















"Embracing Trees"



Eco-Haven™ Original, and Eco-Haven™ Sleeve, are a novel new range of biodegradable, but highly durable, protective tree guards, shrub shelters, vole guards and hedge/vine sleeves.

Made from a plant based biopolymer, which is fully soil biodegradable, both grades offer the highest environmental credentials and the most sustainable solutions, with a significantly lower carbon footprint than competing products.

Furthermore, the unique, copyright protected, stacking, and tear-off, modular designs are extremely versatile, practical and easy to use.















**Enhanced Growing Environment** 



Low Abrasion

Easy to Handle, Assemble and Use







Application Categories: Horticulture, Agriculture and Equestrian, Tree Protection

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Living Walls &



hectares of land

PRODUCES



tonnes of sugarcane

PRODUCES



bio-ethanol

**PRODUCES** 



tonnes of Eco-Haven™ biopolymer

\*Based on Wembley pitch at 105 x 68m



# **Carbon Negative** Climate Positive



From field to your store every 1 tonne of Eco-Haven™ guards remove over 2 tonnes of CO<sub>2</sub>1

<sup>1</sup>Approx 2.1 tonnes of CO<sub>2</sub> is removed from the atmosphere per tonne of Eco-Haven made and transported to end user this has been calculated from the LCA Study from cradle to gate conducted by ACV Brazil 2017, and independently verified by the Carbon Trust, with subsequent transport and conversion based on European Chemical Transportation Association and British Plastics Federation guidelines.

#### <sup>2</sup> Tested to:

ASTM D5988-18 Aerobic Biodegradation of Plastic Materials in Soil - for in-situ field conditions

ASTM D5511-18 Anaerobic Biodegradation of Plastic Materials Under High-Solids Anaerobic-Digestion Conditions - for landfill conditions



# 🧬 Plant Based Biopolymer

**Eco-Haven™** *Original* and new **Eco-Haven™** *Sleeve* grades have been specifically developed to offer the highest environmental credentials, and are made from a special plant based biopolymer, derived from sugarcane, which is biodegradable and non-toxic.



# **Sustainable Solution**

The sugarcane used is a GM free, renewable, and sustainable crop that is responsibly grown on degraded land, with a robust code of practice to protect the environment and workers.

At each stage of the manufacturing process emphasis is placed on minimising the impact on the environment with waste by-products such as pulp, ash and plant liquids being reused as fertiliser and to create renewable energy.

**Eco-Haven™** *Sleeve* also incorporates 30% recycled content to help reduce landfill waste, conserve natural materials and improve manufacturing energy efficiency. While the lightweight structure uses between 30 and 40% less raw materials than rival solutions.



## Carbon Negative/Climate Positive

Sugarcane actively captures CO2 from the atmosphere through photosynthesis, while at the same time releasing oxygen, making this material not just green, but proactively green.

With their efficient design, both grades go beyond being carbon neutral, removing more carbon dioxide from the atmosphere than is emitted from production to delivery to end user.

From field to your door every 1 tonne of all grades of **Eco-Haven™** remove over 2 tonnes of CO<sub>2</sub>1, and for an area of land equivalent to Wembley pitch (105 x 68m) nearly 2 tonnes of the biopolymer is produced from each sugarcane harvest.



# 🥐 Fully Soil Biodegradable

Left in contact with the soil our shelters slowly decompose biologically<sup>2</sup> through the combined action of micro organisms (bacteria and fungi), temperature and humidity, breaking down into nutrient rich compost to leave no future "micro plastic" hazards for wildlife and maintenance, without the need to remove and commercially compost them.

Beware some products that claim to be "biodegradable" are only biodegradable based on industrial composting standards, which do not reflect natural conditions. The biopolymer blend used in all grades of **Eco-Haven™** has been independently tested to ASTM D5988, which simulates field conditions, and ASTM D5511, which simulates landfill conditions, for more realistic results.

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# Highly Durable and Robust

Both **Eco-Haven™** *Original*, and **Eco-Haven™** *Sleeve*, are made from a unique tough biopolymer which is also resistant to herbicides and pesticides.

**Eco-Haven™** *Original* is made from a 500 micron thick sheet with a UV and service life expectancy of 5 to 7 years. The tough solid sheets resist abrasion against posts, protect against accidental strimmer damage and the tubular form is more crush resistant than square shelters.

**Eco-Haven™** *Sleeve* is made from a 250 micron thick tube and has a UV and service life expectancy of 3 to 5 years. They have been specifically designed to keep costs as low as possible without compromising on critical performance.



### 🥐 Aesthetically Pleasing

The subtle matt brown colours used in both grades have been chosen to blend well with the surrounding landscape.



### Enhanced Growing Environment

The unique modular enclosures insulate vulnerable saplings from temperature extremes and increases air moisture retention, resulting in less water stress and better drought tolerance.

The shelters also help protect against damage caused by air blown sand and herbicide treatments.

The brown tint finish is not only pleasing to the eye but provides shade from intense sunlight and enhances growth.

Visible light consists of a spectrum of colours. Green leaves absorb light from the red and blue fraction to drive photosynthesis. The shiny interior and brown colour helps reflect and focus the red and blue fractions, concentrating this photosynthetic energy to enhance plant growth.



## Improved Ventilation

Carefully spaced ventilation flaps can be adjusted to increase air flow and control the climate, helping acclimatise young trees before they emerge from the shelter.

The vents are designed to circulate airflow while still protecting against grazing and minimising the risk of accidental herbicide drift.



#### Low Abrasion

The top edge of **Eco-Haven™** *Original* incorporate flare folds, and the pliable structure of **Eco-Haven™** *Sleeve*, reduce the risk of abrasion damage to the emerging saplings.

The smooth surfaces of both also minimise the risk of leading shoots snagging and bending as they develop, and discourage the shelters from being used as rubbing posts by wildlife.

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#### Post/Cane Size Guide:

Eco-Haven™ Tube Height	Minimum Hardwood Post Size
60cm	90cm x 22mm
90cm	120cm x 22mm
120 and 150cm	180cm x 25mm
180cm	210cm x 25mm
Eco-Haven™ <i>Sleeve</i> Tube Height	Minimum Bamboo Cane Size
30, 45, 60, 75, 90, and 120cm	10-12mm diameter in 60, 90 120, and 150cm lengths
150 and 180cm	12-14mm diameter in 180 and 210cm lengths

In general use a post/cane 30cm longer than the height of the tube, while for sandy, light soils and exposed sites it is advisable to use a taller fixing

# 🧬 Easy to Handle, Assemble and Use

**Eco-Haven™** *Original* is supplied as flat sheets that are significantly more compact and easier to handle than pre-formed tubes, with a clever design that ensures planting and maintenance is simple and swift.

The novel design is quick and easy to assemble with the versatility to either wrap the shelter around delicate saplings before fastening, or you can pre-assemble the tube and slide over the young tree. While the interlocking tab system and integrated post ties avoid the need for undesirable nylon or metal ties.

The tubes can also be quickly re-opened at any time making it easy to remove them for inspection and to replace loses, or to relocate them.

**Eco-Haven™** *Sleeve* comes in a very compact roll format with tear-off perforations for easy application on mass plantings; providing contractors with an economical way to protect new hedges and vines which is easy to install and only requires one or two bamboo canes.

### Versatile Stacking & Tear-Off Systems

**Eco-Haven™** *Original* has an innovative, interlocking, stacking construction which provides the freedom to create 60, 90, 120, 150 and 180cm high tubes, from just two module heights with an inventive interlocking system to link the tubes and avoid displacement and breaches.

**Eco-Haven™** *Sleeve* is a novel tear-off tube design, which provides the freedom to create any guard height with perforations every 30cm.

Both modular designs can therefore protect against browsing, fraying and bark stripping from a wide variety of animals such as voles, rabbits, deer and livestock.

#### **Recommended Accessories**

Posts and Canes To provide the most environmentally friendly solutions, we advocate the use of chemical free hardwood stakes (rather than treated softwood posts) and bamboo canes.

For the, heavy-duty, **Eco-Haven™** *Original* tubes we can supply extremely durable robinia (acacia) and chestnut sawn stakes.

While the new lighter **Eco-Haven™** *Sleeve* can be simply placed over the saplings/whips and pinned to the ground, or anchored and supported with 1 or 2 bamboo canes per tube.

**Tree Mats** Our fully biodegradable **Ecotex™ 100** tree mats and hedge strips are used to suppress competitive weed growth and perfectly compliment the entire **Eco-Haven™** range, offering similar high environmental credentials.

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8. End of Life

7. Tree Protection















# **Eco-Haven** Life Cycle



- 1. CO2 metabolised to produce sucrose Renewable and sustainable GM free crop
  - Responsibly grown on degraded land
  - Robust code to practice to protect environment and labour

#### 2. Juice fermented to make bio ethanol

• Waste used to generate renewable energy and compost

#### 3. Bio ethanol dehydrated and polymerised to produce biopolymer

Liquid waste recycled as fertiliser

#### 4. Biopolymer extruded and cut to produce Eco-Haven™

5. Delivery

- Efficient conversion
- Off cuts recycled

#### 5. Compact design reduces space

- 3 ½ times less storage volume than conventional 60cm tubes
- Minimal packaging

#### 6. Carbon Negative = Climate Positive

• From field to your store every 1 tonne of Eco-Haven<sup>™</sup> products remove over 2 tonnes of CO2

#### 7. Versatile modular and tear-off designs

- Reduces number of sizes to store
- Easy to handle and install
- Eco-Have™n Original is reusable

#### 8. Protecting the environment

• Left in-situ will biodegrade to enrich the soil

Waste

Recycled

If disposed of in landfill they will also fully biodegrade

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Protecting the Environment Since 1991





















**Specialist** 

Wildlife

Living Walls & Roofs





#### Versatile Stacking Modular Tree and Shrub Protection

**Eco-Haven™** *Original* is supplied as flat sheets that are easily formed into tubes using integrated securing tabs.

Supplied in two widths, to form 10cm diameter tree guards and 15cm shrub shelters, and two heights, 60 and 90cm.

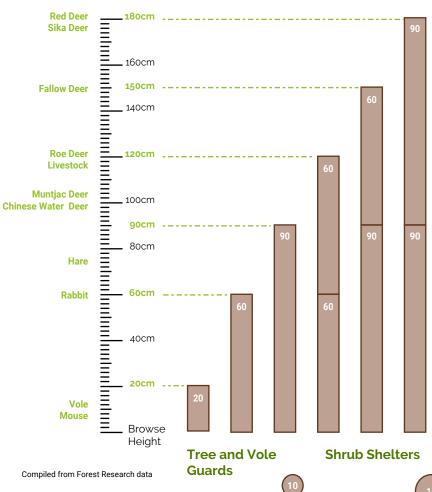
The innovative, interlocking, modular construction provides the freedom to also create 120, 150 and 180cm high tubes, from just these two tube heights, without the risk of displacement and breaches.

#### **Vole Guard**

A smaller 20cm x 10cm diameter version is also available to form vole guards.



# Protection Height Eco-Haven™ *Original* Module Recommended Height Combinations



Custom sizes and designs also available

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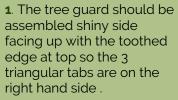
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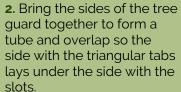
# **Eco-Haven™** Original Tree and Shrub Tube Assembly

















3. Push the tabs through the adjacent slots, pull them fully through so the notches lock them in place to form the finished tube.

# **Eco-Haven™ Original Tree and Shrub Tube Stacked Tube Assembly**







The stacking design allows you to create 60, 90, 120, 150 and 180cm high tubes from just 2 tube heights.

- **1.** For guards taller than goom attach a combination of 60 and/or goom tree guards together.
- 2. Start by placing the sheets matt side facing up and slightly overlap the upper sheet over the lower one.
- 3. Push the 2 triangular tabs on the top toothed edge of the lower sheet up through the bottom slots of the upper sheet.
- **4.** Assemble the pair of tree guards as per tube assembly guidelines above.

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Accessories

# **Eco-Haven™** Original Tree and Shrub Tube Post Attachment







- 1. Once the tree guard is assembled, detach the cable ties from the edge of the tube (1 pair for the 60cm and 2 pairs for the gocm tubes)
- 2. Thread the cable ties through the top and bottom tab slots for the 60cm tube and all three tabs for the 90cm tubes
- **3.** Secure the tie around the support post by sliding the pointed end through the slotted end of the cable tie and tighten.







# **Eco-Haven™** Original Tree and Shrub Tube Ventilation Adjustment





1. As an option, to allow more light and air to reach the sapling, bend the middle row of cut triangles outwards.



# **Assembly Guidelines**

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# **Eco-Haven™ Original Vole Guard Assembly**







- 1. Begin with the shiny side facing up
- 2. Curve material round to form a tube, so the matte surface is on the outside
- 3. Push the tab through its corresponding slot from the inside
- 4. Pull through and slot in place so that it is secured
- 5. Repeat step 3 and 4 on second tab
- 6. Both tabs should be fixed in place and visible from the outside of the tube
- 7. Assembled Vole Guard, base features talons to aid firming into ground















# **NEW**

#### **Eco-Haven™** Original Coppice Guard

Until now protecting coppiced trees from grazing animals has been challenging and expensive as existing tree guards do not accommodate the larger diameter tree stools and using wire fences is expensive. Eco-Haven™ *Original* coppice guard has therefore been designed with interlocking sections to form guards in multiples of 1.80m girth.





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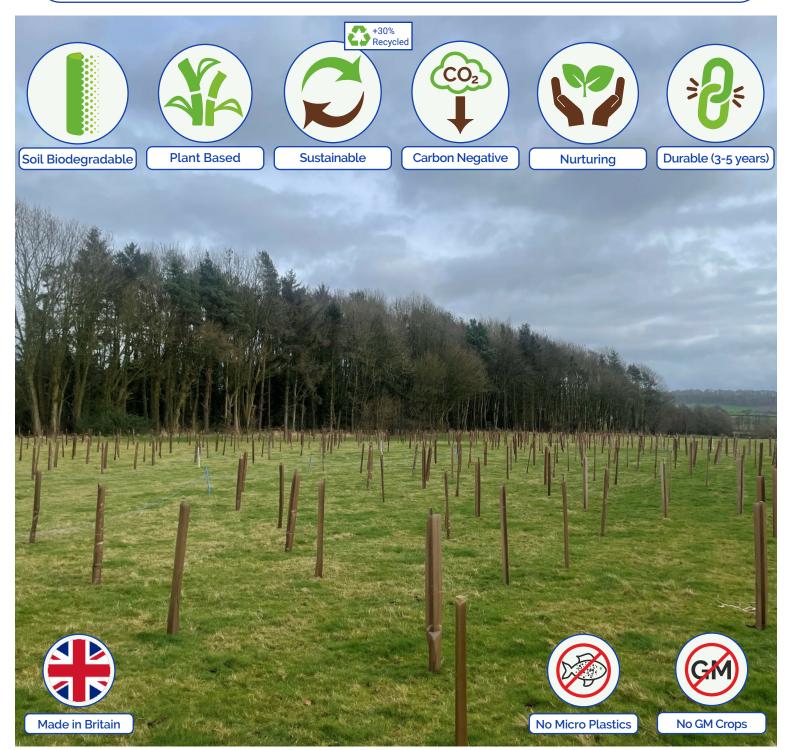








Soil Biodegradable Hedge Guards, Tree Guards, Shrub Shelters, Vole Guards and Vine Sleeves







Protecting the Environment Since 1991





















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# 90m reels

#### **Tube Diameter:** (mm)







**Hedges** 

**Tube Diameter: Reel Content:** 

Reel Size:

Weight:

**Pallet Quantity:** 

(stock size) 63mm 90m

100mm (4") x 26cm diam

4.17kg/reel (28g/60cm tube)

240 reels (12 x 20)

**Trees & Vines** 

(stock size) 97mm

90m

150mm (6") x 26cm diam 6.25kg/reel

(42g/60cm tube) 160 reels (8 x 20) **Shrubs** 

(special order) 145mm

90m

228mm (9") x 26cm diam

9.50kg/reel (63g/60cm tube)

100 reels (5 x 20)







Tear-off perforations every 30cm segment to easily create 30, 60, 90, 120, 150 and 180cm heights

Alternatively cut every 11/2 segments for 45cm, and 2½ segments for 75cm heights

Cane/Post and **Ventilation Holes:** 

Slots every 15cm both sides to accommodate support canes/posts up to 22mm wide, and provide ventilation.

ے **%**-

Manufacturing tolerances: Dimensions: +/- 5%, Thickness: +/- 10%

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