

Case Study **Cramden Nursery,** **Northampton**

Framework

A series of trials using three different peat-free growing media mixes have been running in order to compare the peat-free mixes with the grower's peat mix.

Trial Criteria

The same watering and feeding was applied to the peat and peat-free samples throughout the trial.

“Cramden Nursery started in 1964 specialising in growing pelargoniums”



Background

Cramden Nursery started in 1964 specialising in growing pelargoniums and has since diverted to growing a wide range of plants, such as penstemon, agapanthus, hardy geranium, lavender, heucheras and other herbaceous plants.

Infrastructure

Cramden is a traditional nursery using Irish peat in 2 litre containers; all propagation and potting is done manually by hand on site. The stock plants grown under glass are watered by drip irrigation via a centrally located liquid feed injector.

The plants are placed on wire benches and heated by gas fired warm air heaters to aid and ensure the optimal growing conditions.

Trial 1

General Purpose Mix

Timeline

Week 12 - 22

Peat-Free Mix

Jiffy Peat Free general-purpose mix

Crop focus

Interspecific pelargonium

“A thicker rooting system established in the peat-free mix”

Nutrition & Fertilisers Used

1-0-2 NPK liquid feed used at a ratio of 1:200. The general-purpose peat-free mix has 2kg of DCM Eco Mix-1 incorporated, so the EC's run like-for-like in the growing media.

Observations

A thicker rooting system established in the peat-free mix compared to a more fibrous root structure in the peat mix by end of week 20.

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IMAGE 1

The black pot on the left in image 1 is the peat-free mix showing a thicker rooting system, the blue pot on the right is the peat mix showing a more fibrous rooting system.



IMAGE 2

The plants from the peat-free mix shows that we created the same result in the first 8 weeks as the peat mix plant. So we can conclude that during the 8 weeks the peat-free mix needed extra nutrition in the mix (which came from the DCM) to product the same quality.

Trial 1

General

Purpose Mix

Conclusion

Looking at the end result at week 25 indicate that the Jiffy General purpose peat free mix with DCM was sufficient for the first 8 weeks, feeding both the nutrition needed by the plant peat-free growing media but between week 8 and week 13 the peat free mix ingredients did not take any nutrition away from the crop, so all of the nutrients were available to the crop causing the plant to stretch because of the extra nitrogen.

“All of the nutrients were available to the crop causing the plant to stretch because of the extra nitrogen”

Pushing Trial One Further

It was decided to continue trial one for a further 4-5 weeks to see how both mixes reacted. We continued feeding at and EC of 1MS and watered both mixes the same. At week 25 the customers peat mix produced a compact sturdy plant but the Jiffy Peat Free general-purpose mix with the DCM produced a sturdy plant, but the plant was more stretched.

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IMAGE 3

The black pot on the left in image 2 shows the end result of Trial One using the Jiffy Peat Free general-purpose mix with added DCM fertiliser. The grey pot on the right shows the growth using traditional peat-based growing medium.

Trial 2

General Mix 2021

Timeline

Week 18 - 26

Peat-Free Mix

Jiffy Growing Media
General Mix 2021

Crop Focus

Zonal pelargonium

“A more developed root structure is evident in the peat-free mix.”

Nutrition & Fertilisers Used

1-0-2 NPK liquid feed used at a ratio of 1:200.

Observations - Week 20

A more developed root structure is evident in the peat-free mix.

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IMAGE 4
PEAT BASED MIX



IMAGE 5
PEAT FREE MIX

Image four shows peat-based mix after two weeks. Image five shows the peat-free general mix after two weeks.

Trial 2

General Mix 2021

Observations - Week 20

In week 20 the EC in the peat based growing media is reading at around 2MS, and in the peat-free growing media the reading is 1.5 to 1.6 EC. Both mixes were being fed an MS of 1.

The peat mix is therefore holding onto the nutrient because it is still reading a MS of 2, but the peat-free with a lower reading of 1.6 EC indicates that there might be some kind of leaching or block up of nitrogen in the peat-free mix.

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IMAGE 6



IMAGE 7

The black pot on the left (image 6) contains the peat-free growing media, and the grey pot on the right (image 6) contains the traditional peat-based substrate

“Both mixes were being fed an MS of 1.”

Trial 2

General Mix 2021

Next Steps

Add 2grams per litre of DCM Eco Plant 2 to half of the Peat free pots to see what difference this makes to the nutrition and how this will affect the growth of the plants over the next 4 weeks.

Observations - Week 26

The root system in the peat free general mix appears to have a more vigorous spread around and on the bottom of the pot compared to the peat mix where the rooting system is mainly around the side of the pot.

The crop of zonal pelargoniums was watered everyday through drip irrigation but only enough to last for 24hours, the feed 1-0-2 used in the nurseries own recipe and fed at an EC of 1ms plus water EC.



The grower's own peat mix shows the crop with good nutrition and size.



IMAGE 8



IMAGE 9



IMAGE 9A

Shows that at this stage of the crop the root system in the peat free general mix (image 8 right hand pot) looks more vigorous. The roots have spread around and on the bottom of the pot compared to the peat mix (image 8 left hand pot) where the root system is mainly around the side of the pot. Both Mixes have been watered the same and as you can see both mixes are about the same wetness wise.

The plant on the left (image 9 grown in peat mix) shows more growth than the plant on the right (image 9 peat-free mix).

Although the peat free general mix is feed with a EC of 1ms there is signs of nitrogen deficiency and the crop does look slightly smaller.

Trial 2

General Mix 2021

Pelargonium Peat Free Mixes

- The Pelargonium on the left is Jiffy Peat free General Mix with DCM added week 26.
- The Pelargonium in the middle is the Jiffy Peat free general Mix fed on normal nursery feed cycle.
- the Pelargonium on the right is in the Nursery Peat mix Fed on Normal feed cycle this is the same order for all 3 pictures.

The DCM was Added to some of the Jiffy Peat free general mix plants in week 26 and the plant has benefited from this nutritional wise as the foliage has greened up nicely and the plant has grown to be in spec for sale and similar quality as the customers own mix was back in week 26 so if DCM was added at the start of the trial the plants would have been ready on time as the customers own compost mix. The trial has shown the plants fed on a EC of 1Ms only showed feed deficiencies and was smaller in size due to the ingredients tacking some of the nitrogen away from the crop and some of the feed leeching.

Observations - Week 30

As we can see from the final Pictures the Peat free Pot mix with DCM has produced the quality needed similar to the customers own pot mix whilst the Peat free pot mix fed only on the nursery liquid feed level was ok but smaller with signs of low feeding in the leaf.



Trial 3

Pot Mix 2021

Timeline

Week 21 - 26

Peat-Free Mix

Jiffy Growing Media Pot Mix 2021 Peat Free

Crop Focus

Zonal pelargonium

“A more established rooting system was evident in the peat-free growing media compared to the peat growing media by week 24.”

Nutrition & Fertilisers Used

1-0-2 liquid feed used at a ratio of 1:200.

Observations

A more established rooting system was evident in the peat-free growing media compared to the peat growing media by week 24. This could be because there is more air-filled porosity in the peat-free

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IMAGE 10
PEAT BASED MIX



IMAGE 11
PEAT FREE MIX

Image on left shows rooting after three weeks using a peat-based mix. Image on the right shows rooting after three weeks of using a peat-free mix.



IMAGE 12

The black pot on the left in image 12 shows plant grown in peat-free growing media (Jiffy Growing Media Pot Mix 2021 Peat Free) and the grey pot on the right shows plant grown in peat growing media.

Trial 3

Pot Mix 2021

Observations - After Week 26

Crop Zonal Pelargonium all plants are fed with 1-0-2 at a EC of 1 ms and are watered/feed every day at the same level, both mixes are showing the same moisture levels in the pot.

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IMAGE 13

Week 26 shows 3 plants same variety the first plant on the left is the Jiffy peat free pot mix with 2kg of DCM Eco plant 2 added to the mix at potting the plant in the middle is the Jiffy peat free pot mix and the plant on the right is the grower's own peat mix.

“both mixes are showing the same moisture levels in the pot”

Trial 3

Pot Mix 2021

Conclusion

A healthy root system developed in all 3 plants but what was interesting was the difference of the vigour and more evenly spread of the rooting system in the peat free pot mix with DCM compared to the peat free pot mix normal and the peat mix.

This shows by adding 2kg of the DCM to the peat free pot mix the grower can feed on the same EC as he normally does with good results.

Watering of all 3 trials was the same as the customers own crop in compost and also the only change in feeding was the crotodor added in trial 2 and the DCM added to some of the peat free mixes in all 3 trials

“Adding 2kg of the DCM to the peat free pot mix the grower can feed on the same EC as he normally does with good results.”

Observations

All 3 plants received the same water and feed. The plant on the left in the peat free pot mix with DCM is compact and slightly has more growth than the normal peat mix on the right but the peat free pot mix in the middle with just the high base fertiliser and feed given has good nutrition but is smaller than the peat mix on the right.

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IMAGE 14

Week 26 shows 3 plants same variety the first plant on the left is the Jiffy peat free pot mix with 2kg of DCM Eco plant 2 added to the mix at potting the plant in the middle is the Jiffy peat free pot mix and the plant on the right is the grower's own peat mix.