

Can gardeners get good results using peat-free composts?

Julian Davies

Stockbridge Technology Centre

- Started in 2001
- R&D centre for horticulture
- Promoting '5 A-Day'
- Growing activities at STC
- Visiting schools to help them grow



Agronomy team

- Commercial testing of composts for professional and amateur markets
- Testing samples of Green Compost (GC) for PAS 100 certification
- Testing samples of Green Compost (GC) for stability – CO₂ evolution
- Checking bag volumes

Eliminating peat from growing media

Benefits

- Helping the environment
- Protecting biodiversity
- Reduce CO2 emissions and keeping CO2 locked up

Disadvantages

- Gardeners getting poor experiences
- Volumes of alternative materials – coir, wood fibre, bark, foreign peat, green compost

What is available for gardeners?

- 100% peat – a few still available
- Reduced peat
- Peat-free
- Peat-free and organic
- Peat- free and Vegan

Variability in performance

- Ingredients not as consistent and uniform as peat
- Coir quality – where it comes from and its salinity
- Green compost – quality and consistency
- Wood fibre – maturity and grade
- Bark – how well has it been composted

Nutrient content and release





Typical tests

1. Germination

2. Young plant

3. Patio plants

4. Grow bags

Assessments and recording

- Germination and emergence
- Plant size and plant colour
- Start and end of flowering
- Flowering abundance and number of flowers
- Marketability – acceptability
- Root quantity and quality
- Fresh weight, fruit yield and quality

Independent testing of growing media

- Collected in late summer/autumn 2023
- Sourced from gardens centres, DIY stores and internet
- For popular brands more than 1 bag from different sites
- Petunia and tomato from plug plants
- Seed germination - using tomato

Products in test

Peat-free

31 Manufacturers/retailer brands

47 products

Total bags - 87

Peat based + control

9 Manufacturers/retailer brands

Total bags - 10





Analysis of peat-free composts in 2023

Product code	Density (g/l)	Conductivity (us/cm)	Nitrogen (mg/l)	Phosphorus (mg/l)	Potassium (mg/l)
1	517	609	5.5	30.9	597.4
2	450	504	164.8	51.2	394.5
3	431	1409	506.3	91.6	768.4
4	310	528	96.3	20.6	259.3
5	491	702	81.0	33.7	577.0
6	581	1073	203.6	17.3	1081.3
7	433	499	2.0	15.7	504.2
8	519	1009	111.0	67.0	995.8
9	484	991	443.0	67.9	589.9

Plant quality in each category (%).

Petunia at 4 and 5 weeks

Species	Excellent	Very good	Good	Poor	Very poor
Peat free					
4 weeks	46	12	24	12	6
5 weeks	38	9	30	9	14
Peat reduced					
4 weeks	70	10	20	0	0
5 weeks	30	50	20	0	0

Plant quality in each category (%).

Tomato at 2 and 3 weeks

Species	Excellent	Very good	Good	Poor	Very poor
Peat free					
2 weeks	51	15	18	15	1
3 weeks	45	16	22	7	10
Peat reduced					
2 weeks	90	10	0	0	0
3 weeks	80	20	0	0	0

Tomato seedling quality in each category (%).

Species	Excellent	Very good	Good	Poor	Very poor
Peat free					
2 weeks	62	10	18	10	0
3 weeks	49	16	18	9	8
Peat reduced					
2 weeks	90	0	10	0	0
3 weeks	70	20	10	0	0

Bag to bag variability



Reasons for poor performance

- Poor structure
- Locked up nutrients
- No nutrients
- High EC
- Contamination
- Overwatering



As arrived

+ granular
fertiliser

6 weeks

+ CRF

+ liquid feed

Contaminants



Lack of nitrogen



Nutrient imbalance?



20



**Can gardeners get good
results using peat-free
composts?**

YES

Based on:

- **Careful selection of bags at point of sale**
- **Checking plants regularly**

- **Being prepared to liquid feed**

Thank you

Any questions?