

8FCS 4822

87/92

## MARKHAM FARM, EASTON-IN-GORDANO.

## AGRICULTURAL LAND CLASSIFICATION

## Report of survey

## 1. INTRODUCTION

Thirty six hectares of land around Markham Farm, Easton-in-Gordano, were graded under the Agricultural Land Classification (ALC) system in September 1992. The survey was carried out for MAFF as part of its statutory role in response to an ad hoc planning application made to Woodspring District Council.

The fieldwork was carried out by ADAS's Resource Planning Team (Wessex Region) 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 previous survey of this area at 1" being at a more detailed level and carried out under the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1989). A total of 35 borings and 2 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: Markham Farm

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
2	28.4	78.9	80.8
3A	4.1	11.4	11.6
3B	2.3	6.4	6.6
4	0.4	1.1	1.0
N.A.	0.8	2.2	
TOTAL	36.0	100%	100%(35.2 ha)

The majority of land is graded 2 or 3A, due to the topsoil texture causing workability limitations. The areas of grades 3B and 4 were downgraded according to the degree of slope.

## 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 no climatic limitation at this survey area.

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: Markham Farm

Grid Reference	ST525750
Height (m)	30
Accumulated Temperature ( $^{\circ}$ days)	1516
Average Annual Rainfall (mm)	879
Overall Climatic Grade	1
Field Capacity (Days)	194
Moisture Deficit, Wheat (mm)	92
Potatoes (mm)	82

## 3. RELIEF

The survey area is comprised of several small undulations trending North-South. In the South the slopes only reach gradients of 5 and 6 degrees, but in the Northern area the West facing slopes measure 6-9 degrees, and East facing slopes over 11 degrees. Despite these undulations the altitude remains 30m above sea level.

## 4. GEOLOGY AND SOILS

The majority of the survey area is underlain by Keuper Marl but there is a wedge of drift deposits known as Head cutting the Western half from North to South as shown on BGS sheet 264.

The soils across the survey area become heavier with depth. Topsoils of medium and heavy clay loams grade into clays at depth. Occasionally the sand content also increases but not sufficiently to cause droughtiness limitations. From a depth of 50 cm, throughout the site, the stone content increases from 2% to 25% in the centre and 70% over in the West. The soils are free draining throughout and show little or no droughtiness limitations.

## 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

The majority of the survey area has been classified as Grade 2. Two soil pits dug in this area confirm that the soils show no evidence of wetness and can be placed into Wetness Class I. However, the combination of medium clay loam topsoils and the relatively high field capacity value mean that this area can be graded no better than Grade 2. A workability limitation is said to exist. These soils become stonier with depth but the effect on droughtiness imposes no greater limitation than other factors.

### Subgrade 3A

These soils are similar to those described above but have a heavy clay loam topsoil. The soils in this area have therefore been downgraded to Subgrade 3A according to workability. The heavier topsoil texture reduces the opportunities for access onto the land when damage to soil structure would not occur.

### Subgrade 3B

The soils in this area can be classed as Grade 2 according to the workability limitation caused by a medium clay loam topsoil. However, the gradient of the slope in this region is over 7 degrees, therefore reducing the overall grade to Subgrade 3B. This gradient reduces the versatility of the land because the range of machinery that can be safely used is reduced.

### Grade 4

As above the soils in this sector can be graded no higher than Grade 2 according to workability. However, the gradient present is greater than 11 degrees and so downgrades this area to Grade 4. Risks of soil erosion are increased when this land is cultivated.

## 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 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 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.