Research update

Anaerobic digestion: Use of digestates as a liquid fertiliser in the commercial production of strawberries

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wrap

Working together for a world without waste

Cambridge Eco Ltd

14:00	Welcome **Dr Rosemary Collier, Warwick Crop Centre**
14:10	Introduction to anaerobic digestion and digestates **Dr David Tompkins, WRAP**
14:30	Introduction to the project **Dr Mary Dimambro, Cambridge Eco**
14:40	Trial system design and results to date **Dr Catherine Keeling, Warwick Crop Centre**
14:55	Potential benefits to industry **Rob Lillywhite, Warwick Crop Centre**
15:10	Discussion
15:20	Viewing the glasshouse trials
16:15	Tea and coffee, discussion, networking
16:45	Close

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Introduction to the project

Mary Dimambro

Cambridge Eco Ltd

About Cambridge Eco

- Advising Defra, WRAP, industry, growers
- Experts in the use of
  - composts
  - digestates

garden organic
the national charity for organic growing

Cambridge Eco Ltd

Use of digestates in novel growing media for ornamentals

bark

+ other sustainable materials

+ digestates

= novel growing media (admixtures)

Moulton College NORTHAMPTONSHIRE

Profit through Skill

Cambridge Eco Ltd

Use of digestates in novel growing media for ornamentals

- Controls (industry standards)
  - Peat-based control
  - Peat-free control (bark and wood fibre based)
- 4 digestates – each with 5 admixtures
- 5 replicates = 110 plants per trial

Moulton College NORTHAMPTONSHIRE Profit through Skill

Using digestates as a nutrient source for trickle irrigation in strawberries

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Project timetable

- October-November: Desk study
- December: Digestate analysis
- January-February: System optimisation
- February-June: Glasshouse trial
- July-August: Report

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Why strawberries?

- C. 5,000ha of UK grown strawberries in 2010
  - >100,000t of fruit
  - Market value > £260 million
- Most protected soft fruit, including strawberries, grown in peat-based or coir bags or modules
  - Trickle irrigation used for continual nutrient supply

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Why digestates?

- Availability
  - > 100 anaerobic digestion sites in the UK
  - On-site AD = heat & digestate
- Potential for use in trickle irrigation
  - Whole digestate
  - Separated liquor
- Range of nutrients, including micronutrients

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Digestate analysis

	Food Separated	Food Whole 1	Food Whole 2	Potato Whole	Maize Slurry Separated	Maize Separated
Total solids (%)	2.9	3.7	4.5	2.2	7.1	5.1
C:N	4.0	3.5	3.3	3.3	7.3	6.1
pH	8.5	8.4	8.4	8.2	8.2	8.2
EC (1:6) (dS m-1)	4.4	5.4	7.0	4.2	4.5	3.8

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Digestate analysis

	Food Separated	Food Whole 1	Food Whole 2	Potato Whole	Maize Slurry Separated	Maize Separated
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
N	3700	4900	6000	2400	4200	4100
NH4-N	2990	3784	5260	2039	2044	2175
NO3-N (<)	0.1	0.1	0.1	0.1	0.1	0.1
P	202	315	456	128	514	246
K	1330	1869	1109	4752	4661	3382
Ca	797	2000	1974	126	1862	889
Mg	92.9	93.3	63	46	436	188
S	134	236	342	78	303	171
Fe	75	231	555	57	197	54
Mn	3.4	8.4	5.0	1.3	15.9	6.4
Na	1021	1146	2225	46.4	439	121