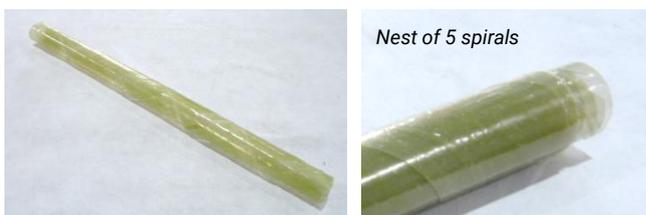


# Bio Spiral Introduction

**BIO  
BASED**



Functioning exactly like any other spiral guard, with the added benefit of being made from bio-based materials suitable for nature.

If you have tree or hedging plants that need protection from animals then Bio Spirals are a cost effective solution that are easy to install.

Made solely from bio-degradable polymers and additives, the materials used are certified as being 100% bio-based and compostable.

The Bio Spiral helps protect young hedging and tree plants without contaminating the soil or leaving toxic residues behind when degraded.

## Benefits

- Non-toxic, bio-based materials, meaning no toxic residues at end of life.
- Protects from browsing animals and herbicide spray.
- Creates microclimate to promote healthy growth.
- Expands with tree/hedging plant growth – avoiding strangulation of plants.
- Very quick and easy to install.

## Installation

- Plant bare root or cell grown plant.
- Insert cane next to plant, ensuring one third of the cane is pushed into the ground.
- Ensure the spiral is the correct way up (see page 2)
  - **Either** feed the Bio Spiral over both the cane and the plant, taking care not to damage any stems.
  - **Or** starting at the bottom of the plant, wrap the Bio Spiral around both the cane and the plant.
- At end of its useful life (typically 3 to 5 years) remove for industrial composting, recycling or to create energy from waste.

## Specifications:

Dimensions	Bio Spiral		Material	For All Sizes
Height	0.6	0.6	Spiral	Bio based (plant based) blend
Diameter	38mm	50mm	Colour	Green Tint
Nest	5	5	Service life	Estimated 3-5 years
Box	220	220	End of life	Remove and industrially compost or remove and recycle or remove for energy from waste
Protect Against			Recyclable	If taking to a local waste recycling centre then place in plastics marked '7'. These are mixed plastics that should be sorted by your recycling centre prior to processing.
Vole	Y	Y	Recommended support	Cane
Rabbit	Y	Y		
Hare				
Deer				

## Bio Spiral Features



### Made from plant based materials

Plants (not oil) are used to make the plastic material for Bio Spirals. The material is certified as 100% bio (or plant) based and also certified as compostable.



### Non-toxic

Unlike oil-based plastics, Bio Spirals are completely non-toxic when degraded. In fact, when degraded, only water, CO<sub>2</sub> and biomass remains (see Fig A).



### Lower carbon footprint

The biomaterials used to produce Bio Spirals have a carbon footprint of up to 5x lower than oil-based plastics.



### No competition with food sources

Only post-industrial waste and off-cuts from factories manufacturing products from biopolymers are used to make Bio Spirals - meaning the 'plants' used in Bio Spirals aren't competing with other food sources and therefore help contribute to a more productive biopolymer value chain.



### Expands as the tree / hedging plant grows

The Bio Spiral expands as the plant grows, meaning it works with the plant not against it, avoiding strangulation.



### Light transmission

Bio spirals are essentially clear with a green tint. This allows sunlight through to encourage growth, while the green tint helps protect against scorching.



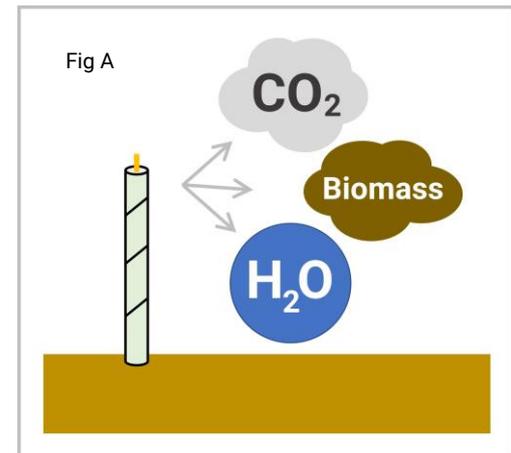
### Nested

For ease of transportation around site Bio Spirals are nested into 5's (one spiral inside another). Each box contains 220 Bio Spirals (ie 44 'nests').



### Green tint

The additional benefit to green tinted Bio-Spirals is they blend more seamlessly into a planting scheme whilst protecting the plants from browsing animals.



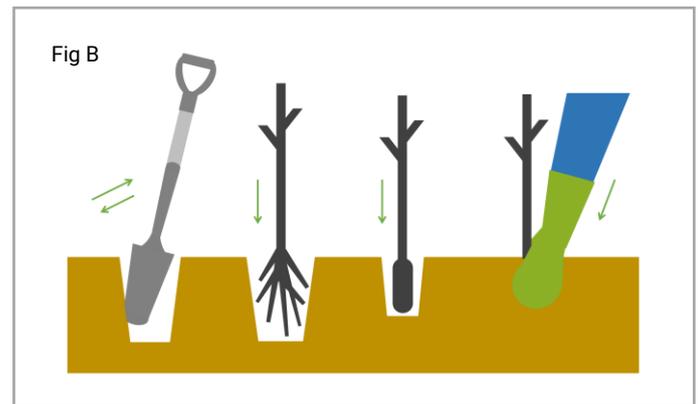
# Bio Spiral Installation

## PLANT

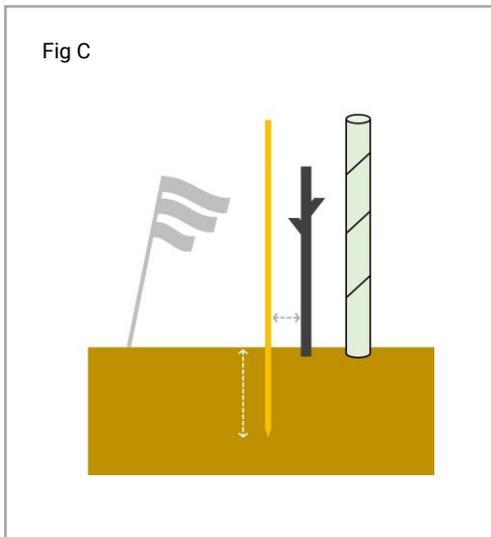
Planting bare root or cell grown plants is a straightforward task, however, do not attempt to plant if the ground is frozen or waterlogged. Find a suitable position for your plants, bearing in mind future growth and potential height and spread at maturity.

Bare rooted or cell grown plants can be 'notch' planted in 3 steps (Fig B):

1. Begin by inserting the blade of a spade into the ground. Push the spade handle away from you and then bring it back towards you. Once you remove the spade, you will see that you have created a cavity or 'notch' in the ground.
2. **For bare root** - place the plant roots within the cavity and shake to ensure that all of the roots are in the cavity and pointing downwards. **For cell grown** - place the cell gently into the ground. Ensure the top of the plug (the soil surrounding the roots) is positioned at 2 to 4cm below the surface to avoid drying out.
3. Fill the cavity with soil. Use your heel to firm the soil around the plant to remove any air pockets. Once planted, give them a good water if practical to do so.



You are now ready to install your support and protection.



## SUPPORT

1. After planting, position the cane on the windward side if there are strong prevailing winds, and between 2cm to 5cm from the base of the plant (Fig C).
2. Press the cane into the ground (ideally knocking 1/3 of its height into the ground). Ensure it is vertical (particularly important on sloping ground).

## PROTECT

1. Bio Spirals can be installed by **feeding over the top** of the plant and cane - taking care not to damage any stems. Alternatively they can be **wrapped around** the plant from the base up. This is particularly useful for slightly broader plants (see Fig D).

## IMPORTANT

The spiral should be installed the correct way up, otherwise it will drop over time, revealing the plant to browsing animals.



2. At the end of its useful life (typically 3+ years) either remove the Bio Spiral for industrial composting, recycling or for energy from waste.

