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Clover Eco Lawns: Replacing the Turf Lawn

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Clover Eco Lawns

Replacing the Turf Lawn





What is an “eco-lawn”?

“An eco-lawn is a mix of broadleaf and grass species that are mutually compatible and ecologically stable.”

(Oregon State University, 2013)

Perennial Turf Grass

- On most residential, institutional, and recreational lawns
- Requires frequent cutting
 - Can grow up to 24 inches!
 - Gasoline- powered mowers
- High maintenance
 - Frequent watering
- Heat- sensitive
 - Dries up during hot periods



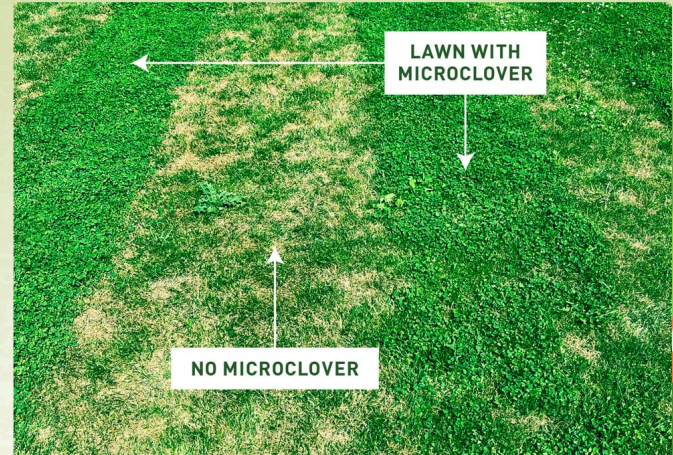
Eco-lawn

- Supports native plant species
- Lower maintenance
- Do not require fertilizers
- Support endophyte life
- Serve as stormwater management
- More resilient to weather



Why a Clover base?

- Resilient against dog urine
- Lower maintenance than grass
- Requires less water
 - Will reduce water waste
- More heat tolerant
 - Will be green and lush even in dry periods in the summer
- Nitrogen fixing
- No fertilizer needed



Resilience (in the Environmental System)

- Prevents soil erosion and run-off
 - Retains soil moisture
- Reduces neighboring species' need for fertilizer
- Promotes biodiversity
- Attracts pollinators, like bees
- Serves as vegetation for birds
- Suppresses other weeds and invasive species



Improve Regulatory Stability

Clover is a nitrogen-fixer, meaning that it has a symbiotic relationship with Rhizobium bacteria at the roots.

Rhizobium helps the clover convert atmospheric nitrogen so that it can be used by plants.

Nitrogen fixation reduces greenhouse gases and the overproduction and retention of atmospheric nitrogen.



Planetary Boundaries

Biogeochemical flow of Nitrogen

Biodiversity

Climate change

Freshwater use

Planetary Processes

Water cycle

Carbon cycle

Gaia Theory

- **Biodiversity**
 - Clover is a legume and a flowering plant
 - Provides habitat and food for butterflies and bees
- **Self Regulation**
 - Nitrogen fixation creates healthier soil and supports a more self-sustaining ecosystem
- **Climate Regulation**
 - Through Nitrogen fixation, clover can also capture and store carbon and reduce greenhouse gases
 - Maintenance practices of turf lawn produce greenhouse gases





3,000 sq ft



6,000 sq ft



8,000 sq ft



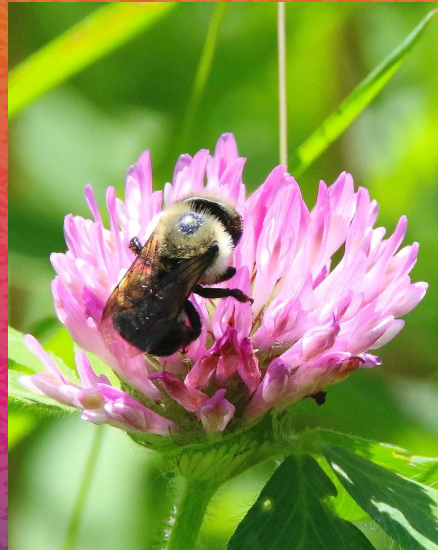
3,000 sq ft

Logistics & Implementation

The project will actually have very little impact on human behavior, except that it will reduce campus use of fertilizer, sprinklers, and water systems for lawn care, reduce lawn cutting.

- Lawn overseeding is very common to achieve a full lawn look
- Costs \$1 per square (1000 sq ft) to plant clover
- Costs \$200 per square (1000 sq ft) to reseed grass





References

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