WORLD FOREST GROUP
A BETTER TIMBER MAT®

Ten Reasons Why Eucalyptus Mats are Sustainable and Good for the Environment

Customers receive superior environmental benefits with Eucalyptus mats through strength, lower weight, longer life, coupled with single species, sustainably plantation-grown Eucalyptus.

Eucalyptus' Strength + Standardized Manufacturing = Longer Lasting timber mats that are also lighter.

Stronger + Standardized + Lighter + Lower Replacement and Trucking Costs + Reduced/delayed Disposal Costs = Lowest Total Cost of Ownership (TCO). TCO is a useful tool to analyze sustainable alternatives; lower TCO is better.

1. *Single Species*: World Forest Group Eucalyptus comes from a single strong species. No low strength species or poor wood quality.
2. *Reduced Pressure on US Natural Forests*. WFG uses plantation-grown Eucalyptus. This use reduces the pressure on overcut North American natural forests.
3. *Greater Annual Rates of Carbon Sequestration*. Eucalyptus is plantation-grown and has faster growth rates than N. American hardwoods, resulting in greater carbon sequestration per year.
4. *Reduced Usage of Forest Resources*. Eucalyptus strength means:
    a. Thinner mats substitute for thicker, lower-strength species, reducing raw materials needs. (Example: Substitute a 5", 6", or 6.75" Eucalyptus timber mat for 8" mixed hardwood).
    b. 50%-300% longer mat life reduces forest extractions.
5. *Reduced Impact on Site Soils*: Breakage, chipping, failure, and rotting negatively impact site soils. Eucalyptus mats are stronger and standardized, minimizing such problems.
6. *Low Carbon Footprint from Mat Transport*. Thinner, lighter Eucalyptus mats = more mats per truck, reducing lifetime carbon trucking footprint.
7. *Reduced Cleanup Impact*: Eucalyptus mats have long lifespans, don't break as often, radically reducing cleanup problems.
8. *Delayed Disposal*. Longer lived Eucalyptus mats delay disposal and reduce total disposals, reducing pressure on local landfills.
9. *Phytosanitary Treatment*: All World Forest Group Eucalyptus mats are treated so that they are free of any bugs that could affect local ecosystems.
10. *Carbon Neutral*. WFG continually works to reduce carbon footprint. The remainder of its footprint is offset by high quality voluntary offsets.

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www.worldforestgroup.com
800-866-0795 or 772-473-0328

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Sustainability Scorecard - World Forest Group Eucalyptus and Typical USA Mixed Hardwoods.

Legend	**Clear sustainable advantage**	**Less or not sustainable**

	World Forest Group Eucalyptus	**USA Hardwoods**	**Comments**
Species	Single species, clonally improved fast growing. Well-tested over millions of tons of material	Multiple species, multiple genetic strains. Generally unmanaged.	High USA variability means producers will opt for the lowest quality/cost raw material.
Forest Management	Intentionally and sustainably managed.	Some USA forests well-managed. Most SE forests under threat.	
Soils	Good soils. South Brazil. 9 to 10 months of seasonal operability.	Moderate to depleted Soils. Generally low lying areas. 4 to 6 months operability.	Better soils = faster growth, better log quality, greater seasonal availability.
Topography	Generally flat or gentle slopes.	Highest quality materials in bottom lands with difficult topography.	Difficult terrain means more negative environmental effects like sediment, erosion, etc.
Existing Forest Threats?	None. Nowhere near rainforest. No native forest cut for plantations. Sustainable production system.	Atlantic and southern hardwood forest pressure from paper and biomass mills, and conversion to softwood plantations	Native hardwoods in SE USA under increasing environmental pressure; more sensitive ecosystems.
Efficiency forest operations	Highly efficient, mechanized means lower petroleum use per unit output	Moderately efficient, lower mechanization in natural forest, higher petroleum use	
Transport to mills	Higher load weight/truck; distances similar or longer than USA	Lower load limit per truck	Higher loads/truck and flat/gentle plantation slopes, means less petroleum use
Mill Operations Power Source	77% of matrix energy in Brazil manufacturing area is hdro, wind and or solar	Majority of energy is coal or natural gas.	
Mill operations mechanical	Lower per mat energy use. Smaller mills, lower CAPEX, not highly mechanized	Higher per mat energy use. Smaller to mid-size mills, higher CAPEX, more mechanization, more throughput per hour	Higher USA energy use/mat to adjust for higher USA labor costs.
Mill operations labor	Higher labor per unit output. Labor cost 1/10th USA cost	Lower labor per unit output. Much higher hourly labor.	No obvious sustainability advantage for labor either mat type
Movement of people to mill location	Private bus workers to plant AM/PM; efficient petroleum and carbon footprint	Generally private transport; high diesel consumption to transport 1-2 people/auto	
Transport product to primary distribution location	By ship, but longer distances	By truck, much higher per mile transport carbon footprint	Ship 20x more efficient than truck. Global shipping fleet easier to move to low CO2 footprint. (~60,000 ships vs. 13 million USA trucks. Over time, ocean fleet will outpace USA truck fleet in lower CO2 emissions.
Intra USA transport	A thinner Eucalyptus mat does same job as thicker, lower strength MH mat. Roughly 1/3rd carbon emissions less in transport	Heavier, thicker mixed hardwood mats cost much more per unit strength than Eucalyptus	
Longevity	Eucalyptus 50-300% longer lived. Less raw material, less landfill use	Use and dispose. Many more mats (and trees) necessary for same lifespan.	
Miscellaneous	Continual improvement on carbon and health, safety and environment footprints. Where World Forest Group cannot further reduce carbon use it acquires very high quality voluntary carbon offsets.	Unaware of any USA entity doing same work.	

Figure 1 - Sustainability Scorecard

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Figure 2 - Sustainable Eucalyptus Timber Mats and Typical Mixed Hardwood Mats

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