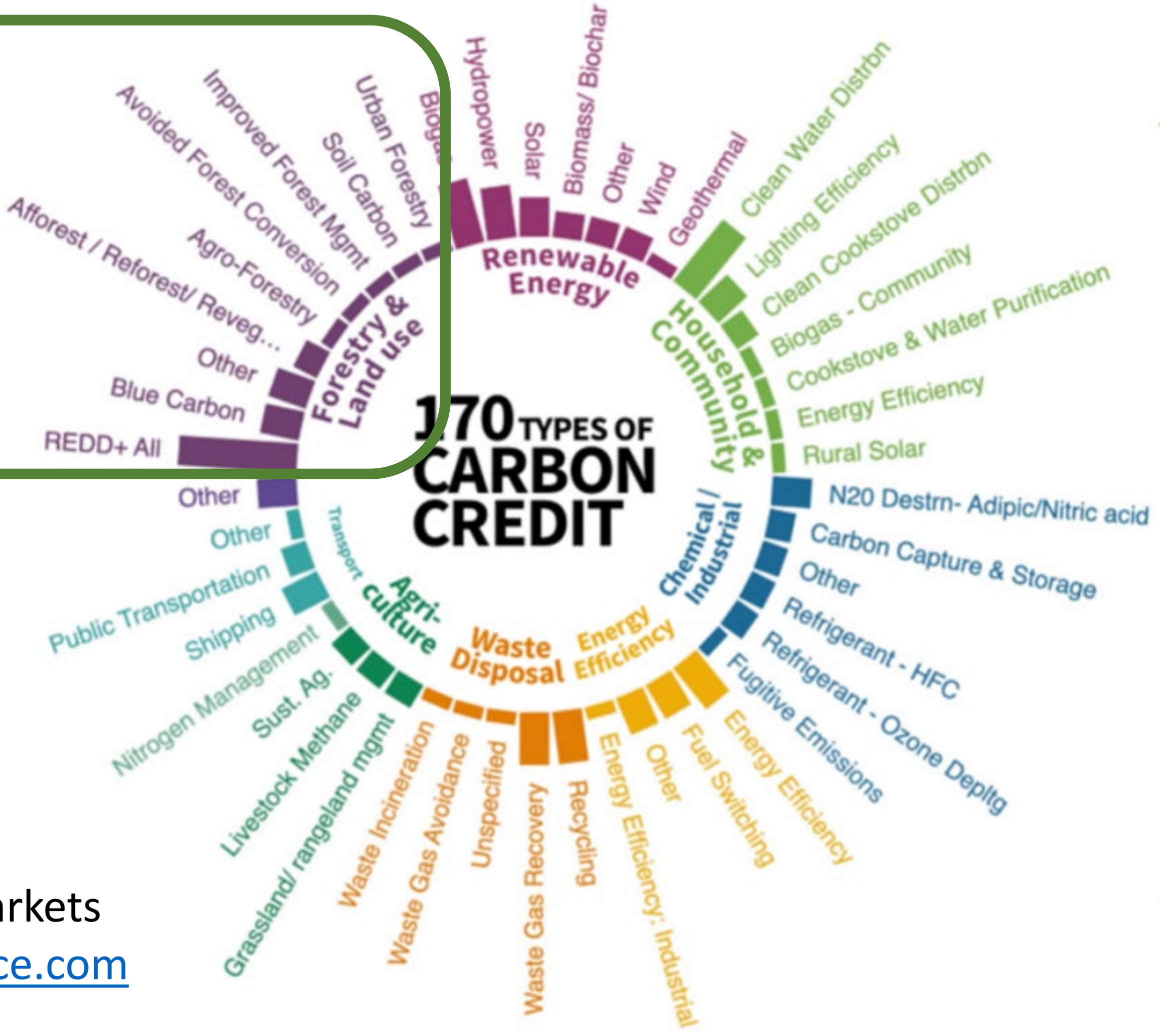
- Methodologies – how to measure, report & verify carbon
  - A/R – afforestation or reforestation
  - IFM – improved forest management
  - REDD – reducing emissions from deforestation & degradation

- Developer's unique **rules & contracts** to comply with above

Figure 9: Market Share by Standard, 2015



Markets:
170+ types of carbon offset credits



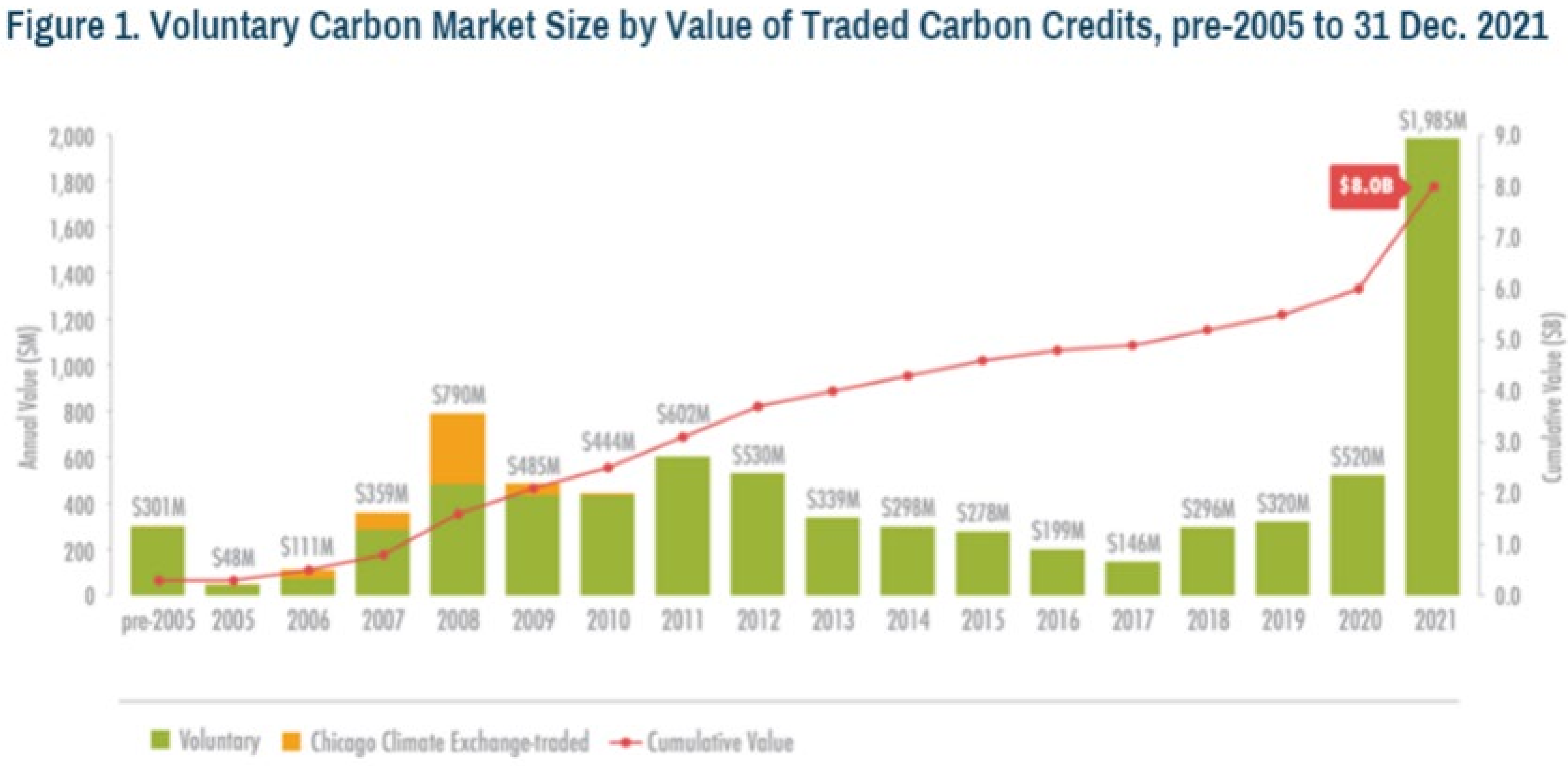
"State of the Voluntary Carbon Markets 2022 Q3" by EcosystemMarketplace.com

Markets: Volume of Credits and Price per tCO2e are Rising

global data	2019			2020			2021		
Type of Credit	**Volume (M tCO2e)**	**Price ($/tCO2e)**	**Value (M USD)**	**Volume (M tCO2e)**	**Price ($/tCO2e)**	**Value (M USD)**	**Volume (M tCO2e)**	**Price ($/tCO2e)**	**Value (M USD)**
Forestry & Land Use	37	$4.30	$159	58	$5.40	$315	228	$5.80	$1,328
Renewable Energy	42	$1.40	$60	94	$1.08	$102	221	$2.26	$480
Energy Efficiency	3	$3.90	$12	31	$0.98	$30	11	$1.99	$22
Agriculture				0.5	$10.38	$5	1	$8.81	$9

"State of the Voluntary Carbon Markets 2022 Q3" at EcosystemMarketplace.com

All Markets are Cyclical ….. CCX: born 2003, died 2010

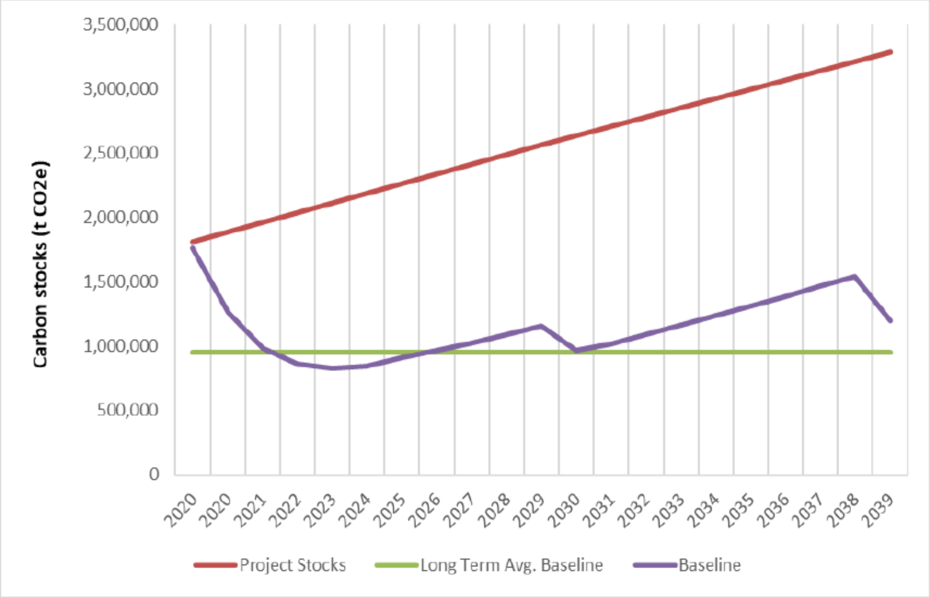


"State of the Voluntary Carbon Markets 2022 Q3" by EcosystemMarketplace.com

Steps to Develop a Forest Carbon Credit

1. Hire project developer
2. Inventory carbon stocks
3. Model “Baseline” forest
4. Model “Project” forest
5. Calculate current credits
6. Project Design Document
7. Hire verifier to check math
8. Set aside buffer pool for risk
9. Sell & retire current credits
10. Verify, sell & retire future credits

E1.3.13 Graph of baseline carbon stocks for first crediting period



Source: Finite Carbon’s Project Design Document for 29,000-acre Hiawatha Sportmen’s Club carbon project submitted to AmericanCarbonRegistry.org using ACR’s “Improved Forest Management” methodology that does NOT prohibit harvesting.

Table E5.1 Estimate of Net ERT’s by Year (Incluc

Reporting Period	Year	Estimated GHG emissions reductions (mt CO_2e)
1	2020	330,575
2	2021	218,134
3	2022	77,613
4	2023	47,656
5	2024	47,656
6	2025	47,656
7	2026	47,656
8	2027	47,656
9	2028	47,656
10	2029	47,656
11	2030	47,656
12	2031	45,696
13	2032	45,696
14	2033	45,696
15	2034	45,696
16	2035	45,696
17	2036	45,696
18	2037	45,696
19	2038	45,696
20	2039	45,696

Overview of Forest Carbon Credits for Rural & Urban Forests

Project Type & Landowner Size	Green Trees	City Forest Credits	CAR's Climate Forward	NCX	Family Forest Carbon	Forest Carbon Works	CORE Carbon (Finite)	Finite Carbon	Anew (Blue source)	Timber Sales	Property Taxes
afforestation / reforestation	$30 - 50 ac / yr	Urban $34 tCO2e	ex-ante			TBD??					$10 - $60 ac / yr
avoided conversion (easement)		Urban $34 tCO2e	ex-ante								$10 - $60 ac / yr
IFM 1 to 40 acres *[don't bother]*				$2 - 14 ac / yr							$10 - $60 ac / yr
IFM 40 to 240 acres				$2 - 14 ac / yr	$7.5 - 10 ac / yr		$30 - 40 ac / yr			$25 - $100 ac / yr	$10 - $60 ac / yr
IFM 240 to 2,400 acres				$2 - 14 ac / yr	$7.5 - 10 ac / yr	$8 - 20 ac / yr	$30 - 40 ac / yr			$25 - $100 ac / yr	$10 - $60 ac / yr
IFM 2,400 to 5,000 acres				$2 - 14 ac / yr	$7.5 - 10 ac / yr	$8 - 20 ac / yr	$30 - 40 ac / yr			$25 - $100 ac / yr	$10 - $60 ac / yr
IFM greater than 5,000 acres				$2 - 14 ac / yr	$7.5 - 10 ac / yr	$8 - 20 ac / yr		$15-22 tCO2e	$16-25 tCO2e	$25 - $100 ac / yr	$10 - $60 ac / yr

17+ Large Forest Carbon Projects in Michigan

(All documents & data online - most at AmericanCarbonRegistry.org; none at Registry.Verra.org yet)

Year	Acres	Landowner	Developer	Methodology	Initial C stocks (tCO2e/ac)	Baseline (tCO2e/ac)	C sold #1 (tCO2e/ac)	C sold #2 (tCO2e/ac)
2013	229,601	Hancock Timber	Bluesource	IFM-CAR	96	87	9	1.4
2014	18,819	Huron Mountain Club	HMC & Ruddell	IFM-CAR	165	105	58	
2017	5,637	TNC - Wilderness Lakes	Bluesource	IFM-CAR	122	91	25	
2017	77,337	Molpus Woodlands - Ned Lake	Finite Carbon	IFM-ACR	106	81	11	
2018	62,091	Molpus Woodlands - Lake Superior	Finite Carbon	IFM-ACR	95	77		
2019	25,935	TNC - Two Hearted	Bluesource	IFM-CAR	115	98		
2019	22,210	Greenleaf Timber	Bluesource	IFM-ACR	95	42	6	9
2019	15,356	Keweenaw Bay Indian Community	NICC	IFM-ACR	143	76	19	
2020	23,147	TRG - Moose County	Bluesource	IFM-ACR	106	70	1	4
2020	29,331	Hiawatha Sportsman's Club	Finite Carbon	IFM-ACR	62	35	9	2
2021	3,822	East Branch Sportsman's Club	Bluesource	IFM-ACR	149	56	14	7
2021	12,658	Keweenaw Land Association	Finite Carbon	IFM-ACR				
2021	101,272	State of Michigan - DNR	Bluesource	IFM-ACR	112	97	3	
2021	10,550	TNC - Slate River	TNC	IFM-ACR				
2021	4,800	TNC - Wilderness Lakes Scooby	TNC	IFM-ACR	98	74		
2021	13,500	Canada Creek Ranch	Bluesource	IFM-ACR				
2022	126,000	State of Michigan - DNR	Bluesource	IFM-ACR			(HB 5422 & 6067)	
Total	**782,066**							
Average	46,004				113	76	16	5

Forest Carbon Projects for Small Landowners (<5k acres)

IFM Project Attributes	NCX	Family Forest Carbon	Forest Carbon Works	CORE Carbon (Finite)	Finite Carbon	Anew (Bluesource)
Minimum Forest Size (acres)	1	30	40	40	5,000	5,000
Must enroll ALL land to prevent leakage	Yes	No	Yes	No	No	No
Developer purchases C from landowner	Yes	Yes	No	No	No	No
Market Type	Voluntary	Voluntary	both	Voluntary	both	both
Standard		VCS 4.2	VCS 4.2 & CAR	ACR 7.0	ACR 7.0	ACR 7.0
Approved Methodology	~~rejected 2022~~	VM0045 v1	VM0003 & CAR	ACR-sm-v1.0	ACR-IFM-v1.3	ACR-IFM-v1.3
Registry		Verra	Verra & CAR	CORE	ACR	ACR
Contract Period (years)	1	20	5	20	20	10
Minimum Crediting Period (years)	1	20	25	20	20	20
Monitoring After Crediting (years)	0	0	35 or 100	0	0	0
Minimum Project Term (years)	1	20	60 or 125	40	40	40
Harvesting Allowed	Yes	Yes	Yes	No	Yes	Yes
Compatible with Property Tax Programs	Yes	Yes	Yes	No	Yes	Yes
Baseline (absence of "project")	RS & models	FIA plots	Legal NPV	Legal NPV	Legal NPV	Legal NPV
Project Actions to Increase Carbon Stocks	Defer Some Harvest	Growth > Harvest	Growth > Harvest	Defer ALL Harvest	Growth > Harvest	Growth > Harvest
Potential Income for MI Landowners	$2-14 ac/yr	$7.5-10 ac/yr	$8-20+ ac/yr	$30-40 ac/yr	$15-22 tCO2e	$16-25 tCO2e

Ask Lots of Questions

- *What is the volume and value of your carbon?*
- What are your present and future obligations?
- Will you make more money selling forest products? *[yes]*
- Do carbon markets conflict with property tax programs?
- Which program and market will pay more (volume & price)?
- How are profits from sale of credits taxed? Income? Rent?

- Nothing is "free" so what developer costs and profits are reducing landowner profits?
- What is developer's fee? Is it fixed or a sliding percentage? How and when are profits shared?
- Does developer have a buyer and known price? Is the developer the buyer? Who is their buyer?
- Is the baseline too low (project not additional) or too high (project not profitable)?
- Do up-front "payments for practices" transfer ownership of future carbon credits to developer?
- Is the methodology peer-reviewed to be more credible?

- Are carbon prices going UP or DOWN in the next 20 years? *[they have increased in last 3 years]*

Where to Get More Information (it’s not fast or easy…)

- Carbon Registries
  - AmericanCarbonRegistry.org (ACR by Winrock)
  - ClimateActionReserve.org (CAR by CA Air Res. Board)
  - Verra.org (formerly VCS)
  - CityForestCredits.org

- Ecosystem Services Industry Analysts
  - EcosystemMarketplace.com/carbon-markets
  - State of the Voluntary Carbon Markets
  - Forest Carbon Portal
  - Forest-Trends.org

- Michigan’s Professional Foresters
  - Association of Consulting Foresters
  - Forest Stewardship Plan Writer
  - Qualified Forester
  - FAP Forester

FORESTRY AND LAND USE

21 TYPES
17 STANDARDS
60 COUNTRIES

Increased in volume by 4x in 2021 over 2020 and retains the lead in terms of price per ton. Forestry and Land use accounted for 46% of traded volume in 2021, up from 28% of market share in 2020. While REDD+ remained the most dominant project type traded in the category (65%), this is up from 62 % in 2020. Forestry and Land Use “Removals” were priced at around $7.90 for both 2020 and 2021, almost $3.00 higher than combined “Reductions” and “Removals” credits. Credits issued in the VCS Program (Verified Carbon Standard, developed and managed by Verra), represented 76% of all traded credits reported to EM in 2021 and of those, 74% of the volume was from Forestry and Land Use projects at 170.8 MtCO2e.

“State of the Voluntary Carbon Markets 2022 Q3”
by EcosystemMarketplace.com

Carbon Project Developers

- NCX.com, Lillian Hogan, Lillian.Hogan@ncx.com
- FamilyForestCarbon.org, Brittany VanderWall, BVanderWall@ForestFoundation.org
- ForestCarbonWorks.org, Mary Kallock, Mary@ForestCarbonWorks.com
- FiniteCarbon.com, Matt Smith, Matt.Smith@FiniteCarbon.com
- AnewClimate.com, Josh Strauss, JStrauss@AnewClimate.com
- Green-Trees.com, Chandler Van Voorhis, chandler@acre-investment.com
- CityForestCredits.org, Mark McPherson, Mark@CityForestCredits.org

Timber Industry Update

GreenStone Farm Credit Services Logger Forums

Donna LaCourt

March 2023

Michigan Department of Agriculture & Rural Development

Topics

- Global trends
- Pulp and paper markets
- Softwood markets
- Hardwood markets
- Michigan forest product exports
- Summary

Global Trends

- Transformational changes
- Digital and analytics, coupled with increasing efforts in sustainability.
- Overall increase in demand for forest products as a substitute for less sustainable materials.

[Perspectives on paper and forest products in 2022: How can CEOs navigate today's era of transformational change? | McKinsey]

Michigan Department of AGRICULTURE & Rural Development

Russia and China

- China has been the chief export destination for Russian forest products for some time.
- In 2021, forest products accounted for 8% of Russia's exports to China (second after oil and its products).
- Russian timber bypasses U.S. sanctions by way of Vietnam and China.
- FSC and PEFC, have labeled all timber from Russia and Belarus as "conflict timber" and can't be used in certified products.

Russian timber bypasses U.S. sanctions through Vietnam and China - The Washington Post

https://www.mdpi.com/2071-1050/15/3/2164

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Pulp & Paper Market Trends

- Energy volatility in Europe could create problems especially for mills depending on natural gas and potentially favor low-cost paper importers.
- Potential for increase in capital flows into wood-based biofuels.
- Central Bank efforts to rein in inflation could slow demand worldwide.
- Recent geo-political events could cause executives to rethink the risk-reward of offshore manufacturing.
- Higher packaging demand and trend towards lighter weight packaging.
- Increased demand for hygiene, food, and thermal packaging.

[Predictions for the Global Pulp and Paper Industry in 2023 (fisheri.com)]

https://www.qyelegantpaper.com/news-detail-954653#:~:text=Pulp%20and%20Paper%20Industry%20Trends%20in%202023%201,8%208.%20Thermal%20Market%20Growth%20...%20More%20items

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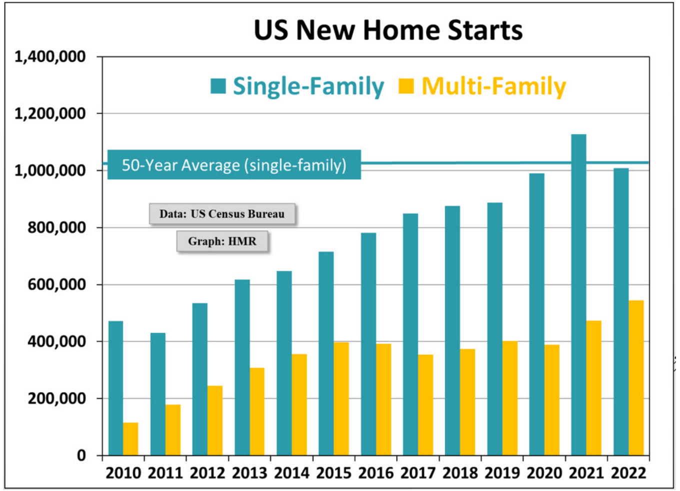

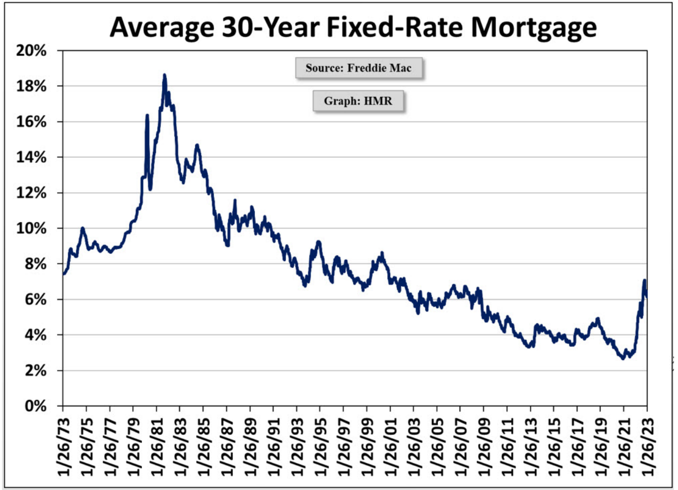

Hardwood Market Trends: Present, Past, and Future, a presentation by Andy Johnson, Hardwood Market Report at the Indiana Hardwood Lumber Association 2023 Convention and Exposition.

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Softwood Trends

- The volatility of lumber prices over the 2 years is over. Return to more usual seasonal trends.
- Sawmills are curtailing production with decreases in demand.
- New housing construction dropped again in January 2023 for the 5th month in a row and is down 21.4% from January 2022.
- Too early to tell whether building and construction activity will slow with higher mortgage rates.
- Housing shortage.

https://finance.yahoo.com/news/north-america-softwood-lumber-market-120000968.html

https://www.cnn.com/2023/02/16/homes/new-home-starts-january-2023/index.html

Reduced manufacturing volumes push lumber prices up (lesprom.com)

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Hardwood Trends

- U.S. hardwood grade lumber consumption has dropped.
- Imports of wood furniture, cabinets and countertops, hardwood flooring and wood components have increased since 2019.
- Hardwood usage not tied closely to housing starts and remodeling expenditures.
- Pallet demand holding steady, railroad tie demand is strong and demand for all other hardwood products has slowed.
- Hardwood grade lumber exports increasing again after big drop in 2018.

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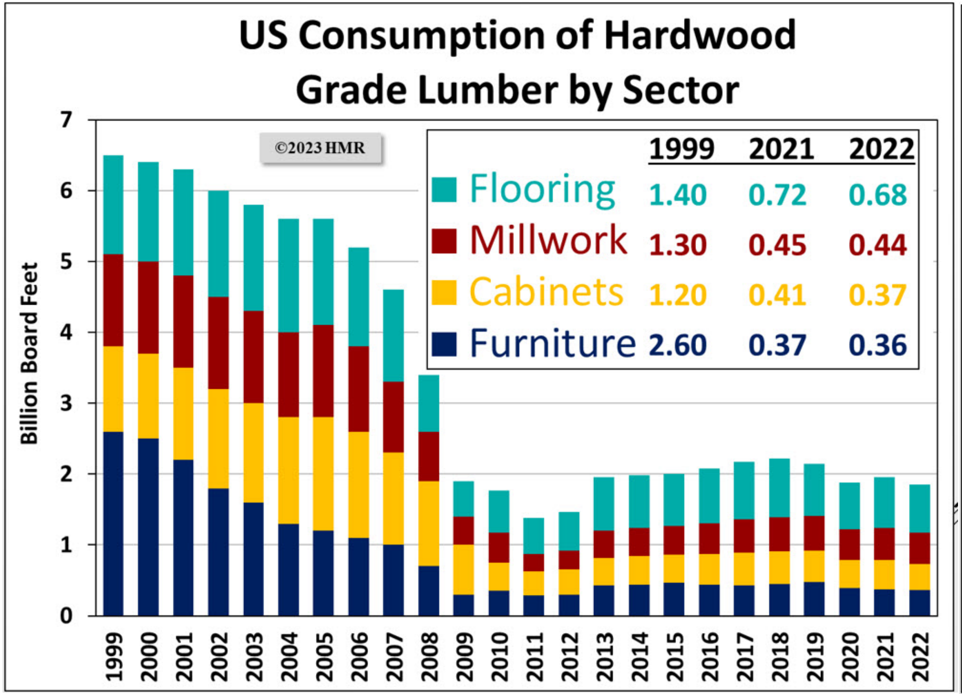
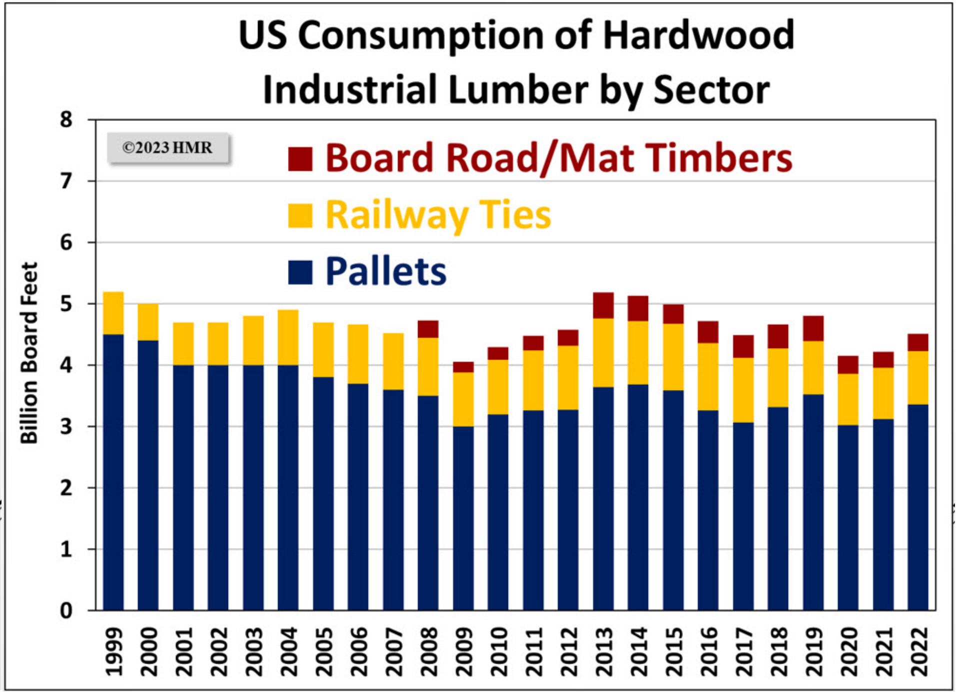
U.S. Hardwood Consumption





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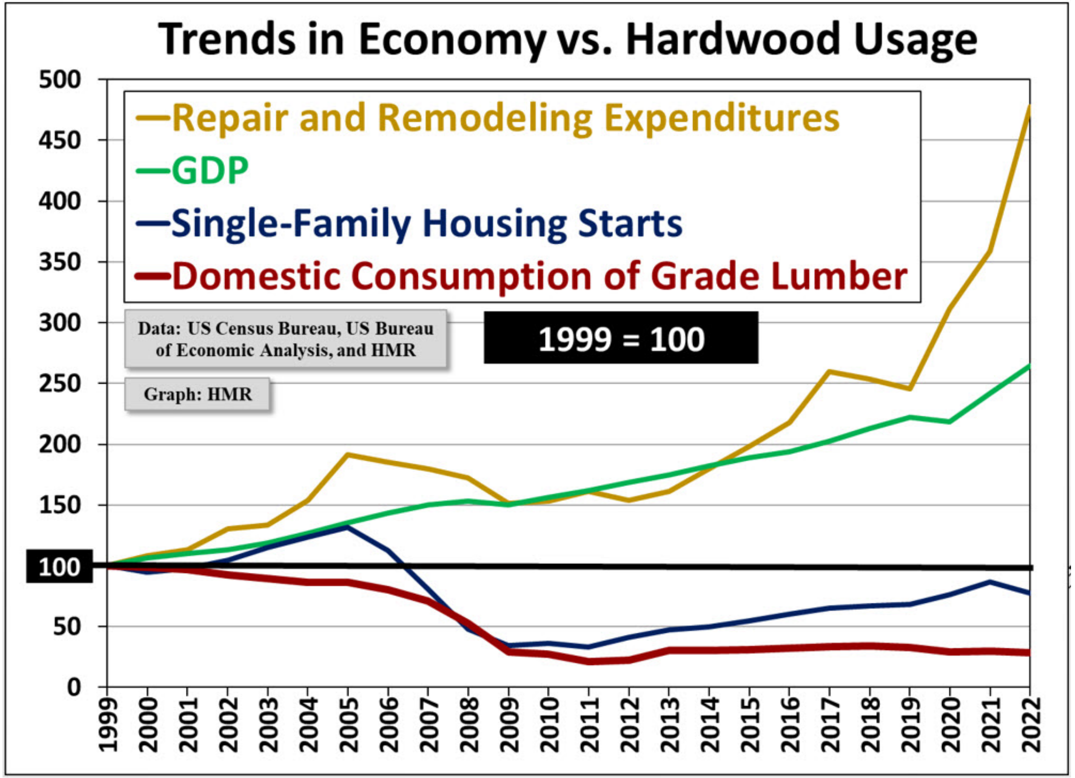
What's Happening?

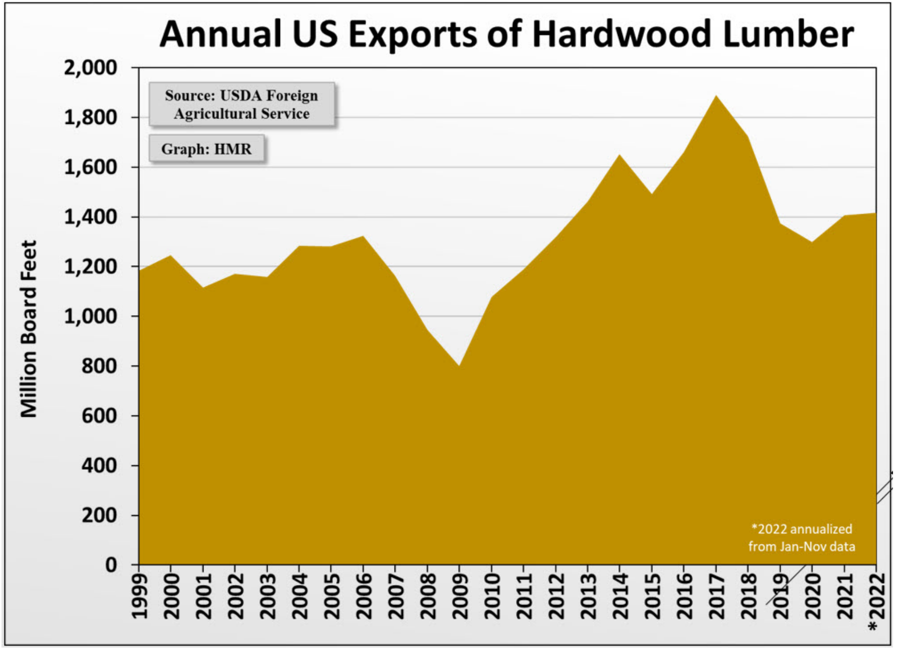


- Products like luxury vinyl tile, medium density fiber board, and plastics are being substituted for hardwood.
- Hardwood industry is promoting U.S. hardwoods through the Real American Hardwood campaign

REAL AMERICAN HARDWOOD™

Hardwood Market Trends: Present, Past, and Future, a presentation by Andy Johnson, Hardwood Market Report at the Indiana Hardwood Lumber Association 2023 Convention and Exposition.

U.S. Hardwood Exports



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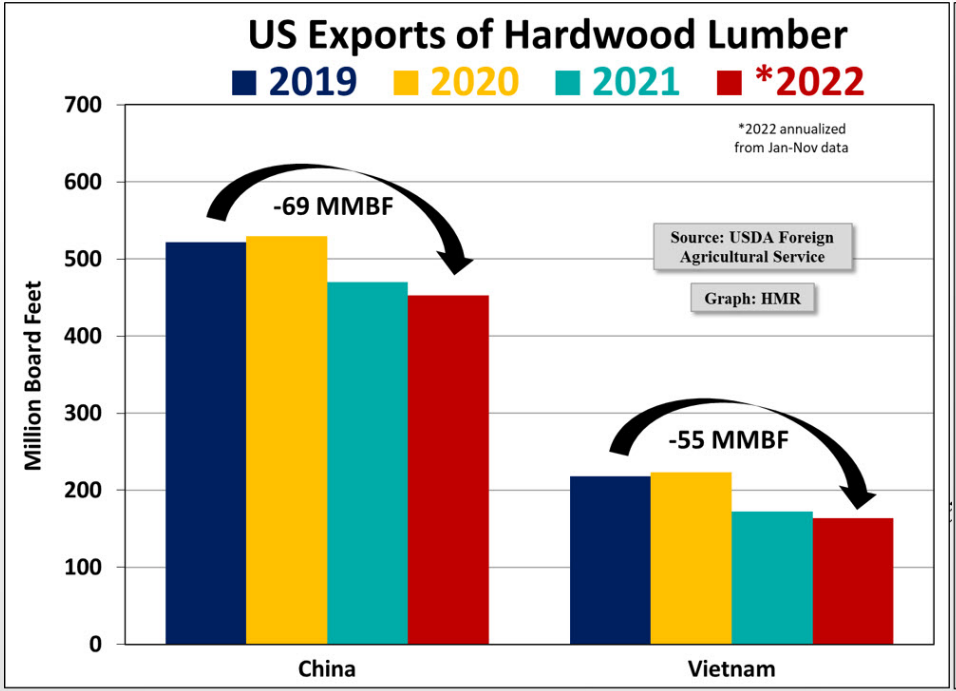
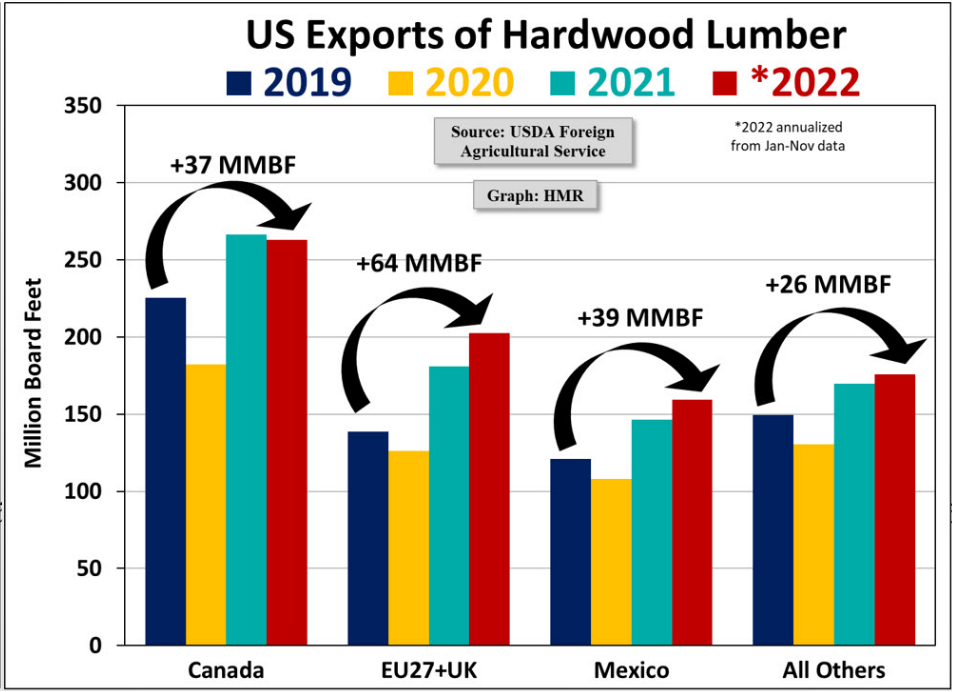
U.S. Hardwood Lumber Export Trends





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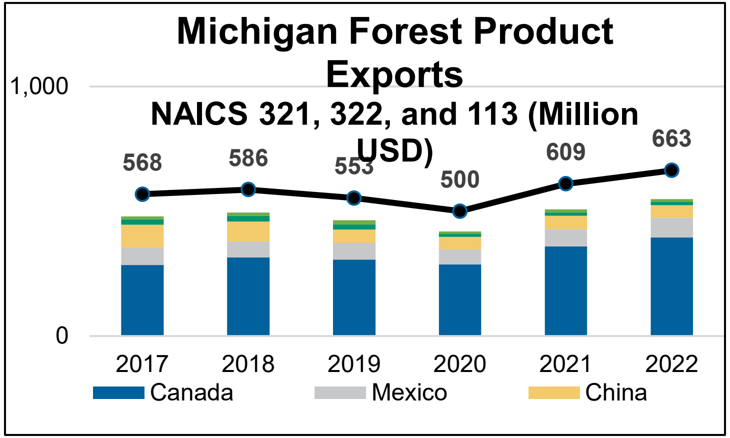
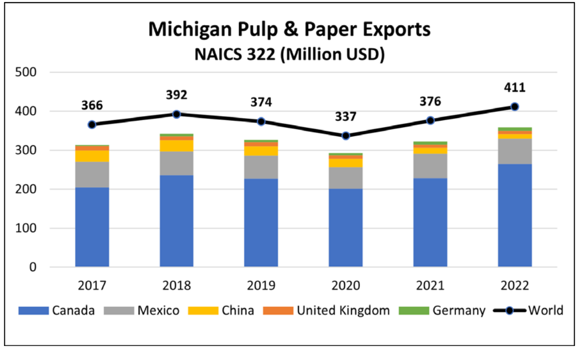
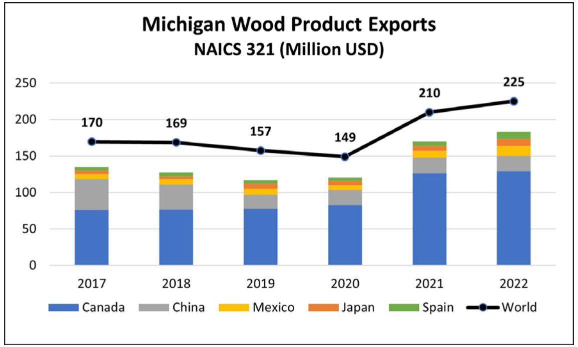
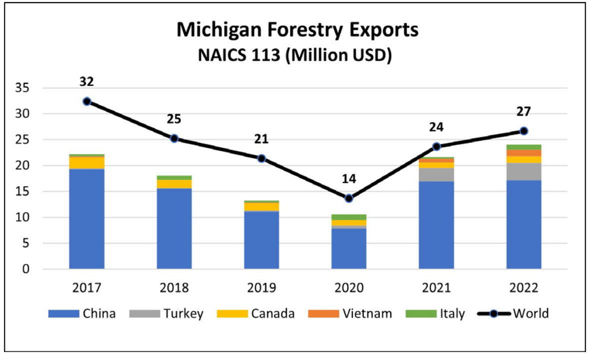
Michigan Forest Products Exports

	2017	2018	2019	2020	2021	2022
	Million USD					
Pulp & Paper (NAICS 322)	366	392	374	337	376	411
Wood Products (NAICS 321)	170	169	157	149	210	225
Forestry (NAICS 113)	32	25	21	14	24	27
TOTAL	568	586	553	500	609	663









Source: TradeStats Express http://tse.export.gov/

Michigan Department of Agriculture & Rural Development

Summary

- Strong global demand for forest products.
- Sustainability initiatives will influence forest product market opportunities.
- Lessening of price volatility and supply chain disruptions.
- Continued global market adjustments in response to Russia and China market factors.

Michigan Department of Agriculture & Rural Development

Thank you!

@MichDeptofAg

Michigan Department of AGRICULTURE & Rural Development

BREAK

GreenStone®
FARM CREDIT SERVICES

FRA®
Forest Resources
ASSOCIATION

Greenstone Logging Forum

FRA Western Region Meeting

March 21 and 23, 2023

Mission

FRA Will Proactively Lead A World-Class Supply Chain.

- Provide an effective member voice in Washington, DC
- Communicate relevant and timely information to create opportunities for company and employee success
- Maintain a thriving regional structure

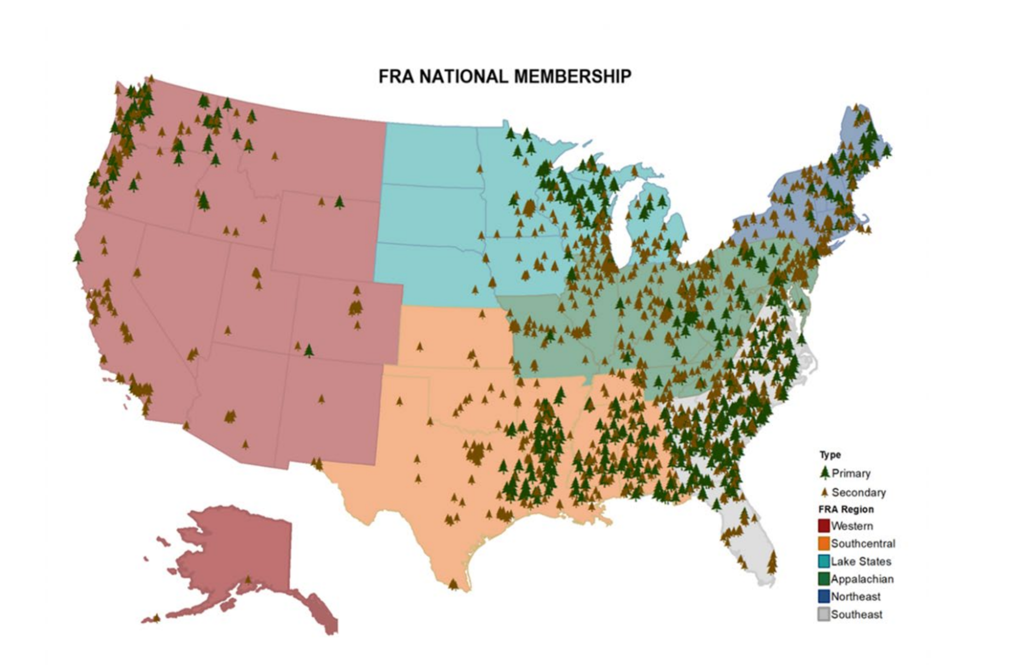
Vision

Forest Resources Association Will Be Recognized For Its Diverse Membership And Commitment To Sustaining The Success Of The Forest Products Industry.

A NATIONAL TRADE ASSOCIATION WITH BROAD MEMBERSHIP

- Loggers
- Trucking Companies
- Landowners
- Mills
- Associated Businesses
- Equipment Manufacturers
- Other Suppliers
- Local Forestry Associations

FRA OVERVIEW



- Membership
- Advocacy
- Communications
- Safety
- Research
- Regional Focus

FRA EXECUTIVE LEADERSHIP

EXECUTIVE LEADERSHIP

FRA DRAWS EXECUTIVE COMMITTEE LEADERSHIP FROM THESE COMPANIES.

ResourceWise
WestRock
Signature Transport, Inc.
Rayonier
Parnell Inc.
International Paper
Grand Forest, Inc.
The Price Companies

Pactiv Evergreen
AssuredPartners
Interfor
DS Smith
Green Bay Packaging
Johnson Timber Corp.
Seven Islands Land Company
Rayonier Advanced Materials

Sappi North America
Forest Resource Consultants
Enviva
Canfor
F&W Forestry
LP Building Solutions
Forest Investment Associates
Weyerhaeuser

Forest Products Trucking

- Operations
- Policy
- Workforce
- Relationships

"FRA gives truckers the opportunity to work with and influence suppliers and consumers to extract inefficiencies from the system. FRA Members collaborate between and among the membership categories for the betterment of the entire forest products industry."

FRA Forest Resources ASSOCIATION

Interstate Access Improves Timber Trucking Safety and Efficiency: Eastern WI Case Study

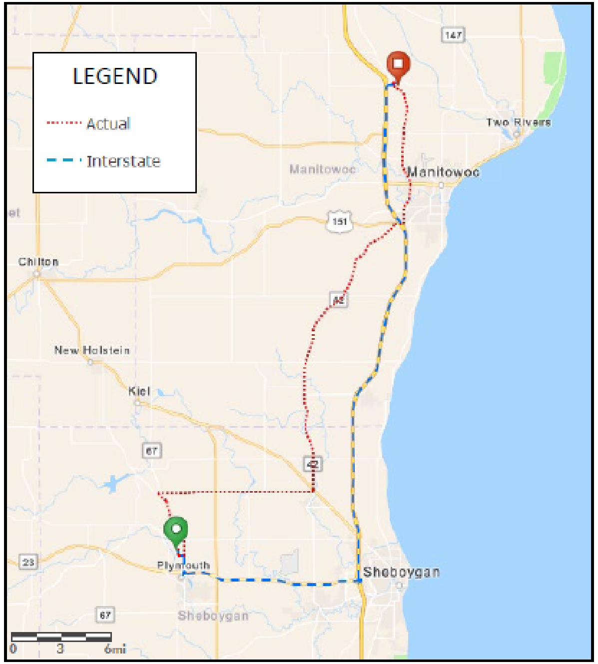
Prepared* by Charlie Blinn[1], Michael Carson[1], and Tim O'Hara[2]

Summary: In Minnesota and Wisconsin, weight limits for log trucks are typically higher on state and US highways than on interstate highways. Consequently, loaded log trucks must reduce load sizes or avoid traveling on interstate highways. Applying state weight tolerances to interstate highways would likely reduce accident risk, fuel consumption, CO2 emissions, and transportation costs.

The example below is from an actual timber delivery from a harvest in Sheboygan County, WI to a mill in Manitowoc, WI. To comply with current regulations, the log truck traveled Wisconsin Trunk Road 42 rather than I-43. Traveling on I-43 would allow the state-legal, loaded log truck to bypass Manitowoc, Kellners Corner, Howard's Grove, and Elkhart Lake. The interstate route has 88% fewer intersections, 83% fewer towns, and avoids all school zones.

	Interstate Route	Actual Route	
Variable	I-43	WIS-42	Interstate Benefit
Travel Time (minutes)	43 min	58 min	26%
Distance (miles)	46.6	44.3	-5%
Average Travel Speed (mph)	65	46	41%
Number of Intersections	13	110	88%
Stop Signs/Lights	4	16	75%
Towns/Cities	1	6	83%
School Zones	0	1	100%
Hard Brakes/Turns	-	0	-
Fuel Consumption	8.8 gal	9.4 gal	6%

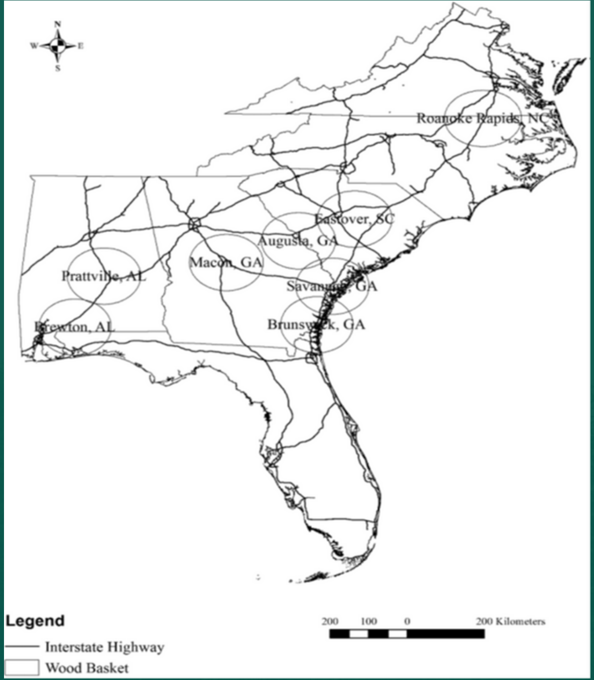
Figure 1. Map of timber delivery routes contrasting interstate route (dashed blue) with actual route traveled (dotted red) in eastern Wisconsin.



[1]University of Minnesota Department of Forest Resources. [2]Forest Resources Association.
*Results are preliminary at time of publication: 3/18/2021.

TRANSPORTATION RESEARCH

Forest Resources Association



Interstate Access Improves Log Truck Safety and Efficiency: Macon, GA Case Study

Prepared by:
Joe Conrad, Assistant Professor of Forest Operations

UNIVERSITY OF GEORGIA
Warnell School of Forestry & Natural Resources

Summary: In Georgia and the US South, weight limits (including tolerances) for log trucks are higher on state and US highways than on interstate highways. Consequently, loaded log trucks must avoid traveling on interstate highways. Applying state weight tolerances to interstate highways would reduce accident risk, fuel consumption, CO_2 emissions, and transportation costs. The example below is from an actual timber delivery from a harvest in Laurens County, GA to a mill in Macon, GA. To comply with current regulations, the log truck would travel along US Hwy 80 rather than I-16. Following I-16 allows the state-legal, loaded log truck to bypass Dublin, Dudley, Montrose, Allentown, Danville, and Jeffersonville. The I-16 route has 65% fewer intersections, 53% lower fatal crash risk, and 26% shorter travel time.

Figure 1: Log truck preparing for loading in Georgia.

Table 1: Safety, cost, and environmental impact of an interstate and current route in central Georgia.

Variable	I-16	US Hwy 80	Interstate Benefit
Travel Time	1 hr 13 min	1 hr 39 min	26%
Distance	71 miles	76 miles	6%
Average Travel Speed	58 mph	46 mph	27%
Number of Intersections	76	218	65%
Stop Signs/Lights	23	36	36%
Towns/Cities	1	7	86%
Fatal Crash Risk (per 100 million miles)	1.99 crashes	4.22 crashes	53%
Travel Cost (One-Way)	$103	$134	23%
Pavement Cost	$22	$31	29%
Fuel Consumption	13.5 gal	16.1 gal	16%
Carbon Dioxide Emissions	303 lbs	361 lbs	16%

Figure 2: Timber delivery contrasting an interstate route (solid blue) and current route (dashed black) in central Georgia.

TRANSPORTATION RESEARCH

FRA
Forest Resources
ASSOCIATION

		Relative comparison by state of heavy truck fatality rates per load		
	Factor	Log trucks are SAFER THAN Other large trucks	Other large trucks are SAFER THAN Log trucks	Total
Interstate exemptions	Higher GVW for log trucks	10	2	12
	No exemptions	30	6	36
	Total	40	8	48

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& Natural Resources

TOGETHER
LET'S DRIVE CHANGE

FRA
Forest Resources
ASSOCIATION

Stay Safe and Keep Insurance Costs In Check.
Recommendations based on research.

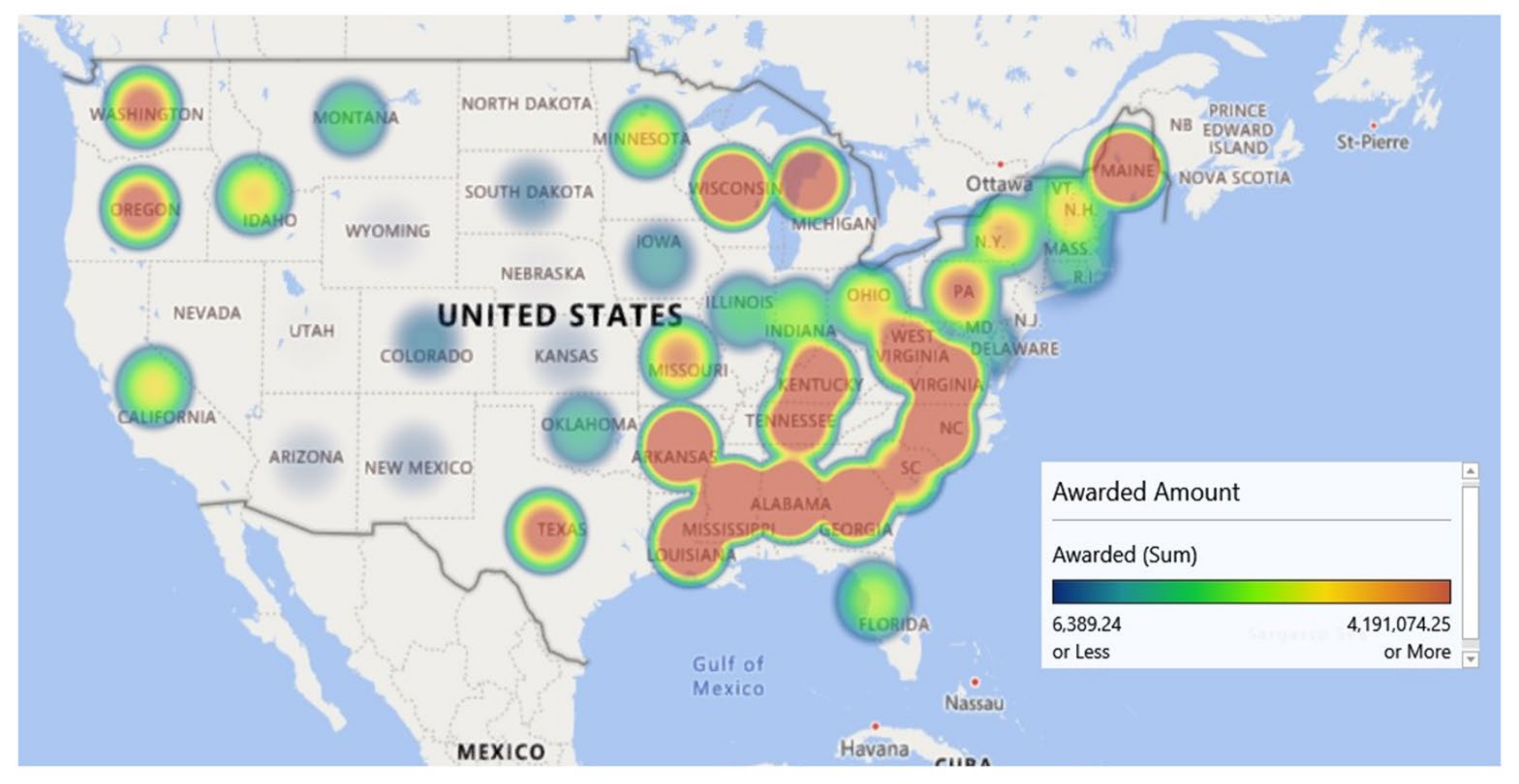
- **EMPOWER YOUR WORKFORCE**
  Make use of educational modules, such as TEAM Safe Trucking, to facilitate new driver trainings & improve recruitment practices.
- **INVEST IN SAFETY & TECHNOLOGY**
  Encourage the adoption of safety policies and regularly implement new technology. Consider using dash cameras that include both forward-facing & driver-facing views along with offering driver coaching. These are proven ways to protect your business and your drivers.
- **ENGAGE YOUR TRUCKING COMMUNITY**
  Work with other log truck owners to find solutions. Together we are stronger and better prepared for the future.
- **CONDUCT REGULAR MONITORING**
  Consistently review the insurance coverage of your loggers and contract haulers.
- **PROMOTE SAFER FLEET HABITS**
  Incentivize safe and well-maintained trucking fleets.
- **MONITOR YOUR NETWORK**
  Monitor your reliance on vulnerable companies.

Award RECIPIENTS

PANDEMIC ASSISTANCE FOR TIMBER HARVESTERS AND HAULERS

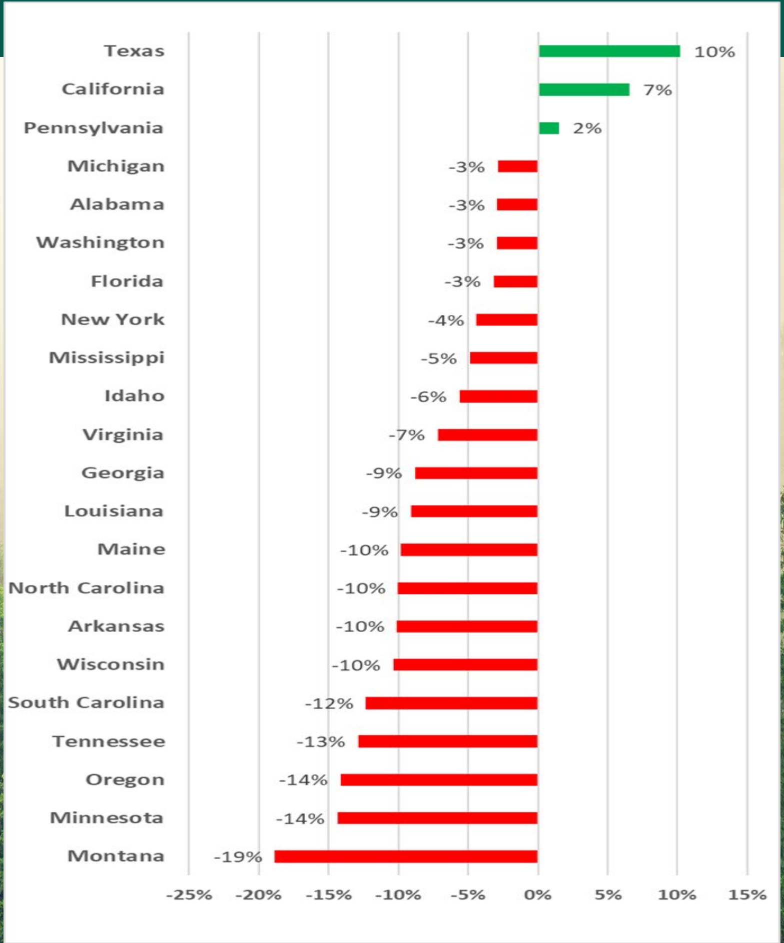
PROVIDING FINANCIAL AID TO LOGGERS AND HAULERS AFFECTED BY COVID-19

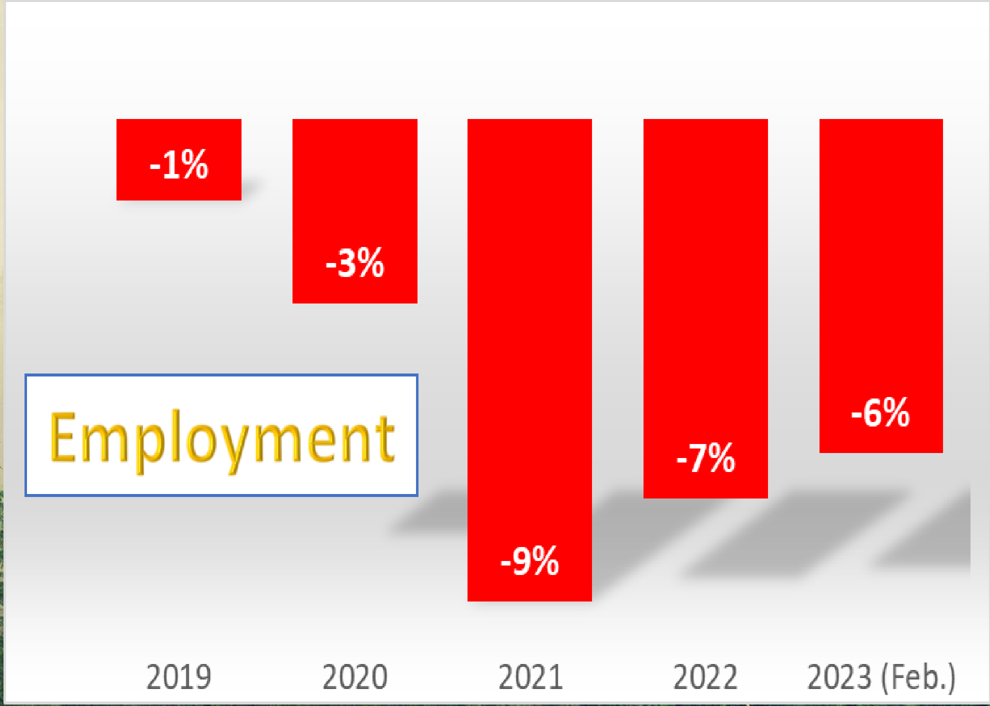
PROVIDING FINANCIAL AID TO LOGGERS AND HAULERS AFFECTED BY COVID-19



FRA Policy Priorities—Logging Employment

Forest Resources Association





ADDITIONAL RESOURCES

CONTINUING EDUCATION

ACCESS TO STATE & REGIONAL ASSOCIATIONS

NATIONAL & REGIONAL MEETINGS

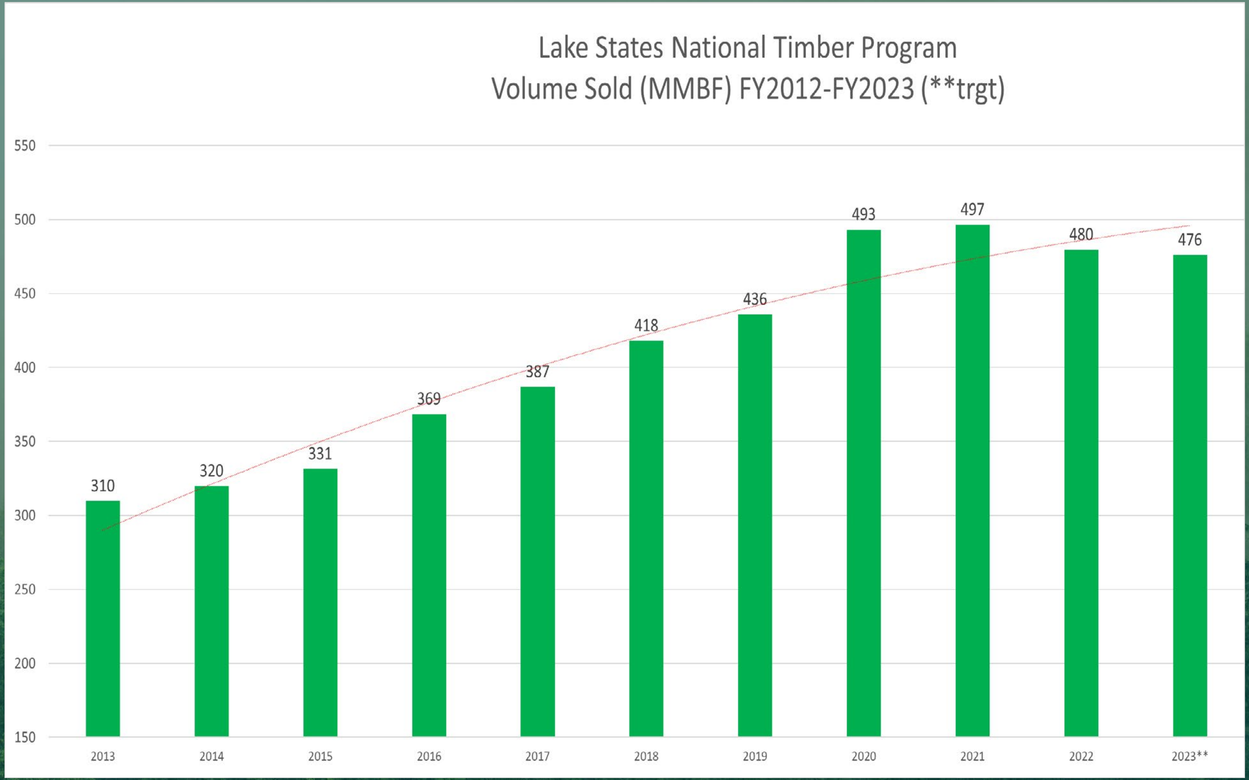
NETWORKING OPPORTUNITIES

EMERGING LEADERSHIP PROGRAM

OPPORTUNITIES FOR PARTICIPATION

- NATIONAL PUBLIC POLICY / ADVOCACY COMMITTEE
- NATIONAL SUPPLIER / CONSUMER RELATIONS COMMITTEE
- NATIONAL OPERATIONS COMMITTEE
- REGIONAL STEERING COMMITTEES

Lake States Federal Timber Purchasers Committee



- Meetings with FS Leadership on Regular Basis
- Opportunities increased timber outputs
- Inform FS on industry issues

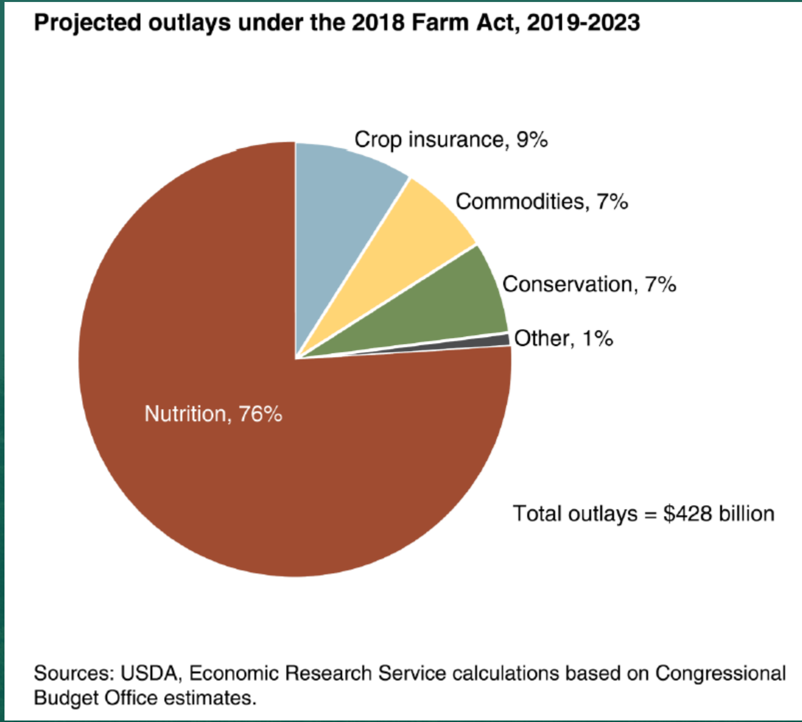
118th Congress

- Off to Slow Start
- Committees Organizing
- New Leadership
- 84 New Members of Congress
- Divided Congress-Slim Majorities In Both Chambers
- Minimal Legislating—Must Pass Items Only

FRA Policy Priorities

- Farm Bill
- Workforce
- Transportation
- H-2B forestry workers
- Forest-based biomass
- Endangered Species Act Reform

FRA Policy Priorities



- 12 titles
- Nutrition and Farm Titles
  >80 percent of spending
- Conservation
- Forestry title < 1 percent

Key Farm Bill Titles

- Forestry--Supports forestry management programs run by Forest Service
- Conservation--Encourages environmental stewardship of private lands
- Energy--Encourages the development of community renewable energy systems
- Rural Development—Programs administered by Rural Development Agency

Forest Resources Association

Forest in Farm Bill Coalition

- Establish regional workforce training programs
- Forest Inventory and Analysis Program
- Wood Innovation Grants Program
- Community Wood Energy Program
- Carbon-neutrality
- Bio-preferred program
- Enhance the Good Neighbor Authority

FRA Policy Priorities—Workforce

- Support legislation to establish regional workforce training programs .
- Inform members of Congress on the workforce challenges of the forest products industry.

2023

FRA'S POSITION ON IMPROVING ACCESSIBILITY TO LABOR IN THE FOREST PRODUCTS INDUSTRY

The Forest Resources Association (FRA) represents the interests of over 370 organizations and businesses in the forest products industry. Our members include forest landowners, suppliers, consuming mills, associated businesses, and state forestry associations. FRA promotes the interests of its members in the economic, efficient, and sustainable use of forest resources to meet the needs of the wood fiber supply chain through private enterprise. FRA members are represented in 49 states and 377 congressional districts.

FRA supports legislation establishing regional workforce training programs for individuals interested in careers in the forest products industry to support rural forest-based economies.

The forest products industry, including loggers and haulers, primary and secondary manufacturers, pulp and paper mills, paper packing plants, and paper facilities, is one of the largest manufacturing sectors in the U.S., sustaining nearly 940,000 families and contributing $295 billion annually to the U.S. economy. The sustainability and competitive viability of the forest products industry relies on an intact, healthy wood supply chain, including labor. Since 2018, the U.S. logging and hauling sectors, which are solely responsible for harvesting and moving logs from the forest to manufacturing facilities, have seen a 2% reduction in logging businesses and an 8% reduction in the workforce. The disparity between reductions in the size of the workforce and business closures suggests remaining logging businesses are operating with fewer employees.

Mill labor shortages are limiting modernization and/or growth investments in existing and new manufacturing facilities. For example, the existing labor pool in the logging sector is aging rapidly. Less than 25% of logging business owners are under 40, 55 is the average age of owner/operators, and approximately 30% of owner/operators are planning to leave the business within five years.

Targeted workforce education and training programs have been effective recruitment tools in computer programming, utility vegetation management, and automotive industries. Regional forest industry training hubs would allow participants to stay in or near their communities, which reduces the cost to participate and affords program developers increased flexibility in adapting training curricula to meet regional needs through ties to local forest product employers. The forest products industry struggles to find a trained and skilled workforce at all levels as an estimated 40-60 percent of young adults are leaving rural forest-based economies for employment opportunities.

Key Components of Workforce Pathway Program

EDUCATION OPPORTUNITIES

- Expand existing high school forestry education curriculum by employing mobile educational units with timber harvesting simulators, sawmills, kilns, and commonly used power/hand tools
- Implement 40-hour applied skills camp to complement the applied high school curriculum
- Provide immersive field training for high school teachers to complement the applied high school curriculum

WORKFORCE DIVERSIFICATION

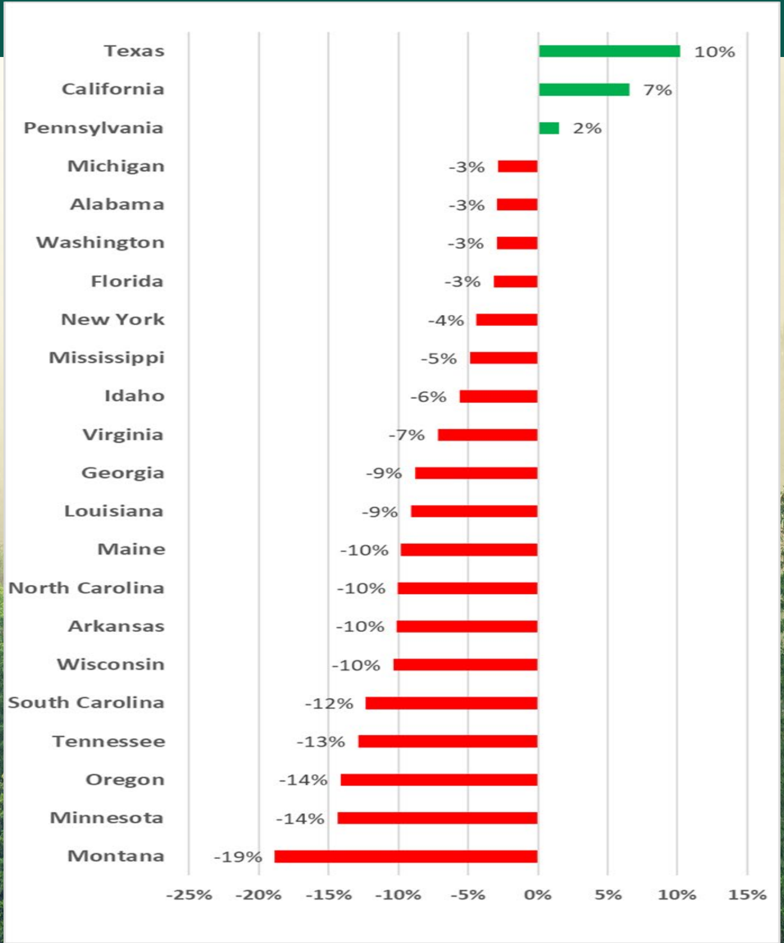
- Diversification of the forestry industry workforce through increased awareness of career paths, the breadth of career and entrepreneurial opportunities in forestry and wood products industries

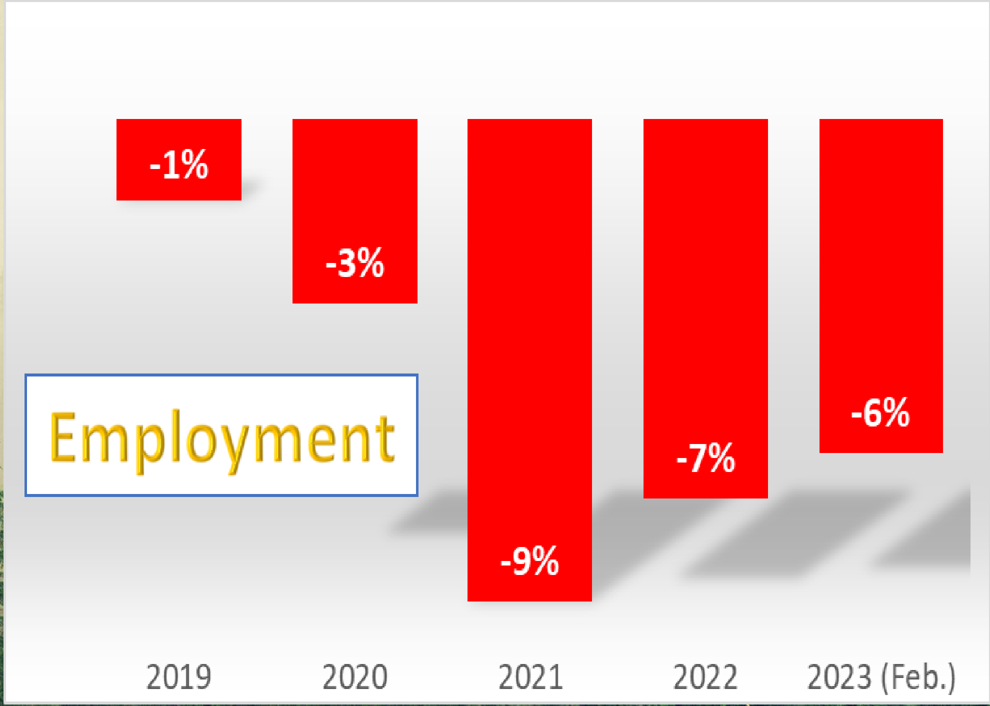
TRAINING PROGRAMS

- Provide affordable, residential, short duration (240 hour), industry-certified post-high school immersive training in Forest Operations and Mill Technologies
- Creation of regional immersive training hubs aligned with industries, technical colleges, and universities to provide career pathways in forestry and wood products industries

1901 Pennsylvania Ave NW, Suite 1007, Washington D.C. 20006 | forestresources.org
Contact: Tim O'Hara, Vice President, Government Affairs | Ph: 218-390-7965 | Email: tohara@forestresources.org

FRA Policy Priorities—Logging Employment





FRA Policy Priorities—Biomass Carbon-Neutrality

- Appropriations language
- Farm Bill Play?
- Include definition in renewable energy legislation

FRA Policy Priorities—H-2B visas

- Legislation for meaningful cap relief
- Appropriations language
- Monitor broad immigration legislation
- Tree planting as a national interest

FRA Policy Priorities—TRANSPORTATION

FRA Forest Resources ASSOCIATION

- Work with allied associations to address driver shortage
- Continue to educate members of Congress on the safety and efficiency benefits of Safe Routes provisions
- SHIP IT Act
  - Comprehensive Supply Chain Measure
    - ✓ Truck weight reform
    - ✓ Tax credit for drivers
    - ✓ CDL streamlining
    - ✓ Truck Parking

FRA Policy Priorities—Rulemaking

- Independent Contractor—May 2023
- Employer Heat Standard--??
- Tricolored and Little Brown Bats—2023
- Mature and old-growth forests on Fed lands
- WOTUS (in effect March 2023)

"I have two ducks and you have none. That's why I get to make the rules."

FRA Policy Priorities—Climate Change

Forest Resources ASSOCIATION

FOREST RESOURCES ASSOCIATION

ADVANCING CLIMATE SOLUTIONS ON WORKING FORESTLANDS

Whereas, the Forest Resources Association ("FRA") and its members have an ongoing commitment to the economic viability of the forest products industry; and

Whereas, the FRA proactively leads the forest products industry in identifying opportunities to advance the goals of sustainable forest management practices and addressing threats to the viability of the wood supply chain;

Whereas, the FRA develops and advances forest management policies through research in an effort to support the economic viability of the forest industry and sustainable forest management practices;

Whereas, the benefits of forest-based biomass are best understood by looking at the full carbon cycle. That is because carbon flows in and out of forests in a continuous cycle of release and sequestration. Carbon is held in trees or wood products and then gets released by combustion or by biodegrading, whether it is used to produce energy or not;

Whereas, the FRA recognizes the sustainability of managed forestlands throughout the United States to provide positive benefits through sequestration and carbon storage to mitigate climate change;

Whereas, the markets for biomass and forest products promotes the viability of working forests, enabling landowners to maintain healthy productive forests that support natural climate change solutions; and

Whereas, wood products, such as lumber, engineered wood products, and paper, can serve as long-term carbon storage. When trees are grown for the purpose of producing wood products, the carbon they store in their wood can remain locked up for many years.

BE IT THEREFORE RESOLVED AS FOLLOWS:

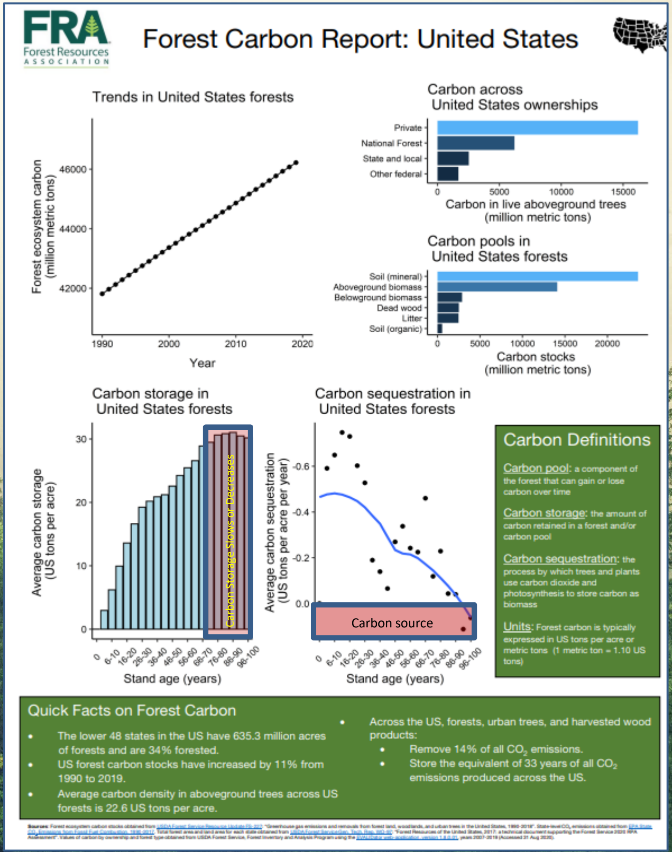
1. The FRA urges the U.S. Congress to recognize and expand carbon storage opportunities and goals for wood products by establishing a public policy reflecting the carbon neutrality of a forest-based economy; and

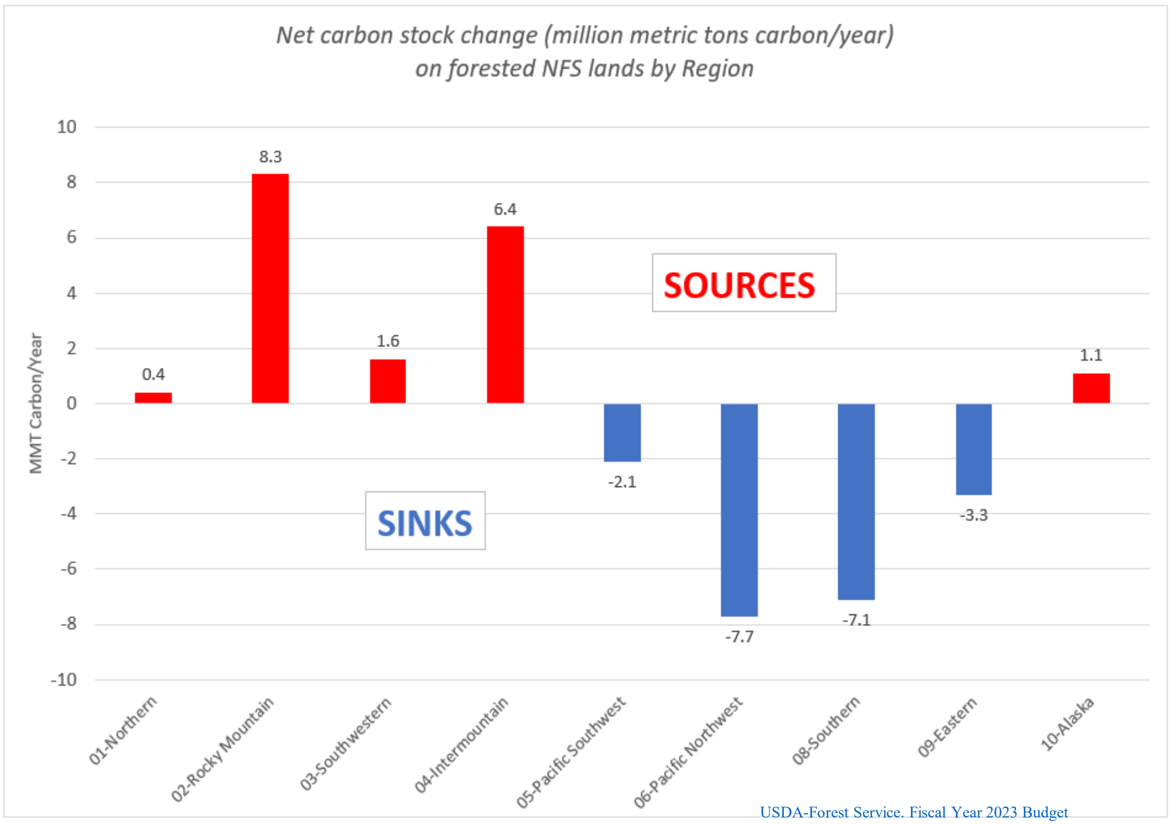
2. The FRA urges the U.S. Congress to acknowledge that sustainable forest management and the long-term products of the forest industry avoids and reduces greenhouse gas emissions and promotes the efficient use of domestic renewable natural resources; and

3. The FRA urges the U.S. Congress to pass legislation directing the US Dept. of Interior, Environmental Protection Agency, the US Dept. of Agriculture, Forest Service, and Dept. of Energy to create a policy that reflects the climate benefits of long-term carbon storage through an economically viable forest products industry.

- Recognize and expand carbon storage opportunities and goals for harvested wood products
- Acknowledge that sustainable forest management and the long-term products of the forest industry avoids and reduces greenhouse gas emissions
- Pass legislation directing the that reflects the benefits of long-term carbon storage through an economically viable forest products industry.

FRA Policy Priorities—Rulemaking





USDA-Forest Service. Fiscal Year 2023 Budget Justification

FRA Policy Priorities—Communications

Forest Resources Association

- Engagement Calendar
- Regular Hill Visits
- Coalitions
- Email Campaigns
- Grassroots
- FRA members engagement opportunities

FRA Policy Priorities—Issue Briefs

2023

FRA'S POSITION ON LABOR, TRANSPORTATION, AND BIOENERGY

The Forest Resources Association (FRA) represents the interests of over 370 organizations and businesses in the forest products industry. Our members include forest landowners, suppliers, consuming mills, associated businesses, and state forestry associations. FRA promotes the interests of its members in the economic, efficient, and sustainable use of forest resources to meet the needs of the wood fiber supply chain through private enterprise. FRA members are represented in 49 states and 377 congressional districts.

WORKFORCE

FRA supports legislation establishing regional workforce training programs for individuals interested in a career in the forest products industry.

The sustainability and competitive viability of the forest products industry relies on an intact, healthy wood supply chain, which includes the availability of skilled labor. The forest products industry struggles to find a trained and skilled workforce at all levels. These labor shortages limit investments to modernize or expand facilities in rural communities.

Targeted workforce education and training programs have been effective recruitment tools in computer programming, utility vegetation management, and automotive industries. Regional forest industry training hubs would allow participants to stay in or near their communities, which reduces the cost to participate and affords program developers increased flexibility in adapting training curricula to meet regional needs through ties to local forest product employers.

FRA supports legislation that would provide meaningful H-2B cap relief to address the tree planting backlog on public and private forestlands.

The forest products industry's enduring commitment to replant trees promptly after a timber harvest or natural disturbance lies at the very heart of our sector's sustainability pledge. Each year, H-2B forestry workers plant 85 percent of the trees on public and private forestlands. But each year, it is becoming more difficult for employers of H-2B forestry workers to recruit the labor required to meet the increased demand for tree planting to restore forests on public and private forestland. In the national interest, the infrastructure law provided funding to increase tree seedling production and plant more forested acres on federal lands. However, the law does not address improved access to H-2B forestry workers to perform this work. If the labor shortage for tree planters is not addressed, the backlog of forestland acres, now at five years, will continue to increase. FRA has long advocated for reform of the H-2B visa program to address the outdated arbitrary cap of 66,000 guestworker visas. Demand for H-2B guestworkers exceeds the mandated cap by two to three times annually. We encourage Congress to address this issue by recognizing that tree planting is a national interest and providing an exemption for forestry workers from the H-2B visa cap.

2023

POLICY PRIORITIES 118TH CONGRESS OF THE UNITED STATES OF AMERICA

***Primary Role:** FRA will take an active role in advancing these issue areas. FRA will collaborate with our allies to implement, support, or oppose legislation, policy, or rulemaking that impacts FRA members.*

Transportation

Transportation is a key vector in the movement of raw forest products from the woods to the mill. Every year more than 15 million truckloads transport logs, pulpwood, biomass, and chips from the point of harvest to a mill or storage area. FRA will actively work to improve the safety and efficiency of transporting raw forest products and improve the availability of drivers.

Actions Include:

- Work with allied associations to address the driver shortage through policy or regulatory actions.
- Continue to educate members of Congress on the safety and efficiency benefits of allowing log trucks access to the interstate at legal state limits.
- Monitor and comment on rulemaking that may impact the wood supply chain.

Carbon Neutrality of Biomass

The carbon neutrality of forest-based biomass is grounded in the fact that carbon emissions from forest-based biomass combustion are fully offset by working forest lands that capture and store carbon. Currently, there is regulatory uncertainty around the carbon neutrality of forest-based biomass. FRA will work with allies on this issue to achieve recognition that forest-based biomass is recognized as carbon neutral.

Actions Include:

- Include language in the final spending bill that directs federal agencies to recognize the carbon-neutrality of forest-based biomass.
- Monitor and comment on rulemaking that provides permanence for forest-based biomass recognition.
- Work to include an inclusive definition of forest-based biomass in renewable energy legislation.

Woods to Mill, SAFETY ALERTS & TECHNICAL RELEASES

FRA Forest Resources ASSOCIATION

WOODS to MILL

Impact of Skyrocketing Fuel Prices on Forest Products Transportation

Published June 30, 2022

by Charlie Blinn | Professor, U of MN, Dept. of

Rising fuel prices impact everyone's pocketboo
driving up prices. This increase in cost is especia
which is critical to maintaining the supply chain
of the U.S. economy. While 2020 data from the U
Alternative Fuels Data Center shows that the ave
24.2 miles/gallon, it was 5.29 miles/gallon for he
weight rating exceeding 33,000 pounds, such as
As trucks are vital for moving raw forest product
mill consumers, rising fuel prices significantly in

Incident Evaluations

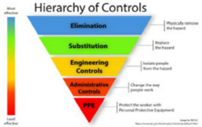
Reviewed by: Lindsay Warness, FRA Western Region Manager | lwarness@forestresources.org

SAFETY ALERT • DECEMBER 2022

Incident evaluations and corrective actions allow the company to continue to innovate and empower employees to affect the safety culture in a positive manner.

DEVELOPING CORRECTIVE ACTIONS

Corrective actions should follow the hierarchy of controls 1) elimination, 2) substitution, 3) engineering controls, 4) administrative controls, 5) PPE. As the team is reviewing the incident and evaluating for corrective actions, they should be thinking about the hierarchy of controls with the best option being to eliminate the hazard completely and the least effective option being to add PPE requirements to the task.



In order to develop effective corrective actions, they must be SMART:
Specific-goal and methods are clearly defined, clear boundaries and it is clear how to reach the goal.
Measurable – objectives are measured quantitatively.
Achievable – humanly possible, and project the required resources
Relevant – goal meets actual needs and not just the three preceding criteria
Timely – deadlines or a schedule to complete the actions

CONCLUSION

Causal analysis is an excellent tool t by showcasing the effectiveness o policies, engineering practices and conjunction with incidents. By revie misses for root causes, compani culture, employee moral, develop significantly mitigate the risk of occurring.

SOURCE

Kolb, David A., et al; Organizational Hall, 1974
Root Cause Analysis Fundamentals- 10
Lucas Engineering
National Institute of Occupational Sa
https://www.cdc.gov/niosh/topics/hie

This Safety Alert analyzes an injury in accordance with the chain of events represented by the five dominoes above. Pioneer industry safety experts H.W. Heinrich and Alfred Lateiner developed this accident analysis system to provide a graphic sense of how injuries can be avoided. Their methodology has been accepted by safety professionals worldwide.

Safety Meeting Report | Topic(s) Discussed: | Comments / Recommendations:

Date:

Company:

Names of Employees Attending: | Meeting Conducted by:

Please follow equipment manufacturers' recommendations for safe operation and maintenance procedures. | signature

FRA Forest Resources ASSOCIATION

Status and Trends of Minnesota's Logging Sector in 2021: An Overview

Author: Charlie Blinn, Dept of Forest resources, University of Minnesota
Reviewed by: Tim O'Hara, FRA Vice President of Government Affairs & Lake States Region Manager, tohara@forestresources.org

TECHNICAL RELEASE • DECEMBER 2022 — 22 -R- 32

INTRODUCTION

Loggers and logging businesses are the backbone of the wood supply chain. To understand the status of that sector within Minnesota's forest industry, a mail survey was distributed to logging business owners within the state during spring 2022, asking about their operations in 2021. Recent prior surveys assessed the status of the sector in 2011 and 2016.

The survey was sent to 321 owners who were members of the Minnesota Logger Education Program. Responses were received from 167 businesses (53%), with 162 usable responses (50.5%). Statewide results are presented here.

SURVEY RESULTS

General business characteristics

On average, each reporting business had been in business for 31 years and had 1.4 owners. The average age of Minnesota's logging business owners was 53.5, slightly higher than the 2016 survey average of 52.9 years. About one-third of survey respondents in both the current and last survey were under the age of 50, one-third were between the age of 50-59, and one-third were 60 or older.

Age of inwoods and over-the-road equipment

The average age of the newest piece of various types of inwoods equipment has generally gotten older as compared to the 2011 and 2016 surveys (Figure 1). As equipment gets older, repair and maintenance issues tend to increase, which can decrease productive machine hours. If spare parts are not readily available, increased downtime can result. As the annual reported level of production increased, inwoods equipment age decreased.

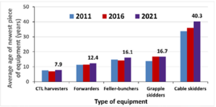


Figure 1: Average age of the newest piece of various types of inwoods harvesting equipment for Minnesota logging businesses in 2011 (blue bars), 2016 (red bars) and 2021 (purple bars). Average ages shown are from the 2021 survey.

Similar to inwoods equipment, the average age of the newest piece of various types of over-the-road equipment has generally gotten older as compared to the 2011 and 2016 surveys (Figure

for truck-tractors within the US in 2021 (Leslie and Murray, 2022).

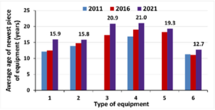


Figure 2: Average age of the newest piece of tractors/semis (#1), pulpwood/sawtimber trailers (#2), self-loading trailers (#3), lowboys (#4), pole trailers (#5) and van trailers (#6) for Minnesota logging businesses in 2011 (blue bars), 2016 (red bars) and 2021 (purple bars). Average ages shown are from the 2021 survey.

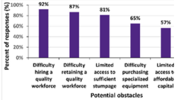
Encouraging others to become a logger

Only 13% of respondents would encourage a famil friend to become a logger and 58% would disc individuals. For those who would discourage becoming a logger, the frequently cited reasons we the small profit margin, long hours and hard work r difficulty of getting into business.

Future plans

Thirty-one percent of the respondents indicated tha like to increase their annual volume harvested in the indicated that they would like to maintain their annu level and 11% indicated that they would like to de level of production.

The two greatest obstacles to growing and exp logging business in the next five years were related retaining a quality workforce (Figure 3). Limite sufficient high-quality stumpage was also often being an important potential obstacle.



Issue Update

FRA Issue Update 01-20-23

Published January 20, 2023

Bats

The U.S. Fish and Wildlife Service (USFWS) is considering delaying the effective date for reclassifying the northern long-eared bat (NLEB) from threatened to endangered status under the Endangered Species Act (ESA). The extension would allow the agency to complete conservation tools and guidance documents and provide landowners time to review these tools before the reclassification of the species as endangered. Until the listing becomes effective, the NLEB remains a threatened species, and the 4(d) rule will remain in effect.

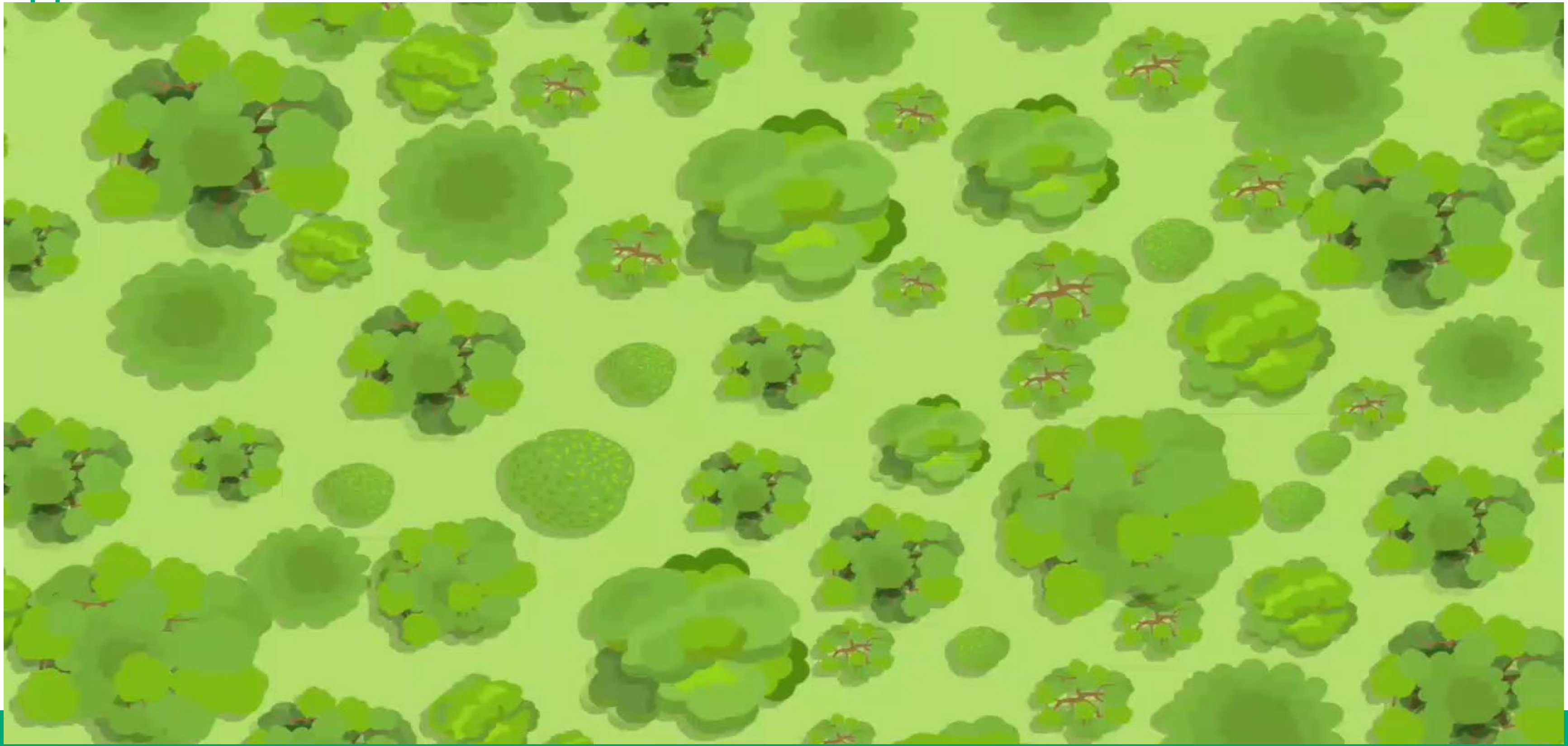
Forest Service Consultation:

The extension would also provide additional time for the Forest Service to finalize its biological opinion on the NLEB that will impact future projects, including timber sales. The Forest Service and USFWS recently completed an internal review of the draft conservation strategy for Forest Service lands. This document received nearly 1,000 comments from USFWS and Forest Service employees. The Forest Service completed a review of existing projects last fall and cleared nearly 2,000 projects that included timber sales. The change in listing status should not impact these "cleared" projects. FRA has also learned that surveying for bat populations will not be required on federal lands prior to timber management activities.

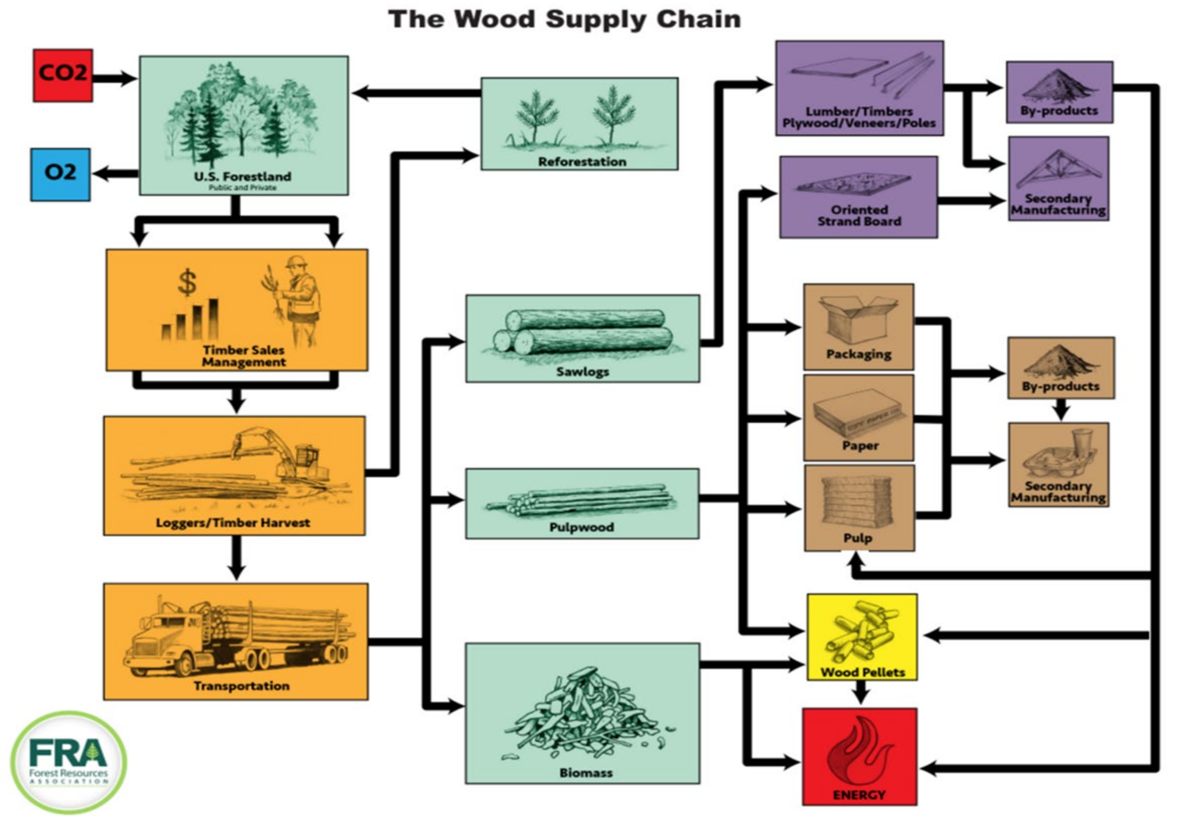
Lake States Region HCP

: The Lake States Region (LSR) Bat Habitat Conservation Plan (HCP) was expected to be finalized by the USFWS this week. The approval of the HCPs for Minnesota, Michigan, and Wisconsin would provide a permit for an incidental take of the NLEB. Delaying the effective date of listing the NLEB would allow these states to work with private forest landowners who manage more than 10,000 acres to enroll them in the HCP. How the USFWS handles forest landowners with less than 10,000 acres remains in question. The LSR HCP reported that the probability of small

Forest and Carbon



WOOD SUPPLY CHAIN



WOOD SUPPLY CHAIN

Forest Resources Association

The Forest Supply Chain

FRA®

Forest Resources
ASSOCIATION

REPRESENTING THE ENTIRE WOOD SUPPLY CHAIN

2023 and Beyond

LEGISLATIVE UPDATE

Peter Lemmer, EVP – Chief Legal Counsel

GreenStone®
FARM CREDIT SERVICES

Political Risk Rising for Farm Credit

Farm Credit is a GSE

- Congress created Farm Credit and controls everything we do.
- The "Deal" for GSEs:
  - Congress gets a mission fulfilled
  - We get tools to fulfill the mission
- Mission Tools (GSE Status):
  - Agency Debt Market
  - Statutory Tax Exemption
  - Operating Authorities
- Congress decides if the deal still holds

Farm Credit's Reputation Protects the Mission

Farm Credit has a really good deal…

Fannie/Freddie

- Minority, women, individual with disabilities inclusion requirement
- Climate disclosure coming
- Duty to serve very low-, low-, and moderate-income markets
- Hard target affordable housing goals
- 4.2 pbs ($1.09 billion) set aside for housing trust fund and capital magnet fund

Home Loan Banks

- Minority, women, individual with disabilities inclusion requirement
- Climate disclosure coming
- 10% of net income to subsidized rates
- Targeted community lending plan
- Community investment program
- Affordable housing goals

Farm Credit

- Serve ag producers “with a basis for credit”
- Serve creditworthy young, beginning, and small farmers

The Farm Bill is coming…

More questions than answers

- Who will control the process?
- How much money will they have to spend?
- What are the biggest priorities?
- What else is on the Congress' plate?
- Hearings have begun…

Farm Credit System Priorities for the 2023 Farm Bill

- The Farm Credit System encourages Congress to enact a Farm Bill that maintains a strong farm safety net for producers, including a strong federal crop insurance program.

GreenStone®
FARM CREDIT SERVICES

Farm Credit encourages Congress to support rural communities and agriculture by:

- Supporting the U.S.-based commercial fishing industry by allowing some fishing related businesses to borrow from Farm Credit, similar to how farm-related businesses borrow from Farm Credit
- Increasing the loan limits on FSA direct and guaranteed loan programs to better reflect the increasing costs of purchasing land and operating farms and ranches;
- Strengthening rural water systems by ensuring that CoBank's existing water lending activities are available in communities eligible to receive USDA-guaranteed water loans
- Promoting U.S. ag exports by increasing the amount of export financing CoBank is allowed to provide

GreenStone®
FARM CREDIT SERVICES

Farm Credit encourages Congress to support rural communities and agriculture by:

- Boosting development of vital rural community facilities (hospitals, rural clinics, skilled nursing facilities, etc.) by clarifying Farm Credit institutions' authority to invest in rural community facilities projects and encouraging partnerships on these projects with community banks
- Expanding access for rural businesses to equity capital investment by eliminating unnecessary restrictions on Rural Business Investment Companies (RBIC) and allowing RBICs to access federal leverage funding, similar to how small business investment companies operate

GreenStone® FARM CREDIT SERVICES

We also continue to work on some additional proposals to:

- Update and streamline FSA loan guarantee programs to make them more accessible to young, beginning, and small farmers and ranchers;
- Authorize Farm Credit institutions to collect demographic information from customers on a voluntary basis and ensure that the Farm Credit Administration is the primary regulator of Farm Credit System institutions;

GreenStone® FARM CREDIT SERVICES

We also continue to work on some additional proposals to:

- Reduce the cost of credit to U.S. farmers and ranchers by reducing the regulatory burden on Farm Credit System institutions while maintaining the financial safety and soundness necessary to provide credit in all economic cycles; and
- Improve the transparency and safety and soundness of the Federal Agricultural Mortgage Company (Farmer Mac) by requiring the company to obtain and maintain ratings on its debt securities.

GreenStone®
FARM CREDIT SERVICES

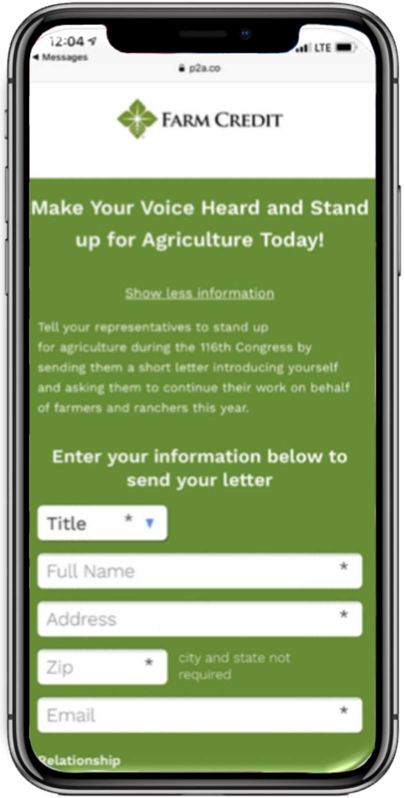
Join us today!

Text the word

PLANT

To

52886



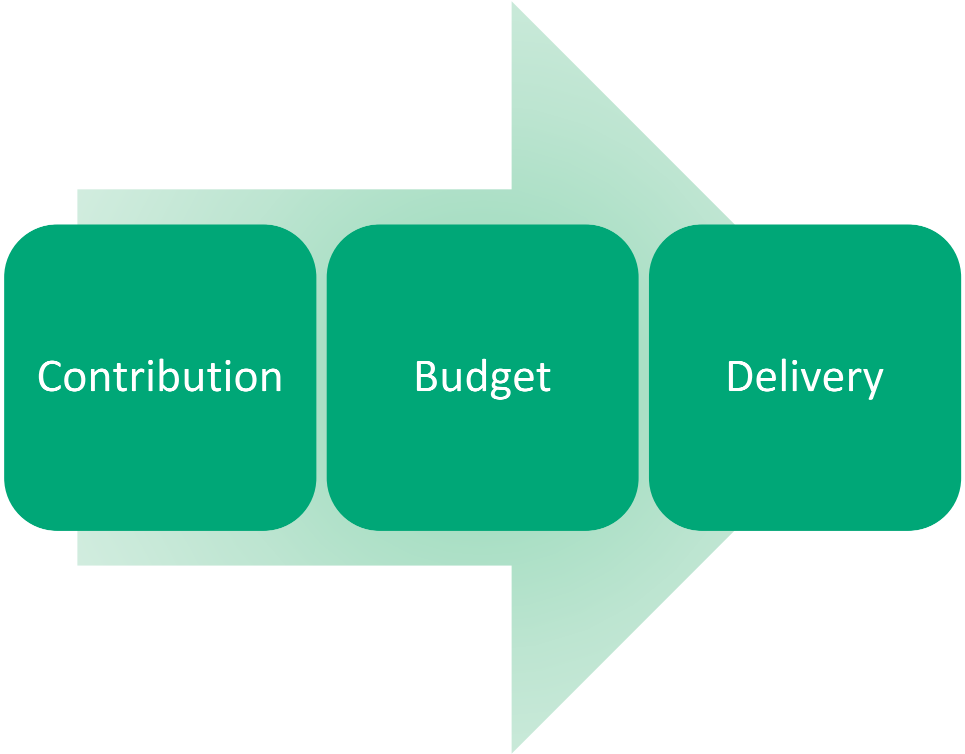
Become an Advocate Today!

Text PLANT to 52886

There are no advocates in this campaign yet.

Building Relationships

MI GreenStone PAC & WI Farm Credit PAC



Questions

Michigan Technological University
College of Forest Resources and Environmental Science

Forestry/Sustainable Bioproducts Program & Mass Timber Construction and Research

Mark Rudnicki, Ph.D.
Professor of Practice, Forest Biomaterials
Director, Ford Center and College Forests

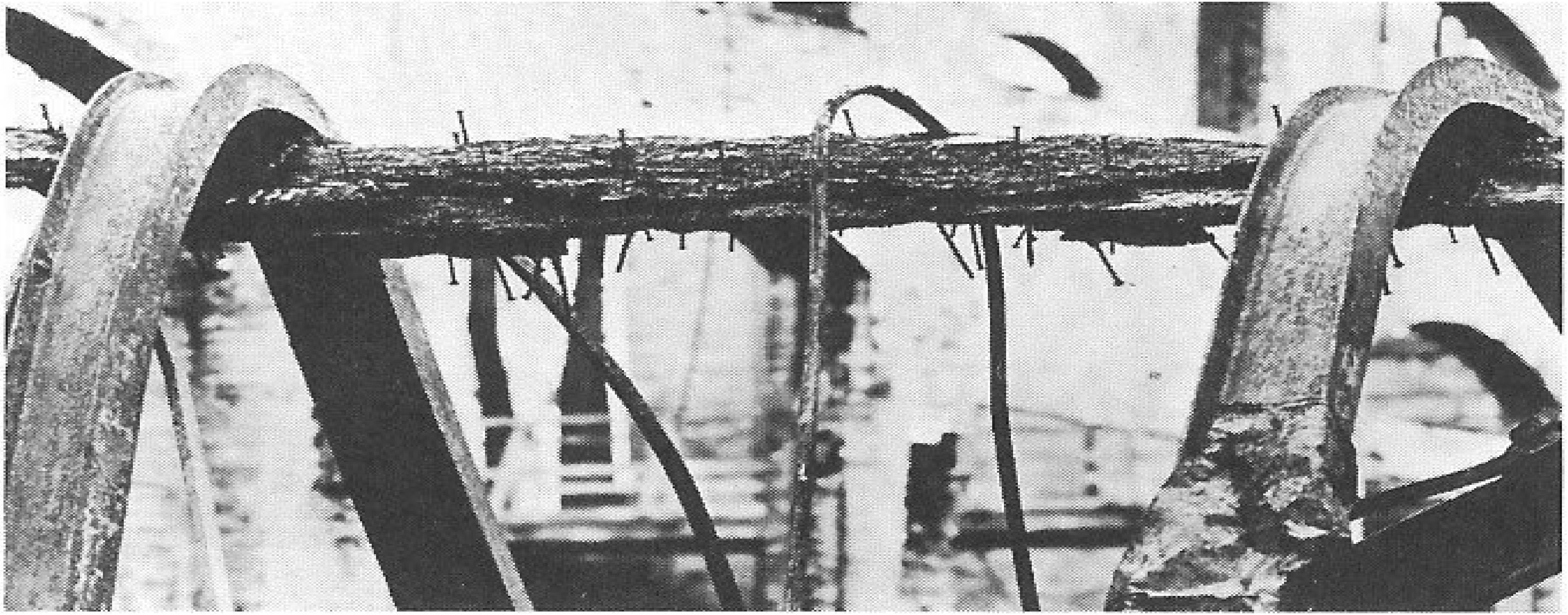
2023 GreenStone Logging Forum

GreenStone® FARM CREDIT SERVICES

Highest best use –
Engineered solid wood

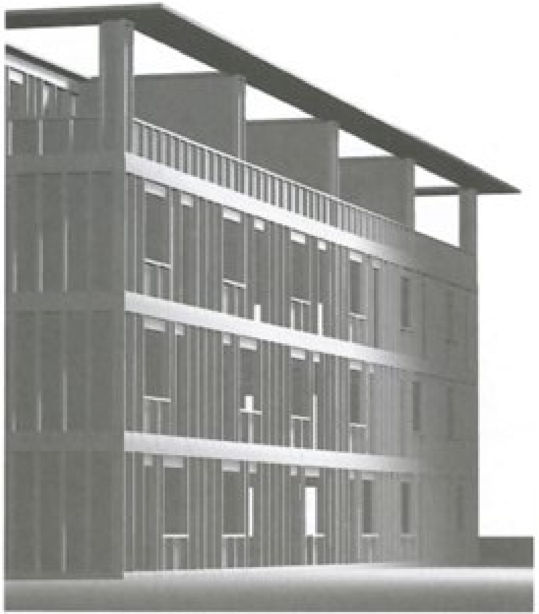

HORYUJI TEMPLE PAGODA
Prince Shotoku
104 feet
Heavy Timber
Pagoda
JAPAN

1,416 years old!

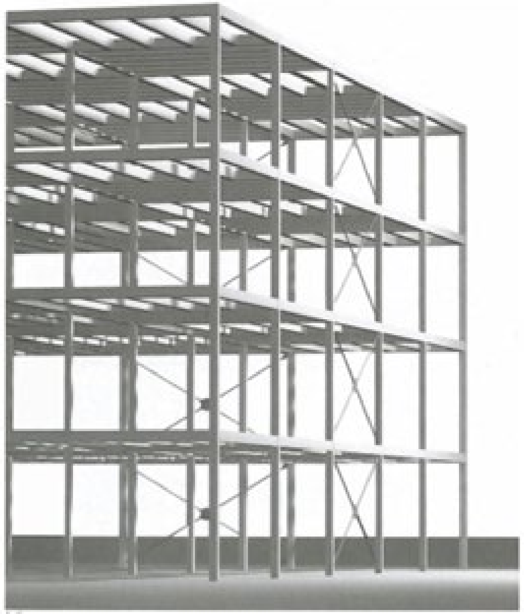


Failed steel beams supported by mass timber

LIGHT WOOD-FRAME



POST + BEAM



MASS TIMBER

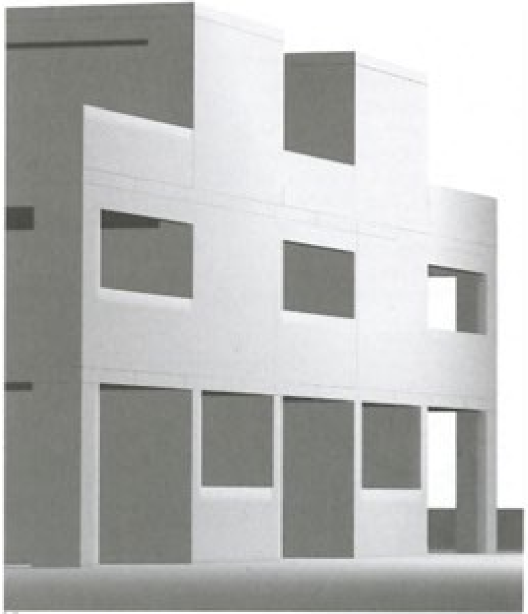


Image courtesy of Fast + Epp

LIGHT WOOD-FRAME POST + BEAM MASS TIMBER

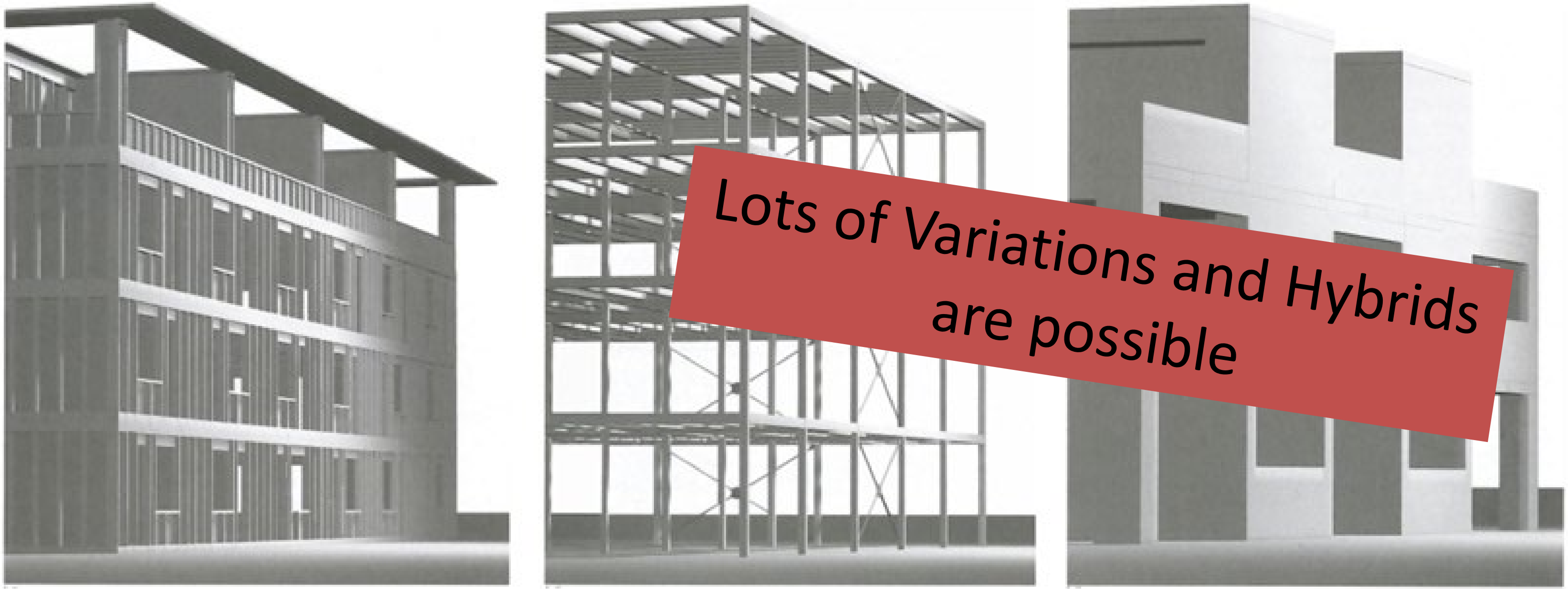


Image courtesy of Fast + Epp

CLT

GLULAM

NLT

DLT

LVL

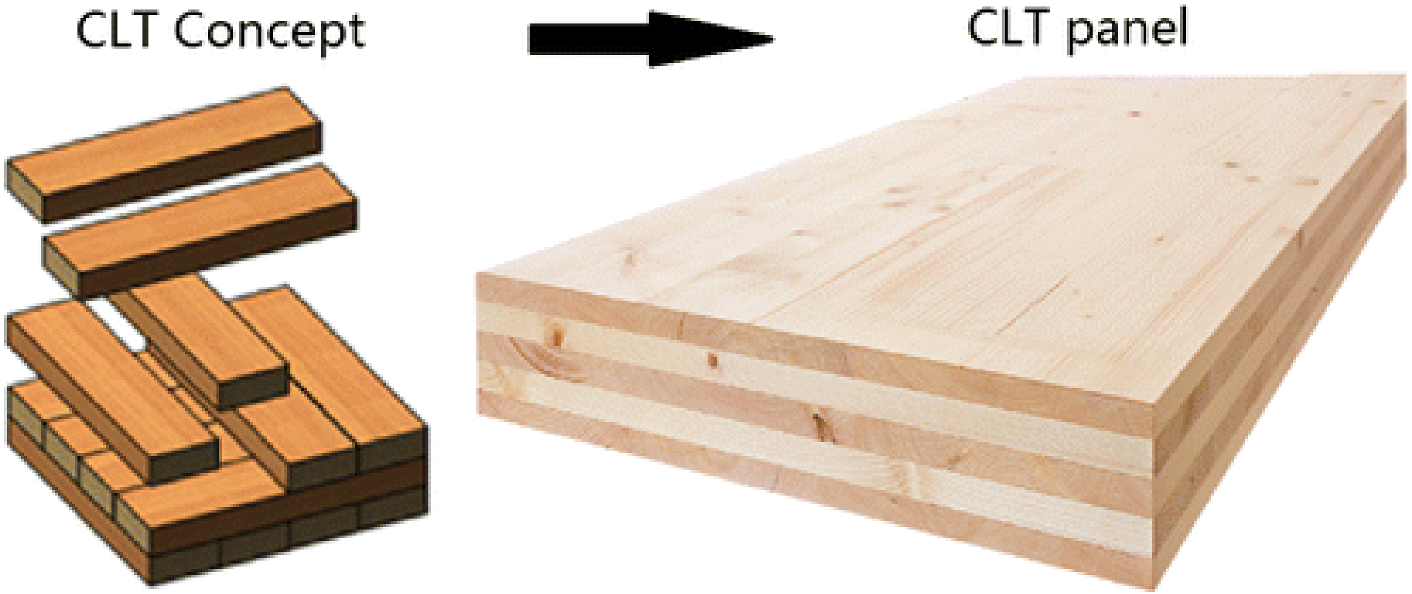
LSL

PSL

MPP


CROSS-LAMINATED TIMBER (CLT)

CLT – Cross Laminated Timber



MASS TIMBER PRODUCTS

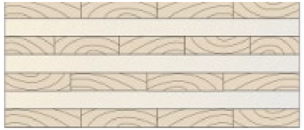
CROSS-LAMINATED TIMBER (CLT)

COMMON CLT LAYUPS

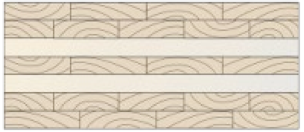
3-PLY 3-LAYER

5-PLY 5-LAYER

7-PLY 7-LAYER



9-PLY 9-LAYER



7-PLY 5-LAYER

9-PLY 7-LAYER

2015 First CLT panels made in the US - Oregon

Image Source: Structurlam Products LP

CROSS-LAMINATED TIMBER (CLT)

CLT PREFABRICATION

- FINISHED PANELS ARE PLANED, SANDED, CUT TO SIZE. THEN OPENINGS ARE CUT WITH PRECISE CNC ROUTERS.
- THIRD PARTY INSPECTION AT FACTORY
- EACH PANEL NUMBERED, DELIVERED & INSTALLED IN PREDETERMINED SEQUENCE


CLT

Mass Timber/Solid Wood Panel CLT'S are ***transforming*** tall building construction

9-Story Cross Laminated Timber Building in London, England

Prevented the release of 1,190 tons of carbon dioxide into the atmosphere (equivalent steel & concrete structure)

Making new homes out of wood instead of steel and concrete could avoid more than **<u>100 billion tonnes</u>** of CO_2 being emitted over the next 80 years, and help avoid climate upheaval.

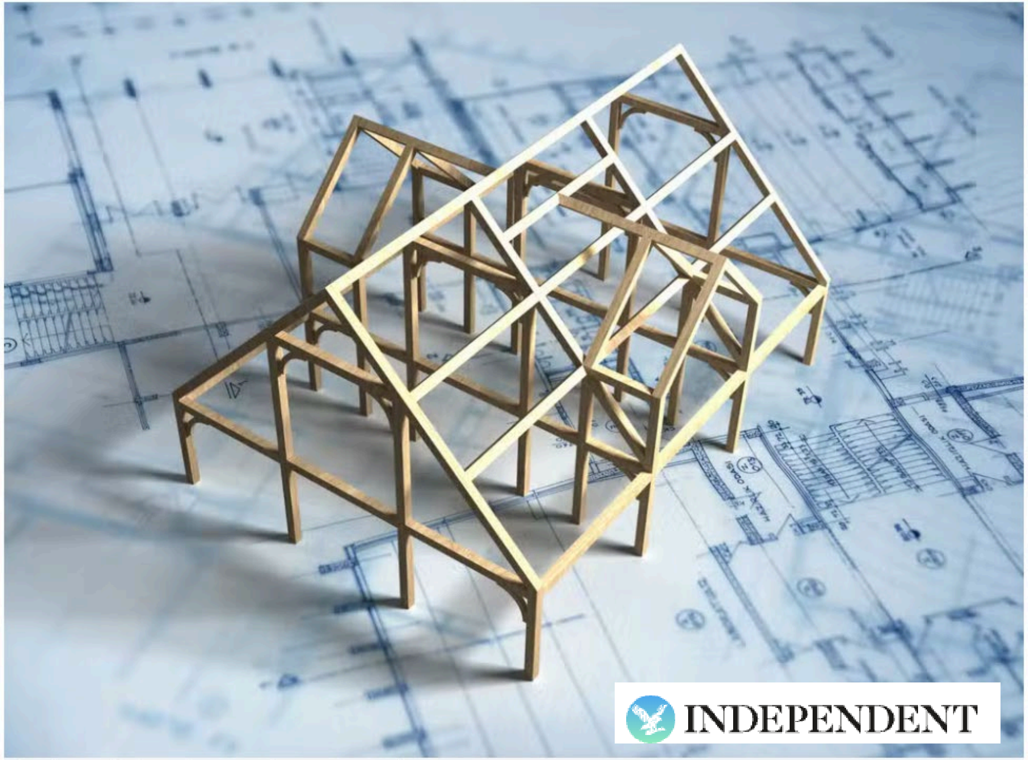
Nature communications
https://doi.org/10.1038/s41467-022-32244-w

Climate > News

'Timber cities' could save a billion tonnes of emissions by 2100

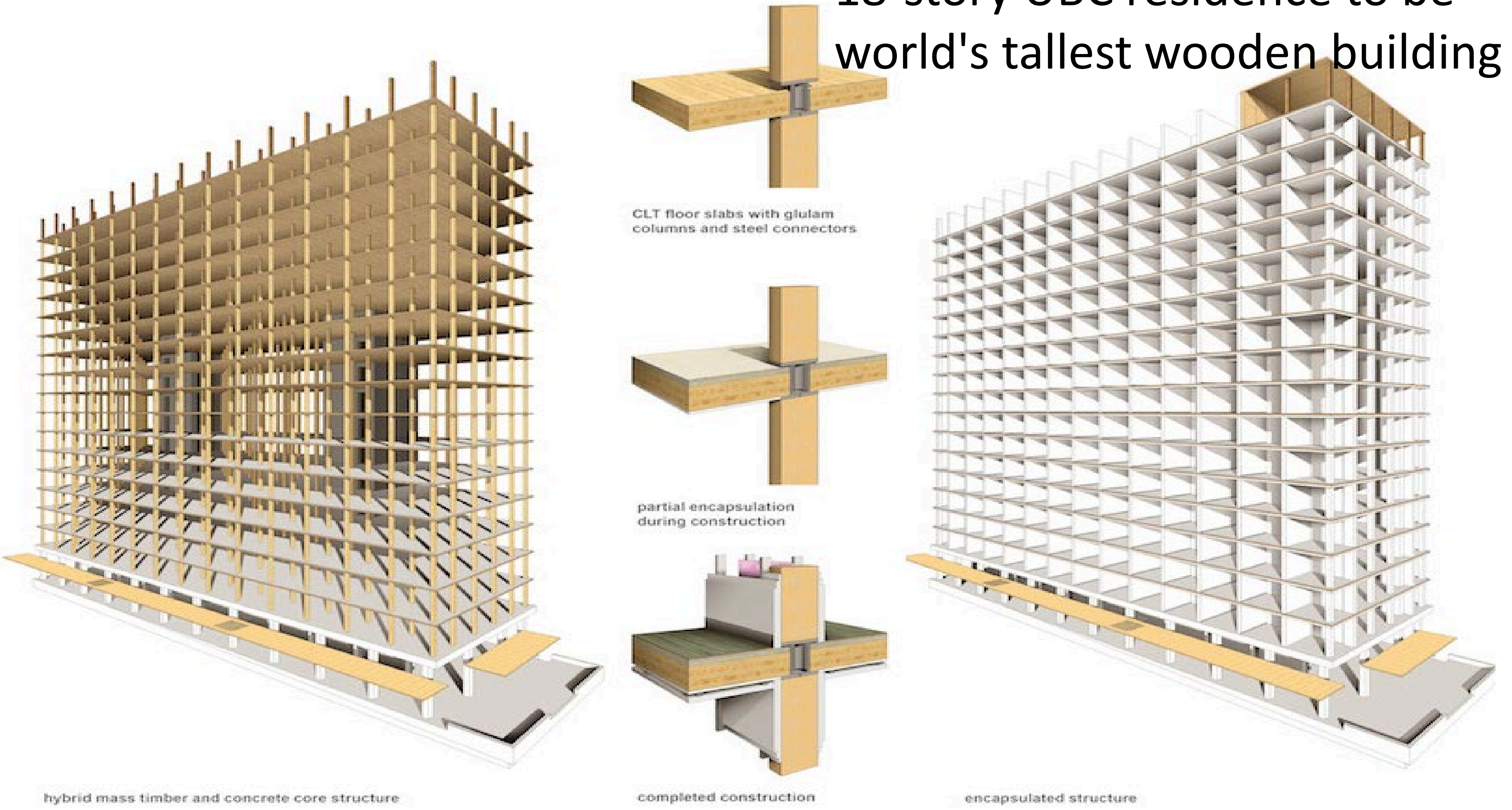
Halting use of glass and concrete in construction is critical to hitting climate targets

Harry Cockburn Environment Correspondent • 1 day ago • 31 Comments



Cross laminated timber can be stronger than concrete or steel
(Getty)

18-story UBC residence to be world's tallest wooden building



Brumunddal, Norway

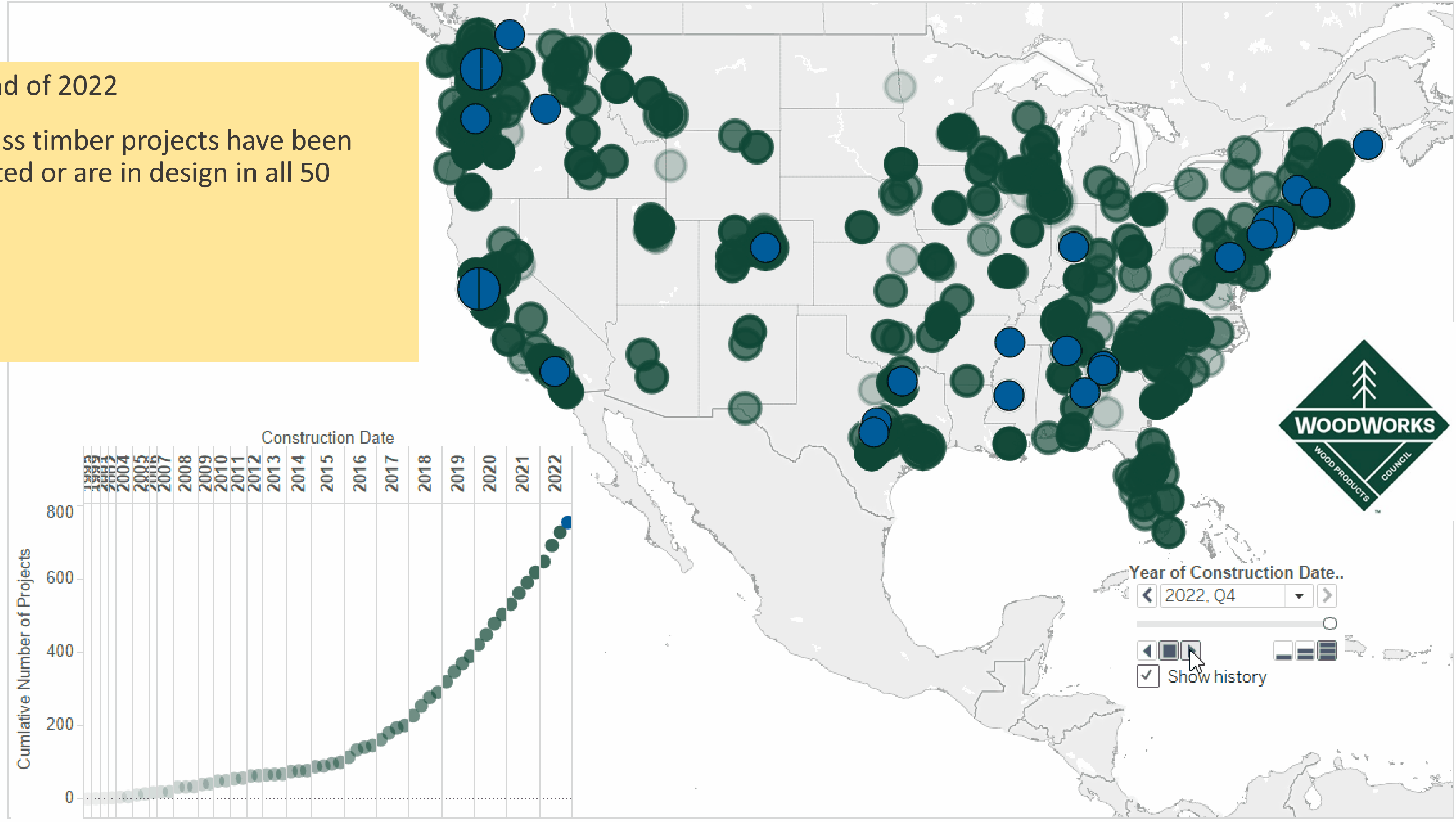
- Mjøstårnet completed in March 2019.

Milwaukee's 25-Story Ascent

Mass Timber Projects Constructed in the US (December 2022)

By the end of 2022

1,677 mass timber projects have been constructed or are in design in all 50 states



Michigan Technological University
College of Forest Resources and Environmental Science

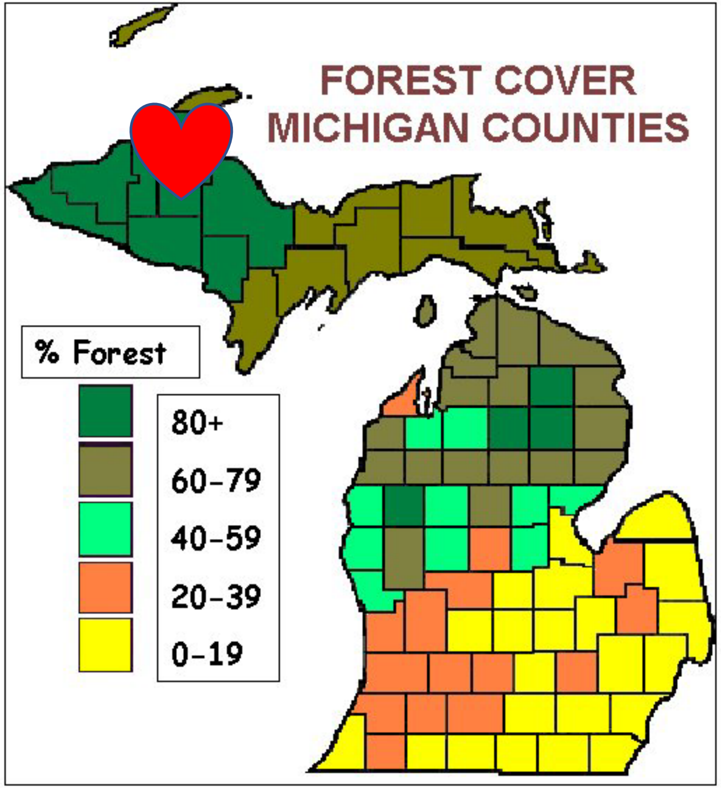
Deep roots - Wood product research program at MTU since 1945

Wood Products degree first established 1960's

Michigan Forests are ~70% hardwood

- To utilize Michigan wood, the development of hardwood mass timber technologies are imperative.

- Supporting rural jobs and communities – local resource supply and manufacturing



Michigan Technological University
College of Forest Resources and Environmental Science
1885


MTU is in and a vital agent
for Michigan's rural economy
1885
Michigan Technological University
Ford Center

Major: Sustainable Bioproducts (BS)

A combination of science, business and engineering

Three concentrations:

Bioproducts Business - business knowledge and proficiency to work as an entrepreneur, or in corporate management.

Sustainable Structures - sustainable building techniques, and the use of engineered wood in buildings such as mass timber.

Circular Economy - sustainable manufacturing, creativity and design, 3D printing, economics, and life cycle analysis.

These concentrations let students focus their knowledge base and contribute toward the best sustainable use (and reuse) of our natural resources in meeting the needs of society.

Structural Engineering: Timber Building Design—Graduate Certificate

CEE 4233 - Structural Timber Design

CEE 5233 - Advanced Structural Timber Design

3 courses in 3 semesters.

Department	Civil, Environmental, and Geospatial Engineering
Admissions requirement	Civil engineering, structural engineering, or related degree.
Contact	Angela Keranen

Length	3 courses in 2-3 semesters
Effort	3 hours per credit per week
Each course	3 credits
Total credits	9
Course type	Online or on-campus

Learn advanced design of timber structures.

Mass Timber Expertise at

Michigan's Flagship Technological University

7 faculty members, 6 research staff

- College of Forest Resources and Environmental Science
- Dept of Civil Engineering
- College of Computing

Michigan Technological University

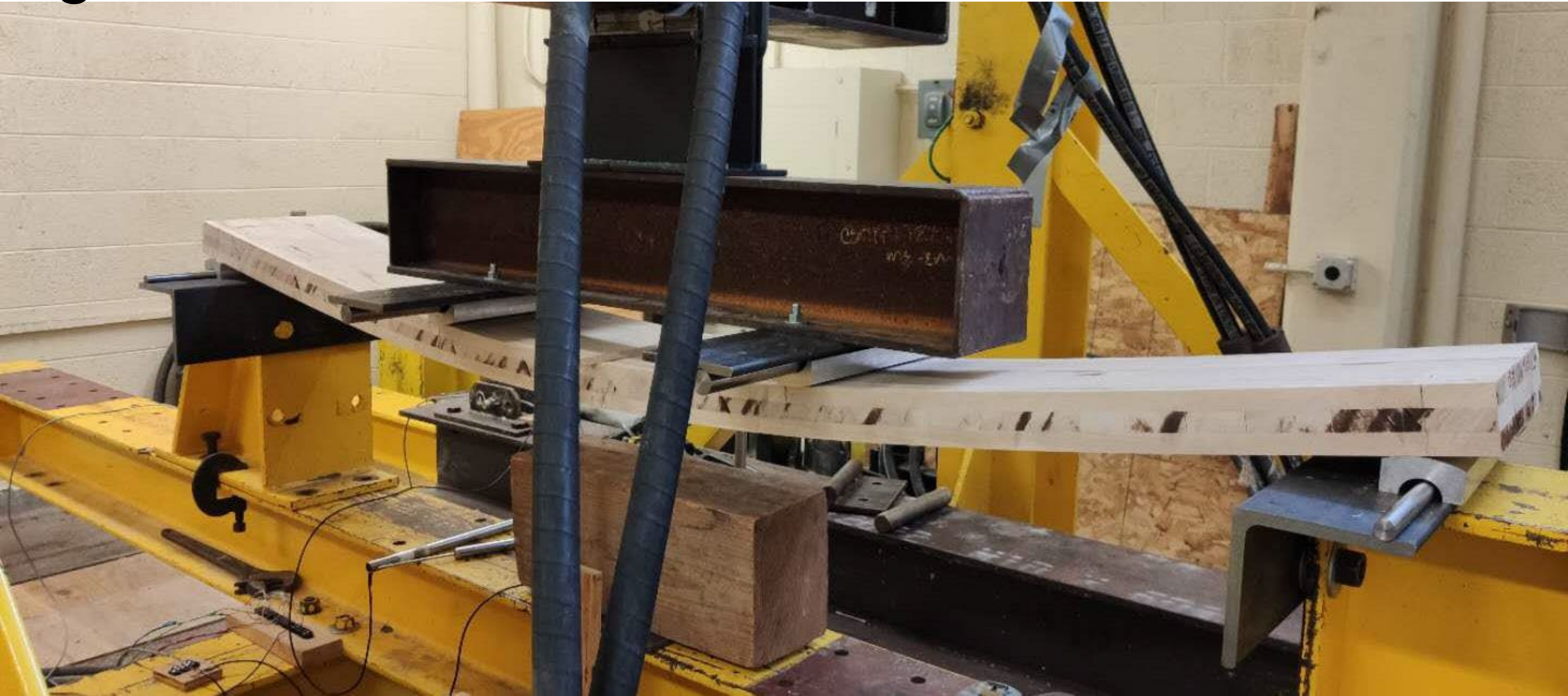
1885


HEXION
Responsible Chemistry
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
First CLT panel made from sugar maple - 2020
Michigan Technological University
College of Forest Resources
and Environmental Science
1885
Also block shear testing on 7 species of
Michigan hardwood

FACILITIES

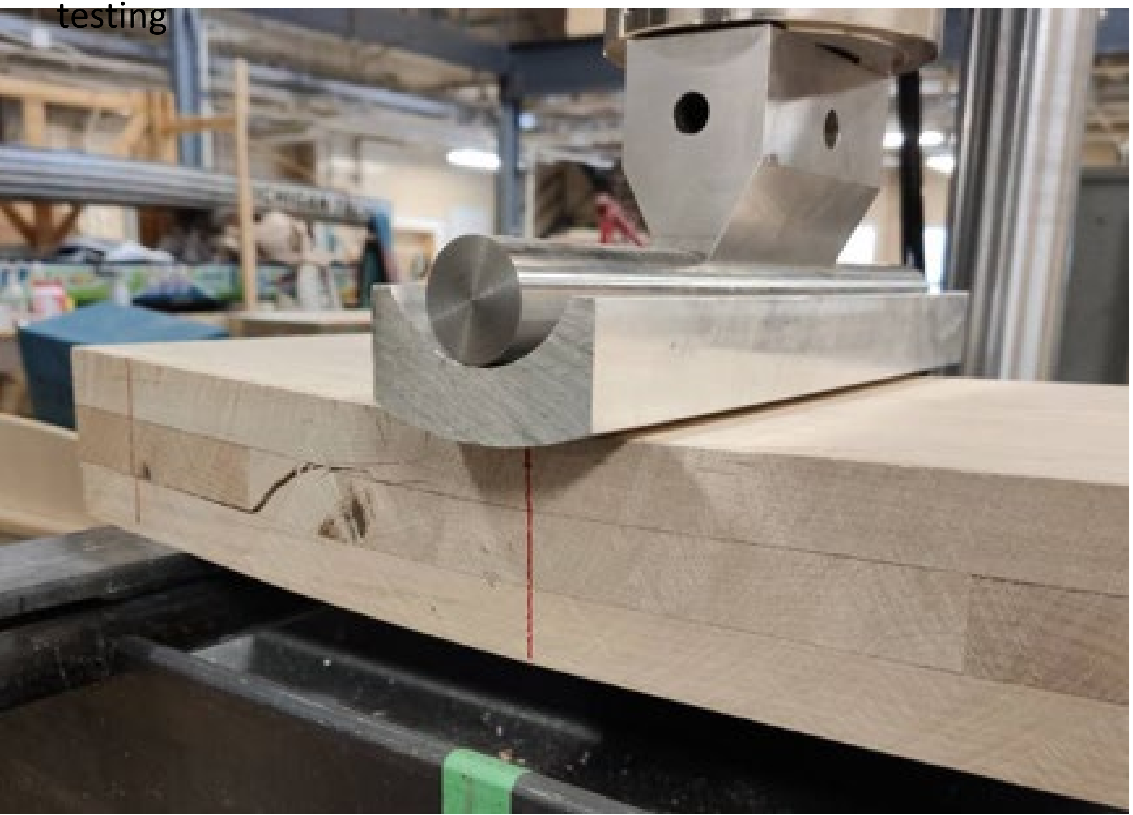
Full scale hardwood CLT panel testing

Sugar maple breaking strength 5X best Softwood



Rocking shear wall testing

3-point bending testing



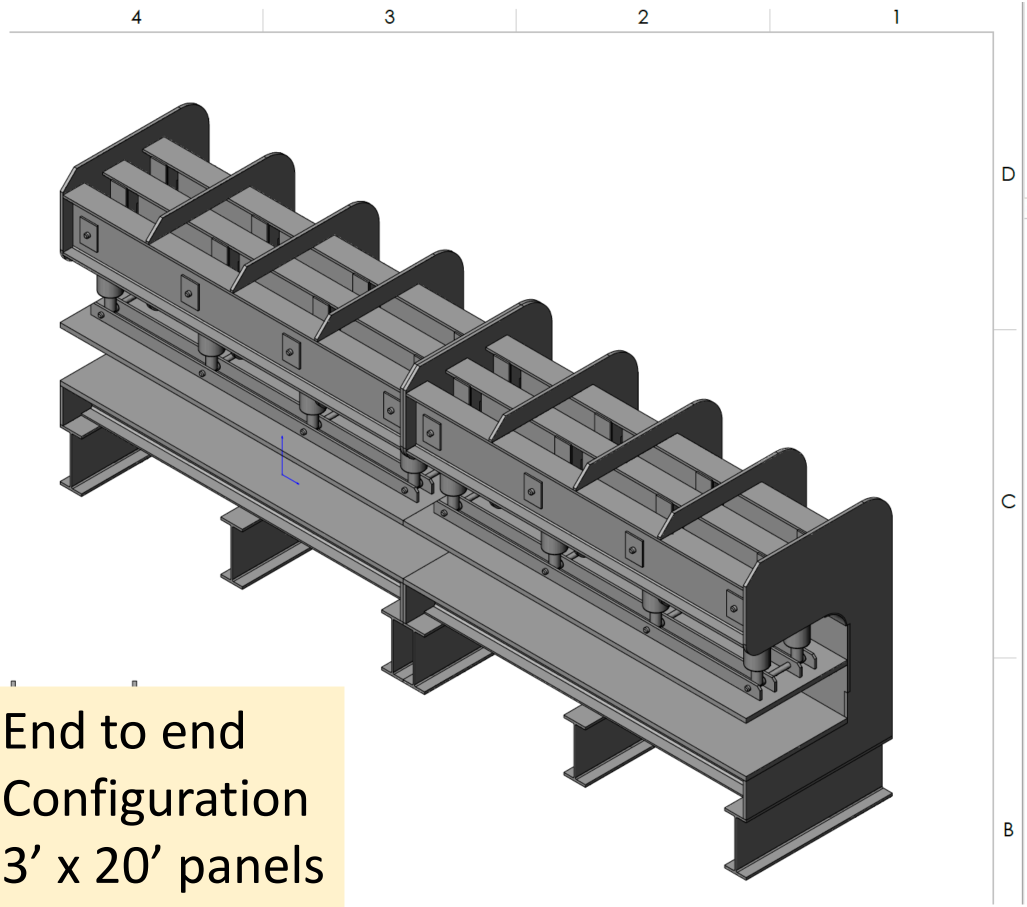
Mass Timber research facility

Finnish delegation
at
Sands pilot plant

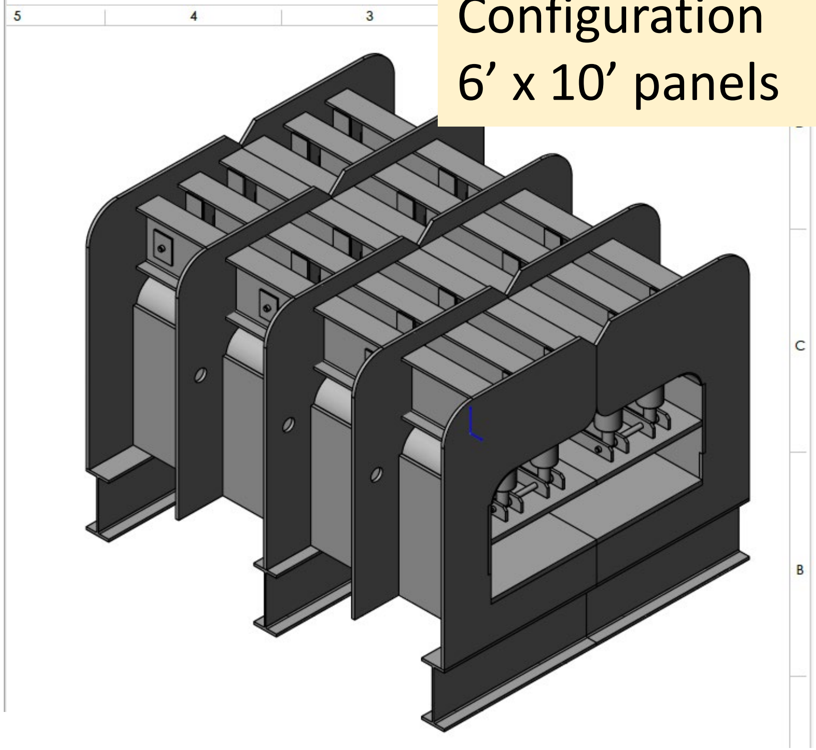

Michigan Technological University
College of Forest Resources and Environmental Science
1885

Michigan Technological University
College of Forest Resources and Environmental Science

Research CLT press



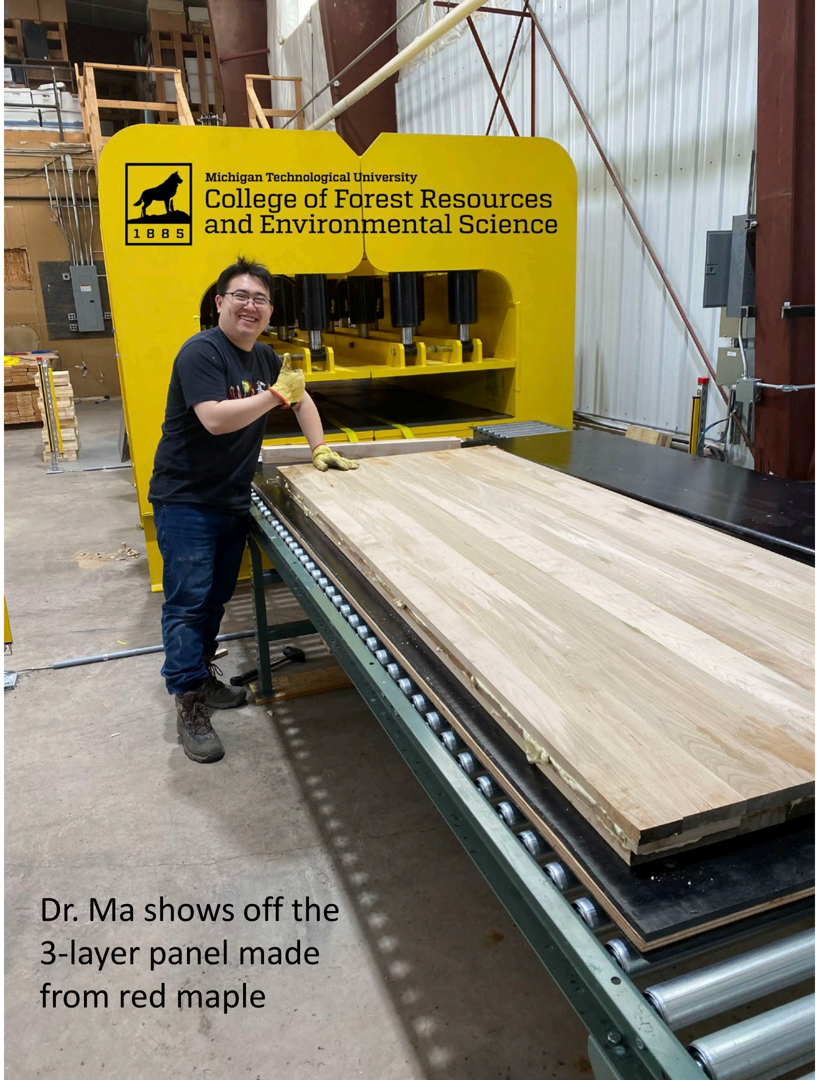
End to end Configuration 3’ x 20’ panels



Side by side Configuration 6’ x 10’ panels

March 9, 2023

The first CLT panel produced on our new press!



Dr. Ma shows off the 3-layer panel made from red maple

Michigan Department of AGRICULTURE & Rural Development

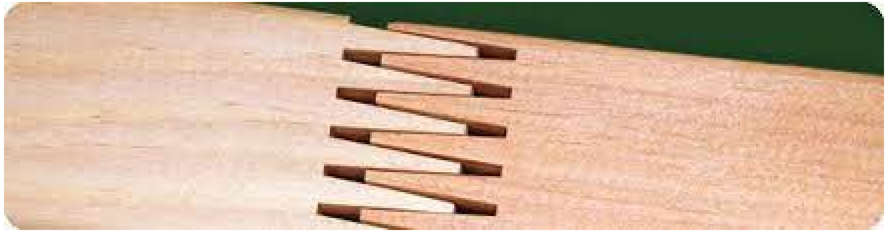
FOREVER GREEN™ BESSE FOREST PRODUCTS GROUP

ajD

LONGYEAR

Finger Jointer Has arrived!

Utilization of low value hardwoods



Michigan Technological University
College of Forest Resources and Environmental Science


CASE
CRESTLINER


Michigan
Technological
University
1885
PETTIBONE

THE LYME TIMBER COMPANY

FOREVER GREEN™

BESSE FOREST PRODUCTS GROUP

LONGYEAR

DEPARTMENT OF NATURAL RESOURCES

DNR

MICHIGAN


Michigan Technological University
1885
HUSKIES MOVE MICHIGAN FORWARD

Hear from local reps…

MILL UPDATES

GreenStone®
FARM CREDIT SERVICES

Greenstone Logging Forum 2023

AgDirect®

25TH ANNIVERSARY

1998 · 2023


AgDirect.
25TH
ANNIVERSARY
1998 • 2023
Celebrating 25 years of simple, fast and flexible financing.

AGENDA

1

How AgDirect Works/Our Footprint

2

Auction-Private Party Dealer Purchase

3

Questions

How AgDirect Works/Our Footprint

AgDirect Partners / Relationships

GreenStone FARM CREDIT SERVICES

Farm Credit Services of America

farm CREDIT MID-AMERICA

FRONTIER FARM CREDIT

FCS FINANCIAL

FARM CREDIT ILLINOIS

AgCountry Farm Credit Services

OKLAHOMA AGCREDIT

FARM CREDIT OF SOUTHERN COLORADO

FARM CREDIT EAST

FARM CREDIT OF WESTERN ARKANSAS

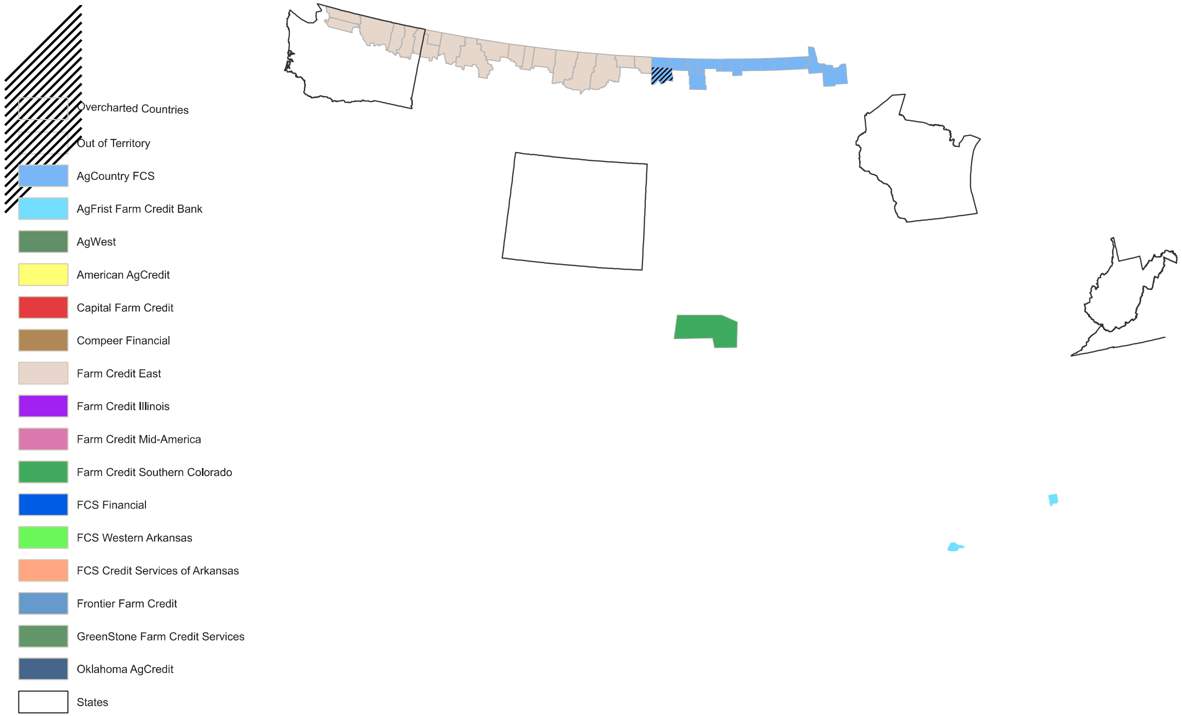
American AgCredit
Your future grows here

CAPITAL FARM CREDIT
PART OF THE FARM CREDIT SYSTEM

AgWest FARM CREDIT

COMPEER FINANCIAL

AgDirect Partners / Relationships



Last Updated: 1.1.2023

How Does AgDirect Work?

SALES & PROMOTION
- Territory Managers
- Inside Sales Reps
- Marketing Team
- Retail Branch Team

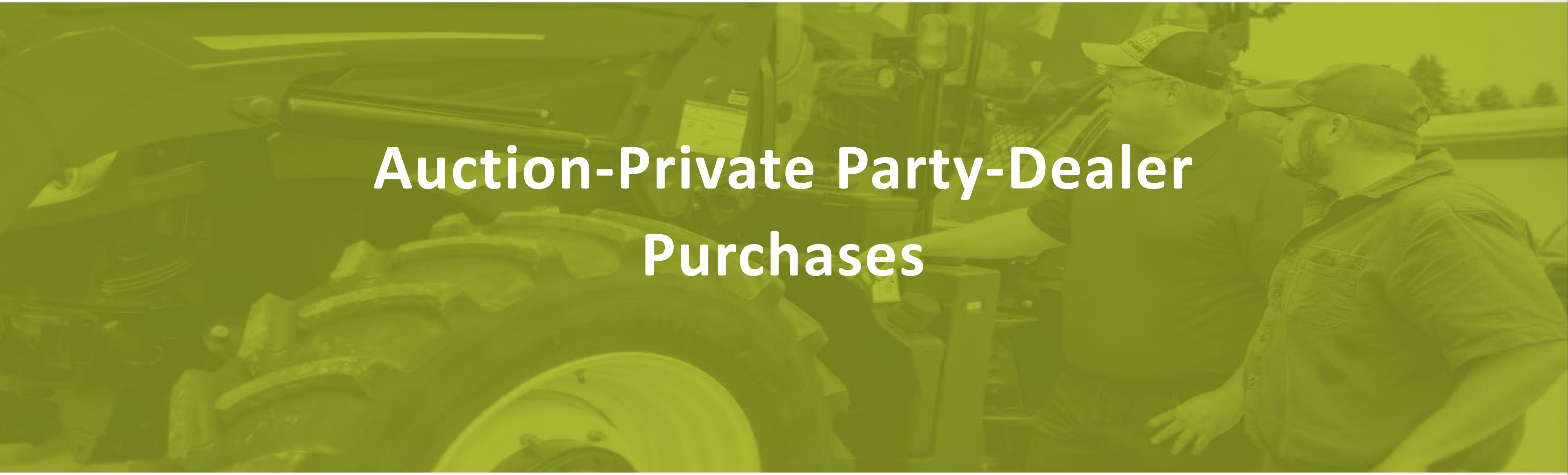
ORIGINATION
- Dealer/Customer
- Inside Sales Reps
- Customer Direct

DECISIONING
- Inside Sales Reps
- Credit Ops
- Credit Analysts

PRE-CLOSING ACTIVITY
- Inside Sales Reps
- Dealer
- Processing Specialist
- Quality Controls

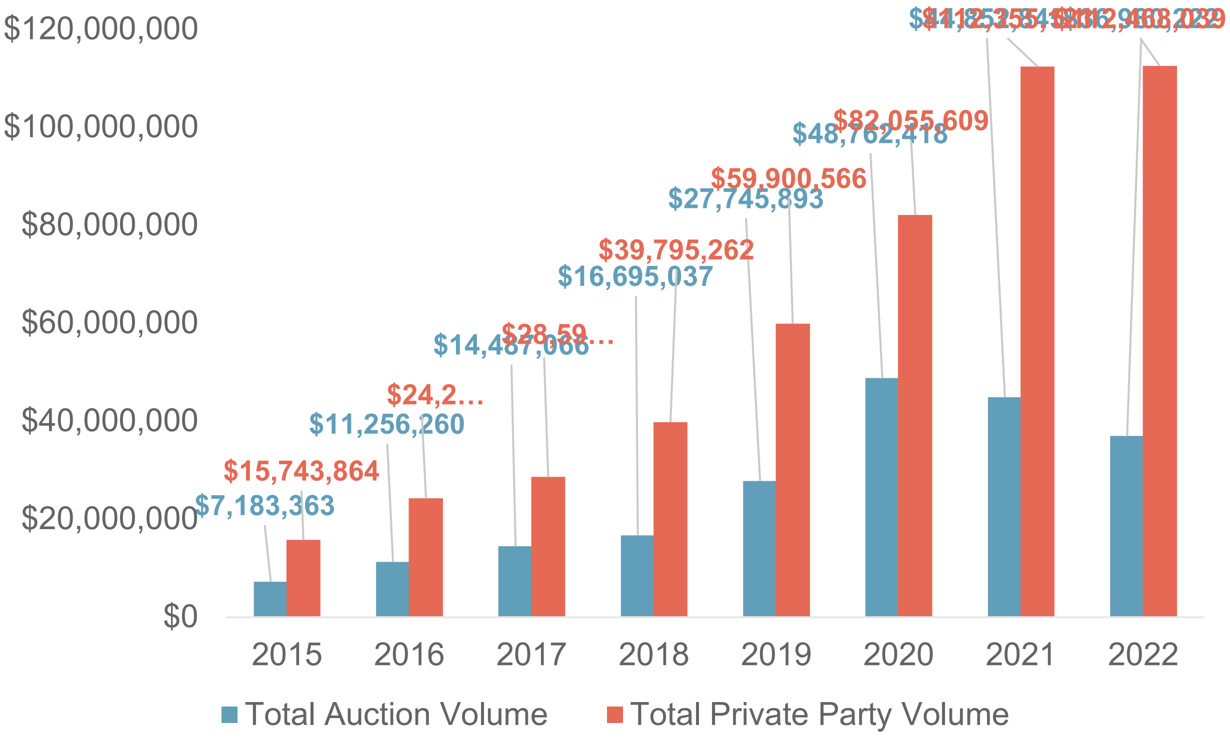
CLOSING ACTIVITY
- Closing Specialists
- Dealer/Customer
- Quality Control

POSTING-CLOSING ACTIVITY
- Closing Specialist
- Dealer/Customer
- Doc Retention

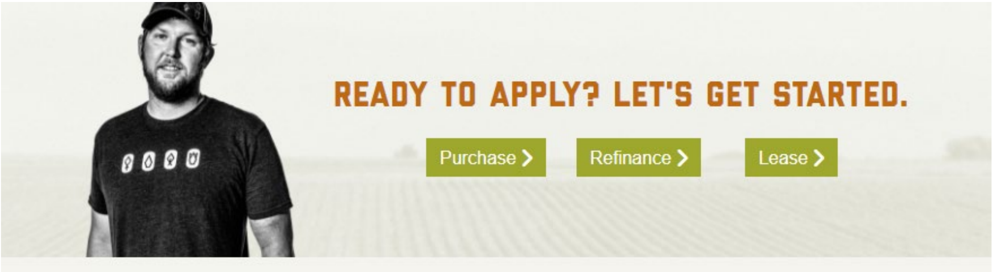


Auction-Private Party-Dealer Purchases

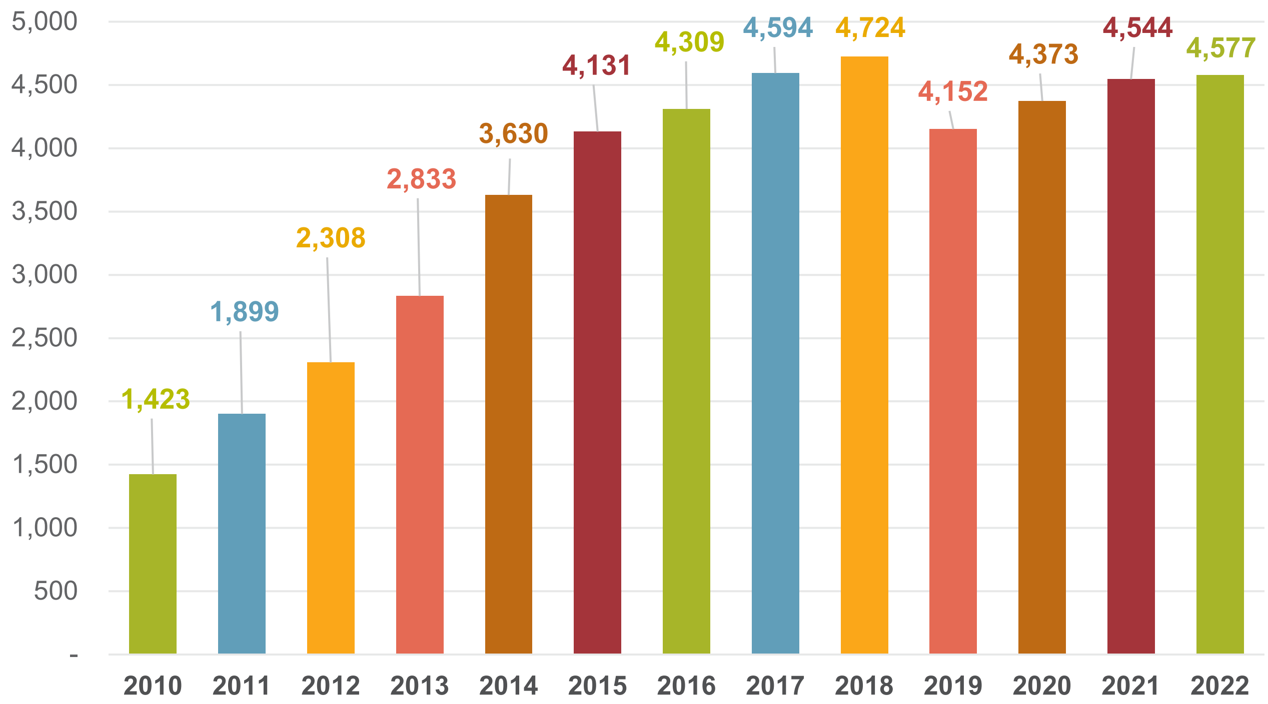
Private Party & Auction



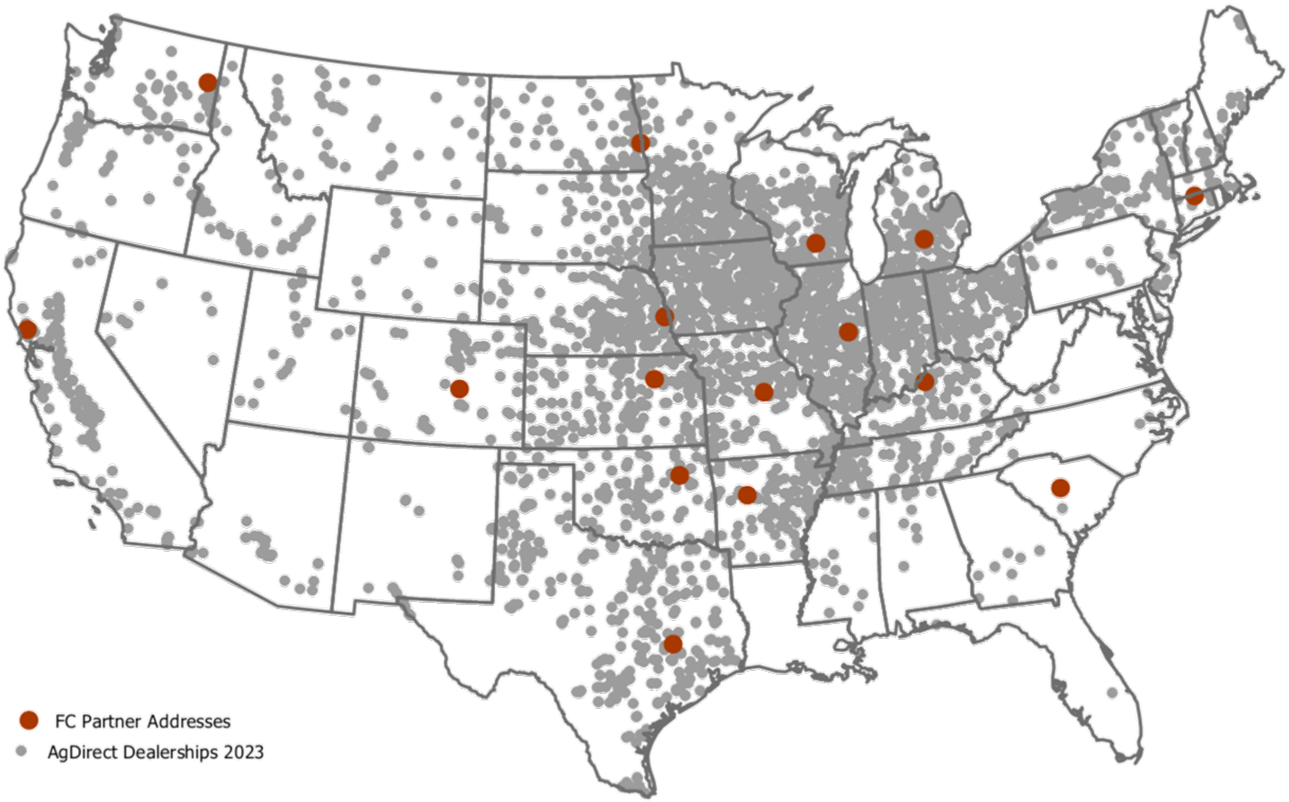
AgDirect.com to Apply



Total Active Dealership Locations

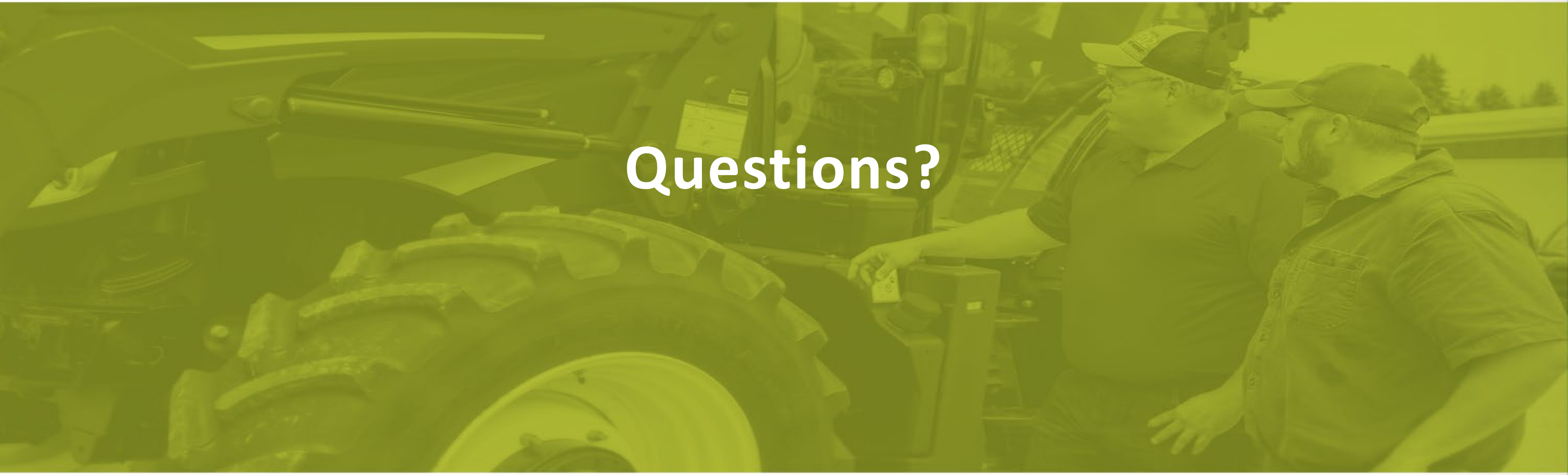


Partners & Dealerships



AgDirect 25TH ANNIVERSARY 1998 • 2023

POWERED BY FARM CREDIT



Questions?


THANK YOU
AgDirect.
AgDirect.
25TH
ANNIVERSARY
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GreenStone Farm Credit Services…

PARTNERING FOR SUCCESS

Cameron Rowe, Corey Fanslau and Nichole Olson

GreenStone® FARM CREDIT SERVICES

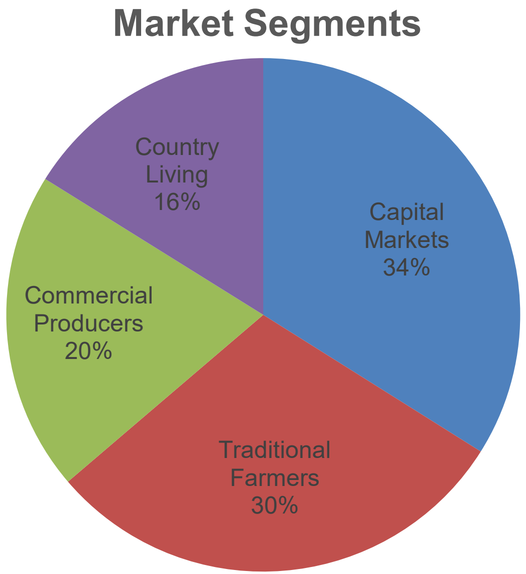
Who we are…and how we do it!

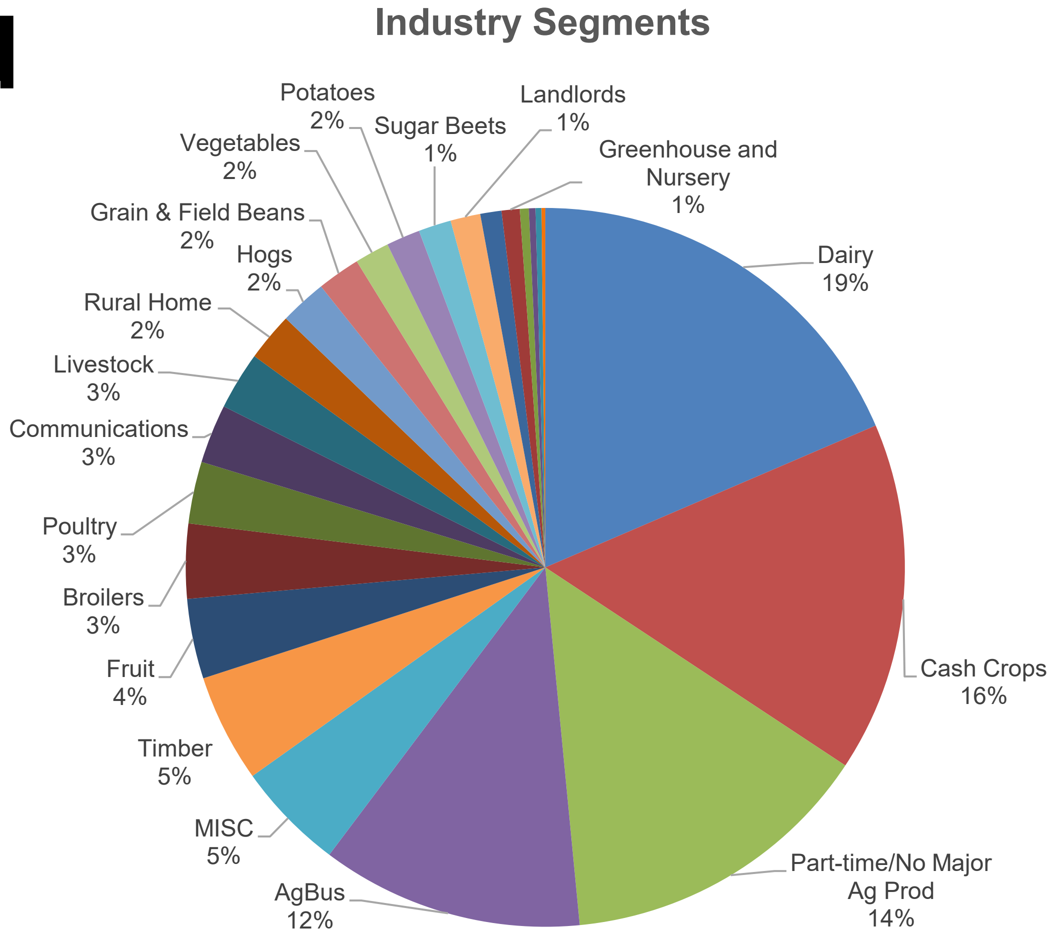
GreenStone supports rural communities and agriculture with reliable, consistent credit and financial services, today and tomorrow.

Our Co-op

- $13 billion in assets
- $840 million in patronage
- 28,000 members
- 600 employees
- 35 locations
- 95% customer satisfaction
- Timber, Farm, Agribusiness, Country Living, & Capital Markets

Strength and Diversity





Products and Services

- Financing Options
  - Operating lines of credit
  - Machinery/Equipment term loans
  - Real Estate
  - Ag Direct
  - Farm Credit Leasing
  - CultivateGrowth Loans

Types of Loans

- Line of Credit
  - Operating funds – 1 to 3 years
- Short Term Note – 1 to 7 years
  - Capital expenditures
  - Depreciable assets
- Long Term Note – 10 to 30 years
  - Real estate purchase
  - Facilities and improvements

Timeline Expectations

- Revolving Lines of Credit / Operating Loan (RLOC)
  - Generally finalized within a few days
- Intermediate Term Loans
  - Equipment or livestock
  - Quick turnaround
- Real Estate Loans
  - Generally close in 5-6 weeks
  - Unexpected issues can prolong the process

Products and Services

- Financial support for your business and personal needs: Country Living
  - Home loans
  - Home construction
  - Recreational land
  - Home site loans

Related Services

- Tax, Accounting and Payroll
  - Tax professionals with agricultural knowledge and experience for tax planning and preparation, bookkeeping, business management, and payroll processing
- Life Insurance
  - Competitive, customized policy options for family and business risk management

Focused on young, beginning and small producers…

CULTIVATEGROWTH

GreenStone®
FARM CREDIT SERVICES

CultivateGrowth

- Support for the diversity of today's young, beginning, and small producers
- Flexible financing options
- Competitive interest rates
- Developmental growth opportunities through networking, educational programming and custom resources

CULTIVATE GROWTH

CultivateGrowth Eligibility

- Young Criteria
  - Age 35 or younger
- Beginning Criteria
  - Have 10 years or less farming experience
- Small Criteria
  - Sustained annual gross sales from agriculture production or logging of less than $250,000

Loan Options

- Conventional
  - Relaxed CultivateGrowth underwriting standards
- SBA loan programs/guarantees
- Personal Guarantors
- Emerging Loans
  - Emerging Loan Education

Emerging Loan Program

- Designed specifically for small lending relationships where a personal guarantor is not readily available
- Up to $50,000 in operating loans and $100,000 in long-term financing
- Emerging Loan Education
  - Complete educational programs to achieve 300 points
  - Earn 0.50% interest rate reduction on CultivateGrowth Emerging Loan(s)

Resources

- CultivateGrowth Grants
  - Up to $1,000 each available for:
    - Agricultural programs & events:
      - Educational course or program, conferences, etc.
    - GreenStone resources:
      - Accounting and tax services, etc.
    - Non-GreenStone services:
      - Business and farm consultants, etc.
- www.greenstonefcs.com/grants

Resources

- CultivateGrowth Mentorship
  - Pairs young, beginning, and small operators with experienced mentors
  - 18-month program
  - Includes several coordinated conversations and site visits to mentor and mentee operations

- www.greenstonefcs.com/mentorship

Resources

- CultivateGrowth Education and Resources
  - Outline of programs and educational options to meet each customer's unique learning style
  - Includes more focused and individualized support

- www.greenstonefcs.com/cultivategrowth

Questions?

- **Corey Fanslau**
  - VP of Traditional Lending – Clintonville, WI
  - Corey.Fanslau@greenstonefcs.com
  - 715-701-2198
- **Cameron Rowe**
  - Senior Financial Services Officer – Escanaba, MI
  - Cameron.Rowe@GreenStoneFCS.com
  - 906-399-9823
- **Nichole Olson**
  - Senior Financial Services Officer – Coleman, WI
  - Nichole.Olson@greenstonefcs.com
  - 920-591-1133

QUESTIONS?

GreenStone®
FARM CREDIT SERVICES

LUNCH

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