4010 - 8892

AGRICULTURAL LAND CLASSIFICATION

MANOR FARM TONGHAM SURREY

ADAS Ref 4003/88/92

MAFF Ref EL 9104

Resource Planning Team

Guildford Statutory Centre

ADAS Reading

AGRICULTURAL LAND CLASSIFICTION

MANOR FARM, TONGHAM, SURREY

1 Introduction

1 1 During September 1992 an Agricultural Land Classifiction (ALC) survey was carried out on approximately 14 ha of land to the south-east of Tongham in Surrey ADAS was commissioned by MAFF to determine the quality of land affected by a road route proposal

1 2 The survey work was carried out at a detailed level of approximately one boring per hectare on a grid basis A total of 20 borings and three soil inspection pits were described in accordance with MAFF's 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 its agricultural use

At the time of survey the majority of the site had been ploughed whilst stubble was present in the field immediately to the west of the A3014

1 3 The distribution of the grades and sub-grades is shown on the attached ALC map and the areas and extent are given in the table below The map has been drawn at a scale of 1 10 000 It is accurate at this scale but any enlargement may be misleading

Distribution of Grades and Sub-grades

	Area (ha)	% total agricultural land
Grade 2	9 7	70
3a	4 2	30
Total agricultural area	13 9	100
Woodland and non-agricultural	0 2	
Total area of site	14 1 ha	

1 4 Appendix 1 gives a general description of the grades and land use categories identified in this survey

1 5 The site comprises very good to good quality agricultural land Which has been graded largely on the basis of slight soil droughtiness limitations although the lowest lying land adjacent to the dismantled railway is subject to slight soil wetness problems and has been graded accordingly

A range of soils were found to occur across the site Soils across the low lying land were variable but generally comprised medium textures passing to heavier textures in the subsoil These soils were found to be imperfectly drained as evidenced by gleying as a result of slowly permeable subsoil horizons at variable depths and were

assigned to wetness class III
Across the lower-mid slopes soils were typically light sandy and well drained but as such are prone to a slight droughtiness limitation and were thus graded 2 Similar soils occur on the upper slopes but profiles pass to chalk at variable depths from 35-110 cm Soil droughtiness limits this land to grades 2 or 3a the severity of the limitation being dependent upon depth to chalk

2 PHYSICAL FACTORS AFFECTING LAND QUALITY

Relief

2 1 The site lies at an altitude of about 70 to 110 m AOD the highest land occurring towards the south-east falling gently in a north-westerly direction towards the dismantled railway which acts as the northern site boundary
Nowhere on the site is altitude or gradient a limitation to agricultural land quality

Climate

2 2 Estimates of climatic variables relevant to the assessment of agricultural land quality were obtained by interpolation from a 5 km grid dataset (Met Office 1989) for representative locations in the survey area

Climatic Interpolation

Grid Reference	SU878485	SU887482
Altitude (m AOD)	75	100
Accumulated Temperature (°days Jan-June)	1445	1416
Average Annual Rainfall (mm)	713	725
Field Capacity Days	152	153
Moisture Deficit Wheat (mm)	108	104
Moisture Deficit Potatoes (mm)	100	96

2 3 Climate does not represent a significant limitation to agricultural land quality at this locality However climatic factors specifically field capacity days and crop adjusted soil moisture deficits do interact with soil factors to influence soil wetness and droughtiness limitations

Geology and Soils

2 4 British Geological Survey Sheet 285 Aldershot (1976) shows a close correlation between geology and topography Cretaceous Upper Chalk has been mapped across the mid and upper slopes whilst Palaeocene Reading Beds are shown across the lower slopes Alluvium overlies the Reading Beds in the valley bottom

2 5 Soil Survey of England and Wales Sheet 6 Soils of South-East England (1983) indicates the presence of two soil mapping units across the site Soils of the Upton 1 association have been mapped across the upper slopes These are described as shallow well drained silty soils overlying chalk or chalk rubble (SSEW 1984) The remainder of the site is shown to comprise soils of the Frilsham association fine loamy soils over chalk at moderate depth (SSEW 1984)

2 6 In general terms detailed field examination indicates the presence of geological deposits as described by the British Geological Survey and soils similar to those mapped by the Soil Survey However chalk was not encountered in all profiles and soils were heavier across the lower slopes than the published soils map would suggest

3 AGRICULTURAL LAND CLASSIFICATION

3 1 The ALC grading of the site is primarily determined by the interaction between soils and climatic factors giving rise to soil wetness and more significantly soil droughtiness limitations ALC grades 2 and 3a have been mapped in addition to areas of land in non-agricultural use and woodland

3 2 Grade 2

This very good quality agricultural land represents 70% of the total site area and is subject to only minor limitations to agricultural use Profiles typically comprise very slightly stony (ie 2% flints by volume) medium sandy loam or occasionally sandy clay loam topsoils Subsoils are of similar texture and may pass to loamy medium sand or medium sand in the lower subsoil Profiles are only very slightly stony at most and may pass to rubbly chalk at depths greater than 70 cm above an altitude of about 80m
The land is well drained wetness class I but is limited to a minor extent by slight soil droughtiness The combination of light freely draining soils and a relatively warm dry climate results in soils whose moisture reserves may not be sufficient to meet the demands of a crop particularly during the warm dry summer months

3 3 Grade 3a

This good quality agricultural land occurs in two situations on the site The unit of grade 3a land which has been mapped adjacent to the dismantled railway suffers from slightly imperfect drainage Profiles are variable but generally comprise medium textured topsoils such as medium clay loam or sandy silt loam which may contain 2-3% flints by volume These pass to sandy clay loam heavy clay loam or clay in the subsoil Gleying is evident from 38-45 cm whilst the clay horizons in the lower subsoil are slowly permeable Such drainage characteristics place these soils in wetness class III With this drainage status, sub-grade 3a is appropriate
The remaining land graded 3a comprises similar but shallower soils to those described in section 3 2 above Typically sandy clay loam topsoils and upper subsoils pass to chalk within 35-40 cm The warm dry climatic regime at this locality combines with shallow soil profiles over chalk to give rise to a slight soil droughtiness limiatation such that sub-grade 3a is appropriate Crops will be prone to slight drought stress as a result of reduced reserves of available water in the soil profile

December 1992
ADAS Ref 4003/88/92
MAFF Ref EL 9104

Resource Planning Team
Guildford Statutory Centre
ADAS Reading

SOURCES OF REFERENCE

- British Geological Survey (1976) Sheet 285 Aldershot
- MAFF (1988) Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land
- Meteorological Office (1989) Climtic datasets for Agricultural Land Classification
- Soil Survey of England and Wales (1983) Sheet 6 Soils of South-East England
- Soil Survey of England and Wales (1984) Bulletin 15 Soils and their use in South-East England