8FCs 4914 99/92

FREEMANS FARM, FELTON, AVON

AGRICULTURAL LAND CLASSIFICATION

Report of survey

1. INTRODUCTION

Seventy eight hectares of land at Freemans farm, Felton were graded using the Agricultural Land Classification (ALC) System in January 1993. The survey was carried out for MAFF as part of its statutory role in response to an ad hoc planning application for the creation of a limestone quarry made to Avon County Council.

The fieldwork was carried out by ADAS's Resource Planning Team (Taunton Statutory Unit) at a scale of 1:10,000 (approximately one sample point every hectare). The information is correct at the scale shown but any enlargement would be misleading. This survey supercedes the 1" to the mile ALC map of this area being at a more detailed level and carried out under the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988). A total of 74 borings and 4 soil pits were examined.

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 grading takes account of the top 120cm of the soil profile. A description of the grades used in the ALC System can be found in the appendix.

The distribution of ALC grades identified in the survey area is detailed below and illustrated on the accompanying map.

Table 1 Distribution of ALC grades: Freemans farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	2.9	3.7	3.7
3A	50.7	64.8	65.7
3B	10.1	12.9	13.1
4	13.5	17.2	17.5
Urban	0.6	0.8	100% (77.2ha)
Farm Bdgs	0.5	0.6	
TOTAL	78.3	100%	

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 lower grades despite other favourable conditions.

To assess any overall climatic limitation, estimates of important climatic variables were obtained for the site by interpolation from the 5km grid Met Office/Maff Database (Met Office/MAFF/SSLRC 1989). The parameters used for assessing 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 2 reveal that there is an overall climatic limitation across the survey area. The area can be graded no better than Grade 2.

No local climatic factors such as exposure were noted in the survey area. Climatic data on Field Capacity Days (FCD) and Moisture Deficits for wheat (MDW) and potatoes (MDP) are also shown. This data is used in assessing the soil wetness and droughtiness limitations referred to in Section 5.

Table 2 Climatic Interpolations: Freemans Farm

Grid Reference	ST 580 647	ST 518 672
Height (m)	167	182
Accumulated Temperature ($^{\circ}$ days)	1361	1346
Average Annual Rainfall (mm)	927	919
Overall Climatic Grade	2	2
Field Capacity (Days)	201	202
Moisture Deficit, Wheat (mm)	75	73
Potatoes (mm)	59	56

3. RELIEF

The survey area undulates gently and lies higher than the land to the north east which drops away just beyond the survey area. There are no limiting slopes.

4. GEOLOGY AND SOILS

The geology of the survey area is complex as shown on British Geological Survey sheet 264 (1:50,000). The northern fringe has Goblin Coombe oolite. To the south there is Clifton Down Mudstone. The other main types of geology are Harptree Beds and Lias.

Almost the whole site was found to have heavy clay loam topsoils, the remaining few being medium clay loams. The

texture of the soil becomes heavier with depth. The transition to clay occurred at variable depths. Part of the site has stoney soils and some of the soils have restricted drainage.

5. AGRICULTURAL LAND CLASSIFICATION

The distribution of ALC grades identified in the survey area is detailed in Section 1 and shown on the accompanying ALC map. The information is correct at the scale shown but any enlargement would be misleading.

Grade 2

A small area of Grade 2 was identified around Freemans Farm. Here the soils are stoney but free draining and can be assigned to Wetness Class I. The topsoil texture is medium clay loam. The combination of topsoil texture, Wetness Class and the FCD value for the site permits these soils to be Grade 2.

Subgrade 3a

The majority of the site has been classified as Subgrade 3a. The topsoils are mainly heavy clay loams with the occassional medium clay loams. Much of the site has stoney soils. The stone content was measured in a soil pit and by topsoil seiving. Small areas of the site had topsoil stone contents with stones over 6cm limiting the land to Subgrade 3b, but these were too small to map as separate units and have been incorporated into the Subgrade 3a unit. The soil pit showed that despite stone contents of around 40% in the subsoils (increasing with depth) a restriction on available water for crops did not exceed other limitations.
The soils are freedraining and can be assigned to Wetness Class I. This combined with the topsoil texture and FCD value permits the soil to qualify for Subgrade 3a.

Subgrade 3b

Two small areas of Subgrade 3b were identified. Both these areas show resticted drainage in the form of gleying caused by slowly permeable layers. The depth at which these occur means that the soils are placed into Wetness Class III. These soils have heavy clay loam topsoils which become clays in the subsoils. These soils are less stoney than those identified as Subgrade 3a. Soils with heavy clay loam topsoils falling into Wetness Class III at 202 FCDs can be graded no better than Subgrade 3b.

Grade 4

An area of Grade 4 in the centre of the site was found. Here the restriction to drainage are greater than for the

Subgrade 3b soils. Gleying is often present from the surface with slowly permeable layers high in the subsoil. These soils are therefore placed into Wetness Class IV and can be graded no better than Grade 4 with a heavy clay loam topsoil.

APPENDIX

DESCRIPTION OF THE GRADES AND SUB-GRADES

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 an 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 moist 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 parkland, 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 land cover types, eg buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will usually be shown.