AXIS Creates a Better Living Environment for Plants

AXIS is Mixed Into the Soil With:

Potted Plants
Hanging Baskets
Flowers
Gardens
Trees
Shrubs
Lawns

Preferred by Professionals

Getty Museum – Rooftop Gardens

"Without a doubt, the planting medium is the most important part of planter systems. AXIS's unique shape and structure make this naturally occurring organism efficient for the movement of air and water." Michelle d'Hulst Editor LASN


RONALD REAGAN UCLA MEDICAL CENTER
AXIS®


Walt Disney Concert Hall, Los Angeles, CA
Rooftop Patio Plantings

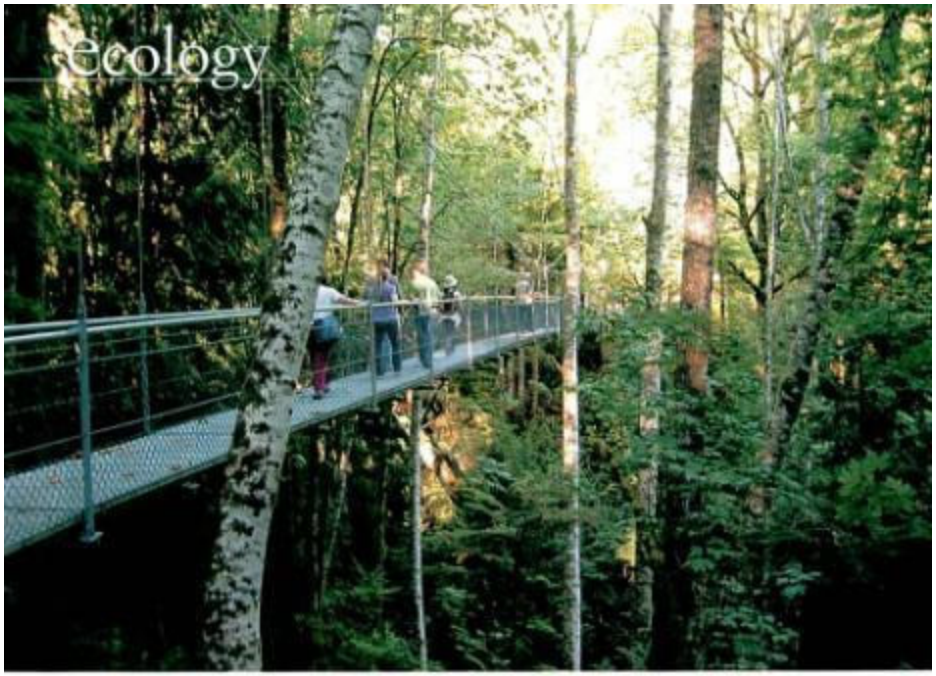

3 Creek Ranch Golf Club, Jackson Hole, WY
Native Trees and Shrubs

Environmental Learning Center

Leading Seattle Designers

Landscape Architecture Magazine Article

No Permanent Irrigation



Learning from an Island

Near Seattle, kids experience an eco-friendly campus.

BY CLAIR ENLOW

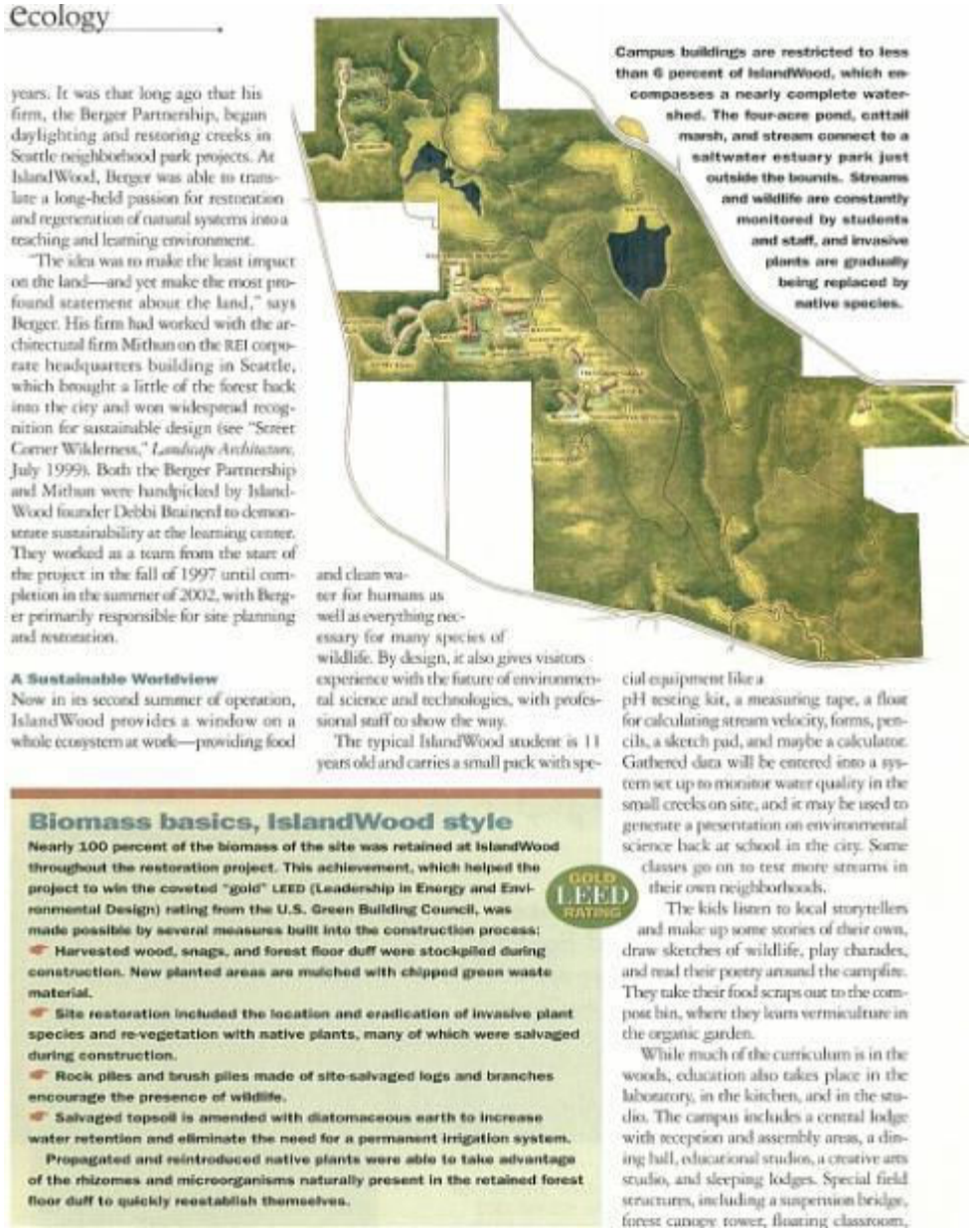
For a "school in the woods," IslandWood is not very deep in the wilds. But a stay at the 255-acre learning center on Bainbridge Island—just a ferry ride from Seattle—is not to be confused with camping. It's more of a lesson in how environmental education and sustainable design work together, and how far the limits can be pushed when resources, commitment, and imagination are available.

Respect for the land is designed into IslandWood. From the moment they debark for their three-to-four-day stay, visiting

School kids play on the suspension bridge, above, that spans a deep ravine and several microclimates at IslandWood. The center for environmental education, *right*, is designed to preserve existing ecosystems and recycle water through landscape features such as constructed wetlands on site.

GOLD LEED Rating

"Salvaged Topsoil is amended with Diatomaceous Earth to increase water retention and eliminate the need for a permanent irrigation system."



Ecology

years. It was that long ago that his firm, the Berger Partnership, began daylighting and restoring creeks in Seattle neighborhood park projects. At IslandWood, Berger was able to translate a long-held passion for restoration and regeneration of natural systems into a teaching and learning environment.

"The idea was to make the least impact on the land—and yet make the most profound statement about the land," says Berger. His firm had worked with the architectural firm Mithun on the REI corporate headquarters building in Seattle, which brought a little of the forest back into the city and won widespread recognition for sustainable design (see "Street Corner Wilderness," *Landscape Architecture*, July 1999). Both the Berger Partnership and Mithun were handpicked by IslandWood founder Debbi Beaincnd to demonstrate sustainability at the learning center. They worked as a team from the start of the project in the fall of 1997 until completion in the summer of 2002, with Berger primarily responsible for site planning and restoration.

A Sustainable Worldview

Now in its second summer of operation, IslandWood provides a window on a whole ecosystem at work—providing food and clean water for humans as well as everything necessary for many species of wildlife. By design, it also gives visitors experience with the future of environmental science and technologies, with professional staff to show the way.

The typical IslandWood student is 11 years old and carries a small pack with special equipment like a pH testing kit, a measuring tape, a float for calculating stream velocity, forms, pencils, a sketch pad, and maybe a calculator. Gathered data will be entered into a system set up to monitor water quality in the small creeks on site, and it may be used to generate a presentation on environmental science back at school in the city. Some classes go on to test more streams in their own neighborhoods.

The kids listen to local storytellers and make up some stories of their own, draw sketches of wildlife, play charades, and read their poetry around the campfire. They take their food scraps out to the compost bin, where they learn vermiculture in the organic garden.

While much of the curriculum is in the woods, education also takes place in the laboratory, in the kitchen, and in the studio. The campus includes a central lodge with reception and assembly areas, a dining hall, educational studios, a creative arts studio, and sleeping lodges. Special field structures, including a suspension bridge, forest canopy tower, floating classroom,

Campus buildings are restricted to less than 6 percent of IslandWood, which encompasses a nearly complete watershed. The four-acre pond, cattail marsh, and stream connect to a saltwater estuary park just outside the bounds. Streams and wildlife are constantly monitored by students and staff, and invasive plants are gradually being replaced by native species.

Biomass basics, IslandWood style

Nearly 100 percent of the biomass of the site was retained at IslandWood throughout the restoration project. This achievement, which helped the project to win the coveted "gold" LEED (Leadership in Energy and Environmental Design) rating from the U.S. Green Building Council, was made possible by several measures built into the construction process:

- Harvested wood, snags, and forest floor duff were stockpiled during construction. New planted areas are mulched with chipped green waste material.
- Site restoration included the location and eradication of invasive plant species and re-vegetation with native plants, many of which were salvaged during construction.
- Rock piles and brush piles made of site-salvaged logs and branches encourage the presence of wildlife.
- Salvaged topsoil is amended with diatomaceous earth to increase water retention and eliminate the need for a permanent irrigation system.

Propagated and reintroduced native plants were able to take advantage of the rhizomes and microorganisms naturally present in the retained forest floor duff to quickly reestablish themselves.

INDIVIDUAL PLANTINGS – Use 15% by Volume

Amount of AXIS to Mix into the Backfill per Plant.

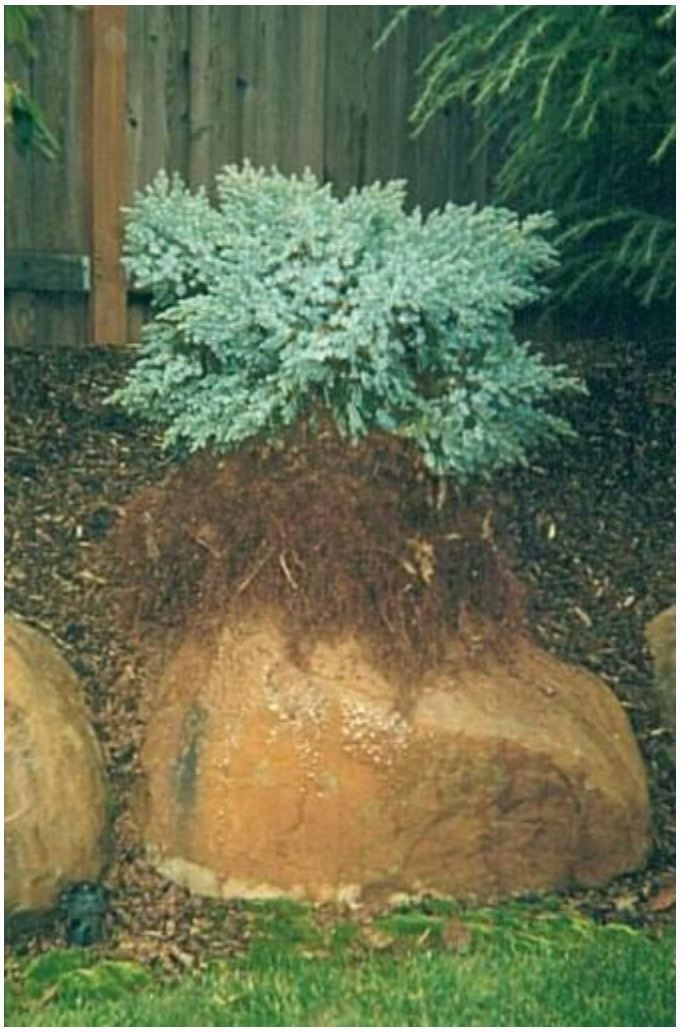
Plant Size	Lbs. of AXIS
4” Pot	.4 lbs.
1 Gallon	1.5 lbs.
2 Gallon	3.0 lbs.
5 Gallon	7.5 lbs.
6’ Tree	15.0 lbs.
8’ Tree	25.0 lbs.
2” Caliper Tree	50.0 lbs.
3” Caliper Tree	75.0 lbs.

For More Plant Sizes Contact EnviroTech @ www.axisplayball.com

AXIS produced 40% Larger Plants at University of Florida

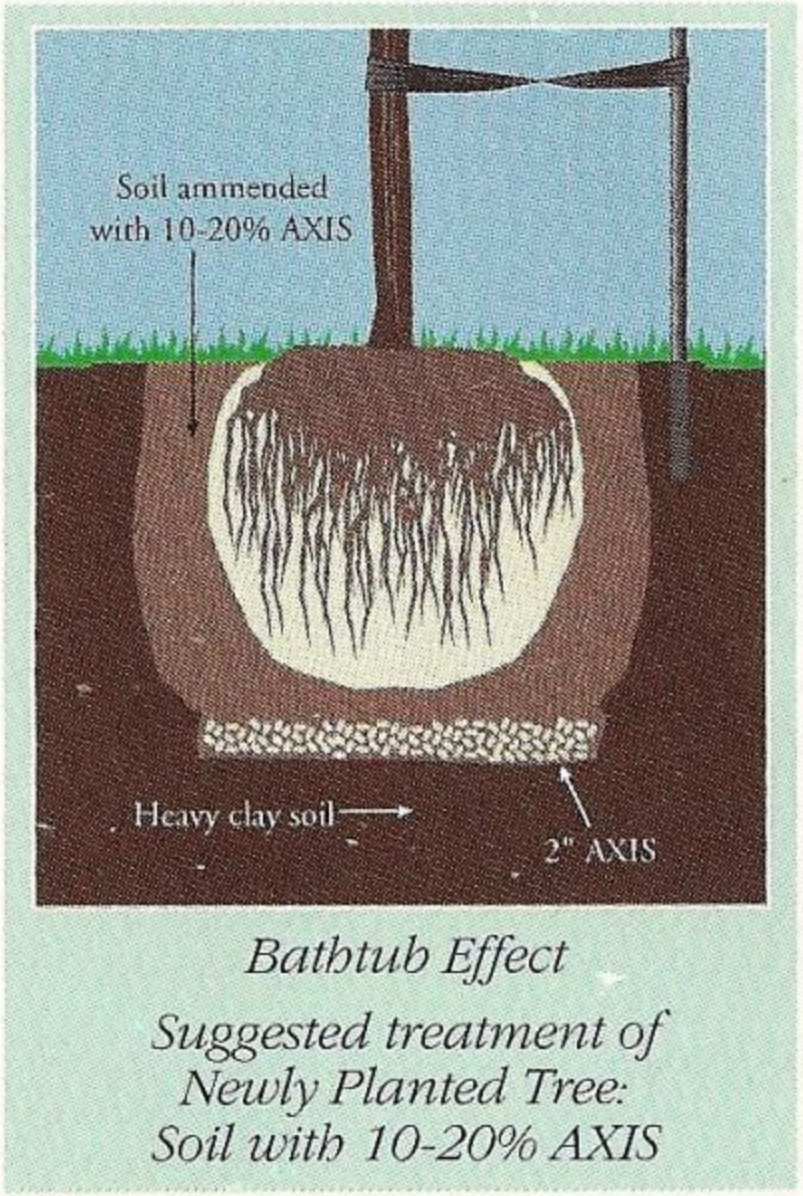
Oregon Plants - 3 Years After Planting with AXIS

Golden Euonymus



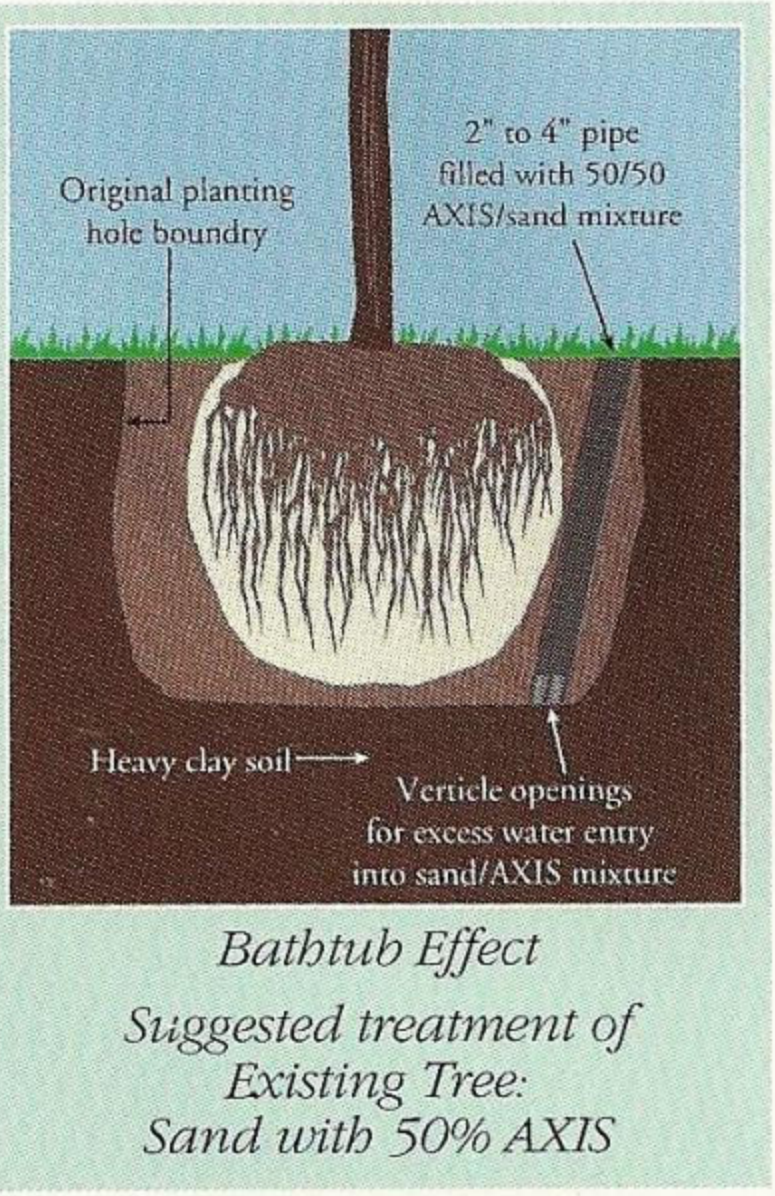
Blue Star Juniper

Techniques to Alleviate the “Bathtub Effect”



Bathtub Effect

Suggested treatment of Newly Planted Tree: Soil with 10-20% AXIS



Bathtub Effect

Suggested treatment of Existing Tree: Sand with 50% AXIS

AXIS APPLICATION RATES: 10% to 20% by Volume

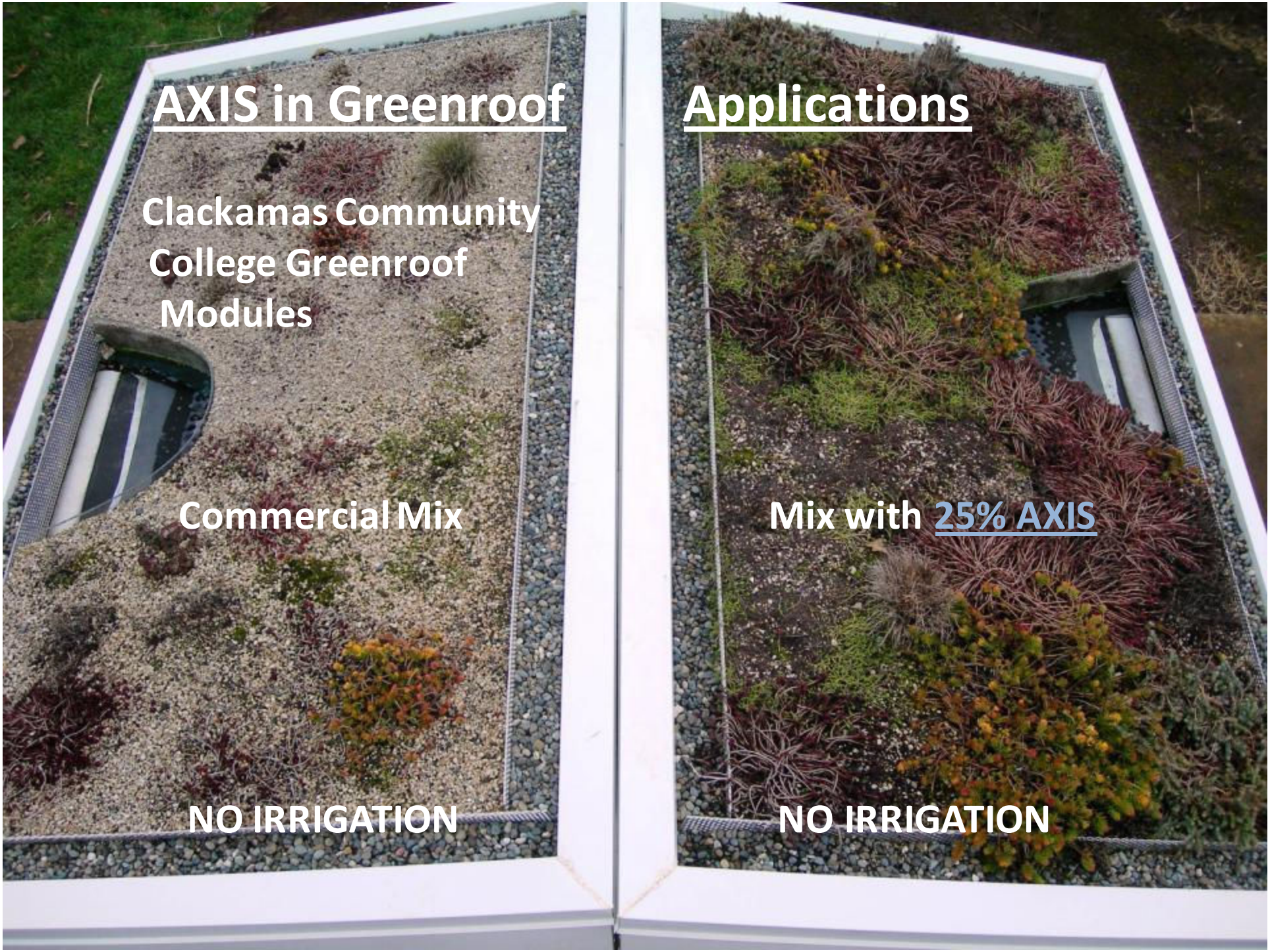
MASS PLANTING

Lawn Areas	**10% by Vol.**	**=**	**70 lbs. per Cu. Yd.**
Gardens	**10% by Vol.**	**=**	**70 lbs. per Cu. Yd.**
Ground Cover	**10% by Vol.**	**=**	**70 lbs. per Cu. Yd.**

OR, Spread 1 lb. per Sq. Ft. & Incorporate 4” to 5” deep

SPECIALTY PLANTING

Hanging Baskets	**20% by Vol.**	**=**	**140 lbs. per Cu. Yd.**
Potted Plants	**15% by Vol.**	**=**	**105 lbs. per Cu. Yd.**
GreenRoofs	**15%-20% by Vol.**	**=**	**105-140 lbs. / Cu. Yd.**


AXIS in Greenroof Applications
Clackamas Community College Greenroof Modules
Commercial Mix
Mix with 25% AXIS
NO IRRIGATION
NO IRRIGATION

AXIS®

Changes Sloppy, Wet Lawns

Into a Firm Lawn You Can Enjoy

Lawn Renovation – Sod Removal

Incorporate 1 lb. per Sq. Ft.

Raked, rolled, and ready for seed.

Two Months Later

AXIS increases Improves Drainage, Stabilizes Wet Soils, and Reduces Compaction

AXIS®

Reduces Compaction and Hard Soils

So That Water and Roots Can Penetrate

AXIS Reduces Irrigation Amount & Frequency

New Lawn Construction
AXIS Cures Compacted Soil

Spread AXIS evenly using 1 lb. per Square Foot


AXIS®
Turf & Plantings
8 Years Later…


A Thick, Firm, and Healthy Lawn,
8 Years Later…

AXIS®

Is Injected Into Lawns Exclusively by:

EnviroTech
Soil Solutions, Inc.

To Modify the Soil of Existing Lawns

Injecting AXIS into Existing Turf

Results of 3 AXIS Injections, and Overseeding

BEFORE - October 1

AFTER – October 23

AXIS®

Does Not Decompose and Provides

Long-Term Professional Results

Indianapolis Colts Practice Field

“My Bermuda roots penetrated my whole root zone, 14" deep, within 6 weeks. I noticed highly reduced water consumption, on the order of 60% reduction in my water usage.

“ I've noticed less compaction with Axis. I had twelve solid weeks of NFL players practicing on my fields, with not one bare spot at the end of the season.

Spin Martin, Former Head Groundskeeper Indianapolis Colts

Photos Courtesy of Spin Martin


Sportsfield – 2 Years Old
AXIS®


AXIS
Big Finn Hill Park
9 years later
2006 Rootmass


Big Finn Hill Park
Sportsfield
12 years later

AXIS®

Increases Plant Available Water,

& Improves Survival

Of Non-Irrigated Plants

AXIS Increases Survival of Non-Irrigated Plants from 20-25% to 70-99%

Wyoming DOT Plantings with 15% AXIS in the Backfill

- USFS project using native trees and shrubs
- Joint WY-DOT/USFS monitoring

AXIS Does Not Decompose & Supplies 5 TIMES more Plant Water than COMPOST!

California Department of Transportation - Costa County Field Trials

Water Availability - top ½ Meter depth

Control	32.5 mm	
20% compost	36.0 mm	10% Increase
20% AXIS	**51.0 mm**	**57% Increase**

4.7 TIMES More PAW Than Compost!

AXIS Improves All Physical Soil Functions

- Improves Drainage
- Reduces Compaction
- Increases Infiltration
- Increases Roots by 4 TIMES
- Increases Plant Available Water
- Reduces Irrigation Amount & Frequency

DIATOMACEOUS EARTH POWDER
for INSECT CONTROL

Useful Around Bedding Plants for Slug Control

Dust onto Roses for Aphids, Mites

Blend Into Greenhouse Soil to Control Fungus Gnats, Thrip

ALL NATURAL

ORGANIC ORIGIN

SAFE TO USE

AXIS®

For More Information on Diatomaceous Earth Soil Products Contact

EnviroTech
Soil Solutions, Inc.

866-546-3722 **www.axisplayball.com**