

Moisture Retention in Soils Using Composted Green Waste – Further Gains from Biochar?

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Application of Composed Material to crops

- Mulches
 - Incorporation
 - Growing Media/Substrates
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Use of Mulches in Soil Moisture Management

- Traditional practice
 - Control weeds
 - Conserve moisture – retain soil moisture in soil; reduce evapo-transpiration from soil surface
 - Reduce soil temperature
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Benefits of Incorporation of composted material to soils

- provide source of nutrients
 - improve utilisation of applied nitrogen
 - providing organic matter that can improve soil structure, cation exchange capacity, water infiltration and water holding capacity
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Soil Organic Matter & Compost

Soil organic matter is closely correlated with almost all physical, chemical and biological soil properties

Organic matter can also contribute to crop yield – up to 10% on sandy soils and up to 5% on loam soils. Increasing soil carbon content by 0.1% results in;

- - increase in hydroscopicity 0.06-0.08%
 - - increase in water holding capacity of 0.4 to 0.6%
 - - decrease in dry matter density of 0.004-0.005g/cm
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Benefits in Trials of Compost Application

- Demonstrated in a range of situation
 - UK WRAP
 - Cabbage – soils held greater amount of water
 - Onions and potatoes on range of sites
 - Brogdale Trials
 - Strawberry & Raspberry 5-20% irrigation water savings may be possible
 - vegetables – runner bean & courgette preliminary indications 7% irrigation water savings may be possible
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Further gains from Biochar?

- Conflicting evidence in literature but indications of some potential effects on water are possible
 - May enable composted material to be used more widely in growing media
 - May provide other beneficial interactions
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