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Yew Tree Farm, Huntley  
AGRICULTURAL LAND CLASSIFICATION

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**YEW TREE FARM, HUNTLEY**  
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## YEW TREE FARM, HUNTLEY

### AGRICULTURAL LAND CLASSIFICATION SURVEY

#### SUMMARY

The survey was carried out by ADAS on behalf of MAFF in response to an ad-hoc planning application for a proposed golf course. The fieldwork was completed in September 1994 at a scale of 1:10,000. Data on climate, soils, geology and from previous Agricultural Land Classification (ALC) Surveys was used and is presented in the report. The distribution of grades is shown on the accompanying ALC map and summarised below. Information is correct at this scale but could be misleading if enlarged.

#### Distribution of ALC grades: Yew Tree Farm, Huntley

Grade	Area (ha)	% of Survey Area	% of Agricultural Land
3b	25.2	92	100
Urban	1.1	4	
Non Agricultural	0.5	2	
Open Water	0.6	2	
TOTAL	27.4		(25.2 ha)

The soils are variable, but all have a wetness limitation leading to a grade of 3b. Topsoils are generally heavy clay loam, with a gleyed and slowly permeable layer below 40 cm depth.

## 1. INTRODUCTION

An Agricultural Land Classification (ALC) Survey was carried out in September 1994 at Yew Tree Farm, Huntley, Gloucestershire, on behalf of MAFF in response to an ad-hoc planning application for a proposed golf course. The fieldwork covering 27.4 ha of land was conducted by ADAS at a scale of 1:10,000 with approximately one boring per hectare of agricultural land. A total of 27 auger borings were examined and one soil profile pit used to assess subsoil conditions.

The published provisional one inch to the mile ALC map of this area (MAFF 1972) shows the grades of the site at a reconnaissance scale. Part of the site, adjacent to Huntley, is mapped as urban, and the remainder as Grade 3.

The south-western quarter of the area was also surveyed in 1980 at a scale of 1:10,000. It was mapped as Subgrade 3b.

The recent survey supersedes these maps, 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: Yew Tree Farm, Huntley**

Grid Reference		SO 729195
Altitude (m)		45
Accumulated Temperature (day °)		1474
Average Annual Rainfall (mm)		776
Overall Climatic Grade		1
Field Capacity Days		169
Moisture deficit (mm):	Wheat	100
	Potatoes	91

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 slopes from the north-east and the south-west with a valley running across the southern part. The valley has been dammed to form 2 small lakes. The altitude ranges from 50 m AOD to 35 m AOD. Slopes are not limiting. The entire site was planted as a commercial orchard at the time of survey.

#### 4. GEOLOGY AND SOILS

The geology of the site is shown on the published 1:50,000 scale solid and drift geology map, sheet 234, Institute of Geological Sciences 1972.

The site has a deposit of river gravels on the higher ground around Yew Tree Farm and along the southern and western sides, over Keuper Marl which can be found under the lower ground around Solomon's Tump.

The soils were mapped by the Soil Survey of England and Wales in 1983 at a reconnaissance scale of 1:250,000 as belonging mainly to the Brockhurst 1 Association. These are described as being slowly permeable, seasonally waterlogged, reddish fine loamy over clayey. Some similar soils have slowly permeable subsoils and only slight seasonal waterlogging. A band of soils along the eastern edge of the site belong to the Worcester Association and are described as slowly permeable, non-calcareous and calcareous, reddish clayey soils over mudstone and are shallower on slopes. They are associated with similar non-calcareous fine loamy over clayey soils and have a slight risk of water erosion.

The soils found during the recent survey all belong to the Brockhurst 1 Association.

#### 5. AGRICULTURAL LAND CLASSIFICATION

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

**Table 2: Distribution of ALC grades: Yew Tree Farm, Huntley**

<b>Grade</b>	<b>Area (ha)</b>	<b>% of Survey Area</b>	<b>% of Agricultural Land</b>
3b	25.2	92	100
Urban	1.1	4	
Non Agricultural	0.5	2	
Open Water	0.6	2	
<b>TOTAL</b>	<b>27.4</b>		<b>(25.2 ha)</b>

##### **Subgrade 3b**

The entire agricultural area of the site was graded as 3b. The soils are variable in nature, with topsoil textures of medium and heavy clay loam, the heavier textures being more prominent. Where shallow medium clay loam topsoils occur, the average texture of the top 25 cm is usually heavy clay loam. Stone content is variable over the river gravels, but is not limiting. In some areas topsoil stones appear to have been artificially introduced. The subsoils are clay, with a gleyed slowly permeable layer occurring below 40 cm. A better structured lower subsoil of parent material Keuper Marl sometimes occurs above 100 cm depth. Wetness classes (see Appendix 3) of 3 and 4 occur, which with the heavy clay loam topsoil and 169 FCD lead to a 3b grading over the whole site.

Resource Planning Team  
Taunton Statutory Unit  
September 1994

**APPENDIX 1**

**REFERENCES**

INSTITUTE OF GEOLOGICAL SCIENCES (1972), Sheet 243

MAFF (1972) Agricultural Land Classification Map, Sheet 143, 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 Yew Tree Farm, Huntley		PROFILE NO. Pit 1	SLOPE AND ASPECT 0°	LAND USE Fruit	Av Rainfall:   mm ATO:   day °C FC Days: 169 Climatic Grade: 1 Exposure Grade: 1	PARENT MATERIAL River Gravel/Keuper Marl
JOB NO. 102/94		DATE 9/9/94	GRID REFERENCE (ASP 10/16)	DESCRIBED BY PRW/HLJ		SOIL SAMPLE REFERENCES RPT/HLJ/

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	8	MCL	10YR3/3	5% Estimated	None	None	-	-	-	Many	Many fine	None	Abrupt wavy
2	30	MCL	10YR4/3	1% >2cm 24% <2cm Sieved	10YR5/6 Common	None	Moderate Coarse Subangular Blocky Not discernible	Friable	Moderate	Many	Few, V fine Many Medium	None	Abrupt smooth
3	55	HCL	10YR6/4	10% >2cm 29% <2cm Sieved	10YR5/8 Many Ironstone cementation	None	Not discernible	Firm	Moderate	Poor	None	None	Abrupt smooth
4	70	C	5YR4/4	None	5Y6/3 Few	Few	Weak Coarse Subangular Blocky	Very firm	Poor	0.5% biopores	None	None	-
Augered 5	120	C	5YR4/4	None	5Y6/3 Few	Few	" "	Very firm	Poor	0.5%	None	None	-

Profile Gleyed From: 8 cm

Depth to Slowly Permeable Horizon: 55 but cemented layer above is slowly permeable

Wetness Class: IV

Wetness Grade: 3b

Available Water Wheat: 110 mm

Potatoes: 86 mm

Moisture Deficit Wheat: | mm

Potatoes: | mm

Moisture Balance Wheat: 10 mm

Potatoes: -5 mm

Droughtiness Grade: 2 (Calculated to 120 cm)

Final ALC Grade: 3b

Main Limiting Factor(s): Wetness

Remarks: