

8FCs 4797

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COTSWOLD DISTRICT LOCAL PLAN: FAIRFORD

AGRICULTURAL LAND CLASSIFICATION

Report of Survey

1 INTRODUCTION

Just over thirty-three hectares of land at Fairford were graded under the Agricultural Land Classification (ALC) System in September 1992. The survey was carried out as part of MAFF's statutory input into the draft consultation of the Cotswold District Local Plan.

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 previous surveys of this area at 1" and the 1985 survey at 1:10,000 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 32 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: Fairford

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3A	21.1	63.2	64.1
3B	11.8	35.3	<u>35.9</u>
Non Agri	<u>0.5</u>	<u>1.5</u>	100% (32.9 ha)
TOTAL	33.4	100%	

The survey area was found to consist of Subgrades 3A and 3B.

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 the 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 overall climatic limitation. The grade throughout is Grade 1.

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: Fairford

Grid Reference	SP 163 004
Height (m)	80
Accumulated Temperature (deg days)	1433
Average Annual Rainfall (mm)	715
Overall Climatic Grade	1
Field Capacity (Days)	160
Moisture Deficit, Wheat (mm)	103
Potatoes (mm)	94

3. RELIEF

The survey area at Fairford is flat, lying at an altitude of 80 m.

4. GEOLOGY AND SOILS

In the north of the survey area there are drift deposits of Lower Gravels (of the river plain). The south of the site is underlain by Alluviums, as shown on BGS sheet 235.

The topsoils in the north of the survey area are mostly heavy clay loams, and in the south medium clay loams. The subsoils generally become lighter (sandy loams and sands) and stonier with depth. The stone contents of the soil prevented deep penetration with a soil auger. The stone percentages were determined by sieving horizons in the soil

pits. Volumes were calculated by displacement in water. The topsoil content was found to be 2%, increasing to a maximum of 53% in some subsoils, resulting in a droughtiness limitation. To the north of the site the soils are free draining, but to the south there is evidence of inhibited 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 3A

Approximately two-thirds of the agricultural land surveyed has been classified as Subgrade 3A. A small area adjacent to the River Coln, to the south-east of the site, represents soils where a wetness limitation exists. The subsoils in this area are predominantly coarse textured, and hence not slowly permeable layers (SPLs). However, the presence of groundwater gleys at depths of 40-70 cm depth means the soils are placed in Wetness Class III. However, the combination of medium clay loam topsoils and the relatively high Field Capacity value (160 days) means that these soils can be graded no better than Subgrade 3A. A soils wetness limitation adversely affects plant growth or imposes restrictions on cultivation or grazing by livestock.

The remainder of soils classified as Subgrade 3A have a droughtiness limitation. The stone content of the soil was measured in a soil profile pit by sieving the soil and using displacement in water. The topsoil stone content was found to be 2% hard rock, increasing to 45% and 50% in progressive subsoils. Clay loam topsoils become heavier mid-depth (clay loams and clay) and then abruptly change into medium sandy loams at 60 cm or deeper. The high percentage of stones restricts the available water to crops, and is the most limiting factor.

Grade 3B

Approximately one-third of the survey area has been classed as Subgrade 3B, because of a more severe droughtiness limitation. The stone contents were measured in two soil pits, again using the method of displacement in water. The topsoil content was found to be 2%, increasing to 48% and 53% (hard rock) at depth. Relatively shallow clay loams (40 cm) are underlain by stony (48%) sandy loams mid-depth and stonier (53%) sands at depth. The high percentage of stones means a droughtiness limitation exceeds other limitations.

In addition, a very small area to the south-east of the site has been classed Subgrade 3B because of a soil wetness limitation. These soils have groundwater gleys and a SPL, placing them in Wetness Class IV. Soils in this Class, with a medium clay loam topsoil and a Field Capacity value of 160 days, are downgraded to Subgrade 3B.

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.