

Transport and Technical Services Solid Waste Strategy

Bio-Solid Land Bank Briefing

Scope

The Environment Scrutiny Panel have appointed Juniper Consultancy Services Limited to conduct a technical review of the Solid Waste Strategy. As part of this review Juniper have requested information about the bio-solid land bank employed by the Department. This briefing note summarises the assumptions behind the land bank considered by the Department..

Draft Agricultural Statistics 2006

All of the following information is either contained within the draft Jersey Agricultural Statistics (2006) or have been provided by officers within the Planning and Environment Department.

1 vergée (Jersey) is equivalent to 0.17986 metric Hectares.

The total Jersey land bank is reported to be 64,612 vergées. The total Jersey land use is reported to be 76,676 vergées. The discrepancy between the two figures is due to the fact that land use can be counted twice if the area of land reported on is cropped more than once in any single year.

The land bank usage is reported as follows:-

Jersey Agricultural Land-use	Vergees
Protected Crops	339
Fruit & Vegetables	2,727
Outdoor Flowers	1,133
Temporary Grass	4,079
Grass Ley 2 - 5 yrs	5,582
Rough Grazing	1,557
Potatoes	14,301
Permanent grass	5,462
Uncultivated	2,443
Other use	10,953
Unregistered	28,100
Total	76,676

Land Use Description and Suitability

The availability of the land use categories for application of bio-solids can be summarised as follows:

Unregistered 28,100 vergées.

This is land that is not declared on the agricultural statistics. It will be urban, playing fields, SSI land, private gardens, roads, the airport etc.

This land is not considered a suitable route for the disposal of bio-solids as it is either not accessible or application may be at risk as the impact would be unclear.

Assumption: No Bio Solids can be applied

Other use 1,093 vergées

Small holdings are land that is defined as agricultural but is not eligible for Single Area Payment (SAP) or Quality Milk Payment (QMP). This land is either inactive agricultural land i.e. there is no economic production from the land or it is land that does not qualify for payment due to it not complying with basic levels of good agricultural practice or water pollution control measures.

This land is not a suitable route for the disposal of bio-solids as bio-solids cannot be sustainably added to the land where no production is happening and should not be applied where the planned use of the land is not known.

Assumption: No Bio Solids can be applied

Uncultivated 2,443 Vergées

This land is barren land, avenues, etc., on which no crop is grown nor livestock grazed.

This land is not a sustainable route for the disposal of any bio-solids. This is on the advice of the Environment Department.

Assumption: No Bio Solids can be applied

Rough Grazing 1,557 vergées

This is land that is not included in either Temporary or Permanent Pasture and is capable of being grazed for only part of the year. (e.g. grassy slopes and wet meadows).

This land is not a sustainable route for the disposal of bio-solids. This is on the advice of the Environment Department.

Assumption: No Bio Solids can be applied

Permanent Grass 5,462 vergées

This is land used for animal grazing. Green waste compost and enhanced treated sludge are products accepted by the livestock industry.

There is a resistance to the acceptance of food waste compost due to the potential risks of animal health diseases such as Foot and Mouth and Swine Fever.

It may be completely legitimate elsewhere to dispose of food waste compost to Animal By-Product Regulation compliant standards on this land but unless the land owners are willing to accept it, it cannot be used as a disposal route on Jersey.

This land is suitable for green waste compost and enhanced treated sewage sludge.

Assumption: ABPR compliant food waste compost is possible but unlikely to be acceptable for the foreseeable future in Jersey.

Potato 14,301 vergées

This land is used for growing potatoes and is currently used for the disposal of green waste compost. enhanced treated sludge is not applied to any fields in the administration of Jersey Royal Ltd. Jersey Royal Ltd have stated in writing that they are not prepared to accept ABPR compliant composted food waste.

This land is theoretically suitable for green waste compost, ABPR compliant food derived compost and enhanced treated sludge, however, the major land user Jersey Royal Ltd have stated that they will only accept green waste compost.

Assumption: ABPR food waste compost and Enhanced Treated Sludge application is possible but unlikely. This land is used for green waste compost.

Temporary Grass 4,079 vergées

This land is usually part of a crop rotation or a fallow rotation. It is suitable for green waste compost. Enhanced treated sludge disposal is limited on this land due to the major user being Jersey Royal Ltd and their requirements for their potato crop.

ABPR compliant food waste compost will have the same limitations as enhanced treated sludge and there is some evidence that the livestock industry will not welcome application of ABPR compliant food waste compost on this land.

Assumption: This land is used for green waste compost. ABPR compliant food waste compost and Enhanced Treated Sludge application is possible but unlikely.

Grass Ley 2 -5 years 5,582 vergées

This land is usually part of a crop rotation or extended fallow rotation. It is suitable for green waste compost. Enhanced treated sludge disposal is limited on this land due to the major user being Jersey Royal Ltd and their requirements for their potato crop.

ABPR compliant food waste compost will have the same limitations as enhanced treated sludge and there is some evidence that the livestock industry will not welcome application of ABPR compliant food waste compost on this land.

Assumption: This land is used for green waste compost. ABPR compliant food waste compost and Enhanced Treated Sludge application is possible but unlikely.

Outdoor flowers 1,133 vergées

This land is for flower production, it is suitable for green waste compost and possibly for enhanced sludge disposal and ABPR compliant food waste compost. This land is usually part of a crop rotation and if the crops subsequently sown are suitable then it may be possible to apply enhanced treated sludge or ABPR food waste compost.

Assumption: Green waste compost, ABPR compliant food waste compost and enhanced treated sludge are possible.

Fruit and Vegetables 2,727 vergées

This land is suitable for green waste compost and for enhanced treated sludge. It is also possible that ABPR food waste compost will be permitted to be spread on this land. This land is usually part of a crop rotation and therefore permission will be dependent upon the customer protocols and subsequent crop rotations.

Assumption: Green waste compost, ABPR compliant food waste compost and enhanced treated sludge are possible.

Protected crops 339 vergées

These are indoor crops, such as tomatoes. It is possible that they are suitable for green waste compost, enhanced treated sludge and ABPR food waste compost. Permission will be dependent upon the customer protocols.

Assumption: Green waste compost, ABPR compliant food waste compost and enhanced treated sludge are possible.

Summary

In summary, the Department considers that the potential land bank for ABPR complaint food derived waste compost to be as follows:

Land use	Vergées	Not Permitted	Possible but Unlikely	Possible
Protected Crops	339			339
Fruit & Veg	2727			2727
Outdoor Flowers	1133			1133
Temporary Grass	4079		4079	
Grass Ley 2 - 5 yrs	5582		5582	
Rough Grazing	1557	1557		
Potatoes	14301	14301		
Permanent grass	5462		5462	
Uncultivated	2443	2443		
Small Holdings	10953	10953		
Non-agricultural	28100		28100	
Total	76676	29254	43223	4199

Land Requirement for existing Bio-solids

The land requirement for existing bio-solid disposal to land in 2006 was as follows:

2006 Disposal Requirements	Vergées
Agri-compost - 1637v	1,637
Dairy Slurry - 5500v	5,500
Potato Waste - 800v	800
Bonlais - 284v	284
Enhanced treated sludge - 1253v	1,253
Total	9,474

Land Requirement for ABPR Compliant Food Waste Derived Compost

The Solid Waste Strategy indicates a potential 17,000 tonnes per annum of kitchen food waste could be available in the waste stream. Assuming that all of this were to be captured and composted (which is an unlikely assumption in operational practice) and that between 1.9 - 2.9% of Municipal food waste is Nitrogen, that the Carbon: Nitrogen ratio is between 14 -16:1 and the % moisture is 69% (assumptions from Large Scale Composting a Practical Manual for the UK) and that the maximum application rate to arable land is 170 kg / hectare and for grassland is 250kg / hectare, then the land bank required for arable and grassland is anticipated to be as follows:

Land Requirement	Vergées
17000t - Arable rate @ 1.9%N (5.18t/v)	3,281
17000t - Grassland rate @ 1.9%N (7.62t/v)	2,231
20000t - Arable rate @ 2.9%N (3.40t/v)	5,889
20000t - Grassland rate @ 2.9%N (4.99t/v)	4,004

Conclusions

Bio-solids can only be sustainably added to the land and soils if there is a corresponding nutrient removal process occurring. (i.e. growing crops, grass etc).

There is much land that is not farmed and may appear to be suitable for bio-solid disposal. However, the States of Jersey's countryside diversity advisors recommend restricting the nutrient loading on non-cultivated land so that plant growth is diversified and not favoured by particular nutrient hungry species.

From the above it can be seen that there is potentially sufficient land to apply all of the ABPR compliant composted kitchen waste arising on the island, but crucially, it can also be seen that there is no guaranteed land available for the disposal of any bio-solid wastes in Jersey.

Given that owners and farmers are under no obligation to accept bio-solids and are commercially driven entities, they will always prioritise the timing for crop planting and the rotation of crops above the opportunity to apply bio-solids to land.

The ability to apply bio-solids to land can also be obstructed by the seasonal weather patterns. After prolonged periods of rain the land becomes soft and bio-solid application is often prevented due to the damage done to the land by the heavy spreading machinery.

The potato industry does use green waste compost in their rotation and the dairy industry do use enhanced treated sludge but these are only accepted with a considerable subsidy from the States of Jersey and there is considerable nervousness about these existing products.

There is already a requirement for spreading approximately 10,000 verges of the available land from the existing bio-solids which require disposal on the island.

Any additional bio-solid material would be in direct competition with the established materials and therefore would require a similar or more likely greater level of subsidy to be accepted by off-takers.

For these reasons the Department still considers that there is not a sustainable off-taking route for ABPR compliant food waste derived compost.