



The Role of Best and Most Versatile Land in Cheshire East

Report for

Cheshire East Council

July 2016

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1 Executive Summary

Aim and Approach

- 1.1 The aim and objective of this report is to increase the understanding of Cheshire East Council of the Agricultural Land Classification system and in particular the Best and Most Versatile Land (BMV) in the Borough of Cheshire East.
- 1.2 The report assess the quantum of BMV in the Borough and provides comparative analysis with the regional and national situation; it explores the role of BMV in food production and the agri-food sector; provides commentary on the economic importance of BMV; examines the threats and opportunities to BMV land and the overall impact of BMV land loss as a result of development in Cheshire East.
- 1.3 Our approach included the following tasks: project initiation meeting; literature review; GIS mapping and analysis; analysis of data relating to agriculture and the agri food sector; assessment of role and importance of BMV land, and threats and opportunities using local knowledge and other data; and production of the final report.

BMV land in context

- 1.4 The Government introduced the Agricultural Land Classification (ALC) to provide general strategic guidance on land quality for planners and steer urban development away from the areas of land likely to be of greatest agricultural value in the long term. This was termed 'the best and most versatile land' and given Grades 1, 2 and 3a. (Grade 3 was sub divided in 1988 into two grades 3a and 3b).
- 1.5 The National Planning Policy Statement (Paragraph 112) requires local planning authorities to take into account the economic and other benefits of the BMV agricultural land and use areas of poorer quality land in preference to higher quality land. The importance of protecting soils and BMV land is also highlighted in the Natural Environment White Paper.
- 1.6 Determining ALC, and hence BMV land, involves physical classification, whereby land is classified in one in five grades according to the extent that physical factors such as climate, soil, and site impose long term limitations on its use, and an economic classification based on standard net outputs.
- 1.7 It is estimated, based on available data including the ALC Provisional Series and subsequent maps, that there is 52,069ha of BMV land in Cheshire East comprising 12,752ha Grade 2 land and 39,316ha of Grade 3a land. This BMV land equates to 47% of total agricultural land and 45% of total land in the Borough. Cheshire East has proportionately more Grade 2 and 3 land, and hence in all probability BMV land, than the North West region and England as a whole.

Role of BMV land to agriculture

- 1.8 Best and Most Versatile land is the most important land type within agricultural systems as it provides the opportunity to grow the widest range of crops under varying conditions. It benefits from a combination of factors that together result in land with the least constraint to agricultural production, the most important interactive factors being soil wetness and droughtiness.

- 1.9 BMV land is often lighter and comprises “easier” soils to work, requiring fewer “passes” by agricultural machinery to establish seedbeds, with resulting savings in fuel, wear and tear, and labour. Horticultural and root crops grown on BMV land can also be harvested in a cleaner condition reducing loss of soil, water usage and crop wastage. This is significant at county and national level in terms of the economic and environmental impact of food production.
- 1.10 The production of grass associated with livestock production for milk or meat also benefits from the use of BMV land enabling flexibility of systems of production. For example, easy and early access to grassland and matching dietary demand to grass growth, thereby reducing dependency on expensive brought-in concentrates and increasing profitability.
- 1.11 Some BMV land may not be yielding maximum results due to the choice of the management system, for example land managed under agri environment schemes to achieve environmental targets. The choice of cropping or management regime is not necessarily an indication of the ALC grade as much will depend on other factors such as the objectives of the land manager, the location of the land and the economic circumstances.

Economic value of agriculture and influence of BMV land

- 1.12 The Defra June Survey indicates 93,076ha of farmland in Cheshire, 74% of which is grassland. There is a total of 1,543 farm holdings in Cheshire East; dairy farms predominate by area (37%) followed by grazing livestock and general cropping farms. It is estimated that there are around 52,000 dairy cows, 5,500 ha of wheat and 4,800ha of maize in Cheshire East. The agricultural labour force is 4,015.
- 1.13 The total farm gate income for crops and livestock produced in the Borough is around £215million, with a Gross Value Added (GVA) of around £83million. Agriculture supplies and supports the food and drink production sector which has a GVA of £128 million. The food and drink sector production sector is regionally and nationally important and the focus of future policy and investment, for example through the Reaseheath Food Enterprise Zone.
- 1.14 It is estimated that agriculture located on BMV land accounts for at least 47% of the total output and GVA which is land-based (i.e. excluding indoor pigs and poultry). This equates to at least £89 million output and £34 million GVA. In practice, the figure is likely to be higher due to BMV land having the highest yield potential and versatility. BMV land will in turn make a significant contribution to that part of food and drink output and GVA which uses local produce, as well as the agricultural supply industry and businesses such as livestock markets and abattoirs which service it.

Threats and opportunities to BMV land

- 1.15 There is a wide range of drivers affecting BMV land, but the majority influence land use and management, as opposed to quantity and quality of BMV land. The key influences on the quantity and quality of BMV land are the environmental pressures of climate change, flood risk and soil condition (which interact in different ways), and development. It is estimated that the Final Sites identified by the Cheshire East Local Plan Strategy cover around 956ha of BMV (228ha Grade 2 and 728ha Grade 3a) or 1.8% of total BMV land in the Borough.

- 1.16 Threats to the quantity and quality of BMV land in Cheshire East include:
- Loss of BMV land due to development
 - Movement of land to lower ALC classes (including non-BMV land) due to:
 - increased temperature and droughtiness, especially on lighter soils
 - increased flood risk, causing inundation, pollution and soil erosion, particularly in river valleys
 - loss of soil structure and soil organic matter pollution and other indirect effects of development
- 1.17 Opportunities relating to the quantity and quality of BMV land in Cheshire East include:
- Minimising the loss of BMV land due to development by careful site selection and design
 - Maintenance of land in higher ALC classes through improved soil management, water conservation and natural flood management.
- 1.18 Environmental pressures are likely to bring about both negative and positive impacts on BMV land. Development pressures, on the other hand, will have a negative impact on BMV land which is difficult to mitigate apart from the re-use of top soil.
- 1.19 There are similar pressures on BMV land across the country, although arguably the loss of BMV land proportionately is likely to be higher in the South East and East of England, due to population and climate change pressures. This raises the importance of retaining BMV land in Cheshire East and, as more BMV land is lost, Grade 3b may also need to be protected.

Overall impact of agricultural land loss as a result of development in Cheshire East

- 1.20 The Cheshire East Local Plan Strategy identifies a number of sites for residential, commercial and infrastructure/transport development, together with sites allocated for mineral extraction and waste disposal. The Final Sites set out in the Strategy cover an estimated 2,399ha including 1,781ha of agricultural land, or 1.6% of the total in Cheshire East. Of this 1,781ha, BMV land accounts for 956ha or 54%; this is equivalent to 1.8% of total BMV land in the Borough. BMV land accounts for an estimated 40% of all land identified as Final Sites. These figures exclude any land take associated with the proposed HS2 line.
- 1.21 Land take arising from proposed development of the Final Sites is likely to result in the loss of £3.4 million output and £1.3 million GVA in agriculture, together with its contribution to the output and GVA of the strategically important food and drink production sector, and agricultural supply and other associated businesses. The BMV contribution to these agricultural figures is likely to be at least £1.8 million output and £0.7 million GVA. In practice, the figures are likely to be higher due to BMV land having the highest yield potential and versatility.
- 1.22 BMV land punches above its weight in agricultural and food production terms. It has the potential under the correct management systems to produce the highest agricultural yields. BMV land also has the versatility that it can be managed in a way that adapts to a variety of conditions which protects the outputs and delivers a sustainable return.

- 1.23 High value horticulture and general cropping enterprises are dependent on BMV land and other enterprises, where they benefit from it, value it highly for its high yield potential, accessibility and ease of working together with its versatility in terms of cropping and grazing options.
- 1.24 BMV land in Cheshire East should be evaluated as part of the wider pool of BMV land throughout the UK. There are many threats to BMV nationally including sea level rise and wind erosion. While erosion of light soils on BMV land may not appear to be a problem in Cheshire East now, it could be in future with higher summer temperatures and reduced summer rainfall.
- 1.25 The United Nations report 'Agriculture at a Crossroads' published in 2007 recognises the wider importance of agriculture and its multi-functionality, and stresses the importance of agriculture as a multi-output activity. The report challenges policy makers to consider a wider holistic view when considering the permanent loss of agricultural land of whatever grade.
- 1.26 Agricultural land comprises an important part of the natural capital of Cheshire East, and in addition to food production, delivers a wide range of other ecosystem services which mitigate flooding, improve water quality, sequester and store carbon, provide greenspace for recreation and amenity, and deliver for biodiversity. As far as possible, the impact of development on these different ecosystem services need to be minimised, and opportunities realised to enhance them through careful planning, design and management. This includes, for example, the impact of poorly designed built development in terms of rapid water run-off, potentially affecting the quality of local BMV land. Natural flood protection adjoining settlements is also likely to be facilitated on good quality agricultural land impacting on its versatility.

2 Introduction

Purpose

- 2.1 The aim and objective of this report is to increase the understanding of Cheshire East Council of the Agricultural Land Classification system and in particular the Best and Most Versatile Land (BMV) in the Borough of Cheshire East.
- 2.2 The report assess the quantum of BMV in the Borough and provides comparative analysis with the regional and national situation; it explores the role of BMV in food production and the agri-food sector; provides commentary on the economic importance of BMV; examines the threats & opportunities to BMV land and the overall impact of BMV land loss as a result of development in Cheshire East.

Approach

- 2.3 This project involved the following tasks:
 - Project initiation meeting with Cheshire East Council to confirm the scope of the work
 - Review of literature relevant to BMV land
 - Undertaking GIS mapping and analysis relating to BMV land in Cheshire East
 - Collation and analysis of data in respect of agriculture and the agri food sector in Cheshire East
 - Assessment of role and importance of BMV land in Cheshire East, and potential threats and opportunities, using local knowledge and relevant data from various sources
 - Production of final report

Historical background

- 2.4 Cheshire has long held a national reputation for the production of agricultural products. A land use survey of 1877 recorded 529,381 acres (214,233 ha) of farmland, of which 355,016 acres (143,670 ha) was permanent grass and 174,365 acres (70,563 ha) was arable land, with additionally 1,384 acres (560 ha) of orchards, 896 acres (363 ha) of market gardens and 487 acres (197 ha) of nursery grounds

John Marius Wilson's Imperial Gazetteer of England and Wales of a similar period described the agriculture of the county: *'Wheat was formerly a famous produce; but is now less cultivated than before. Potatoes have considerable attention, and average about 10 tons per acre. Cheese is a main produce; and is exported, to all parts of England and to the Continent, to the amount of about 12,000 tons a year. Butter also is made in considerable quantity. Much attention has been paid to the breed of cows. About 65,000 sheep are kept, yielding about 1,250 packs of wool a year'*. John Bartholomew's Gazetteer of the British Isles of 1887 described "numerous excellent dairy farms" producing the "celebrated Cheshire cheese", but also mentioned "extensive market gardens, the produce of which is sent to Liverpool, Manchester, and the neighbouring towns. During the 20th Century and into the 21st there was and has been much more emphasis on the production of liquid milk with better transport networks into the large centres of population. There has been a steady decline in the

number of market gardens and orchards although potato production remains an important crop grown mainly on BMV land. Beef and sheep production for meat has declined and now tends to be focussed on the poorer quality and higher land to the east of the county. In 1985 nearly 500,000 acres (200,000 ha) were used for agriculture. In 2006 agricultural land had reduced to 163,100 hectares (403,000 acres)

- 2.5 A Land Utilisation Survey undertaken in the 1930s in part led to the 1947 Planning Acts and a second Land Utilisation Survey in the 1960s led to criticism of land use planning and the use of agricultural land for development. Therefore, to assist in assessing land quality (usually) for development and planning purposes, the former Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use for food production. and this was given the title Agricultural Land Classification (ALC)
- 2.6 It is noted from the ALC maps of Cheshire East that the older settlements in Cheshire East Borough (Knutsford, Sandbach, Holmes Chapel and Nantwich) have on their outskirts a proportion of Grade 2 BMV land and it is likely that one of the reasons for the development of settlements in these areas was due to the presence of BMV land and resulting relative ease of food and fibre production for the population close by.

Figure 2-1: Dairy Cows grazing – Dane Valley (June 2016)



3 Placing BMV land in context

BMV Description

- 3.1 Agricultural Land Classification (ALC) was introduced in 1966 to provide general strategic guidance on land quality for planners. The whole of England and Wales was mapped in a Provisional Series of maps, published on an Ordnance Survey 1:63,360 (one-inch Seventh Series) scale base between 1967 and 1974. This paper series of maps has not been updated since 1976.
- 3.2 It was recognised by government that land developed for most urban uses would be mostly permanently lost to agriculture; therefore policy was developed to use the ALC to steer urban development away from the areas of land likely to be of greatest agricultural value in the long term. This was termed 'the best and most versatile land' (BMV) and given Grades 1, 2 and 3a. (Grade 3 was sub divided in 1988 into two grades 3a and 3b)

BMV Policy Context

- 3.3 The National Planning Policy Statement published in 2012 states, at Paragraph 112, that: 'Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.'
- 3.4 The importance of protecting soils and the services they provide was also set out in the Natural Environment White Paper at paragraph 2.35 '*We need a more strategic and integrated approach to planning for nature within and across local areas, one that guides development to the best locations, encourages greener design and enables development to enhance natural networks for the benefit of people and the environment as part of sustainable development. We will retain protection and improvement of the natural environment as core objectives for local planning and development management. The planning system will continue to facilitate coherent and resilient ecological networks in association with local partners and reflect 22 The Natural Choice the value of natural systems. We want the planning system to contribute to our objective of no net loss of biodiversity; to encourage local authorities to promote multi-functional development so that we get the most from land; and to protect our best and most versatile agricultural land*'

BMV National Guidance

- 3.5 Guidance on ALC was issued in 1988 by the Ministry of Agriculture Fisheries and Food (MAFF). Natural England (NE) took over the functions of MAFF in this matter and give advice to planning authorities on the ALC system. The Town and Country Planning (Development Management Procedure) (England) Order 2010, as amended, refers to the best and most versatile land policy in requiring statutory consultations with Natural England. NE is also responsible for Minerals and Waste Consultations where reclamation to agriculture is proposed.
- 3.6 The first stage of ALC is currently a physical classification; where by land is classified in one in five grades according to the extent that physical factors such as climate, soil, and site impose long term limitations on its use, detailed below. The second stage is

an economic classification based on standard net outputs. This is designed to measure the cash value of the average agricultural output per acre directly attributed to that land.

- 3.7 The ALC provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long- term limitations on agricultural use. The limitations can operate in one or more of four principal ways: they may affect the range of crops which can be grown, the level of yield, the consistency of yield and the cost of obtaining it. The classification system gives considerable weight to flexibility of cropping, whether actual or potential, but the ability of some land to produce consistently high yields of a somewhat narrower range of crops is also taken into account.
- 3.8 The principal physical factors influencing agricultural production are climate, site and soil. These factors together with interactions between them form the basis for classifying land into one of five grades; Grade 1 land being of excellent quality and Grade 5 land of very poor quality, see 3.9 below. Grade 3, which constitutes about half of the agricultural land in England and Wales, is divided into two subgrades designated 3a and 3b.
- **Climatic factors** in the main are temperature and rainfall although account is taken of exposure, aspect and frost risk.
 - **Site factors** used in the classification system are gradient, micro relief and flood risk.
 - **Soil characteristics** of particular importance are texture, structure, depth and stoniness. In some situations, chemical properties can also influence the long-term potential of land and are taken into account.

Figure 3-1: Field scale vegetable and lettuce being grown under glass and in the field – Allostock (June 2016)



3.9 ALC Grades 1-5 are described as follows:

Grade 1 – excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly include top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 – very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Sub-Grade 3a – good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, oilseed rape, potatoes sugar beet and the less demanding horticultural crops.

Sub-Grade 3b – moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4 – poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (eg cereals and forage crops) the yields of which are variable. In most climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 – very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

3.10 These climatic, site and soil factors result in varying degrees of constraint on agricultural production. They can act either separately or in combination, the most important interactive limitations being soil wetness and droughtiness. The grade or subgrade of land is determined by the most limiting factor present. When classifying land the overall climate and site limitations are first as these can have an overriding influence on the grade. Land is graded and mapped without regard to present field boundaries, except where they coincide with permanent physical features.

3.11 A degree of variability in physical characteristics within a discrete area is normal. If the area includes a small proportion of land of different quality, the variability can be considered as a function of the mapping scale. Thus, small, discrete areas of a different

ALC grade may be identified on large scale maps, whereas on smaller scale maps it is usually only feasible to show the predominant grade of the area being assessed.

- 3.12 The grading does not necessarily reflect the current economic value of land, land use, range of crops, suitability for specific crops or level of yield. Similarly the size, structure and location of farms, the standard of fixed equipment and the accessibility of land do not affect grading.

BMV Review

- 3.13 Defra commissioned a review of policy in respect of BMV land in 2010. The aim was to evaluate the extent to which the current planning framework has protected BMV land in England for the period 1998 to 2008 and to try and ensure that appropriate consideration continues to be given to the protection of good quality agricultural soils in the light of changing pressures and future land use priorities. The report details the loss of BMV nationally over the period from 1998 to 2008 identifying around 38,355ha of agricultural land which has been converted to other permanent development uses. This area equates to around 0.35% of the total agricultural land (10,809,205ha) in England¹
- 3.14 The ALC system provides a means of assessing the limitation to the productive capacity of land for agricultural production and provides no means of assessing the optimal use for land, for example for development, productivity (food, livestock, energy, timber and fibres), biodiversity (habitat), carbon sequestration, water and landscape. The Royal Institution of Chartered Surveyors in their Rural Policy Paper², published this year, calls for a review of the ALC system to enable a more sophisticated assessment of this versatility of land.

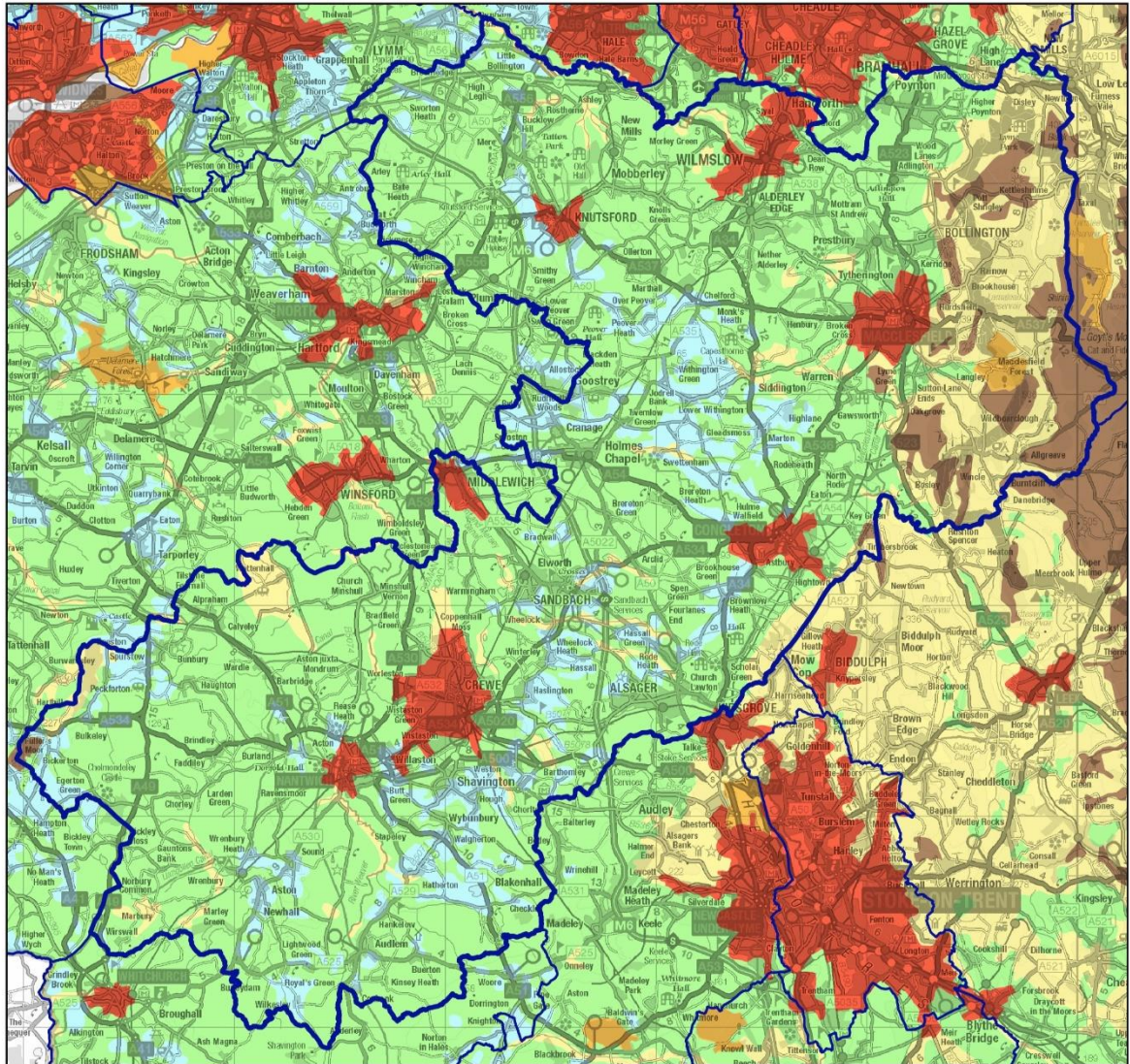
Extent and location of BMV land in Cheshire East

- 3.15 An analysis of the ALC Provisional Series of maps shows that there is no Grade 1 land in Cheshire East, 12,752ha of Grade 2 land (10.9% of all land) and 78,633 ha of Grade 3 land (67.4% of all land). A map showing the distribution of different grades of ALC land is provided in Figure 3-2. This clearly shows a band of Grade 2 land (light blue) stretching from Knutsford towards Macclesfield and Congleton and then on to the South of Crewe, and a broad distribution of Grade 3 land (green) across the Borough. Lower grades of land, Grades 4 and 5, are concentrated in the upland areas in the Eastern part of the Borough.

¹ <http://randd.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=17207>

² <http://www.rics.org/uk/news/news-insight/comment/multifunctionality-of-land/>

Figure 3-2: Land by ALC Grade in Cheshire East

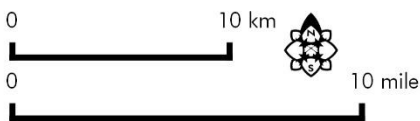


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Provisional Agricultural Land Classification (2012) Natural England. This information is valid at the base map scale of 1:250,000 and is only suitable for strategic purposes.

- Cheshire East
- Local Authority Boundary
- Agricultural Land Classification**
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non Agricultural
- Urban



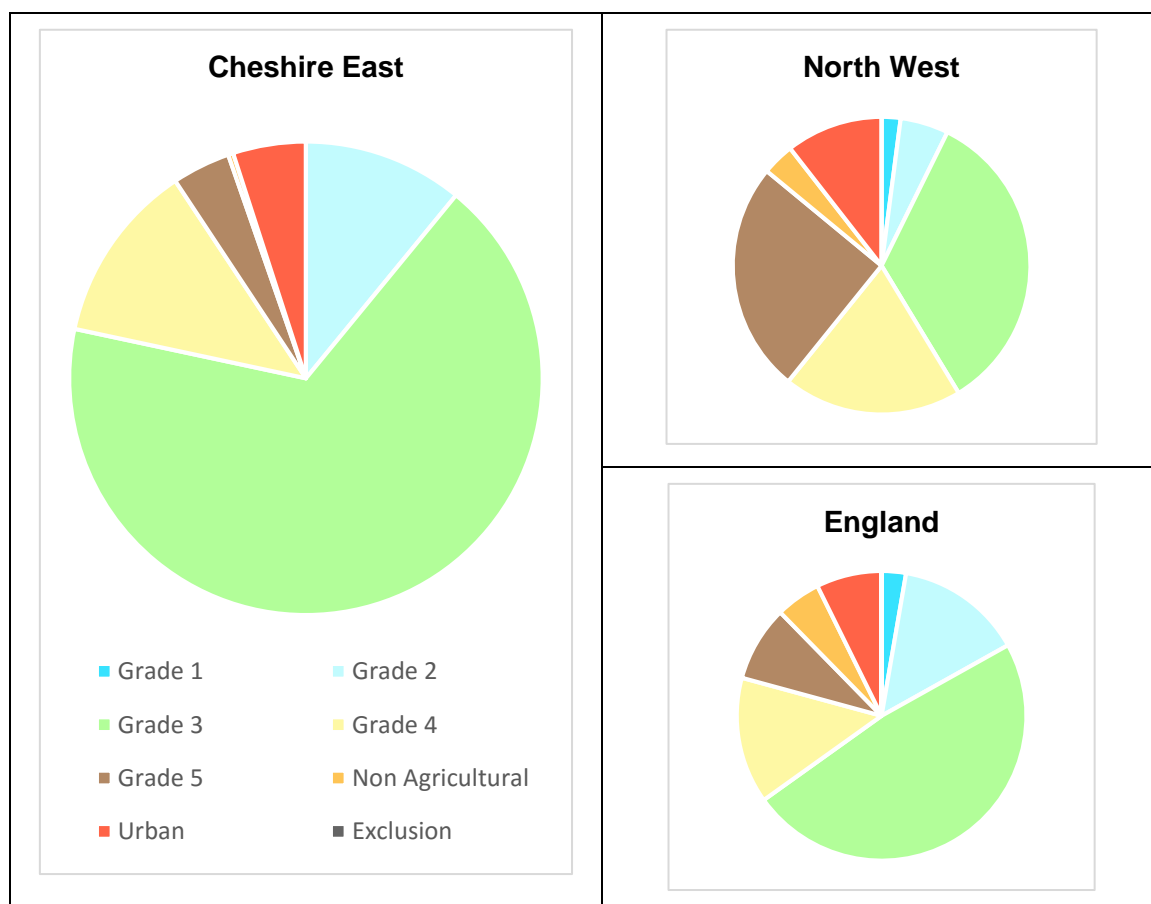
OS datasets contain Ordnance Survey data
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3.16 A comparison between Cheshire East, the North West region and England as a whole is shown in Table 3-1 and Figure 3-3. This shows that Cheshire East has proportionately more Grade 1 and 2 land than the North West (10.9% compared to 7.4%) but less than England (17.4%). In terms of Grade 3 land however, Cheshire East has proportionately more than both the North West and England (67.4% compared to 34.8% and 49.6% respectively). In total, Cheshire East has proportionately more Grade 1, 2 and 3 land (78.3%) than the North West (42.2%) and England (67.0%).

Table 3-1: Breakdown of ALC Grade by Cheshire East, region and country

Grade	Cheshire East		North West		England	
	Hectares	Percentage	Hectares	Percentage	Hectares	Percentage
Grade 1	0	0.0	29,133	2.1	354,562	2.8
Grade 2	12,752	10.9	73,899	5.3	1,848,874	14.6
Grade 3	78,633	67.4	480,949	34.8	6,290,210	49.6
Grade 4	14,395	12.3	275,165	19.9	1,839,583	14.5
Grade 5	4,641	4.0	355,589	25.7	1,100,305	8.7
Non Agricultural	404	0.3	49,354	3.6	655,856	5.2
Urban	5,810	5.0	148,867	10.8	951,424	7.5
Exclusion	0	0.0	0	0.0	1,646	0.0
Total	116,636	100.0	1,383,822	100.0	12,687,897	100.0

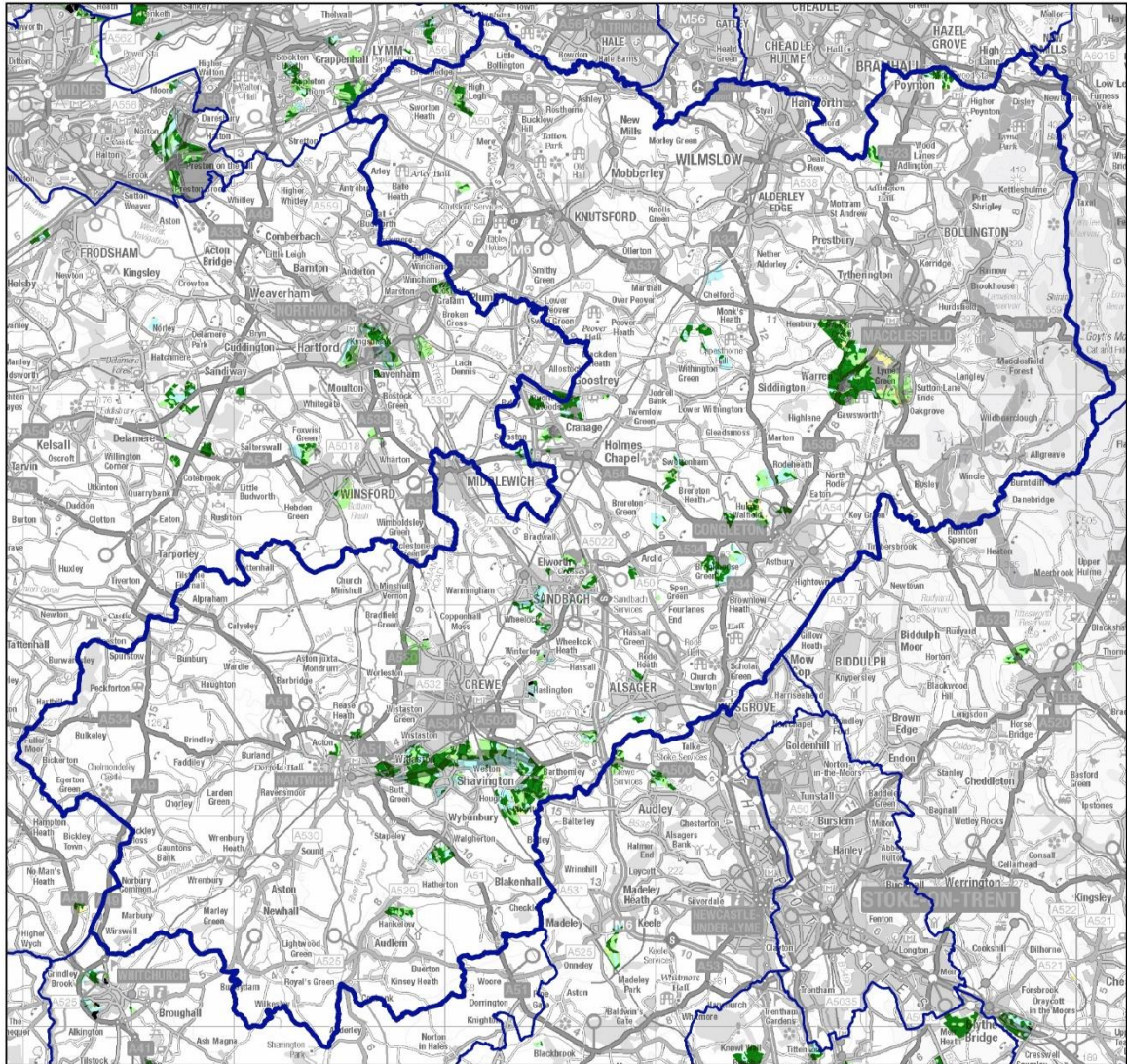
Figure 3-3: Breakdown of ALC Grade by Cheshire East, region and country



- 3.17 Unfortunately, there is no definitive data on the amount of BMV land (i.e. Grades 1, 2 and 3a land) in Cheshire East, due to the lack of a breakdown between Grades 3a and 3b in the comprehensive ALC Provisional Series maps and only partial coverage of post 1988 surveys. An estimate has been made, however, based on a combination of sources including:
- data from post 1988 ALC surveys which cover a few discrete areas in the Borough, see Figure 3-4;
 - strategic data from NE which indicates the likelihood of BMV land being present in the Borough, and hence the likelihood of (Grade 2 and) 3a compared to 3b see Figure 3-5; and
 - national data on the split between Grades 3a and 3b split³.
- 3.18 Whilst the data is incomplete and uncertain, see Table 3-2, it is reasonable to assume that the breakdown of Grade 3 land in Cheshire East is around 50% Grade 3a and 50% Grade 3b. This means that BMV land – Grades 2 and 3a land - totals 52,069ha or 47% of total agricultural land, or 45% of all land. It is reasonable to assume that the situation for Cheshire East, in respect of BMV land, when compared to the region and the country, is broadly the same as that described in Section 2.3. In other words, Cheshire East has significantly more BMV land in proportionate terms than the North West region and more than England as a whole.

³ Based on ALC Provisional Series and Natural England (2012) Agricultural Land Classification: protecting the best and most versatile agricultural land. Natural England Technical Information Note TIN049.

Figure 3-4: Land by ALC Grade in Cheshire East – Post 1988 ALC Surveys



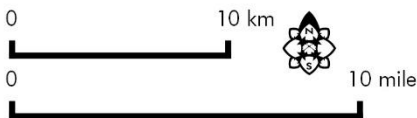
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Provisional Agricultural Land Classification (2012) Natural England. This information is valid at the base map scale of 1:250,000 and is only suitable for strategic purposes.

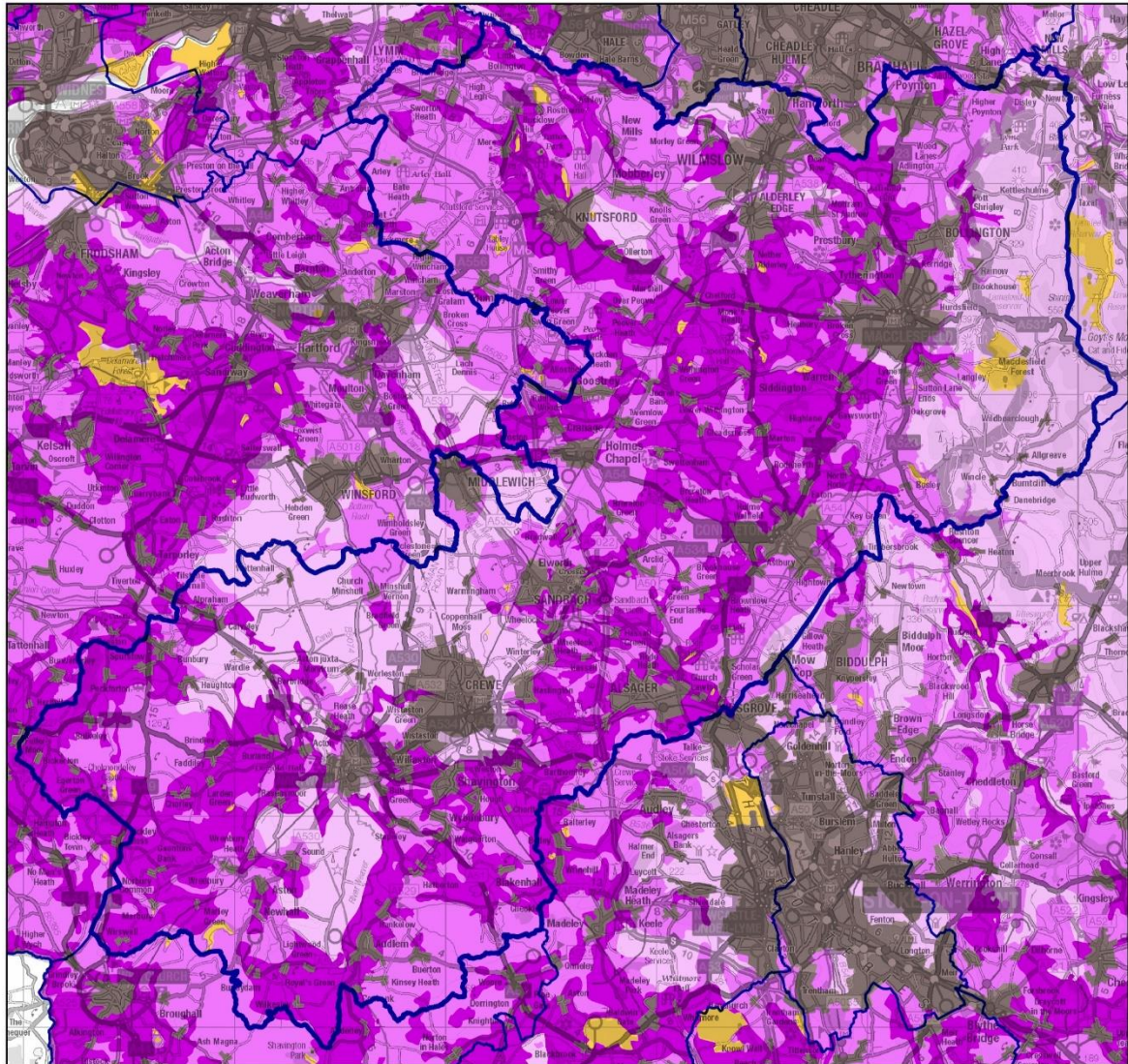
Cheshire East
 Local Authority Boundary
Agricultural Land Classification Post 1988

- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Not Surveyed
- Other



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Figure 3-5: Proportion of land likely to be classified as BMV in Cheshire East



The Role of Best and Most Versatile Agricultural Land in Cheshire East

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This map shows the best available estimate of agricultural land quality at the date of compilation expressed in terms of the proportion of land likely to be classified as 'best and most versatile' ('BMV') i.e. Grades 1, 2, 3a in the Defra Agricultural Land Classification (revised 1988).

Data sources include:

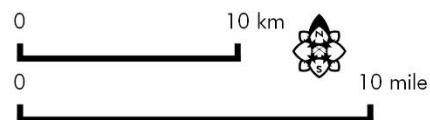
- Soil information from the National Soil Map (1983) produced by the National Soil Resources Institute of Cranfield University. The National Soil Map is copyright Cranfield University.
- Detailed Defra Agricultural Land Classification field survey results for local areas.
- The Defra 1:250,000 scale Agricultural Land Classification maps of England.
- Climatic Data derived from Met. Office Sources.
- Extent of non agricultural land use derived from the Defra 1:250,000 scale Agricultural Land Classification maps of England.

THIS MAP IS DESIGNED FOR STRATEGIC PLANNING PURPOSES ONLY AND SHOULD NOT BE USED FOR SITE SPECIFIC ASSESSMENTS. THE DATA SHOULD NOT BE ENLARGED.

- Cheshire East
- Local Authority Boundary

Best and most versatile land

- >60 % likelihood best & most versatile
- >20 % & <60 % likelihood best & most versatile
- <20 % best & most versatile
- Non-agricultural
- Urban



OS datasets contain Ordnance Survey data
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Table 3-2: Estimate of BMV land in Cheshire East

Grade 3a/3b split	Cheshire East		England	
	ALC Post 1988 (partial)		ALC and NE TIN049	
Grade	Hectares	Percentage of Grade 3 land	Percentage of all farmland	Percentage of Grade 3 land
Grade 3a	1628.3	65.5%	21.0%	38.2%
Grade 3b	856.5	34.5%	34.0%	61.8%
Grade 3 total	2484.8	100.0%		100.0%

Likelihood BMV	ALC Grade 3 land	
	Hectares	Percentage
>60%	25060.5	35.3%
>20% & <60%	34893.2	49.1%
<20%	11129.8	15.7%
Total farmland	71,083.6	100.0%

BMV estimate	Hectares	Percentage
Grade 1	0	0
Grade 2	12,752	24%
Grade 3a (50% of Grade 3)	39,316	76%
BMV land	52,069	100%
BMV as % of total farmland	47%	
BMV as % of total land	45%	

4 The role of BMV land to agriculture

- 4.1 BMV land is the most important land type within agricultural systems as it provides the opportunity to grow the widest range of crops under varying conditions. As outlined in Section 3, BMV land benefits from a combination of factors that together result in land with the least constraint to agricultural production, the most important interactive factors being soil wetness and droughtiness.

For example, land with less clay content in the top soil profile enables access onto the land with agricultural machinery to carry out operations such as ploughing or cereal establishment ahead of other areas, whereas land with higher clay content is slower draining and has a greater moisture retention, such wetter soils are inherently colder, leading to slower plant growth and subsequently later harvest dates. The versatility of BMV land means its management is more readily adaptable to varying economic and climatic conditions that can effect agricultural production, such as the ability to grow for instance an early potato crop. This adaptability is helpful in economic terms as the price achieved for produce falls over the season as more produce (including from other counties) comes to the market.

Figure 4-1: Growing Potato Crop – Kermincham (June 2016)



- 4.2 BMV land is often lighter and “easier” soils to work. This can have economic advantages as there are less “passes” by agricultural machinery over the soil to create a seedbed for the establishment of the crop. There is a subsequent saving in fuel and wear and tear on machinery. Tyres, tracks and soil contacting parts have a longer life. With fewer operations to produce good growing conditions there can be a significant saving in labour and fuel costs. These points are thus both significant at county and national level in terms of the economic and environmental impact of food production.

Figure 4-2: Tractor ploughing arable ground in preparation of crop establishment – Cheshire East (2016)



- 4.3 A further agronomic consideration for horticultural and root crops grown on BMV land is that they are often harvested in a cleaner condition. Less soil is removed from the field with resultant less loss of topsoil and wasted transport costs. The crop needs less washing and trimming leading to reductions in water usage and crop wastage. BMV grown crops can be less prone to bruising and harvest damage leading to less deterioration and loss in storage.
- 4.4 The production of grass associated with livestock production for milk or meat also benefits from the use of BMV land enabling flexibility of systems of production. One example is grazing for spring calving dairy cows. In this production system the dairy cow produces her calf to fit in with the grass growth pattern across the spring season. Cows calve in January, February and March and utilise the available grass growth to match the dietary demand. The qualities of BMV land as outlined above mean that the herd is able to easily access grazing, and good grass growth rates in the early season can be maintained. As margins in the dairy sector are reduced cows that can graze grass for the longest period reduce dependence on brought-in expensive concentrates and increase profitability. This reduction in inputs has therefore a further positive economic and environmental impact.
- 4.5 BMV land is that which is best suited to the widest range of crops and is versatile to adapt to changing conditions. It is land that has a good yield potential for a variety of reasons including fertility, timeliness of operations and ease of working. However, some BMV land may not be yielding maximum results due to the choice of the management system. An example of this may be land that is being managed under

agri-environment grant aid schemes to achieve a number of environmental targets such as:

- conserving and restoring wildlife habitats
- flood risk management
- woodland creation and management
- reducing widespread water pollution from agriculture
- keeping the character of the countryside
- preserving features important to the history of the rural landscape
- encouraging educational access

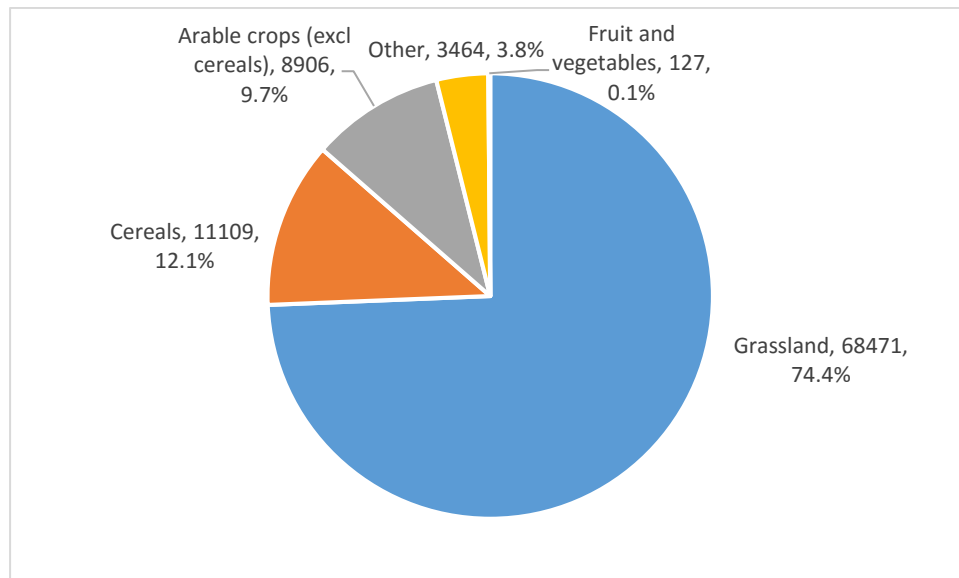
4.6 The choice of cropping or management regime is not necessarily an indication of the ALC grade as much will depend on other factors such as the objectives of the land manager, the location of the land and the economic circumstances.

5 The economic value of agriculture in Cheshire East and how BMV land influences this

Current state and trends in agriculture in Cheshire East

- 5.1 The current status and trends in agriculture in Cheshire East can be assessed from agricultural statistics from the Defra June Survey; the most recent data available for local authority areas relates to 2013. A limited dataset is available for Cheshire East⁴; estimates for additional indicators have therefore been derived from data for the county of Cheshire. Comparisons between 2013 data and 2007 data need to be treated with caution given changes in the basis of data.
- 5.2 Agricultural land in the Cheshire East comprises **92,076 ha** according to the 2013 Defra June Survey⁵. This comprises 79% of all land within the Borough. There has been a 2% decrease in agricultural land since 2007.
- 5.3 The main land uses are grassland (74.4%), cereals (12.1%) and arable crops (excluding cereals) (9.7%), see Figure 5-1. 'Other' includes farm woodland and rough grazing. There has been a 5% decrease in grassland and increases in cereals and other arable crops since 2007.

Figure 5-1: Cheshire East – Land Use, 2013 (ha)



Source: Defra June Agricultural Survey

- 5.4 There are a total of **1,543 farm holdings** in Cheshire East with an average size of 59.7ha according to the 2013 survey. It is important to note that farm holdings do not equate with farm businesses, many farm businesses cover several holdings. These include 63 holdings covering 1,840ha owned by the Council and managed through Cheshire Farms Service⁶.

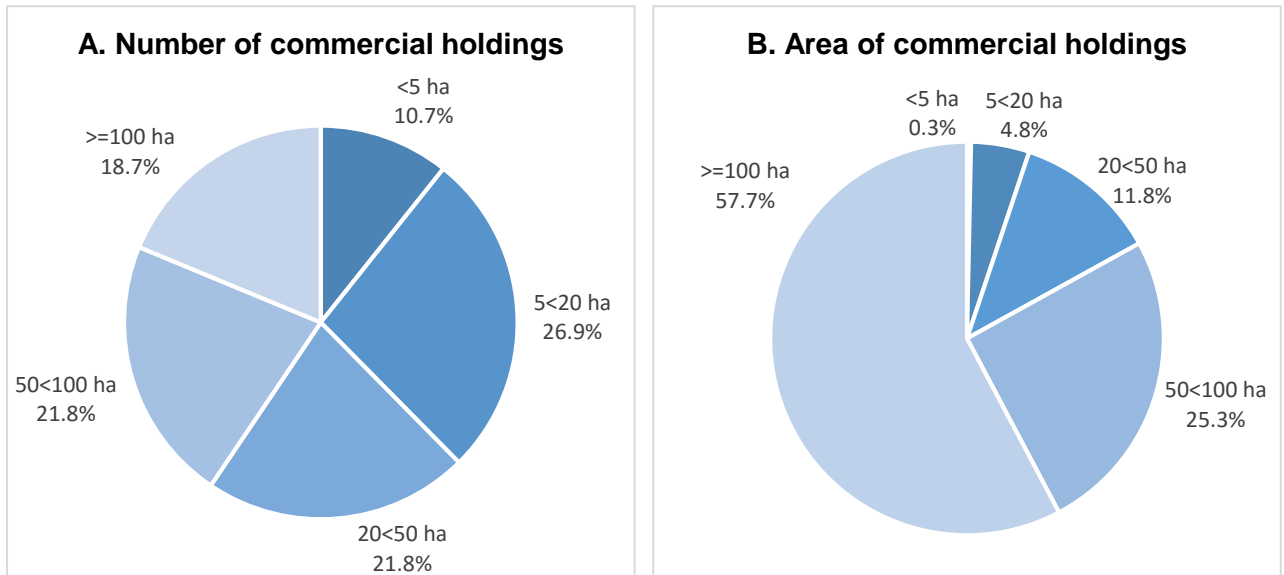
⁴ Based on the totals for Congleton, Crewe and Nantwich, and Macclesfield

⁵ This figure is different to the total of ALC Grades 1-5 land which equates to 110,421ha. The difference is probably due to the exclusion of shared common grazing and other categories from the Defra June Survey,

⁶ Pers.Comm. with Jane Turney, Cheshire Farms on 24 June 2016.

5.5 A breakdown of commercial holdings by farm size can be derived from data for the county of Cheshire as there is no data for Cheshire East. The most numerous categories by size are those in the 5<20ha (26.9%), followed by those in the 20<50ha and 50<100ha (21.8% each). The majority of land areas occurs on holdings >=100ha (57.7%) and 50<100ha (25.3%). See Figure 5-2.

Figure 5-2: Cheshire – Farm Size, 2013 (% of commercial holdings)

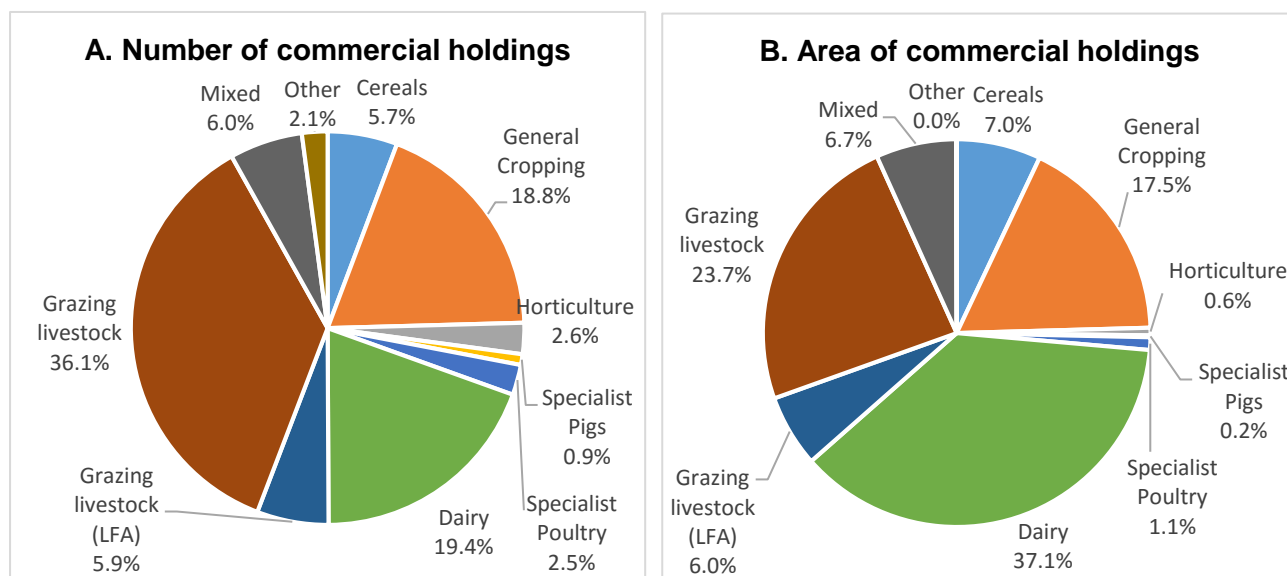


Source: Defra June Agricultural Survey

5.6 A breakdown of commercial holdings by farm type can similarly be estimated from data for the county of Cheshire, in the absence of data for Cheshire East. Most commercial holdings by number are in the grazing livestock category (36.1%), followed by dairy (19.4%) and general cropping (18.8%). However dairy farms account for the greatest proportion of land area (37.1%), followed by grazing livestock (23.7%) and general cropping (17.5%). See Figure 5-3. It is estimated that there are 557 grazing livestock farms, 300 dairy farms and 290 general cropping farms in Cheshire East⁷. The number of dairy farms in the county has decreased by 10% over the period 2010-2013.

⁷ Based on total holdings in Cheshire East multiplied by farm type breakdown for Cheshire.

Figure 5-3: Cheshire - Farm Type, 2013 (% of commercial holdings)



Source: Defra June Agricultural Survey

- 5.7 In terms of land tenure, around 60% of holdings are owned and 40% are rented, based on 2013 data for Cheshire.
- 5.8 Crop areas can be estimated from a breakdown of land use for Cheshire East and more detailed crop breakdown for the county of Cheshire. The main crops grown include wheat, maize, spring barley⁸, potatoes and winter barley. See Table 5-1.

Table 5-1: Cheshire East - Estimated Arable Crop Area, 2013 (ha)

Crop	%	Area (ha)	Crop	%	Area (ha)
Wheat	49.5%	5,501	Potatoes	19.3%	1,718
Winter barley	13.2%	1,471	Sugar beet	0.2%	20
Spring barley	27.1%	3,006	Field beans	2.9%	255
Oats	8.3%	923	Peas	0.1%	11
Other	1.9%	208	Oil seed rape	12.1%	1,074
			Crops for stock feed	6.1%	540
			Maize	53.8%	4,788
			Fallow	5.6%	498
Total cereals	100.0%	11,109	Total other arable crops	100%	8,906

Source: based on Defra June Agricultural Survey

- 5.9 Livestock numbers can similarly be estimated from a breakdown by livestock type for Cheshire East and a more detailed breakdown for the county of Cheshire. See Figure 5-2. The dominance of dairy can be seen, with over 52,000 dairy cows estimated in Cheshire East.

⁸ There was significantly more spring barley grown in 2013 compared to 2010, although this was in part due to the difficult planting conditions for winter crops in late 2012

Table 5-2: Cheshire East - Estimated Livestock Numbers, 2013

Cattle	No.	Sheep	No.
Dairy cows	52,567	Breeding ewes	66,960
Total dairy	91,998	Rams	1,681
Beef cows	5,368	Lambs under 1 year	68,050
Total beef	18,646	Other (e.g. hoggets)	2,732
Males 2 years and over	3,517		
Males less than 2 years	18,355		
Total cattle	132,515	Total sheep and lambs	139,423
Pigs	No.	Poultry	No.
Breeding pigs	1,287	Laying and breeding fowl	720,738
Fattening pigs	10,239	Broilers	612,911
		Ducks	1,027
		Geese	551
		Turkeys	117,583
		Other	23,686
Total pigs	11,526	Total poultry	1,476,497

Source: based on Defra June Agricultural Survey

Figure 5-4: Sheep Grazing – Siddington (June 2016)



- 5.10 The agricultural labour force on commercial holdings in Cheshire East stands at **4,015**, including 2,613 farmers, 183 salaried managers and 1,276 employees, see Table 5-3. 45% of farmers and employees are part-time or casual. Total agricultural labour has declined by 10.7% over the period 2007-2013.

Table 5-3: Cheshire East – Agricultural Labour, 2013

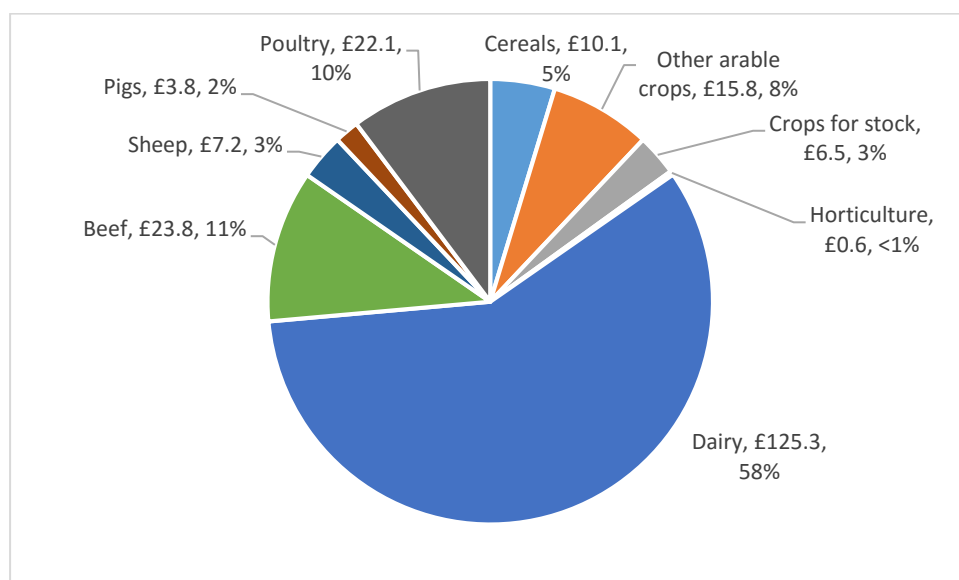
Type	Full time	Part time	Casual	Total
Farmers, partners, directors and spouses	1,437	1,176	n.a.	2,613
Salaried managers ⁹	126	n.a.	n.a.	126
Employees	706	397	172	1,276
Total	2,269	1,574	172	4,015

Source: Defra June Agricultural Survey

Economic value of agriculture and agri-food in Cheshire East

- 5.11 The economic value of agriculture in Cheshire East can be estimated using June Survey data for different types of crop and livestock, together with average physical yields for the area and average prices. The areas, yields and prices are actual figures for 2013, the most recent year for which data for all three variables is available.
- 5.12 Using this basis, total farm gate income (i.e. gross output or turnover) for crops and livestock products produced on farms in Cheshire East in 2013 is estimated to be around **£215 million**¹⁰. The breakdown by sector is: arable and horticulture (16%); dairy (58%); beef (11%); sheep (3%); pigs (2%) and poultry (10%); see Figure 5-5.

Figure 5-5: Cheshire East - estimated farm gate income (£ million), 2013



⁹ No full-time / part-time breakdown is provided for salaried managers.

¹⁰ This excludes publicly funded scheme payments such as Single/Basic Payment Scheme and agri-environment scheme payments

- 5.13 Since 2013, there have been decreases in agricultural commodity prices. Milk prices, for example, have decreased from an average of 31.7 pence per litre (ppl) in 2013 to 24.5 ppl in 2015; this will have reduced milk output by around £28 million, from £125 million to £97 million. Crop prices have also fallen, although these were mitigated to an extent in 2015 by a good harvest with high yields.
- 5.14 Gross Value Added (GVA) for agriculture can be estimated using the total farm gate income for Cheshire East and, in the absence of more local figures, national GVA figures for agriculture. On this basis, agriculture GVA in Cheshire East is estimated to be around **£83 million** in 2013¹¹.
- 5.15 Agriculture does not stand alone of course, but supplies and supports the important 'agri-food' or 'food and drink' sector in Cheshire East. This sector encompasses a number of diverse companies from large scale food manufacturers and animal feed businesses, to dairy operators, potato packers, salad producers and small scale operations (including traditional cheese producers, farm shops etc.). Many of these businesses use local produce from the Borough.
- 5.16 Some of the industry's most successful companies are based in Cheshire East, including: Morning Foods Ltd, Bakkavor (New Primebake), Fayrefield Foods Ltd, Joseph Helers Ltd, and Wrights Pies. Several of these companies use local produce. Other notable companies using local produce, albeit located outside the Borough, include Muller Milk and Ingredients and Arla Foods (dairy) and PepsiCo /Walkers Crisps (potatoes).
- 5.17 Cheshire East's food and drink sector is recognised by Cheshire East Council, Cheshire and Warrington Local Enterprise Partnership (LEP) and national government:

*'Cheshire East is a diverse, dynamic and internationally recognised centre of excellence in food and drink production with over 6,500 staff and a GVA of **£128 million**, it is part of one of the UK's most important regions for food and drink'*¹²

- 5.18 Recent significant developments in the food and drink sector in Cheshire East are worth highlighting:

- The completion of a £7.4m investment at Reaseheath College, Nantwich to provide a state of the art food processing facility, where trials and development work can take place. This comprises a small scale commercial dairy, deemed to be leading edge within Europe, a butchery facility capable of teaching from "farm to fork", a small scale commercial bakery, and two innovation rooms.



¹¹ £215m total output x 38.6% (= GVA at basic prices / Total Output at basic prices for agriculture in England in 2013). See <https://www.gov.uk/government/collections/agriculture-in-the-united-kingdom>

¹² http://www.cheshireeast.gov.uk/business/business_information/business_sectors/food_and_drink_sector.aspx

- The announcement of a new Food Enterprise Zone (FEZ) to be based at Reaseheath College. The aim of the FEZ is to strengthen research, technical development, innovation and skills, to enable more collaborative working along the food supply chain and to support economic growth and healthy competition. Projects could provide an agri-tech centre, facilities for business support, a nutrition centre and incubator space for start-ups. The initiative meets objectives set out in the LEP economic strategy and will contribute to regional and national objectives for agriculture and food science development¹³.

5.19 In addition to food and drink businesses, agriculture in Cheshire East also supports the agricultural supply and service industry including crop and livestock inputs, machinery and equipment, construction, livestock markets and abattoirs and professional services. Many of these products and services are provided or delivered locally.

Figure 5-6: Agricultural Supplies merchant – Chelford (June 2016)



Assessment of contribution of BMV land to economic value in Cheshire East.

5.20 Based on the proportion of land in Cheshire East categorised as BMV (Section 3) , it is reasonable to assume that agriculture located on BMV land accounts for at least 47% of the total output and GVA referred to above which is land-based (i.e. excluding indoor pigs and poultry)¹⁴. This equates to at least £89 million output and £34 million GVA. In practice, the figure is likely to be higher due to BMV land having the highest yield potential and versatility. BMV land is home to high value enterprises such as horticulture and general cropping, and enables cereal and dairy enterprises to be potentially more productive (although a range of other factors, including management

¹³http://www.cheshireeast.gov.uk/council_and_democracy/council_information/media_hub/media_releases/council_secures_pilot_enterprise_scheme_for_reaseheath_college.aspx

¹⁴ £215m output less pigs and poultry = £189m turnover and £73m GVA.

and assets, also affect overall farm performance). BMV land will in turn make a significant contribution to that part of food and drink output and GVA which uses local produce, although there is insufficient data to quantify this accurately.

- 5.21 Dairying and milk production has possibly the greatest economic value of any enterprise in Cheshire East. Field scale vegetables and potatoes have an equivalent if not greater economic value per unit area. Dairy farming can be practised over a range of land grades. As discussed previously some dairy farmers may favour a spring calving system that works well on BMV land, and on the reverse another dairy unit may operate on a Grade 4 land area but house the dairy cattle for longer periods and purchase in additional feed or make larger conserved tonnages of forage. Both systems could generate the same economic output but on different grades of land. Therefore a simple correlation between land quality and economic output is not possible with dairy; much depends on the management regime in place.
- 5.22 The yield potential and versatility of BMV land will also tend to result in this land having the greatest capital and rental values. However there are always exceptions to this when land is required for alternative uses and as such the value can be distorted.

6 Threats and opportunities to BMV land

Drivers affecting BMV land

6.1 The main drivers affecting BMV land in Cheshire East are set out in Table 6-1. The majority of these drivers influence the use and management of BMV land. Relatively few drivers directly affect the quantity and quality of BMV land (these are highlighted in bold), although land use and management can have an indirect, long-term impact. The key influences and impacts on BMV land are expanded on below.

Table 6-1: Drivers affecting BMV land in Cheshire East

Environmental	Social	Economic	Political	Science and Technology
<ul style="list-style-type: none"> ▪ Climate change ▪ Flooding ▪ Soil condition and health ▪ Pests and diseases ▪ Environmental legislation, policy and regulation ▪ Environmental incentives 	<ul style="list-style-type: none"> ▪ Rising population ▪ Changing household size ▪ Residential development ▪ Changing consumption patterns ▪ Land tenure patterns ▪ Labour market trends 	<ul style="list-style-type: none"> ▪ Globalisation and global commodity markets ▪ UK, regional and local markets ▪ Economic growth and cycles ▪ Exchange rates ▪ Commercial development ▪ Infrastructure development ▪ Mineral extraction and waste disposal ▪ Rising energy demand 	<ul style="list-style-type: none"> ▪ World Trade Organisation agreements ▪ EU Common Agricultural Policy ▪ UK/England agricultural policy ▪ England/CEC planning policy ▪ Public expenditure limitations 	<ul style="list-style-type: none"> ▪ Agri-technologies¹⁵ ▪ Environmental technologies ▪ Increasing scientific understanding of environmental systems

Key influences on the quantity and quality of BMV land

6.2 UK Climate Projections (UKCP)¹⁶ set out a number of projections for climate change over the short, medium and long term covering temperature, precipitation and extreme events including flooding, storms etc. Three emissions scenarios are presented – low, medium and high. The results from UKCP09 (the latest projections) for the North West region (including Cheshire East), based on medium emissions and a 50% probability, are set out in Table 6-2 below. They show higher temperatures in both winter and particularly the summer (+2.6°C), higher precipitation in the winter (+13%) and lower precipitation in the summer (-18%). More extreme, unpredictable weather events (drought, storm and flood) are also projected.

¹⁵ Including Genomics, Robotics, Informatics and Nanotechnology

¹⁶ <http://ukclimateprojections.metoffice.gov.uk/>

Table 6-2: UKCP09 Medium Emissions, based on a 50% probability, North West Region

Time period	Variable	Change
2020s	mean winter temperature (°C)	1.2
2020s	mean summer temperature (°C)	1.5
2020s	mean winter precipitation (mm) and change (%)	6
2020s	mean summer precipitation (mm) and change (%)	-8
2050s	mean winter temperature (°C)	1.9
2050s	mean summer temperature (°C)	2.6
2050s	mean winter precipitation (mm) and change (%)	13
2050s	mean summer precipitation (mm) and change (%)	-18
2080s	mean winter temperature (°C)	2.6
2080s	mean summer temperature (°C)	3.7
2080s	mean winter precipitation (mm) and change (%)	16
2080s	mean summer precipitation (mm) and change (%)	-22

- 6.3 More recent detailed work on future flood risk has been undertaken by Sayers and Partners on behalf of the Climate Change Committee¹⁷. This estimates a total of 480,000ha of BMV land presently at risk of flooding more frequently than 1:75 years; this equates to 5.1% of total agricultural land in England. It is projected that this area could increase by 15-41% (based on +2° and +4°C scenarios) by the 2050s and by 34-60% by the 2080s. Projections for sub-regions suggest that this increase could be even greater for Cheshire East, an increase of around 100% by the 2080s. The Environment Agency's flood risk map indicates that flooding occurs along river valleys inundating agricultural land (and rural properties), resulting in agricultural soils subject to scour and soil erosion. In addition, higher water tables may mobilise pollutants and nutrients¹⁸.
- 6.4 BMV land can be found to be located close to or within flood plains and may have benefitted historically in its fertility by deposition of nutrients during periods of flooding. Nationally we have seen an increase in the incidence of flooding. Some flooding has been seen in the Cheshire East region and this can be attributed to a number of factors including climate change and increased urbanisation leading to an increase in the speed that storm water reaches water courses. In response to this risk, policy is moving towards allowing controlled flooding of agricultural land to prevent damage to residential and industrial areas. Flooding may result in soil erosion, loss of nutrients and deposition of other material that could reduce BMV land's capability for agricultural production. The possibility of flooding will also have some influence over the cropping of such land. This could be a reluctance to plant autumn cereals or high value crops such as potatoes or field vegetables. Therefore although classification may classify it as BMV land, in reality it isn't able to be utilised to its maximum potential.

¹⁷ Sayers, P.B; Horritt, M; Penning-Rowsell, E; McKenzie, A (2015) Climate Change Risk Assessment 2017: Projections of future flood risk in the UK. Research undertaken by Sayers and Partners on behalf of the Committee on Climate Change. <https://www.theccc.org.uk/wp-content/uploads/2015/10/CCRA-Future-Flooding-Main-Report-Final-06Oct2015.pdf.pdf>

¹⁸ <http://publications.naturalengland.org.uk/publication/6076647514046464>

6.5 The scale of flooding in a national context and the possibility of using flood plains to control flooding may have the potential to effectively downgrade BMV land. This has two possibly consequences. Firstly it will increase the importance of remaining BMV land in non-flooding areas, and secondly it may increase the importance of land that is not currently considered as BMV land i.e. Grade 3b.

6.6 Soils and soil condition and health are the subject of increasing concern nationally. The House of Commons Environmental Audit Committee published a paper on 2nd June 2016 in respect of the protection of soils in the UK. The summary states:

‘Soil, water and air are all essential to human life and society—but of these three, soil is often the forgotten component. Yet soil is crucial to agricultural production, climate change mitigation and adaptation, urban development, and flood risk management. Neglecting the health of our soil could lead to reduced food security, increased greenhouse gas emissions, greater flood risk, and damage to public health. We heard that some of the most productive agricultural land in the country is at risk of becoming unprofitable within a generation due to soil erosion and loss of organic carbon, and the natural environment will be seriously harmed. The Government says it will ensure that all soils are managed sustainably by 2030. Our inquiry suggests that the Government’s actions do not match its ambition, and casts doubt on whether we are on track to achieve the 2030 goal.’

Cheshire East is not immune to such concerns. The National Character Area profile¹⁹ for the area suggests: the majority of land has a low soil carbon content; loamey and clayey soils are at risk of damage to soil structure through compaction and capping; and lighter freely draining soils are at risk of soil erosion on sloping land, which can be exacerbated by low levels of organic matter.

6.7 Development is the other key influence affecting the quantity of BMV land. It includes development for housing, industry and infrastructure/transport, as well as mineral extraction (in particular sand) and waste disposal. The Cheshire East Local Plan Strategy identifies a number of sites for development. Analysis of these ‘Final Sites’ shows that they cover a total of 2,399ha including 228ha Grade 2 land, 1,455ha Grade 3 land and 98ha Grade 4 land²⁰. This breakdown is shown in Figure 6-2 and a map showing the location of Final Sites is shown in Figure 6-3. These figures exclude any land take associated with the proposed HS2 line.

¹⁹ <http://publications.naturalengland.org.uk/publication/6076647514046464>

²⁰ Note, the project specification indicates 1200 ha for residential development and 380ha for employment land, plus land for road schemes. Depending on the road scheme area, the two sets of figures broadly tally.

Figure 6-1: Potato Crop growing after heavy rain on BMV land – Chelford (June 2016)



Figure 6-2: Breakdown of Local Plan Strategy Final Sites by ALC Grade (ha)

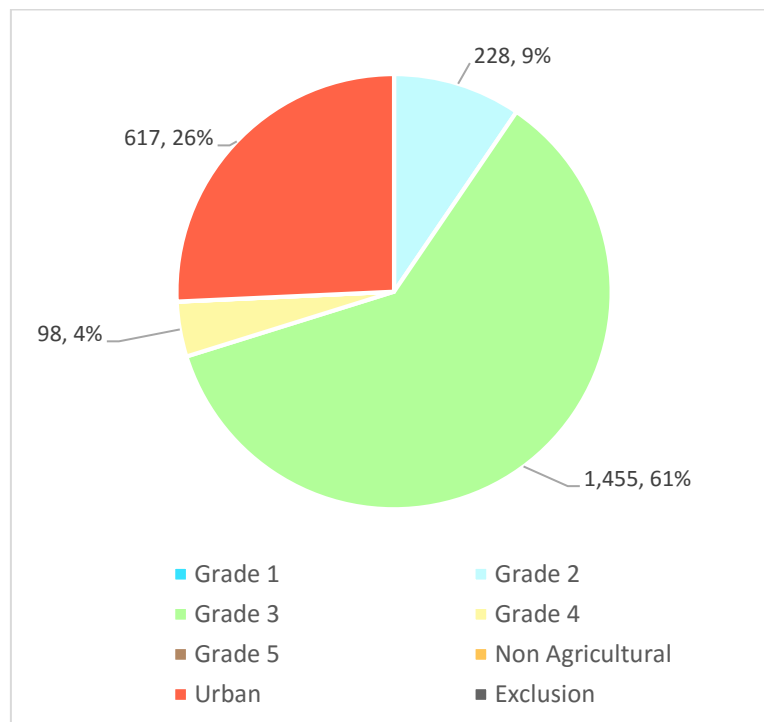
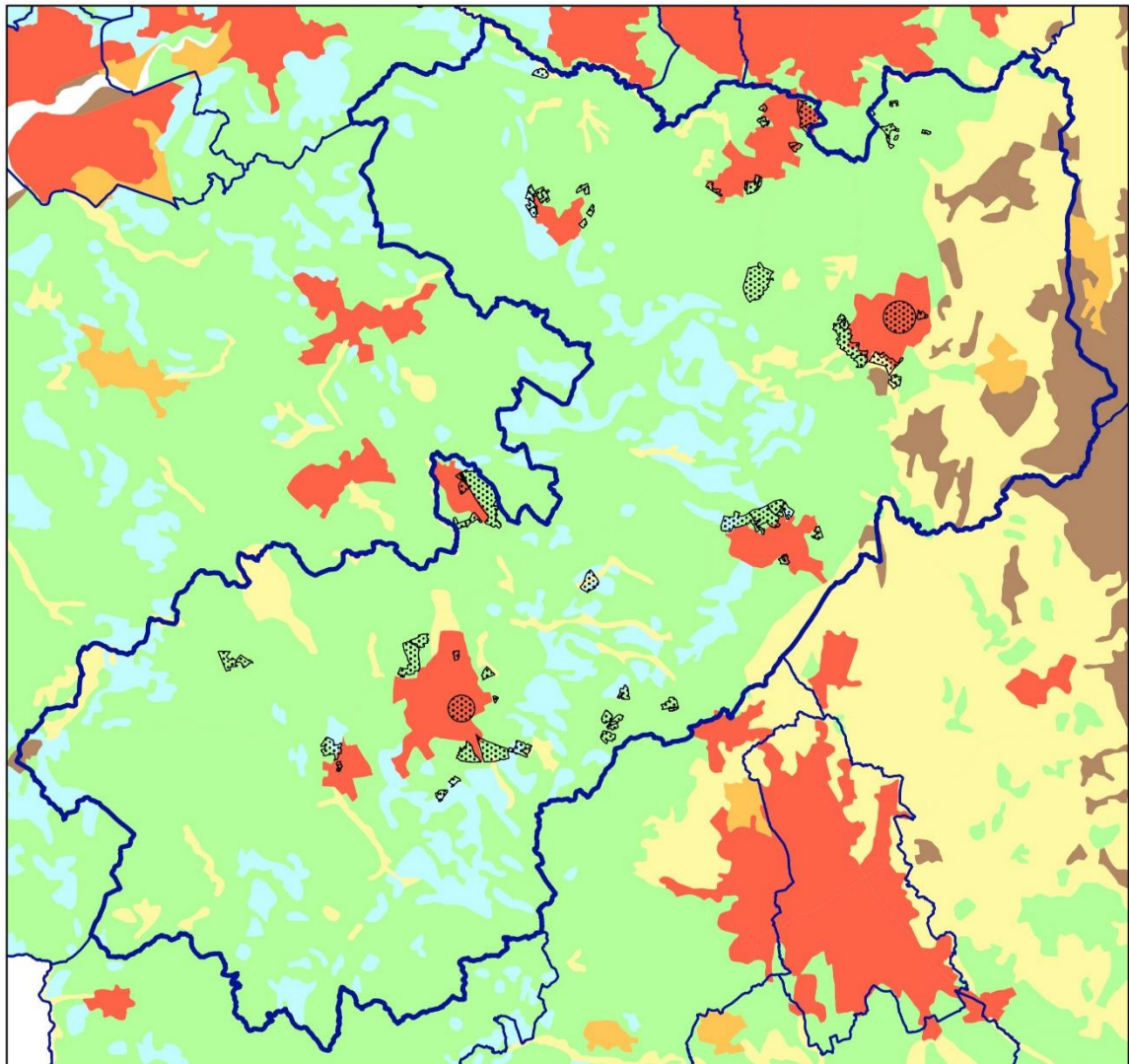


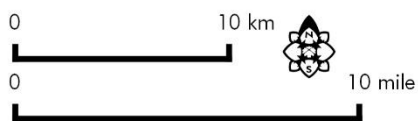
Figure 6-3: Local Plan Strategy Final Sites and ALC Grade in Cheshire East



The Role of Best and Most Versatile Agricultural Land in Cheshire East
June 2016

Provisional Agricultural Land Classification (2012) Natural England. This information is valid at the base map scale of 1:250,000 and is only suitable for strategic purposes.

- Cheshire East
- Local Authority Boundary
- Agricultural Land Classification**
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non Agricultural
- Urban
- Final Sites



OS datasets contain Ordnance Survey data
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- 6.8 The agricultural land covered by the Final Sites totals 1,781 ha or 1.6% of total agricultural land, based on ALC Grades 1-5 data. Analysis of ALC Post-1988 data for the Final Sites, which cover around 25% of the total, suggest that the Grade 3a: 3b split is 50:50 in line with the estimate set out in Section 3. On this basis, it is estimated that the Final Sites cover around 956ha of BMV land or 1.8% of the total area of BMV land in the Borough. These estimates are likely to change with more detailed site-based survey.
- 6.9 The Congleton bypass was granted planning approval on 21 June 2016. An ALC assessment was undertaken by Acorus in 2013 and updated for additional land take areas for mitigation in 2016. Most of the permanent land take which would be required for the scheme including most of the additional mitigation areas is currently in agricultural use and now totals 54.7 ha. From the ALC survey, report and map, most of the agricultural land which would be permanently taken for the scheme including the additional mitigation areas has been assessed as Grades 2 (2.38 ha, 4.3%) and 3a (40.20 ha, 73.5%). These areas (totalling 42.58 ha, 77.8%) fall within the BMV land category. The remaining agricultural areas which would be permanently taken (totalling 12.12 ha, 22.2%) are Grades 3b and 4 and therefore outside the BMV category. The report states that it will not be possible to mitigate for this loss of land apart from the use of the topsoil elsewhere. There is a further proposal to extend the bypass to the East and South West and if this proposal is adopted it can be assumed that there will be a further loss of BMV land in the area.
- 6.10 The Poynton bypass has not yet received planning approval and it is understood that planning application documents are being prepared at present, it appears that a detailed ALC assessment has not yet been prepared however some grading has been carried out close to the southern section of the proposed by pass which shows BMV in close proximity to the route.
- 6.11 Other development proposals such as quarrying for sand also are likely to have an impact on BMV land in the Borough, for example the proposal to the west of Goostrey has been partially assessed as Grade 2 and 3a i.e. BMV land. There is a possibility to restore quarried land to agriculture in the long term however it is not usually possible to restore to the original BMV grade. This is a possible mitigation to the general loss of agricultural land or can provide environmental improvements.
- 6.12 In addition to land take, further development will have an impact in terms of air, land and water pollution which may affect the quality of BMV land. For example, increased road traffic would lead to increased emissions from the combustion of petrol and diesel, including sulphur dioxide, nitrogen oxides, benzene and particulate matter²¹, which could potentially affect agricultural crops and livestock²².

²¹ <http://naei.defra.gov.uk/overview/ap-overview>

²² <https://uk-air.defra.gov.uk/air-pollution/effects>

Threats and opportunities for the quantity and quality of BMV land

6.13 The key influences of climate change, flooding, soils and development are likely to interact to result in a number of threats and opportunities for BMV land in Cheshire East, in terms of its quantity and quality.

6.14 The threats include:

- Loss of BMV land due to development
- Movement of land to lower ALC classes (including non-BMV land) due to increased temperature and droughtiness, especially on lighter soils
- Movement of land to lower ALC classes (including non-BMV land) due to increased flood risk, causing inundation, pollution and soil erosion, particularly in river valleys
- Movement of land to lower ALC classes (including non-BMV land) due to loss of soil structure and soil organic matter
- Movement of land to lower ALC classes (including non-BMV land) due to pollution and other indirect effects of development

6.15 The opportunities include:

- Minimising the loss of BMV land due to development by careful site selection and design
- Maintenance of land in higher ALC classes through climate change adaptation such as soil management, water conservation and natural flood management
- Soil measures might include:
 - improving soil structure to increase water uptake and reduce erosion by adding organic matters, undertaking best practice to reduce soil erosion and retain nutrients
 - maintaining or improving field drainage to deal with more intensive rainfall
 - strategic placement of buffer strips, hedges etc

6.16 In addition to the above, there is a wide range of land use and management measures which, while they do not affect the quantity and quality of BMV land, will benefit farm businesses in terms of long term viability and sustainability in face of key influences. For example, farmers could adapt to or mitigate the effects of climate change²³ through:

- More arable cropping
- Crop and stock selection to cope with warmer, droughtier conditions
- Longer grazing periods and more out-wintering
- Adaptation of livestock housing to prepare for warmer and more extreme weather
- Planting shelter belts to protect crops and stock
- Reducing Greenhouse Gas emissions

²³ <http://www.farmingfutures.org.uk/resources/factsheets>

- Reduction in energy consumption
 - Carbon sequestration
- 6.17 As is evident from the above, environmental pressures are likely to bring about both negative and positive impacts on BMV land. Development pressures, on the other hand, will be have a mainly negative impact on BMV land and once land is used for built development it is impossible to provide mitigation to the loss (as detailed in the EIA for Congleton bypass) The most helpful form of mitigation for BMV land is to seek to minimise its use where possible, for example planning developments on lower grade land and protecting BMV land for environmental mitigation. The use of land for field scale renewables, for example, if undertaken correctly, could conserve BMV land for the medium to long term adjoining settlements or new developments.
- 6.18 There are similar pressures on BMV land across the country, although arguably the loss of BMV land proportionately is likely to be higher in the South East and East of England, due to population and climate change pressures. This raises the importance of retaining BMV land in Cheshire East and also, as more BMV land is lost, Grade 3b may also need to be protected.

7 The overall impact of agricultural land loss as a result of development in Cheshire East

Proposed final development sites in Cheshire East

- 7.1 The Cheshire East Local Plan Strategy identifies a number of sites for residential, commercial and infrastructure/transport development, together with sites allocated for mineral extraction and waste disposal. The Final Sites set out in the Strategy cover an estimated 2,399ha including 1,781ha of agricultural land, or 1.6% of the total in Cheshire East. Of this 1,781ha, BMV land accounts for 956ha or 54%; this is equivalent to 1.8% of total BMV land in the Borough. BMV land accounts for an estimated 40% of all land identified as Final Sites. These figures exclude any land take associated with the proposed HS2 line.
- 7.2 Land take arising from proposed development of the Final Sites is likely to result in the loss of £3.4 million output and £1.3 million GVA in agriculture, together with its contribution to the output and GVA of the strategically important food and drink production sector, and agricultural supply and other associated businesses. The BMV contribution to these agricultural figures is likely to be at least £1.8 million output and £0.7 million GVA. In practice, the figures are likely to be higher due to BMV land having the highest yield potential and versatility.

BMV land in the UK and Cheshire East

- 7.3 BMV land 'punches above its weight' in agricultural and food production terms. It has the potential under the correct management systems to produce the highest agricultural yields. BMV land also has the versatility that it can be managed in a way that adapts to a variety of conditions which protects the outputs and delivers a sustainable return. The loss of BMV land can also reduce the ability of farm businesses to switch between systems and maximise yields.
- 7.4 High value horticulture and general cropping enterprises are dependent on BMV land. Other enterprises, such as dairy and cereals, where they benefit from it, value it highly for its high yield potential, accessibility and ease of working together with its versatility in terms of cropping and grazing options; in these situations, BMV land usually lies at the core of farming business. With the increasing tendency to farm larger areas to spread the fixed costs of labour and machinery, enterprises become heavily dependent on BMV land as it enables them to carry out operations in a timely manner. For agricultural businesses growing in scale, the loss of BMV land could push them towards land less suited to the enterprise resulting in less sustainability of production poorer economic returns and a greater likelihood of environmental damage. Lower grade land is suited, in the main, to one type of system, usually permanent grassland for livestock enterprises. Ploughing of such land for arable cropping can reduce soil structure and lead to erosion and nutrient leaching into water courses for example large areas of Cheshire East Borough fall within the Weaver, Gowy and Dane River catchment areas. The upper reaches of the River Dane are drinking water abstraction areas and inappropriate farming techniques could have an impact on the quality of drinking water. .
- 7.5 BMV land in Cheshire East should be evaluated as part of the wider pool of BMV land throughout the UK. There are many threats to BMV nationally. One such threat is to

The Role of Best and Most Versatile Land in Cheshire East

the low lying areas of the Norfolk and Lincolnshire Fens and some coastal areas of Lancashire. With the impact of global warming and rising sea levels these areas may become untenable especially if the current expensive drainage and pumps are not maintained. This land may be restored to Fenland peat with subsequent carbon sequestration as part of a national climate change mitigation and adaptation plan. BMV land may need special protection and soil management techniques. A high proportion of the BMV land is either light (with low organic matter) or has high organic matter content e.g. peat soils. Both these soils are highly prone to wind erosion. While this may not appear to be a problem in Cheshire East now, there is significant loss of these soils in the East of the UK. With higher summer temperatures and reduced summer rainfall this could affect Cheshire East.

- 7.6 An important global report commissioned by the United Nations published in 2007 entitled 'Agriculture at a Crossroads'²⁴ recognised the wider importance of agriculture and its multi-functionality. It stresses the importance of agriculture as a multi-output activity producing not only commodities (food, fibres, agro-fuels, medicinal products and ornamentals) but also non-commodity outputs such as professional advice services, landscape amenities, cultural heritage and energy production. The report responds to the widespread realisation that despite significant scientific and technological achievements in our ability to increase agricultural productivity, we have been less attentive to some of the unintended social and environmental consequences of our achievements. The report reflects on these consequences and outlines various policy options to meet the challenges ahead, perhaps best characterized as the need for food and livelihood security, under increasingly constrained environmental conditions from within and outside the realm of agriculture and globalised economic systems. This challenges policy makers to consider a wider holistic view when considering the permanent loss of agricultural land of whatever grade.
- 7.7 Agricultural land comprises an important part of the natural capital of Cheshire East; that is the stock of natural resources which provide ecosystem services for the benefit to people. Apart from food production, farmland has the potential to help mitigate flooding, improve water quality, sequester and store carbon, provide greenspace for recreation and amenity, and deliver for biodiversity. As far as possible, the impact of development on these different ecosystem services need to be minimised, and opportunities realised to enhance them through careful planning, design and management. It is important to note that poorly designed built development could have an impact in terms of rapid water run-off, potentially impacting the quality of local BMV land. Furthermore natural flood protection adjoining settlements is also likely to be facilitated on good quality agricultural land impacting on its versatility.

²⁴[http://www.unep.org/dewa/agassessment/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20\(English\).pdf](http://www.unep.org/dewa/agassessment/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20(English).pdf)

Glossary

ALC	Agricultural Land Classification
BMV	Best and Most Versatile
DEFRA	Department for Environment Food and Rural Affairs
FEZ	Food Enterprise Zone
GIS	Geographic Information System
GVA	Gross Value Added
LEP	Local Enterprise Partnership
MAFF	Ministry of Agriculture Fisheries and Food
NE	Natural England
UKCP	UK Climate Projections

Agricultural terminology

Arable Land - Land capable of being ploughed and used to grow crops.

Dairy Farming - Dairy farming is the production of milk.

Field Scale Vegetables – The production of horticultural crops on a large commercial scale.

DEFRA June Survey – Annual survey recording agricultural land area and farming systems.

1 Hectare (ha) = 2.471 acres (ac)

Energy Crop – An energy crop is a plant grown as a low-cost and low-maintenance harvest used to make biofuels, such as bioethanol, or combusted for its energy content to generate electricity or heat.

Organic Farming – Vegetable and livestock production using natural sources of nutrients (such as compost, crop residues, and manure) and natural methods of crop and weed control, instead of using synthetic or inorganic agrochemicals.

Fallow Period – Fallow land is not planted with crops, in order to improve the quality of the soil.

Rough Grazing – Land classed as rough grazing is land containing semi-natural vegetation including heathland, heather moorland, bog and rough grassland used or suitable for use as grazing