

# A model for peat-free propagation.



## Propagation remains a challenge in peat-free substrates.

The structural and chemical properties of the media mean that the environment can be difficult for encouraging germination and the plugs can easily lose their integrity during sowing.

At FARGRO, we have been working on developing a model for peat-free propagation that overcome these challenges to ensure germination rates and transplant success.

## SUBSTRATE

Peat is an exceptionally well-suited substrate for propagation due to its great ability to retain moisture and its structural integrity when used in small propagation plugs.

The alternative substrate ingredients to peat, such as coir or wood fibre, sadly don't share these exact properties and so we can't use them as a direct replacement. Instead, we have to create a mix of these ingredients to produce a substrate that emulates peat.

### We have successfully achieved this by using a mix that uses 6 ingredients.

- Superfine Wood fibre – Creates aeration around the roots
- Coir Pith – Provides water retention
- Fine Sphagnum moss – Improves water retention, pH, and nutrient retention and substrate structure
- Composted Forestry Waste – Improves water retention and introduces soil microbial community
- Perlite – Creates aeration and improves substrate structure
- Volcanic Sand – Improves structural properties

This mix provides the correct chemical and physical properties to ensure germination, but significantly it also provides useful biological properties too. These biological properties give the mix a significant benefit over a peat-based equivalent as beneficial root zone microbes are better able to establish in peat-free substrates. These microbes stimulate growth, provide nutrition, and protect the plant from pathogens.



## IRRIGATION

Water to capacity immediately after sowing cutting. Then water as needed – but appearances can be deceiving with peat-free plugs as the top can dry out before the rest of the plug. It's important to check the whole plug before watering to avoid overwatering.

### Irrigation application

The increased air-filled porosity of peat-free mixes means that they are more vulnerable to compaction than peat-based equivalents. Therefore, it is important to avoid this occurring as a result of irrigation – where heavy water applications can compress the mix.

*To avoid this, consider using the finest practical droplet size when watering overhead.*

#### Mulch

You can also use a mulch, such as granulated cork, to dissipate water droplets and protect the substrate from compaction.

This protective layer will also limit the loss of water from the mix via evaporation – helping to retain moisture and promote an environment amenable for germination and establishment.



**Jiffy Cork Fine**  
125 litres

## NUTRITION

### DCM Organic Fertiliser

We utilise DCM organic fertiliser in propagation for its high performance and versatility across different species.

The fertiliser is integrated as micro-granules that ensure uniform distribution of fertiliser throughout the plug and between plugs – so you can be confident each plug is receiving the same start.

The organic origin of the fertiliser means that it requires soil microbes to be broken down into plant available nutrients. This stimulates beneficial soil microbial life, which acts as a mediator to ensuring nutrients are made available at the rate the plant requires, resulting in better rooting and reduced leaching.



### Integrated Fertiliser

Integration of;

DCM Ecor 6 (2kg/m<sup>3</sup>)

- A small but consistent amount of base nutrition to feed at low electrical conductivity for a healthy rooting environment
- Organic matter provides feeding source for beneficial soil microbes

0.2kg/m<sup>3</sup> DCM Micromix

- A comprehensive micronutrient package

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### DCM Ecor 6

- 75-100 day release window
- N-P-K + MgO (5 -1.5-4 + 2)
- 64% organic matter.



### DCM Micromix

- B + Cu + Fe + Mn + Mo + Zn



### DCM Ecor 5

- 100-150 day release window
- N-P-K (8-5-6)

### Liquid fertiliser

If crop is kept in propagation tunnels for longer than 6 weeks, then we recommend applications of liquid feed until weaning begins.

We use Haifa CAL GG Calcium Nitrate (CaN 15.5-26.5) at a rate of 1kg/10L dosed at 1%. This should be provided to match the requirements of the plant.

### Top dress

At weaning stage, we utilise DCM ECOR 5 as a top dress. It is fed at 2g per litre of growing media.

It can last up to 150 days and so will provide comprehensive nutrition to the plug post planting to ensure customer success.

## DISEASE MANAGEMENT

Start Spraying at sign of first root – usually 2-3 weeks post sowing.

Spray week	SB Plant Invigorator	Romeo	Taegro
1		•	
2	•		•
Repeat weekly spray applications until planting			

Product information	SB Plant Invigorator	Romeo	Taegro
MAPP number	NA	19170	19204
Application rate	1L/ha*	0.5kg/ha	0.37kg/ha
Max. number of applications	NA	8	10
Pre harvest interval	NA	1 day	1 day
Approval	NA	On-label	EAMU 20241893

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## PEST MANAGEMENT

Peat-free growing media ingredients can break down into the fungi that feeds Sciarid fly – making it a potential issue in peat free propagation where moisture and humidities are high.

The best management is to aim to keep the mix as dry as is possible, whilst retaining sufficient moisture for the crop. However, this can be challenging.

We would also recommend using an application of *Steinernema feltiae* nematodes as a drench at the beginning of the weaning stage and subsequently if an issue arises.

*Steinernema feltiae* rate = ½ million individuals per m<sup>2</sup>

## TIMINGS

### Sow

- Water plugs to maximum capacity immediately after sowing.
- Start biofungicide programme when first roots develop.

### Keep in propagation tunnel for approximately 2 months

- Move to weaning tunnel.
- Apply nematode drench at start of weaning.
- Keep in weaning until until rooted sufficiently for sale/potting.



# The programme in practice.

Above 99%  
crop success  
achieved

## TRIAL PARTNER: Barrett's Bridge Nursery

Wisbech St Mary, Wisbech, PE13 5JR

Based in Cambridgeshire, Barrett's Bridge Nursery specialise in plug plant production and produce over 1000 varieties. For over 40 years, Barrett's Bridge have supplied high-quality young plants throughout the UK, Ireland and Europe.

Crop: Lavender

*'Barrett's Bridge have made their move to peat-free and have demonstrated the success to be had in peat-free propagation through flexibility and perseverance and have learned a lot about the behaviour of the mixes and how to work with them to get the best results.'*

Sean Whitworth, Fargo's Senior Growing Media & Fertiliser Specialist

Lavender is one of the most challenging species of plants to propagate. This is due to its sensitivity to environmental stresses and slow rooting.

Barrett's Bridge used the above programme to propagate different varieties of lavender from cuttings in plug trays all the way to 9cm liners.

**They achieved exceptionally high rates of establishment and significantly less than 1% crop loss.**

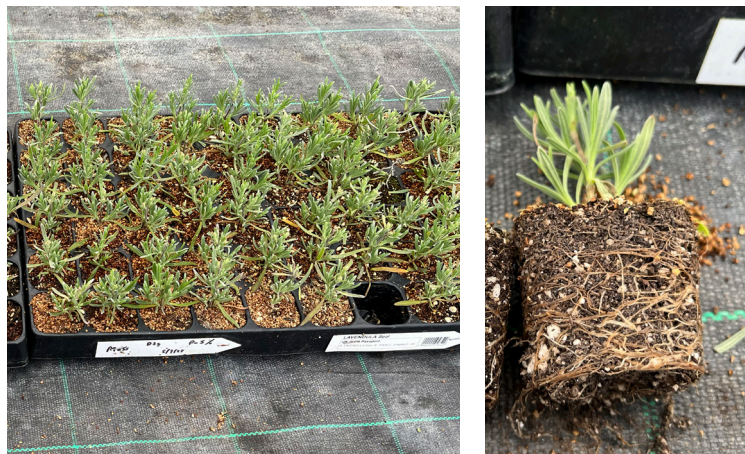


Figure 2: Lavender 'Seal' rooting



Figure 3: Lavender 'Seal' plugs 6 weeks after sowing.

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Figure 4: Lavender 'Folgate' post weaning and now ready to out to the customer.

*'We are really pleased with our peat-free crop this year. We were able to cut down on watering as we became more familiar with the mixes and adapted our techniques throughout the trial. We were also really impressed with the DCM fertiliser - we have reduced our liquid feed which has saved us money and we're looking forward to improving even further next year.'*

Chris and Anthony, Barrett's Bridge Nursery



Figure 5: 9cm Lavender 'Hidcote' liner plants at 5 weeks after planting of plug