Worcestershire Waste Core Strategy Background Document

Agricultural Waste

March 2011

Compiled by S Aldridge, M Joynes and N Dean
Last Updated: 24th September 2010 and 18th January 2011

The Council is preparing a *Waste Core Strategy*: a plan for how to manage all the waste produced in Worcestershire up to 2027. To help provide a robust evidence base for the Waste Core Strategy the Council has prepared a series of background documents. These outline current thinking and have informed the approach taken in the development of the Waste Core Strategy.

We welcome any comments you would like to make on any of the background documents during the *Publication Document (Regulation 27) Consultation.* The consultation will run from **22nd March – 4th May 2011**.

To make comments, request paper copies of the documents or for further information please contact:

Nick Dean
Planning Environment and Economy
Worcestershire County Council
County Hall
Spetchley Road
Worcester
WR5 2NP

01905 766374
wcs@worcestershire.gov.uk

For planning advice and support service see http://www.rtpi.org.uk/planningaid.

Executive Summary

Introduction

This paper provides a background to the Worcestershire Minerals and Waste Local Development Framework (LDF) in respect of waste arising from agricultural activities. The background document includes information relating to agricultural waste in a national and regional policy context. It also includes details of the waste arisings and available capacity for treatment of agricultural waste within Worcestershire.

What is Agricultural Waste

Agricultural waste is from farming, forestry, horticulture and similar activities and can be split into two distinct categories:

- Natural agricultural wastes - such as untreated wood and plant matter; and
- Non-natural agricultural wastes - such as farm plastic, scrap metal, tyres, glass, building waste, paper and cardboard.

How is Agricultural Waste Treated

Agricultural waste until recently was not covered by the national waste management controls. However the Waste Management (England and Wales) Regulations 2006 and Hazardous Waste (England and Wales) Regulations 2005 have been amended to include non-natural agricultural waste. This has imposed tighter controls on agricultural waste, bringing it in line with commercial and industrial waste: consequently all objects that are discarded from agricultural premises are subject to control as waste.

As a result there are five management options for farmers:

- Store the waste on site (for up to twelve months).
- Take the waste to a licensed site.
- Transfer the waste to a waste company.
- Register an appropriate licensing exemption.
- Apply for a waste management licence or permit.

Off-Site Practices

Once the waste has been taken to a licensed site or transferred to a waste company the waste is then sorted/processed prior to recycling or final disposal.

On-Site Practices

In relation to registering an appropriate licensing exemption or applying for a waste management licence/permit, there is a wide range of waste processing/treatment activities that can take place on farms that are free of the planning system (as long as they are for agricultural use and do not exceed certain thresholds), these include:

- Open burning of small quantities of natural farm waste;
- Incineration of small whole carcases;
- Disposal using farm tip/dump and burial – this must meet strict landfill operating standards, which are very expensive and time consuming;
- Dilute liquid discharges to public sewers;
- Composting;
- Anaerobic digestion;
- Spreading of waste to land – such as, ditch dredging and used sheep dip;
- Chip, shred, cut and pulverise plant matter;
- Biobed – separation of pesticides from waste water.

Furthermore, some agricultural waste may be reused on farms, such as general building wastes for re-surfacing tracks or bale twine for binding, amongst many others.

Arising Trends and Projections

National Waste Arisings

The total waste arisings in England are around 272 million tpa (DEFRA, 2007c, p. 24) of which agricultural waste accounted for less than 1%, with the total non-natural agricultural waste arising in England estimated to be 264,854 tonnes in 2003.

West Midlands Waste Arisings

The West Midlands as a region produced 24.3 million tonnes of waste in 2002-2003; of this, 24% was from agriculture (WMRA, 2007, p. 5), equating to about 5.9 million tonnes in 2003. However, 97% of this was manure, slurry and straw (natural agricultural waste) and most of this is not 'waste' as most of this has a significant further value and is recycled within the farm or purchased by other farmers (West Midlands Regional Waste Planning Technical Group, 2001).

Worcestershire Waste Arisings

Information on the quantity of agricultural waste in Worcestershire is limited, but it is estimated that the total of non-natural agricultural waste arisings in 2003 were only 3,487tpa (WMRA, 2005, p. 52). As a result it is considered that the total of non-natural agricultural waste that needs to be processed within the County is so small in volume that it is unlikely to affect the overall approach of the WCS but will nevertheless need to be managed properly and be taken into account to ensure that future policies are flexible enough to respond to any change in circumstances.

Projections

In conformity with our approach to projecting Commercial and Industrial waste arisings we intend to project agricultural waste production at the same rate as the National Waste Strategy 2007 does for industrial waste, which is essentially zero growth per year. This would result in non-natural agricultural waste arisings remaining at about 3,487tpa.

Options for Making Provision

The Waste Core Strategy can make provisions for facilities to handle agricultural waste in three ways:

1. Identifying specific sites
2. Identifying broad locations for sites
3. Criteria based approach

Via one of these three methods or a combination of these methods the strategy could encourage:

- A series of central hubs; or
- A wider spread of very small scale local facilities.

Conclusion

Because of the nature of agricultural waste production (small volume, seasonal variation and possible contamination) we consider that the most appropriate way to manage agricultural waste may be through a wide spread of very small scale local facilities (in effect rural waste transfer stations). However, any provision of waste

facilities in rural areas will need to ensure that it is appropriate to its surroundings in terms of type, scale and character.

Contents

List of Figures

List of Tables

Introduction & Background

Introduction

This paper provides a background to the Worcestershire Minerals and Waste Local Development Framework (LDF) in respect of waste arising from agricultural activities.

This background paper examines:

- What is agricultural waste
- How agricultural waste is treated
- Planning permitted development rights for agricultural uses - specifically waste
- The regulation, planning policy and guidance related to agricultural waste transcending down from the national to the regional level
- National, regional and local arisings, trends and projects
- Examines the potential options for making provision for the Waste Core Strategy (WCS)
- Makes conclusions

Background

What is Agricultural Waste?

There is no definitive list of what is or is not waste, however, agricultural waste is from farming, forestry, horticulture and similar activities[1] and can be split into two distinct categories: natural agricultural waste and non-natural agricultural waste. Natural agricultural waste are items such as untreated wood and plant matter, whereas non-natural agricultural waste are items such as farm plastic, paper and cardboard. Although the types and quantities of waste will differ between farms, most waste is animal slurry and vegetable matter (natural agricultural waste) with many farms also producing:

- Plastic (including silage bags and fertiliser bags);
- Cardboard;
- Paper;
- Redundant machinery (scrap metal);
- Tyres;
- Glass;
- Old fencing;
- Building waste;
- Batteries (most commonly lead acid batteries); and
- Oils.

[1] Agriculture is defined by Section 336 of the 'Town and Country Planning Act 1990' as including horticulture, fruit growing, seed growing, dairy farming, the breeding and keeping of livestock, including any creature kept for the production of food, wool, skins or fur, or for the purpose of its use in the farming of land; the use of land as grazing land, meadow land, osier land, market gardens or nursery grounds; and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes (OPSI, 1990).

Other less common wastes include asbestos, unused pesticides and veterinary waste (such as syringes, swabs and rubber gloves), horticultural plastics and used sheep dip.

Livestock manures are not waste if they are used to fertilise soil for agricultural or ecological benefit on agricultural land – whether on the farm where they are produced, or on another farm (DEFRA, 2009, p. 88). However, legal controls such as Nitrate Vulnerable Zone Action Programme[2] and Groundwater Regulations 1998 must be complied with (DEFRA, 2007a, p. 1). Also if the manure is mixed with controlled waste it will then also become a waste.

Agricultural waste until recently was not covered by the national waste management controls. However, the Waste Management (England and Wales) Regulations 2006 (SI 2006 No. 937) were amended to include agricultural waste. This imposed tighter controls on agriculture waste bringing it in line with waste from all other sectors of industry (commercial and industrial waste). Furthermore, the Hazardous Waste (England and Wales) Regulations 2005 also were applied to agricultural waste on 15th May 2007, consequently, 'all substances or objects from agricultural premises that are discarded by the holder, have become subject to control as waste' (DEFRA, 2007a, p. 1).

How is Agricultural Waste Treated?

Possible Management Options

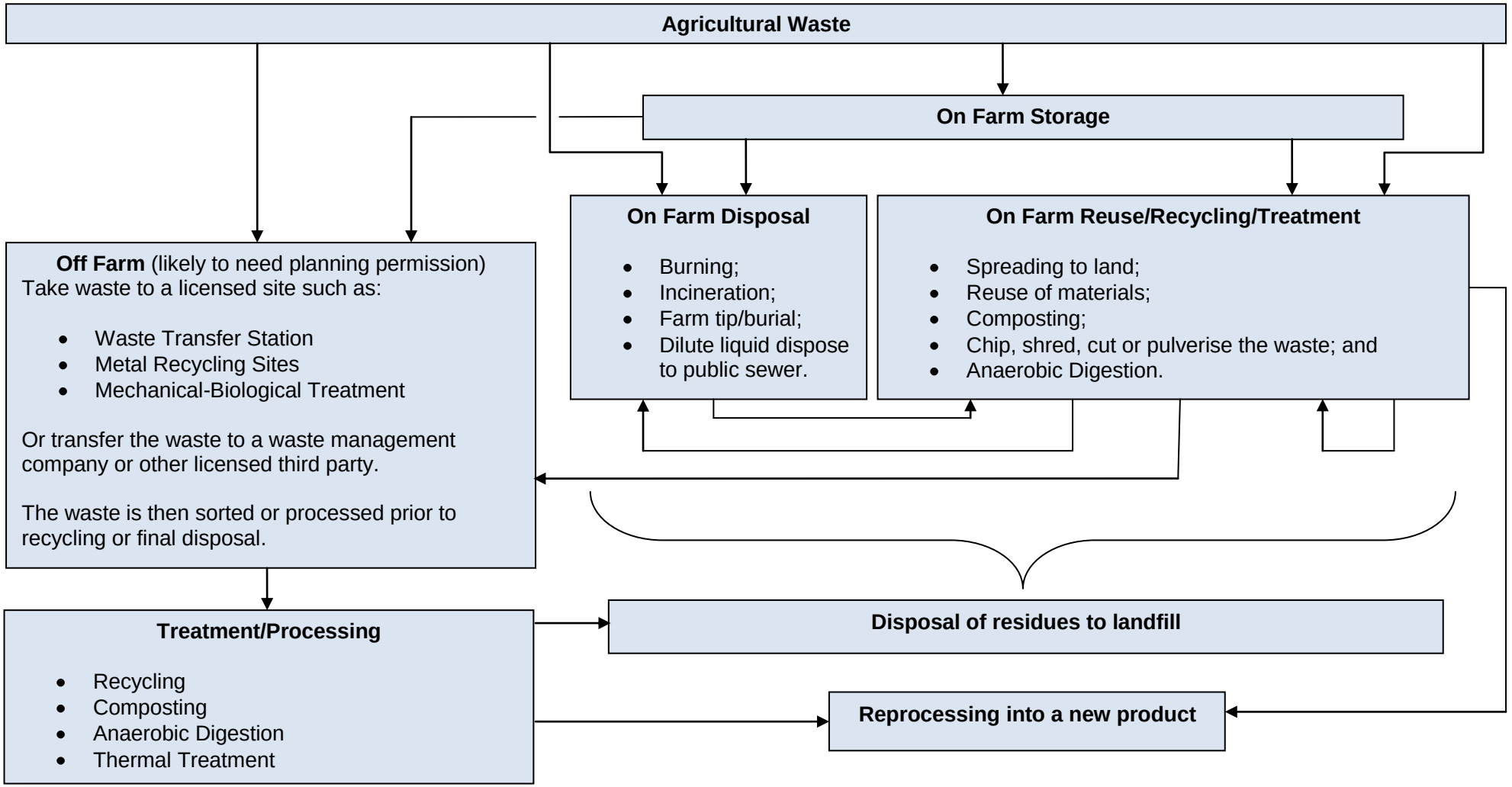
There are a range of facilities which can be used to treat Agricultural waste. Figure 1 gives an indication of the types of management options which may be used.

There are five management routes for dealing with agricultural waste:

- Store the waste, on the same site where it is produced for up to twelve months. After this period the waste has to be recovered or disposed of using one of the other options below;
- Take waste to a licensed site (e.g. waste transfer station) for recovery or disposal;
- Transfer the waste to a waste management company or other licensed third party for recovery or disposal off-farm at an appropriately licensed site;
- Register an appropriate licensing exemption with the Environment Agency (EA) to recover waste on-farm;
- Apply to the EA for a waste management licence or permit to dispose of waste (DEFRA, 2007a, p. 4).

[2] For further details see *Worcestershire Waste Core Strategy Background Document: Waste Water Treatment Infrastructure*

Figure 1: Life Cycle Overview of Agricultural Waste



Off-Farm Practices

If the waste is being taken off the farm for treatment and disposal it must be sorted, then the waste can be treated through a range of processes which include:

- Recycling: Reprocessing waste into a useable 'raw material';
- Composting: Degradation of biodegradable waste into compost. This reduces mass and produces a stabilised end material, preventing methane emissions if it were to be landfilled[3];
- Anaerobic Digestion (AD): Degradation of biodegradable waste in the absence of oxygen, to produce biogas for energy and a stabilised end product, which can be used as a soil improver[4];
- Thermal treatment: Thermal treatment, such as incineration, reduces the volume of the material and usually involves energy recovery techniques.

Following this treatment some residues will need to be disposed of to landfill[5]. However the outputs from the process can be used, either being reprocessed into new products or, in the case of composting and anaerobic digestion, used as a soil improver.

On-Farm Practices

Open Burning of Waste

Farmers are allowed to burn small quantities of natural farm waste such as natural wood wastes (hedge trimmings, tree pruning and bark) untreated wood (sawdust and wood shavings) and other plant matter, subject to certain restrictions. However, uncontrolled burning of non-natural farm waste such as farm plastic, paper or cardboard materials is not allowed in the open (DEFRA, 2007b, p. 17).

Incineration

Small whole carcases can be incinerated on-farm, but must comply with the Animal By-Product Regulations (ABPR) and so can only be used to incinerate whole carcases from pigs and poultry. The ash from pig and poultry incineration can be spread to land for agricultural benefit (if the appropriate exemption is obtained).

Disposal using farm tips or burial

Disposal using farm tip/dump and burial has been common on farms in England in the past. However, since 31st July 2006 it became illegal to operate a farm tip/dump and burial without a permit and to meet strict landfill operating standards, which are expensive and time consuming. As a consequence it is believed that many farm tips/dumps and burials should now have ceased operating.

[3] For further details see *Worcestershire Waste Core Strategy Background Document: Resource Recovery from Biodegradable Waste: Composting and Anaerobic Digestion*

[4] For further details see *Worcestershire Waste Core Strategy Background Document: Resource Recovery from Biodegradable Waste: Composting and Anaerobic Digestion* and *Worcestershire Waste Core Strategy Background Document: Recovering Energy from Waste: Thermal and Biological Treatment Technologies.*

[5] For further details see *Worcestershire Waste Core Strategy Background Document: Metal Recycling*

Dilute liquid waste

Water Companies may permit dilute liquid discharges to public sewers if the water company believes it will be able to treat the extra pollution load. However, a trade effluent permit is required and in some circumstances, it is possible to discharge a treated dilute liquid waste of very low polluting load to surface water or to the ground, although discharges consent from the EA is required (DEFRA, 2009, p. 93).

Composting

Composting is a biological process in which micro-organisms work in the presence of air to convert biodegradable organic matter into a stabilised residue known as compost (ODPM, 2004a, p. 61). When undertaken in the open this process can only be used to treat green waste, however in-vessel composting can also be used to manage food waste.

A variety of farm waste can be composted such as hedge trimmings, grass cuttings, manure, hay, straw, paper pulp, sawdust and also cardboard but this has to be mixed with other biodegradable farm waste to ensure it breaks down sufficiently. Leaving organic matter in a pile to rot is not considered to be a composting activity – and as such would not be subject to the regulations. Actively composting is considered to be actively turning (windrow) the waste. Composting activities can be registered with the EA as an exemption for 1,000 cubic metres of biodegradable waste to be composted at the place where that waste is produced, or where it is spread. This increases to 10,000 cubic metres if the waste is produced from or to be used for mushroom compost[6]. There are no specific limits on the volumes held in storage, as long as it avoids the risk of excessive quantities of pollution, harm or nuisance (EA, 2009).

Furthermore, on-farm composting facilities are often exempt from waste management licensing as biodegradable wastes such as slurries and manures are not considered waste and do not come under the permitting regime under Environmental Permitting Regulations 2007. In addition, facilities that only deal with agricultural residues produced on the farm may not require planning permission. These operations have a small input but are relatively high in number and thus account for a high proportion of the capacity for treating green waste (WMRA, 2005).

Anaerobic Digestion (AD)

Anaerobic digestion is a biological process in which biodegradable organic waste is broken down by bacteria in the absence of air. The process produces:

- Biogas: which can be used as a renewable energy source, both for heat and power (ODPM, 2004a, p. 77);
- Solid and liquid residues: can be spread on land as a soil conditioner and fertiliser (DEFRA, 2004, p. 11).

The AD process has been used widely in the UK agricultural sector in the form of small on-farm digesters producing biogas to heat farmhouses and other farm buildings. An AD project is most likely to be part of an integrated farm waste

[6] For Mushroom Compost, the exempt activity needs to be registered with the local authority and not the Environment Agency.

management system in which the feed stocks and products all play a part. However larger scale centralised anaerobic digesters are also in existence, using feed stocks imported from a number of sources (ODPM, 2004b, p. 95)[7].

Spreading to Land

A range of wastes can be spread to land for agricultural benefits such as waste from vegetable processing, manure, slurry, dilute waste milk, agricultural ditch dredging and used sheep dip. Furthermore, crop residues can be ploughed in, as they are not considered waste as long as they are used on the farm that produced them.

Chip, Shred, Cut and Pulverise Waste

Farmers may chip, shred, cut and pulverise plant matter, including untreated wood that they intend to recover or reuse. These activities are covered by the EA exemptions for up to 1,000t of such waste to be dealt with in a period of 7 days (EA, 2009).

Biobed

A biobed is simply a lined structure filled with biomix - a mixture of topsoil, compost and straw. The biomix removes non hazardous pesticide washings (these include insecticides, fungicides and herbicides) or agricultural solutions from contaminated water. The retained pesticides are then degraded, and the treated water can be re-used. Biobeds are not approved for use in the treatment of veterinary medicines, including sheep dip from the contaminated water (ADAS UK Ltd, 2007, p. 3).

The two main types of biobed systems are:

- **A lined indirect biobed** - where all filling, mixing and sprayer wash down happens on an impermeable, bunded pesticide handling area. All liquids are diverted via a sealed drainage system to a nearby biobed.
- **A lined direct biobed** - all filling, mixing and sprayer wash down happens directly above the biobed with access provided by a metal grid and support frame. All liquid falls directly onto the biobed (ADAS UK Ltd, 2007, p. 3).

The disposal of non-hazardous dilute pesticide washing in a biobed for up to 15,000 litres per year is covered by the EA exemptions (EA, 2009).

Typical practices for re-using waste materials

As well as being able to recycle waste on farms, there is also a variety of uses for reusing waste on farms, these include:

- General building wastes (such as bricks and rubble) – for re-surfacing tracks and filling in potholes;
- Waste packaging (such as feed bags and oil containers) – for storage and feed containers;
- Wooden pallets – for fencing and as a fuel (often on the household fire);

[7] Further details are set out in *Worcestershire Waste Core Strategy Background Document: Resource Recovery from Biodegradable Waste: Composting and Anaerobic Digestion.*

- Oils – for protecting machinery against rust or mixed with diesel to create a creosote substitute;
- Waste tyres – on silage clamps (although car tyres are mostly used for this purpose); some tyres are used to make scrapers for cleaning yards;
- Bale twine and net wrap – for binding;
- Scrap metal, vehicles and machinery – often dismantled for spare parts and for fixing other items;
- Plastic cores – for setting out rat poison as they prevent dogs and cats eating the poison;
- Silage sheet – re-used a second year either as underlay on the clamp to protect the new sheet or to cover the shoulders;
- Batteries – for powering electric fences (EA, 2003, p. 25).

Waste Exemptions

As outlined above, there are various waste exemptions available for farmers. However, it must be stated that exempt waste management activities only remain exempt if they attain the objectives mentioned in Article 4 of the Waste Framework Directive, namely:

> *Ensuring that waste is recovered or disposed of without endangering human health and without using processes or methods which in turn could harm the environment and in particular without –*
> *(i) Risk to water, air, soil, plants or animals; or*
> *(ii) Causing nuisance though noise or odours; or*
> *(iii) Adversely affecting the countryside or places of special interest*

The waste exemptions are currently being reviewed by the EA, working together with DEFRA and the Welsh Assembly Government.

Planning Permission

Part 6: Agricultural Buildings & Operations and Part 7: Forestry Buildings and Operations of the General Permitted Development Order (GPDO) are relevant to that of agricultural waste.

The extent to which agricultural and forestry activities should have independence from planning control has always been a controversial topic. Over time, as loopholes have been exploited by farmers, or new farming methods have been invented, Part 6 of the GDPO has increasingly expanded to become extremely complex and difficult to interpret.

Part 6, Schedule 2 to the GPDO grants permitted development rights for a range of agricultural buildings and operations. For Class A developments, permitted development is for 'the carrying out on agricultural land comprised in an agricultural unit of 5 hectares or more in areas of:

a) Works for erection, extension or alteration of a building; or
b) Any excavation or engineering operations,

Which are reasonably necessary for the purposes of agriculture within that unit' (The Town and Country Planning (General Permitted Development) Order 1995 (as amended), 3B-2090, p. 39096/2).

For Class B developments, permitted development is for 'the carrying out on agricultural land comprised in an agricultural unit of not less than 0.4 but less than 5 hectares in area of development consisting of:

a) The extension or alteration or an agricultural building;
b) The installation of additional or replacement plant or machinery;
c) The provision, rearrangement or replacement of a sewer, main, pipe, cable or other apparatus;
d) The provision, rearrangement or replacement of a private way;
e) The provision of hard surfacing;
f) The deposit of waste; or
g) The carrying out of any of the following operations in connection with fish farming, namely repairing ponds and raceways; the installation of grading machinery, serration equipment or flow meters and any associated channel; the dredging of ponds; and the replacement of tanks and nets,

Where the development is reasonably necessary for the purposes of agriculture within the unit' (The Town and Country Planning (General Permitted Development) Order 1995 (as amended), 3B-2090, p. 39098).

A potential grey area of these permitted development rights is that of that last sentence: ' where the development is reasonably necessary for the purposes of agriculture within the unit'.

The key permitted development right directly relating to agricultural waste is that of the deposit of waste:

On Part A developments (development on units of 5 hectares or more) Conditions are placed on the permitted development rights in that:

- The only waste that may be imported is in relation to building works and for the creation of hard surfaces, where the material is incorporated into the building or works (The Town and Country Planning (General Permitted Development) Order 1995 (as amended), 3B- 2107, p. 39117).

Whereas the rights conferred for Part B (units between 0.4 and 5 hectares) the deposit of waste is that:

- This right is confined to waste materials generated from the agricultural unit itself, and is subject to the condition that the height of the surface of the land should not be materially increased by the deposit. Waste materials may only be brought onto the land from elsewhere if they are for use in other permitted development, and are incorporated forthwith into those buildings or works (The Town and Country Planning (General Permitted Development) Order 1995 (as amended), 3B- 2111/3, p. 39121).

Part 7 of Schedule 2 to the GPDO grants permitted development rights for various forestry buildings or operations. These include: works for the erection,

extension or alteration of a building; the formation, alteration or maintenance of private ways (including operations on that land to obtain the materials required for such ways); and finally other operations (not including engineering or mining) (The Town and Country Planning (General Permitted Development) Order 1995 (as amended), 3B- 2113, p. 39122/2).

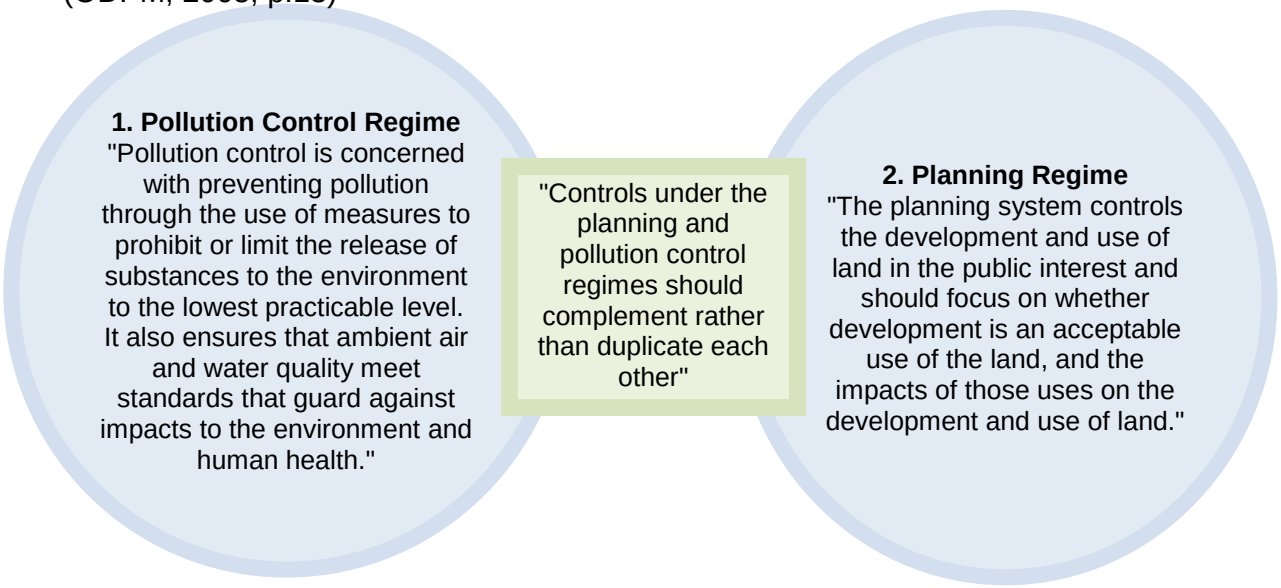
A further condition that is placed on both class A and B development of Part 6 and on Part 7 is that of prior notification. This is a notification procedure whereby a written description of the proposed development (materials to be used and a plan indicating the site) is to be provided to the local planning authority. The authority is then allowed 28 days to consider whether their prior approval is needed for the works. If a determination is received from the local planning authority that its prior approval is not necessary or if nothing is heard, the development may proceed. If a determination is made that permission is necessary, details of the works are required to be submitted and site advertising is to be undertaken.

Farmers have many permitted development rights that relate to a variety of uses, however, what is not mentioned here or not made explicit is that uses that are clearly agricultural activities – and not necessary deemed as a waste activity[8] - such as composting (until reaching a threshold/trigger such as exporting the compost) do not require planning permission. Hence, many agricultural activities are exempt or free of the planning system.

Regulation

There are two main ways in which waste management activities are regulated.

Figure 2: Regulation of Waste Management
(ODPM, 2005, p.13)



[8] The definition of the term waste is not defined within the GPDO and consequently forms a further grey area within the GPDO. As Part 6 of the GPDO does not allow the bringing of waste onto a farm, distinguishing between waste and non waste is critical.

The Pollution Control Regime
Under the *Environmental Protection Act (1990)* it is unlawful to deposit, recover or dispose of controlled waste without a waste management license, contrary to the conditions of a license or the terms of an exemption, or in a way which causes pollution of the environment or harm to human health.

The Environment Agency is the pollution control body responsible for issuing and monitoring of Environmental Permits under the Environmental Permitting Regulations[9]. In addition to a full planning permission, the operator requires an Environmental Permit and it is government policy that waste planning authorities should work on the assumption that the relevant pollution control regime will be properly applied and enforced (ODPM, 2005, p. 13).

Planning Regime
Planning decisions are based upon the development plan, national policy and other relevant material considerations. This document will contribute towards the production of the Waste Core strategy which forms part of the development plan.

Regulation and Planning Policy and Guidance Context

Duty of Care
The Duty of Care applies to all waste produced on a farm. For farmers to comply with the Duty of Care they must make sure that their waste is secure and that when they pass on their waste, farmers must ensure that they are authorised to take it (registered waste carriers and holders of waste management licences). When farmers pass on their waste they must fill in a waste transfer note and keep this for two years.

Waste Management (England and Wales) Regulations 2006 (SI 2006 No. 937)
Agricultural waste had been excluded from national waste management controls for many years, historically farmers and growers had taken waste disposal into their own hands, with the majority disposing of waste in on-farm tips/dumps and by open air burning (DEFRA, 2006a, p. 6). However, the Waste Management Regulations 2006 which came into force on 15th May 2006, brought agricultural waste controls into line with waste from all other sectors of industry (collectively classified as 'industrial waste'). Under the transitional period, farmers and growers had until 15th May 2007 to apply to the EA for a waste management license, or to register exemptions from waste management licensing, to continue to recover or dispose of agricultural waste on-farm.

As a result of these tighter regulations farm wastes such as plastic, rubber, metal and animal waste have to be sent to licensed treatment facilities. Organic matter including manure and slurry can still be re-used on the farm and crop waste can be composted as long as it arises on the farm and is used on the same farm. However, this must ensure that there is some agricultural benefit and that same

[9] The Environmental Permitting Regulations (EPR) came into force on 6 April 2008 prior to this the environment agency issued waste management licenses, under the requirements of either the Environmental Protection Act 1990 (EPA 1990) or the Pollution Prevention and Control (PPC) Regulations 2000.

area of land is not over used e.g. repeatedly spreading/spraying the same area where this may alter the nutrient balance of the soil. Anything that is brought onto the farm or sent elsewhere for treatment will be treated as waste (Nottinghamshire County Council & Nottingham City Council, 2006, p. 2).

These new controls will mean that there is likely to be a need for new or expanded facilities able to take farm waste. In many cases it can be taken to a waste transfer station and then for recycling or disposal. However, more specialist wastes might require dedicated collection facilities or a site licensed for hazardous waste for example (Nottinghamshire County Council & Nottingham City Council, 2006, p. 3).

Hazardous Waste Regulations

The hazardous waste regulations applied to farmers from 15th May 2007. Hazardous waste is specifically defined in European law[10] because they possess one or more of the hazardous properties set out in the Hazardous Waste Directive.

Examples of farm wastes that are classified as hazardous include:

- Waste oil;
- Oily rags;
- Pesticides;
- Asbestos
- Lead acid batteries;
- Fluorescent light bulbs; and
- Some healthcare waste.

Hazardous waste must not be mixed with other hazardous wastes or with non-hazardous waste or other substances and materials. Hazardous wastes must be collected and disposed of separately, and are subject to the requirements of the Hazardous Waste Regulations (DEFRA, 2009, p. 89).

Different kinds of hazardous waste require different types of specialised facility to handle them. However, as tonnages across the Country are relatively small this has lead to a proportionally small number of facilities serving a wider market area[11].

The Animal By-Products Regulations (ABPR) 2005

The EC Regulation on animal by-products, Regulation (EC) No. 1774/2002 lays down health rules concerning animal by-products not intended for human consumption. In England, regulations for the administration and enforcement of the EC Regulation came into force on 1 July 2003 (SI 2003, No. 1482) and these Regulations extended the 1999 Animal By-Products Order and its 2001 amendment. The Regulations have since been replaced in England by 2005 Regulations (SI 2005, No. 2347) (Food Processing Knowledge Transfer Network and Resource Efficiency Knowledge Transfer Network, 2008, p. 8).

[10] the European Commission (the European Waste Catalogue 2002 (EWC), transposed into UK Law by the List of Waste (England) Regulations)

[11] Further details regarding hazardous waste in Worcestershire are set out in *Worcestershire Waste Core Strategy Background Document: Hazardous Waste.*

The Animal By-Product Regulations define three categories of waste, each having different disposal requirements for the collection, handling, transport and disposal of animal by-products, this include fallen stock (see Table 1).

Table 1: Summary of the categorisation of animal by-products according to the Animal By-Products Regulations

Category	Examples	Disposal routes
Category 1i	Very High Risk Material: • All body parts of animals infected or suspected of being infected by TSE • Animals containing residues of prohibited substances or environmental contaminants • Animals from experimental institutes • Specified risk material i.e. brain and spinal chord	• Incineration or thermal treatment followed by landfill of residues • Rendering followed by incineration followed by landfill of residues
Category 1ii	• Catering waste from transport operating internationally	In addition to options for Cat1i • Landfill at authorised sites with deep burial
Category 2	High Risk Material: • Diseased animals • Animals that die on farms from causes other than slaughter • Animal products containing residues of veterinary drugs exceeding permitted level • Manure and digestive tract content • Material from slaughterhouse wastewater treatment	• Incineration or thermal treatment followed by landfill of residues • Rendering followed by landfill or incineration • Rendering followed by anaerobic digestion or in-vessel composting • Manure can be land-spread or used in AD or composting without pre-treatment
Category 3i	Low Risk material fit, but not intended for, human consumption. • Parts of slaughtered animals fit for human consumption but not used for commercial reasons. • Raw meat & fish from retail and butcher shops • Raw meat-containing waste from food processing operations • Cooked meats from food processors or retailers • Fresh by-products from fish processing operations • Former foodstuffs; meat-containing products	• Incineration or thermal treatment followed by landfill of residues • Rendering followed by landfill • Incineration followed by landfill or residues • Anaerobic digestion or in-vessel composting (subject to meeting minimum requirements) followed by use as a soil enhancer • Appropriate use as pet food
Category 3ii	Catering Waste • Meat-containing (raw and cooked) wastes from food service operations • Meat-containing (raw and cooked) wastes from household and central kitchens	• Landfill • Treated as Category 3i for use in anaerobic digestion or in-vessel composting sites.

(Food Processing Knowledge Transfer Network and Resource Efficiency Knowledge Transfer Network, 2008, p. 9)

As a consequence of the ABPR farmers cannot generally burry fallen stock on-farm and it has to be disposed of at an approved facility or an approved on-farm incinerator.

The only exceptions to the ban relevant for Worcestershire are when:

- There is a disease outbreak (if there was a lack of capacity at rendering plants and incinerators, if transport of the carcases would spread disease) (NetRegs, 2008).

National Planning Policy

Planning Policy Guidance 2: Green Belts (PPG2)

PPG2 sets out the Government's policies on Green Belts, specifying the purpose and objectives of Green Belts, advising on how to define Green Belt boundaries and on safeguarding land for long-term development needs and finally it categories appropriate development on Green Belts.

The specific sections of PPG2 that relate to agriculture practices and subsequently agricultural waste are those that follow.

One of the specified objectives of the Green Belt is 'to retain land in agricultural, forestry and related uses' (ODPM, 2001a, Paragraph 1.6).

‘The general policies controlling development in the countryside apply with equal force in Green Belts but there is, in addition, a general presumption against inappropriate development within them’ (ODPM, 2001a, Paragraph 3.1).

‘The construction of new buildings inside a Green Belt is inappropriate unless it is for... agriculture and forestry ... and for other uses of land which preserve the openness of the Green Belt and which do not conflict with the purposes of including land in it’ (ODPM, 2001a, Paragraph 3.4).

'When any large-scale development or redevelopment of land occurs in the Green Belt (including mineral extraction, the tipping of waste, and road and other infrastructure developments or improvements), it should, so far as possible contribute to the achievement of the objectives for the use of land in Green Belts' (ODPM, 2001a, Paragraph 3.13).

Planning Policy Statement 7: Sustainable Development in Rural Areas (PPG7)

PPS 7 sets out the Government's policies and objectives for rural areas; this includes country towns, villages and undeveloped countryside up to the fringes of urban areas. Although PPS7 does not specifically refer to agricultural waste, it sets out a range of policies that refer to agricultural uses, in particular PPS7 recognises that diversification into non-agricultural activities is vital to the continuing viability of many farm enterprises (ODPM, 2004c, p. 16).

Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS10)

PPS10 sets out how planning should contribute to the delivery of sustainable waste management. The overall objective of Government policy on waste is to protect human health and the environment by producing less waste and by using it as a resource wherever possible, through more sustainable waste

management, moving the management of waste up the ‘waste hierarchy’ of reduction, reuse, recycling and composting and by using waste as a source of energy and only disposing as a last resort (ODPM, 2005, p. 5). Our interpretations of PPS10 is that the 'waste hierarchy' can be applied to that of agricultural waste, by reducing the amount of agricultural waste produced by reviewing current practices; reusing materials, such as using waste paper as animal bedding or using tyres on a silage clamp; recycling materials on farm such as composting spoiled crops at the farm where they were produced or sending farm plastics to be recycled at off-farm licensed sites; certain farm waste could be utilised in energy from waste plants such as the incinerating of veterinary wastes and biomass heating from fallen stock (animals) and spoiled crops; and finally disposal as a last measure.

Planning Policy Guidance 13: Transport (PPG13)

PPG13's objectives are to integrate planning and transport and to promote more sustainable transport choices both for transporting people and moving freight. Although PPG13 does not directly reference agricultural waste, it does refer to rural areas and diversification of agricultural businesses. It states that local authorities should encourage farm diversification proposals particularly, but not exclusively, where this enables access by public transport, walking and cycling. They should be realistic about the availability, or likely availability, of alternatives to access by car. Similarly, they should not reject proposals where small-scale business development or its expansion would give rise to only modest additional daily vehicle movements, in comparison to other uses that are permitted on the site, and the impact on minor roads would not be significant’ (ODPM, 2001b, Paragraph 43).

Planning for Renewable Energy: A Companion Guide to PPS22

PPS 22 and the Companion Guide are intended to encourage the use of renewable energy schemes in England. PPS22 sets out the policy content for action, although does not directly refer to agricultural waste, whereas the Companion Guide to PPS22 offers practical advice as to how these policies can be implemented on the ground and directly refers to agricultural waste, specifically in the use of Biomass heating and Anaerobic digestion.

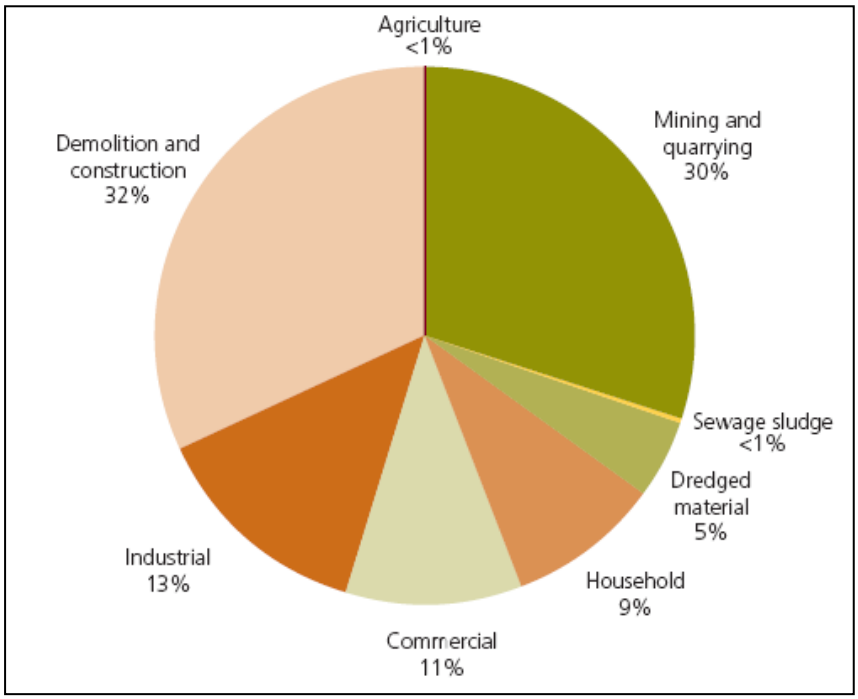
Waste Strategy for England 2007

The Government's key objectives are to decouple waste growth from economic growth, by encouraging prevention and re-use and to divert waste from landfill through investment in infrastructure, in order to get the most environmental benefit. The expected effect of the strategy is to reduce global greenhouse gas emissions from waste management.

The Waste Strategy for England outlines the intentions of the Government which are now a reality due to the Waste Management Regulations, to incorporate the management of agricultural waste with that of the management of other controlled waste streams. This has resulted in non-organic wastes being treated in a similar manner to other waste streams. The Waste Strategy for England 2007 also outlines the statutory producer responsibility scheme for non-packaging farm plastics, this places an obligations on producers to increase collection and recycling of waste farm plastics to target levels.

Figure 3 shows annual waste arisings in England broken down by sector, and illustrates that the total agricultural waste arising nationally are a very small proportion compared to the other waste streams.

Figure 3: Annual Waste Arising, England - by Sector
(DEFRA, 2007c, p. 24)



The Waste Strategy for England 2007 also encompasses an annex (C5) on agricultural waste. Annex C5 (of the Waste Strategy for England 2007) sets out a definition and rationale; arisings, trends and projections; management routes; policies and targets; implementation and timescales; roles and responsibilities; and finally infrastructure and capacity needs for agricultural waste.

The roles and responsibilities set out by the Waste Strategy for England 2007 are set out in Table 2:

Table 2: Roles and Responsibilities
(DEFRA, 2007a, p. 6)

Organisation/Stakeholder	Roles and Responsibilities
Agricultural sector, including farmers, growers and landowners	• Comply with legislation • Adopt and implement initiatives for waste reduction • Identify and participate in schemes for waste reduction and recovery • Provide accurate data on waste arisings as required
Waste management industry	• Expand and develop infrastructure and facilities for collection and treatment of agricultural wastes • Provide accurate data on waste collected and recycled, etc, as required
Central government departments	• Leadership, policy formulation, education, regulation and enforcement • Mobilisation of stakeholders
Local authorities	• Where appropriate, develop waste collection systems for agricultural waste producers, e.g. through collection systems
Producers of non-packaging farm plastics	• Comply with new producer responsibility regulations
EA	• Ensure compliance with the Regulations through inspections and advice

Regional Planning Policy

West Midlands Regional Spatial Strategy (January 2008) (RSS)

The RSS identifies agriculture as one of the most important activities for rural areas in the West Midlands as it has a strong inter-dependency with many other sectors.

In relation to agriculture the RSS encourages farm diversification, both agricultural and non-agricultural, as it believes this can add value to agriculture and supplement farm incomes. The specific policy of agriculture and farm diversification – Policy PA15 states:

'Development plans and other strategies should recognise the continuing importance of the agricultural sector in the Region. Development plans should include positive policies to promote agriculture and farm diversification through the development of innovative business schemes including sustainable tourism, environmentally sustainable farming, forestry and land management, new and innovative crops, on-farm processing adding value to existing production and the promotion of local marketing and supply chains. Any development should be appropriate in scale and nature to the environment and character of the locality' (GOWM, 2008, p. 63).

With particular regards to agricultural waste, the RSS refers to that of biomass, stating:

'Biomass – energy crops, forest management wastes and animal wastes – can be used mainly in rural areas and the urban fringe within both large installations

generating electricity for the National Grid and smaller ones providing electricity or heat for local use' (GOWM, 2008, p. 85).

The RSS supports the use of biomass from agricultural waste, and views it as one of a variety of methods that can contribute towards the achievement of the national energy target – 10% of electricity produced from renewable energy by 2010, with an aspiration to double renewables' share of electricity between 2010 and 2020. Biomass is also seen as a potential method of diversifying the agricultural base and providing rural employment, thus supporting a rural renaissance (GOWM, 2008, p. 85).

The Emerging West Midlands Regional Spatial Strategy (RSS Phase Two Revision)

The RSS phase two revision again identifies agriculture as one of the most important activities for rural areas in the West Midlands and supports farm diversification in both agricultural and non-agricultural activities. The government has stated that the revision itself will not be adopted. The background evidence however is still valid.

In relation to waste the emerging RSS phase two revision takes the stance that given current concerns about sustainability and climate change the importance of considering waste as a resource at every level of the hierarchy cannot be over emphasised.

It is both national and regional policy that provision will need to be made in LDDs for sufficient land to provide facilities to manage waste. In some cases this may involve identifying specific sites which are suitable for particular waste management facilities, but more frequently it will be a case of identifying which particular industrial areas are suitable for waste management facilities, provided that they meet a range of environmental and amenity criteria and have good transport connections, and ensuring sufficient land is available on a range of sites of different sizes and locations, either within or on the edge of settlements, or at a distance from sensitive receptors. The RSS phase two revision then identifies redundant agricultural or forestry buildings and their cartilage as appropriate location for waste facilities (WMRA, 2007a, p. 152).

The RSS phase two revision notes that the management of waste in rural areas can pose particular problems due to the dispersed nature of settlements. This will be exacerbated by the increase in the quantity of controlled waste that will arise due to the reclassification of agricultural waste as controlled waste meaning much of it will now need to be managed at licensed facilities (WMRA, 2007a, p. 153).

The RSS phase two revision goes on to state that all Waste Planning Authorities outside the Major Urban Areas should identify sites for the treatment and management of waste arising from areas of low population and scattered communities and for facilities which need to be at a distance from 'sensitive receptors'. Additional sustainable waste management capacity in rural areas for waste recovery or recycling should be based on:

- Effective protection of amenity and the environment and the proposed activity being appropriate to the area proposed.

- Businesses, including agricultural undertakings, should adopt sustainable waste management practices, and where relevant, best agricultural practice, with regard to their waste arisings (WMRA, 2007a, p154).

Finally the RSS phase two revision states that waste management facilities should only be permitted on open land, including land within the greenbelt:

- Where they are close to the communities producing the waste;
- Where there are no preferable alternative sites;
- Where it would not harm the openness of land, or the objectives of greenbelt; and
- Where it can be demonstrated to be necessary to support an existing essential activity and to facilitate other key development, would assist in agricultural diversification or would not adversely affect the biodiversity and geodiversity value of the area (WMRA, 200a, p. 154).

Arising, Trends and Projections

National Waste Arisings

According to the Waste Strategy for England 2007 the total amount of waste arisings in England is that of 273 million tpa (DEFRA, 2007c, p. 24) of this, agricultural waste accounts for less than 1%. The total non-natural agricultural waste arising in England is estimated to be 264,854 tonnes in 2003, Table 3 breaks down agricultural waste into the different waste streams. The largest waste stream was that of pesticides accounting for 88,697 tonnes and non-packaging plastics totalling 60,600. The lowest was that of animal health products accounting for 1,769 tonnes. These figures do not include scrap metal or building waste due to the difficulties of collecting this data. However, it is estimated that these two waste streams would account for less than 80,000 tonnes per annum.

Table 3: Estimated National Agricultural Waste Arisings, 2003 (DEFRA, 2007a, p. 2)

Waste Stream	(Tonnes)
Plastic Packaging	25,200
Paper and card packaging	7,800
Non-packaging plastics	60,600
Animal health products	1,760
Oil	21,401
Sheep dip	45,906
Pesticides	88,697
Milk	13,490
Total non natural agricultural waste	**264,854**
Total plastic waste	**85,800**
Total packaging waste	**33,000**

Figure 4 and

illustrate the composition of agricultural packaging plastic waste and agricultural non-packaging plastic waste in 2003.

Figure 4: Composition of Agricultural Packaging Plastics Waste England (2003)
(DEFRA, 2007a, p. 3)

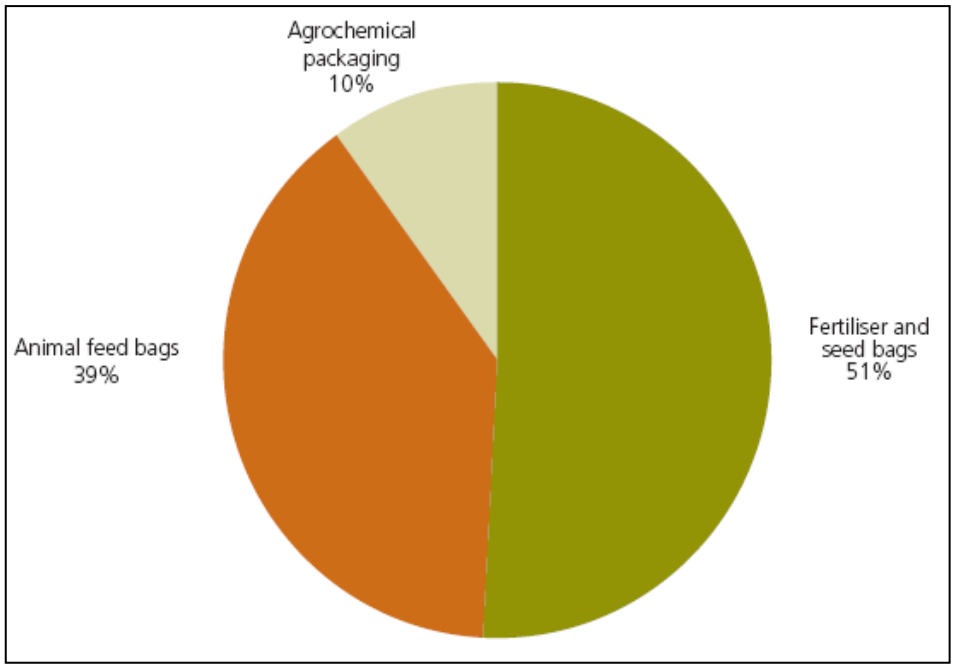
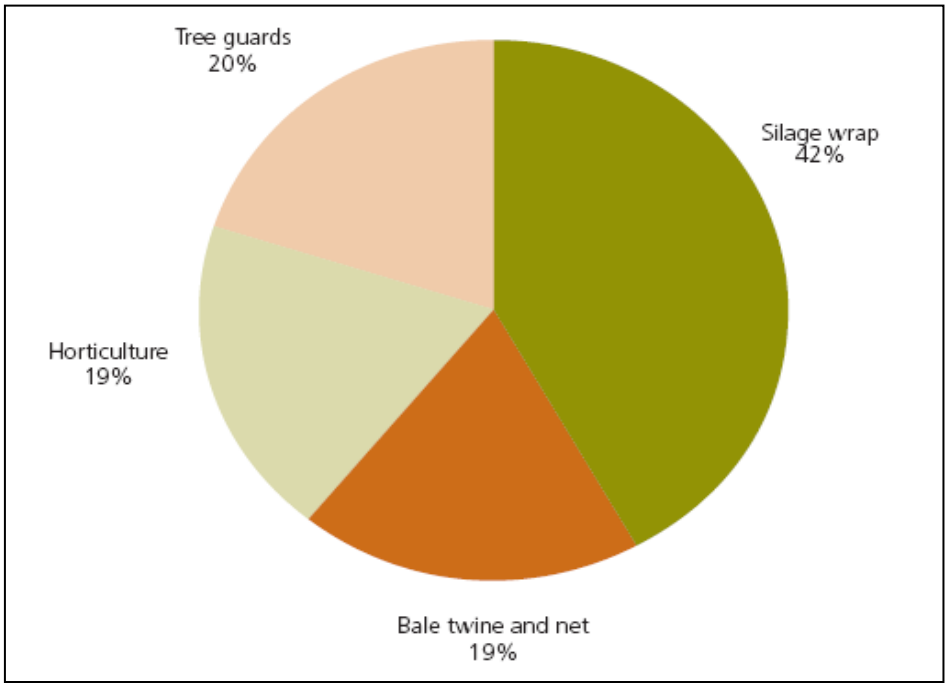


Figure 5: Composition of Agricultural Non-Packaging Plastic Waste, England (2003)
(DEFRA, 2007a, p. 3)



Farm plastic is estimated to account for 32% of the total non-natural agricultural waste produced on farms in England each year. Of this plastic waste, 76% is non-packaging plastic such as silage wrap, crop covers and tree guards (DEFRA, 2007a, p. 2) and until the Waste Management (England and Wales) Regulations 2006 came in to force, it was estimated that only about 20% of farm plastics were collected for recovery (DEFRA, 2007a, p. 4).

A potential issue with farm plastic waste is that it can be bulky and dirty, making management very difficult and costly. For example, contamination levels on waste silage film can be as high as 80%, which can dramatically increase the costs associated with reprocessing and transportation. Contamination comes in various forms: water and inorganic matter are found in the highest proportions. These have no value to the recycler and add to the cost of recycling in terms of the weight of plastic to be transported and for certain pre-treatments. A significant number of recyclers are wary of taking this material simply because of the contamination levels and the knock-on effect this has on the cost of recycling (EA, 2005, p. 41). Those recyclers who do take agricultural waste plastics as a feedstock are often only able to make a lower grade product (for example wood substitutes). This is because contaminants affect the properties of the finished product (EA, 2005, p. 41).

However, it is possible to influence the levels of contamination on waste plastics by raising the awareness of farmers and growers. If recyclers were to set their own criteria for waste plastic and provide guidance to suppliers, contamination levels might be controlled to an acceptable level (EA, 2005, p. 41).

The Agricultural Waste Plastics Collection and Recovery Programme is a positive move to help tackle these issues, with the provision of good practice guidance and key contacts for both farmers and collection companies alike (Agricultural Waste Plastics Collection & Recovery Programme, 2006).

West Midlands Waste Arisings

The West Midlands as a region produced 24.3 million tonnes of waste in 2002-2003, although not all of this was managed in the region, of this, 24% was from agriculture (WMRA, 2007b, p. 5). Consequently this would equate to about 5.9 million tonnes of agricultural waste in 2003. The EA suggest that this is a decrease of around 13% between 1998 and 2003. According to WMRA around 97% of this was manure, slurry and straw (WMRA, 2007b, p. 41), however most of this is not 'waste' in the sense of having no useful purpose and requiring final disposal. Much of this has a significant further value and is recycled within the farm or purchased by other farmers (West Midlands Regional Waste Planning Technical Group, 2001). There were also 335,000 tonnes of other agricultural wastes, including silage effluent and milk; 68,000 tonnes was difficult and chemical waste; apart from slurries, there were some 70,000 tonnes of liquid waste, mainly silage effluent, pesticide washings, sheep dip and oil from vehicles and machinery. The West Midlands also produced more than 9,000 tonnes of agricultural plastics (WMRA, 2007b, p. 41). Furthermore, it is estimated that 11,600 tonnes of animal carcass waste arise in the West Midlands each year (WMRA, 2005, p. 6).

It is estimated that 95% of agricultural waste arisings are compostable. In the West Midlands this amounts to 5,647,752 tonnes (WMRA, 2005, p. 51). Approximately 90% of on-farm composting sites process less than 1,500tpa, with an average site size of around 740tpa. The remaining 10% of on-farm sites have an average throughput of 3,800tpa (WMRA, 2005, p. 56)[12].

Estimating the amount of non-natural agricultural wastes that arise in the West Midlands has proved difficult due to the poor quality of data available. However, from recent agricultural waste data provided by the EA for 2002/03 it is estimated that 37,100 tonnes of non-natural agricultural waste arose in the West Midlands in 2002-2003 (WMRA, 2005, p. 6) (see Table 4).

Table 4: Overview of Agricultural Waste and By-Products
(WMRA, 2005, p. 51) (For more details see Annex 1 of this background document)

Waste/By-Product	West Midlands (2003)	% England (2003)	West Midlands (1998)
Compostable & Digestible Sub total	5,647,752	13	6,518,066
Natural	5,647,752		6,518,066
Non-Natural	0		0
Combustible Sub total	169,487	9	185,384
Natural	156,805		177,139
Non-Natural	12,683		8,245
Different & Chemical Sub total	67,977	9	69,778
Natural	45,590		52,162
Non-Natural	22,387		17,616
Other including milk, sub total	1,992	15	2,308
Total	**5,887,208**	**13**	**6,775,536**

[12] Further details are set out in *Worcestershire Waste Core Strategy Background Document: Resource Recovery from Biodegradable Waste: Composting and Anaerobic Digestion.*

Although the Waste Management Regulation 2006 may encourage waste minimisation practices there is still likely to be a need for some landfill capacity to deal with non-natural agricultural waste. Based on 37,100tpa of agricultural waste produced in the West Midlands the RSS calculates a worst case estimated for the amount of additional landfill required for up to 2020 as 555,000m^3 (WMRA, 2005, p. 52).

Worcestershire Waste Arisings

Agriculture dominates the use of land in Worcestershire, its appearance and the quality of much of the environment. A large proportion of the County is in productive agricultural use, most distinctively horticulture, particularly orchards and market gardening. Cash crops are also important in the Vale of Evesham, terraces of the Severn and sandstones of the north of the County. Mixed farming is typical of most of the rest of the County.

Table 5: Agricultural Survey of Worcestershire – Showing the number of hectares being used for agricultural uses
DEFRA (2003)

District	No. Of Holdings	Hectares or No.
Bromsgrove	453	13,599.4
Malvern Hills	1,232	46,158.8
Redditch	70	2,081.0
Worcester	15	369.6
Wychavon	1,320	51,881.0
Wyre Forest	415	10,994.4
Total	**3,505**	**125,084.20**

Table 5 illustrates the total number of farms and farmland in hectares in Worcestershire by District. Wychavon and Malvern Hills Districts clearly have the highest number of farms and hectares of farmland, accounting for 73% of all the farms and 78% of all the farmland within the County. The District of Worcester City has the lowest number of farms at only 15 covering only 369.6 hectares. Table 7, below, illustrates the total quantity of non-natural agricultural waste estimated for the West Midlands region was approximately 37,100 tonnes in 2003. The figures given are only simple estimates but do demonstrate the potential variation in arising between the West Midlands sub-regions.

Table 6: Sub-regional estimate of non-natural waste arising, (in tonnes)
(WMRA, 2005, p. 52)

Sub-Region	Waste (tonnes)
Herefordshire	10,388
Shropshire	12,985

Staffordshire	5,936
Warwickshire	3,896
West Midlands Metropolitan	519
Worcestershire	3,487
Total	**37,100**

The figures within Table 6 do not include wastes such as scrap metal and tyres that are reported as stockpiled on farms (WMRA, 2005, p. 52). There is no evidence that these are likely to be high. The total of all identified agricultural waste in Worcestershire is relatively low at 3,487 tonnes, particularly compared to that of Shropshire at 12,985 tonnes, with Worcestershire's non-natural agricultural waste arisings being the second lowest after the Metropolitan area within the West Midlands.

Appendix 2 of this background document illustrates the agricultural waste arisings that are processed off-farm by licensed waste sites in Worcestershire according to the EA (2007a). The highest processor of non-natural agricultural waste within the County according to these figures is that of Maile Skips which is located within the predominantly rural District of Malvern Hills, processing 37.10 tonnes of agricultural waste per year. The total overall tonnage of non-natural agricultural waste according to the EA (2007a) is very low at only 60.34 tonnes, which would suggest that large amounts of non-natural agricultural waste in Worcestershire is not accounted for by the EA's Waste Data Interrogator 2007, this may be because the waste is processed/treated on-farm, stored on-farm, taken out of the County or the waste is processed/treated by licensed waste sites that have relevant exemptions.

As the estimated total of non-natural agricultural waste arisings for the County are only 3,487tpa compared to that of Commercial and Industrial waste arisings which are estimated between 568,000 and 755,000tpa, it is considered that the total of non-natural agricultural waste that needs to be processed within the County is so small in volume that it is unlikely to affect the overall approach of the WCS. Nevertheless, as a result of tighter control on agricultural waste due the Waste Management Regulations, resulting in agricultural waste becoming a controlled waste stream. This is likely to have resulted in an increase in the amount of non-natural agricultural waste that needs to be processed. This will not be reflected in the 2003 figures, and consequently, there is likely to be a need for new or expanded facilities able to take non-natural agricultural waste.

Projections

The 2003 estimated non-natural agricultural waste arisings for the County were 3,487tpa. We intend to project this at the same rate as the National Waste Strategy 2007 does for industrial waste, which is essential zero growth per year. This is because we believe that the composition of agricultural waste is more like industrial waste than commercial waste. It is difficult to predict agricultural change

but we believe there may well be a continued trend towards larger, more efficient farms, at the same time there will be more pressure to reduce the amount of waste produce. We believe therefore that zero percent growth in agricultural waste is the most likely figure.

Options for Making Provision

The LDF can make provisions for facilities to handle agricultural waste in three ways:

1. **Identifying specific sites**. Locations for sites could be set out in the Waste Core Strategy for Worcestershire and any subsequent Site Allocations Waste Development Plan Document.

2. **Identifying broad locations for sites**. Broad locations for sites could be set out in the Waste Core Strategy for Worcestershire and any subsequent Site Allocations Waste Development Plan Document.

3. **Criteria based approach**. As it is Government policy for Local Authorities not to produce a set of use related development control/management policies. This criteria based approach would be to produce a broad set of topic related policies (for example, policies related to landscape or transport issues) against which proposals would be judged against.

Via one of these three methods or a combination of these methods the LDF could encourage a series of large central waste sites; however this option seems unrealistic given the nature of agricultural waste: small volume, seasonal variation[13] and possible contamination resulting in poorer grade products.

A more feasible option may be to encourage the provision for wide spread very small scale waste facilities to process non-natural agricultural waste for onward transfer to larger waste sites (a rural waste transfer station). Given that agricultural premises are usually located in rural and remote areas. This type of approach would support the proximity principle which advocates that waste should be managed close to the point at which it is generated, thus championing sustainability by reducing travelling distances. However, there may be an issue of economies of scale, as very small sites may not be economic.

Conclusions

The Waste Management (England and Wales) Regulations 2006 and Hazardous Waste (England and Wales) Regulations 2005 have been amended to include non-natural agricultural waste. This has imposed tighter controls on agriculture waste bringing it in line with commercial and industrial waste; consequently all objects that are discarded from agricultural premises are subject to control as waste.

[13] Different types of farm waste and volumes will be produced throughout the year for example, horticultural film is removed from crops in early June, packaging waste from agrochemical containers is produced in spring and autumn and feed bags are produced as waste all year round but production peaks during the winter livestock-housing period (Environment Agency, 2005, p. 38).

As a result there are five management options for farmers:

- Store the waste on site (for up to twelve months).
- Take the waste to a licensed site.
- Transfer the waste to a waste company.
- Register an appropriate licensing exemption.
- Apply for a waste management licence or permit.

The Waste Management Regulations 2006 are likely to have resulted in an increase in the amount of non-natural agricultural waste that needs to be processed. Consequently, there is likely to be a need for new or expanded facilities able to take non-natural agricultural waste.

Information on the quantity of agricultural waste in Worcestershire is limited, but it is estimated that the total of non-natural agricultural waste arisings in 2003 were only 3,487tpa (WMRA, 2005, p. 52). As a result it is considered that the total of non-natural agricultural waste that needs to be processed within the County is so small in volume that it is unlikely to affect the overall approach of the WCS but will nevertheless need to be managed properly and be taken into account to ensure that future policies are flexible enough to respond to any change in circumstances.

The LDF can make provisions for facilities to handle agricultural waste in three ways:

1. Identifying specific sites
2. Identifying broad locations for sites
3. Criteria based approach

Via one of these three methods or a combination of these methods the LDF could encourage a series of a series of central hubs or a wider spread of very small scale local facilities to manage agricultural waste. It is considered that the latter of the two options (wider spread of very small scale sites) may be more appropriate due to the nature of agricultural waste. However, any provision of waste facilities in rural areas needs to ensure that it is appropriate to its surroundings in terms of their type, scale and character.

Bibliography

ADAS UK Ltd (2007) *Guidance on Using a Lined Biobed to Dispose of Agricultural Waste Consisting of Non-Hazardous Pesticide Solutions or Washings (Exemption 52)*, Environment Agency (EA), Bristol, http://publications.environment-agency.gov.uk/pdf/GEHO0407BMNS-e-e.pdf [Accessed 12.08.2009]

Agricultural Waste Plastics Collection & Recovery Programme (2006) *About Agricultural Waste Plastics*, http://www.agwasteplastics.org.uk/agri/about.html [Accessed 30.07.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2003) *The June Agricultural Survey, Data Search – Government Office Region to Ward 2003*, Crown Copyright, York, http://farmstats.DEFRA.gov.uk/cs/farmstats_data/DATA/nuts_data/nuts_query.asp?type=4&disp=name&submit=Go+to+next+step [Accessed 27.07.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2004) *Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes*, DEFRA, London, http://www.DEFRA.gov.uk/Environment/waste/research/pdf/health-report.pdf [Accessed 11.08.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2006) *Saving Money by Reducing Waste, Waste Minimisation Manual: A Practical Guide for Farmers and Growers*, DEFRA, London, http://www.DEFRA.gov.uk/ENVIRONMENT/waste/topics/agwaste/documents/waste-minimisation.pdf [Accessed 28.07.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2007a) *Waste Strategy for England 2007*, *Annex C5: Agricultural Waste*, Her Majesty's Stationary Office, Norwich, http://www.DEFRA.gov.uk/ENVIRONMENT/waste/strategy/strategy07/pdf/waste07-annex-c5.pdf [Accessed 27.07.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2007b) *The Waste Management (England and Wales) Regulations 2006 (S.I. 2006 No. 937) "The Agricultural Waste Regulations" Frequently Asked Questions and Answers*, DEFRA, London, http://www.DEFRA.gov.uk/environment/waste/topics/agwaste/documents/agwaste-faq.pdf [Accessed 28.07.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2007c) *Waste Strategy for England 2007*, Her Majesty's Stationary Office, Norwich, http://www.DEFRA.gov.uk/ENVIRONMENT/waste/strategy/strategy07/pdf/waste07-strategy.pdf [Accessed 10.08.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2007d) *UK Biomass Strategy*, DEFRA, London,

http://www.defra.gov.uk/environment/climatechange/uk/energy/renewablefuel/pdf/ukbiomassstrategy-0507.pdf [Accessed 14.08.2009]

Department for Environment, Food and Rural Affairs (DEFRA) (2009) *Anaerobic Digestion – Shared Goals*, DEFRA, London, http://www.DEFRA.gov.uk/ENVIRONMENT/WASTE/ad/pdf/ad-sharedgoals-090217.pdf [Accessed 11.08.2009]

Environment Agency (2003) *Agricultural Waste Survey 2003: A Study of the Management of Non-Agricultural Waste on Farms*, Environment Agency, Bristol, http://www.agwasteplastics.org.uk/media_files/useful_docs/agricultural_waste_survey_2003.pdf [Accessed 29.07.2009]

Environment Agency (EA) (2005) *Changing Attitudes to Waste, Recycling Agricultural Waste Plastic, Grow a Greener Business*, Environment Agency, Bristol, http://www.environment-agency.gov.uk/static/documents/Business/adas_recy_farmplastic_1325234.pdf [Accessed 29.07.2009]

Environment Agency (EA) (2007a) *Waste Data Interrogator (2007)*, Environment Agency, Bristol

Environment Agency (EA) (2007b) Exemption Registration for Agricultural Waste: Frequently Asked Question, Environment Agency, Bristol http://www.environment-agency.gov.uk/static/documents/Business/faqs_ag_1785773.pdf [Accessed 12.08.2009]

Environment Agency (EA) (2009) *Exemptions*, Environment Agency, Bristol, http://www.environment-agency.gov.uk/business/sectors/40051.aspx [Accessed 29.09.2009]

Food Processing Knowledge Transfer Network and Resource Efficiency Knowledge Transfer Network (2008) *Animal By-Product Regulations – Impact on the Food Industry*, C-Tech Innovation Ltd, Chester, http://ktn.globalwatchonline.com/epicentric_portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/FOP/Public/Reports/Animal%2520By%2520Products%2520Report.pdf [Accessed 11.08.2009]

Government Office for the West Midlands (GOWM) (2008) *Regional Spatial Strategy for the West Midlands*, The Stationery Office (TSO), London, http://www.wmra.gov.uk/documents/RSS%20Full%20Doc%20Jan%2008.pdf [Accessed 11.08.2009]

NetRegs (2008) *Clear Advise on Environmental Regulations*, NetRegs, Bristol, http://farmwaste.netregs.gov.uk/138.aspx [Accessed 30.07.2009]

Nottinghamshire County Council & Nottingham City Council (2006) *Issues and Options What do you think? Background Paper 10: Other Wastes*, Nottinghamshire County Council & Nottingham City Council, Nottingham, http://www.nottinghamshire.gov.uk/wastecorestrategybackgroundpaper10.pdf [Accessed 27.07.2009]

Office of Public Sector Information (OPSI) (1990) *The Town and Country Planning Act 1990*, The Stationary Office (TSO), London, http://www.opsi.gov.uk/Acts/acts1990/ukpga_19900008_en_26 [Accessed 11.08.2009]

Office of the Deputy Prime Minister (ODPM) (2001a) *Planning Policy Guidance 2: Green Belts*, The Stationary Office (TSO), London, http://www.communities.gov.uk/documents/planningandbuilding/pdf/155499.pdf [Accessed 04.08.2009]

Office of the Deputy Prime Minister (ODPM) (2001b) *Planning Policy Guidance 13: Transport,* The Stationery Office (TSO), Norwich, http://www.communities.gov.uk/documents/planningandbuilding/pdf/155634.pdf [Accessed 10.08.2009]

Office of the Deputy Prime Minister (ODPM) (2004a) *Planning for Waste Management Facilities: A Research Study*, ODPM, London, http://www.communities.gov.uk/documents/planningandbuilding/pdf/148385.pdf [Accessed 11.08.2009]

Office of the Deputy Prime Minister (ODPM) (2004b) *Planning for Renewable Energy: A Companion Guide to PPS 22*, Her Majesty's Stationery Office, Norwich, http://www.communities.gov.uk/documents/planningandbuilding/pdf/147447.pdf [Accessed 10.08.2009]

Office of the Deputy Prime Minister (ODPM) (2004c) *Planning Policy Statement 7: Sustainable Development in Rural Areas*, Her Majesty's Stationery Office, Norwich, http://www.communities.gov.uk/documents/planningandbuilding/pdf/147402.pdf [Accessed 10.08.2009]

Office of the Deputy Prime Minister (ODPM) (2005) *Planning Policy Statement 10: Planning for Sustainable Waste Management*, Her Majesty's Stationery Office, Norwich, http://www.communities.gov.uk/documents/planningandbuilding/pdf/147411.pdf [Accessed 10.08.2009]

Planning Portal (2008) *Permitted Development Overview*, Planning Portal, http://www.planningportal.gov.uk/england/genpub/en/1115315495577.html [Accessed 14.08.2009]

The Town and Country Planning (General Permitted Development) Order 1995 (as amended) (SI 1995/418), TSO, London, http://www.opsi.gov.uk/si/si1995/Uksi_19950418_en_1.htm [Accessed 06.08.2009]

West Midlands Regional Assembly (WMRA) (2005) *Waste Scenarios Study*, WMRA, Birmingham, http://www.wmra.gov.uk/documents/Environment%20and%20Waste/Waste/Phas

e%202%20-%20Final%20Waste%20Report%20p1-70%20CAVEAT.pdf [Accessed 30.07.2009]

West Midlands Regional Assembly (WMRA) (2007a) West Midlands Regional Spatial Strategy Phase Two – Draft Preferred Options December 2007, WMRA, Birmingham, http://www.wmra.gov.uk/Planning_and_Regional_Spatial_Strategy/RSS_Revision/RSS_Revision_Phase_2/RSS_Revision_Phase_2.aspx [Accessed 14.08.2009]

West Midlands Regional Assembly (WMRA) (2007b) *West Midlands Regional Spatial Strategy Phase Two, Waste Background Paper*, WMRA, Birmingham, http://www.wmra.gov.uk/documents/WMRSS%20Preferred%20Option%20Waste%20Background%20Paper.pdf [Accessed 30.07.2009]

West Midlands Regional Waste Planning Technical Group (2001) *Draft West Midlands Regional Waste Planning Strategy, West Midlands Regional Waste Planning Technical Group*, Birmingham, http://www.wmra.gov.uk/documents/Environment%20and%20Waste/Waste/Env%20-%20draft%20Regional%20Waste%20Strategy%20-%20Nov%2001%20Text%20_2_.pdf [Accessed 13.08.2009]

Glossary

Anaerobic digestion (AD)	A biological process in which biodegradable organic waste is broken down by bacteria in the absence of air.
Biodegradable Waste	Waste which can be decomposed by bacteria or other organisms.
Biomass	This is derived from energy crops (such as short rotation coppice and miscanthus), forestry manures and slurries, and organic waste such as food waste. It can be used to generate electricity and or heat and to produce transport fuel. Such energy is known as bioenergy (DEFRA, 2007d, p. 47)
Composting	A biological process in which micro-organisms work in the presence of air to convert biodegradable organic matter into a stabilised residue known as compost.
Farm Diversification	Engaging in new and different economic activity to support existing agricultural businesses and farm incomes, and to make use of surplus land or buildings (GOWM, 2008, p. 147).
Permitted Development	Permitted development is development that can be undertaken without the need for a planning application to be submitted to the local planning authority (Planning Portal, 2008).
Slurry	(a) Excreta produced by livestock whilst in a yard or building; or (b) a mixture consisting wholly or mainly of such excreta, bedding, rainwater and washings from a building or yard used by livestock or any combination of these of a consistency that allows it to be pumped or discharged by gravity at any stage in the handling process (Environment Agency, 2007b, p. 12).
Windrow Composting	Shredded and mixed biodegradable organic waste is formed into elongated piles called 'windrows'.

List of Acronyms

ABPR	Animal By-Products Regulation
AD	Anaerobic Digestion
CLG	Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
GOWM	Government Office for the West Midlands
GPDO	General Permitted Development Order
LDD	Local Development Document
LDF	Local Development Framework
OPSI	Office of Public Sector Information
ODPM	Office of the Deputy Prime Minster
RSS	(West Midlands) Regional Spatial Strategy
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
WCS	Waste Core Strategy

Appendix 1: Environment Agency Estimates of Agricultural Waste and By-Products – West Midlands (2002/2003)

Table 7: Agricultural Waste and By-Products - West Midlands (tonnes) (WMRA, 2005, Appendix 4)

Waste/By-Product	West Midlands (2003)	% England	West Midlands (1998)
Compostable & Digestable			
Farm yard manure	3,218,600	13	3,666,706
Slurry	2,332,811	13	2,727,586
Vegetable	96,341	13	123,774
Sub total	**5,647,752**	**13**	**6,518,066**
Combustible			
Straw (unbaled)	156,805	9	177,139
Silage wrap (plastic)	3,543	14	1,784
Bale twine and net (plastic)	1,155	10	829
Fertiliser & seed bags (plastic)	1,387	11	1,027
Animal feed bags (plastic)	1,304	13	854
Animal feed bags (paper & card)	799	13	503
Horticulture (plastic)	911	8	191
Tree guards (plastic)	1,039	9	617
Paper seed bags (paper & card)	169	9	278
Oil	2,375	11	2,162
Sub total	**169,487**	**9**	**185,384**
Different Chemicals			
Silage effluent	45,590	7	52,162
Agrochemical (plastic)	225	9	199
Agrochemicals (paper & card)	150	9	134
Animal health (plastics)	87	12	52
Animal health (paper & card)	29	12	17
Animal health glass	87	12	51
Animal health rubber/metal	1	12	1
Pesticide washings	15,022	17	8,857
Sheep dip – organic phosphates	4,834	15	5,919
Sheep dip – synthetic pyrethroids	1,950	15	2,386
Sub total	**67,977**	**9**	**69,778**
Other			
Milk	1,992	15	2,308
Sub total	**1,992**	**15**	**2,308**
Total	**5,887,208**	**13**	**6,775,536**

Key (to Annex 1)

1. These data are rounded to the nearest whole number; dashes indicate 0 values; totals are correct but because of rounding errors may not always be equal the sum of entries in the column.
2. Data may not be comparable with 1998 data as it includes seed trays, pots and films.
3. Figure for slurry originally in m^3, conversion factor 0.994 used.
4. Some calculations not possible because of suppressed data (suppressed to prevent disclosure of information about individual holdings), figures assumed to be 0.

Appendix 2: The Total Amount of Agricultural Waste Processed Off-Farm in Worcestershire (2007)[14]

Table 8: Total Amount of Agricultural Waste Processed Off-Farm in Worcestershire (2007)

Site Name	Form	EWC Sub Chapter	EWC Waste Desc	Facility Type	Tonnes Input
Augean Treatment	Liquid	Agriculture, horticulture, aquaculture, forestry, hunting & fishing	Agrochemical waste containing dangerous substances	Hazardous Transfer	0.04
Augean Treatment	Solid	Agriculture, horticulture, aquaculture, forestry, hunting & fishing	Agrochemical waste containing dangerous substances	Hazardous Transfer	0.21
Augean Treatment	Liquid	Fruit, vegetables, cereals, edible oils, cocoa, coffee, tea & tobacco preparation & processing; conserve production; yeast & yeast extract production, molasses preparation and fermentation	Materials unsuitable for consumption or processing	Physical Treatment	1.90
Augean Treatment	Solid	Production of alcoholic and non-alcoholic beverages (except coffee - tea and cocoa)	Materials unsuitable for consumption or processing	Physical Treatment	1.00
Maile Skips	Solid	Agriculture, horticulture, aquaculture, forestry, hunting & fishing	Animal faeces, urine and manure, effluent	Non-Hazardous Transfer	37.19
The Nathan	Solid	Agriculture, horticulture, aquaculture, forestry, hunting & fishing	Wastes not otherwise specified	Non-Hazardous Transfer	20.00
Total					**60.34**

(Environment Agency, 2007a)

[14] H T Waste is included by the EA Waste Data Interrogator 2007 as being located in Worcestershire, handling 371.00 tonnes a year of fruit and fruit, vegetables, cereals etc, but this site is located just outside Worcestershire in Gloucestershire and so is not included within table 6. However it must be noted that about 40% of all the waste HT Waste handles is from Worcestershire.

Appendix 3: Worcestershire Waste Core Strategy Background Documents

To help provide a robust evidence base for the Waste Core Strategy the Council has prepared a series of background documents. These outline current thinking and have informed the approach taken to date in the development of the waste core strategy. All of these background documents are *living document* and are in a state of development and comments are invited on all available documents during the consultation period.

Key Themes

- *Towards a Vision Statement*: sets out the vision which is driving the Waste Core Strategy and details how it has evolved through consultation process.

- *Spatial Portrait:* provides additional detail to the spatial portrait set out in this consultation. It includes a description of the County and the local factors that need to be taken into account in developing the Waste Core Strategy.

- *Spatial Strategy:* Set out how the Spatial Strategy for the WCS has been developed

- *Arisings and capacity gap:* considers waste arisings in Worcestershire and makes projections about future arisings, treatment capacity and the need for facilities.

- *Monitoring Baseline*: Establishes the baseline for indicators set out in the WCS monitoring schedule and makes recommendations for those indicators that are not currently monitored

- *Identifying 'areas of search'*: sets out the approach to identifying locations suitable for waste management development, termed 'areas of search' and details all of the alternatives methods considered. It lists all potential locations assessed and details why they were, or were not, considered suitable for waste management development. This document has been informed by *ERM Industrial Estate Report.*

- *Climate Change:* is intended to form a basis for addressing climate change issues in the Waste Core Strategy. It considers mitigation through the reduction of greenhouse gas emissions, energy demands and the adaptation of waste management facilities to climate change.

- *Links with Districts & Neighbouring Local Authorities Plans and Strategies:* identifies the aspects of the guidance 'Creating Strong, Safe and Prosperous Communities' which are relevant to the production of the Waste Core Strategy. As a result of the guidance, this paper goes on to examine the links to waste in Worcestershire's Districts and neighbouring Local Authorities plans and

strategies. It also evaluates what these links mean for the Waste Core Strategy.

- *Waste Sites in Worcestershire:* details existing waste management operations in Worcestershire and analysis of the relationship between size and throughput. In order to gain this information, the majority of known waste sites in the County were visited between September 2008 and July 2009. During these visits operators were asked about any issues currently faced, any future changes anticipated, these meetings are summarised in the report.

- *Inland Waterways:* The document was developed in response to consultation comments received on behalf of British Waterways regarding the Worcestershire County Council Waste Core Strategy: Refreshed Issues & Options Consultation. It sets out the policy context relating to Inland Waterways in Worcestershire.

- *Waste Freight by Rail:* considers the potential for movements of waste by rail in Worcestershire.

Waste Streams

- *Municipal Waste:* sets out the national and local policy context. It also includes details of the waste arisings and available capacity for treatment of municipal waste within the County.

- *Commercial and Industrial Waste:* sets out the national and local policy context. It also includes details of the waste arisings and available capacity for treatment of municipal waste within the County.

- *Construction and Demolition Waste:* sets out the national and local policy context. It also includes details of the waste arisings and available capacity for treatment of municipal waste within the County.

- *Agricultural Waste:* considers waste arising from agricultural activities in Worcestershire. It examines what agricultural waste is, how it is treated and explores the planning permitted development rights. and identifies the potential options for making provision through the Waste Core Strategy.

- *Hazardous Waste:* The document considers hazardous waste arising in Worcestershire. It includes information relating to hazardous waste in a national and regional policy context and includes details of the demand and available capacity for the treatment of hazardous waste within the County.

- *Waste Arisings from Healthcare and Related Activities - Clinical Waste and Low Level Radioactive Waste:* considers waste arising from health care and related activities, focusing on Clinical waste; and Non-nuclear low level radioactive waste. It includes information relating to clinical waste and non-nuclear low level radioactive waste in a policy context. It also includes details of the demand and available capacity for treatment of clinical and non-nuclear low level radioactive waste within the County.

Annex I considers low level radioactive waste from the nuclear industry in more detail, however it is not felt to be a significant issue in the County and is, therefore, not considered in the main body of the report.

Management Facilities

- *Types of Facilities:* is intended to be a simple guide that gives an overview of the processes that tend to happen at a range of different facilities and lists the things that might need to be thought about when deciding where a facility would be best situated. It also sets out some of the possible impacts and benefits of each type of facility.

- *Landfill* includes background data and considers issues around types of landfill and the policy context. It also details of the demand and available capacity for landfill within the County, based on EA data and the Council's own research.

- *Metal Recycling Sites:* considers all sites in Worcestershire involved in the recycling of metal, this includes sites which sort, bulk and/or process metal and any other sites that form part of the chain of processes of recycling waste metal into a material which can be re-used. It sets out the context and background data relating to metal recycling, detailing the demand and available capacity for metal recycling within the County.

- *Waste Transfer Stations:* considers Waste transfer stations, looking at the current need and capacity in Worcestershire and wider policy context.

- *Resource Recovery from Biodegradable Waste - Composting and Anaerobic Digestion* The document considers composting and anaerobic digestion. These treatment options are considered in the same document as they both offer the opportunity to recover resources from biodegradable waste. It sets out the context and background data relating to composting and anaerobic digestion.

- *Recovering Energy from Waste - Biological and Thermal Treatment Technologies:* sets out the context and background data relating to biological and thermal technologies for recovering energy from waste including anaerobic digestion, incineration and refuse derived fuels. There is some overlap with the Worcestershire Waste Core Strategy Background Document: Resource Recovery from Biodegradable Waste: Composting and Anaerobic Digestion.

- *Waste Water Treatment Infrastructure:* examines the need for waste water treatment infrastructure in Worcestershire. It includes information relating to waste water treatment policy context. It also proposes a possible way forward for the potential issues regarding who is responsible for what aspects of managing waste water treatment and related development.