8FC56331

3/95

Bere Regis
Agricultural Land Classification

Prepared for MAFF by
H Lloyd Jones
ADAS Statutory Unit
Bristol

ADAS
FOOD, FARMING, LAND & LEISURE

Ministry of Agriculture, Fisheries and Food
Land Use Planning Unit

MAFF

BERE REGIS

AGRICULTURAL LAND CLASSIFICATION

CONTENTS

BERE REGIS

AGRICULTURAL LAND CLASSIFICATION SURVEY

SUMMARY

The survey was carried out by ADAS on behalf of MAFF as part of its statutory role in the preparation of the Purbeck District Local Plan. The fieldwork at Bere Regis was completed in January 1995 at a scale of 1:10,000. Data on climate, soils, geology and previous ALC Surveys was used and is presented in the report. The distribution of grades is detailed below and illustrated on the accompanying ALC map. Information is correct at this scale but could be misleading if enlarged.

Distribution of ALC grades: Bere Regis

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	7.8	75.0	92.9	
4	0.6	5.8	7.1	
Urban	1.3	12.5	0.0	
Non Agricultural	0.6	5.8	0.0	
Agricultural Buildings	0.1	0.9	0.0	
TOTAL	10.4	100.0	100.0	(10.4 ha)

Most of the agricultural land has either a minor workability and, or a minor droughtiness limitation and is mapped as Grade 2. The only land which is not 'best and most versatile' has a severe limitation due to its gradient. This is mapped as Grade 4.

1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in January 1995 at Bere Regis on behalf of MAFF as part of its statutory role in the preparation of the Purbeck District Local Plan Local Plan. The fieldwork covering 10.4 ha of land was conducted by ADAS at a scale of 1:10,000 (approximately one boring per hectare of agricultural land). A total of 9 auger borings were examined and 1 soil profile pit used to assess subsoil conditions.

The published provisional one inch to the mile ALC map of this area (MAFF 1974) shows the grades of the site at a reconnaissance scale. The whole of the site was mapped as Grade 3.

The recent survey supersedes this map having been carried out at a more detailed level and using the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). These guidelines provide a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The grading takes account of the top 120 cm of the soil profile. A description of the grades used in the ALC system can be found in Appendix 2.

2. CLIMATE

The grade of the land is determined by the most limiting factor present. The overall climate is considered first because it can have an overriding influence on restricting land to a lower grade despite other favourable conditions.

Estimates of climatic variables were interpolated from the published agricultural climate dataset (Meteorological Office 1989). The parameters used for assessing overall climate are accumulated temperature (a measure of the relative warmth of a locality) and average annual rainfall (a measure of overall wetness). The results shown in Table 1 indicate there is no overall climatic limitation.

Table 1: Climatic Interpolations: Bere Regis

Grid Reference		SY 849 951
Altitude (m)		55
Accumulated Temperature (day °)		1515
Average Annual Rainfall (mm)		878
Overall Climatic Grade		1
Field Capacity Days		181
Moisture deficit (mm):	Wheat	105
	Potatoes	97

Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat and potatoes are also shown. These data are used in assessing the soil wetness and droughtiness limitations referred to in later sections.

3. RELIEF AND LANDCOVER

The site is on the northern edge of Bere Regis with a high point at Snow Hill of 60 m AOD. The land falls away to the east and west to a height of 50 m AOD. Most of the land has gentle slopes of less than 7° gradient but there is an area where the gradient increases to 13°. At the time of the survey all of the agricultural land was under pasture.

4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale drift geology map, sheet 328. Institute of Geological Sciences 1978. The whole of the site is mapped as being underlain by Upper Chalk.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000. This shows the whole site to consist of soils from the Frilsham Association, which are described as being well drained mainly fine loamy soils over chalk, some of which are calcareous. There are also shallow calcareous fine loamy and fine silty soils in places. There is an area of soils from the Carstens Association just to the north of the site which are described as being well drained fine silty over clayey, clayey and fine silty soils which are often very flinty.

The soils found during the recent survey fall into three groups. Firstly in the north east area of the site are shallow well drained loamy soils over fissured chalk which are similar to the soils in the Frilsham Association. The second group contains deep, well drained loamy profiles over clay with 5% chalk in the topsoil and 10% and 20% chalk in the subsoils. The last group of profiles are also deep, well drained loams over clay but with 5% hard rocks in the topsoil and 15% hard rocks in the lower subsoil.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades is shown in Table 2 and on the accompanying ALC map. The information could be misleading if shown at a larger scale.

Table 2: Distribution of ALC grades: Bere Regis

Grade	Area (ha)	% of Survey Area	% of Agricultural Land	
2	7.8	75.0	92.9	
4	0.6	5.8	7.1	
Urban	1.3	12.5	0.0	
Non Agricultural	0.6	5.8	0.0	
Agricultural Buildings	0.1	0.9	0.0	
TOTAL	10.4	100.0	100.0	(10.4 ha)

Grade 2

Most of the agricultural land has been mapped as Grade 2 with either a minor workability limitation or a minor droughtiness limitation, or both. All of the profiles are well drained and were assessed as Wetness Class I (see Appendix 3). The medium clay loam topsoils with the local FCD value of 181 cause the workability limitation. The droughtiness occurs where the profile is shallow over chalk or where the stone type in the subsoil is a hard rock rather than chalk stones.

Grade 4

A small area of land was mapped as Grade 4 due to a severe gradient limitation. The gradient was measured at 13° which would restrict the type of agricultural machinery which could be safely used.

Other land

An area of allotment gardens has been mapped as non-agricultural land and gardens and lanes are mapped as urban. Agricultural buildings are so marked.

Resource Planning Team
Taunton Statutory Unit
February 1995

APPENDIX 1

REFERENCES

INSTITUTE OF GEOLOGICAL SCIENCES (1978) Drift Edition, Sheet 328, Dorchester 1:50,000

MAFF (1974) Agricultural Land Classification Map, Sheet 178, Provisional 1:63,360 scale.

MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for grading the quality of agricultural land), Alnwick.

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification.

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 5, Soils of South West England, 1:250,000 scale.

APPENDIX 2

DESCRIPTION OF GRADES AND SUBGRADES

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 in the 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.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 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, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 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.

Descriptions of other land categories used on ALC maps

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private park land, public open spaces, sports fields, allotments and soft-surfaced areas on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Agricultural buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg polythene tunnels erected for lambing) may be ignored.

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above landcover types, eg buildings in large grounds, and where may be shown separately. Otherwise, the most extensive cover type will usually be shown.

Source: MAFF (1988) Agricultural Land Classification of England and Wales (Revised Guidelines and Criteria for Grading the Quality of Agricultural Land), Alnwick.

APPENDIX 3

DEFINITION OF SOIL WETNESS CLASSES

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years.

Wetness Class II

The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.

Wetness Class III

The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31 and 90 days in most years.

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.

Wetness Class V

The soil profile is wet within 40 cm depth for 211-335 days in most years.

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most years.

Notes: The number of days specified is not necessarily a continuous period. 'In most years' is defined as more than 10 out of 20 years.

Source: Hodgson, J M (in preparation), Soil Survey Field Handbook (revised edition).

SITE NAME	PROFILE NO.	SLOPE AND ASPECT	LAND USE		PARENT MATERIAL
Bere Regis	Pit 1 (ASP 3)	3° East	Ley	Av Rainfall: 878 mm ATO: 1515 day °C	Upper Chalk
JOB NO.	DATE	GRID REFERENCE	DESCRIBED BY	FC Days: 181 Climatic Grade: 1	SOIL SAMPLE REFERENCES
3/95	27/1/95	SY 851 952	HLJ	Exposure Grade: 1	RPT/HLJ/118

Horizon No.	Lowest Av. Depth (cm)	Texture	Matrix (Ped Face) Colours	Stoniness: Size,Type, and Field Method	Mottling Abundance, Contrast, Size and Colour	Mangan Concs	Structure: Ped Development Size and Shape	Consistence	Structural Condition	Pores (Fissures)	Roots: Abundance and Size	Calcium Carbonate Content	Horizon Boundary: Distinctness and form
1	25	MCL	10YR53	5% CH Total (vis)	None	None	-	-	-	Good	CF+VF	-	Clear smooth
2	46	HCL	10YR64	5% CH Total (vis)	None	None	MCSAB	Friable	M	Good	CF+VF	-	Abrupt smooth
3	80+	CH	05Y81	80% CH Total (vis)	None	None	WCSAB	Friable	M	Well fissured	FF+VF	-	-

Profile Gleyed From: Not gleyed

Depth to Slowly Permeable Horizon: No SPL

Wetness Class: I

Wetness Grade: 2

Available Water	Wheat:	130 mm
	Potatoes:	101 mm
Moisture Deficit	Wheat:	105 mm
	Potatoes:	97 mm
Moisture Balance	Wheat:	25 mm
	Potatoes:	4 mm
Droughtiness Grade:		2 (Calculated to 120 cm)

Final ALC Grade: 2

Main Limiting Factor(s): Workability and Droughtiness

Remarks:

Pit dug to 80 cm. Augered to 110 cm. Roots visible until at least 80 cm. Some soil and staining along roots and fissures in H3.

NL336k