

Report of the MAFF Agricultural Land Classification Survey - Cawston, Nr Rugby

1. Summary:

The land has been classified following the Agricultural Land Classification of England and Wales - revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). Of the land surveyed 79% is classified as Grade 2 and 12% as Subgrade 3a. A further 7% is classified as Subgrade 3b. The remaining area includes buildings and ponds.

2. Climatic Limitations:

The main parameters used in the assessment of the climatic limitations are average annual rainfall (AAR), as a measure of overall wetness and accumulated temperature (ATO), as a measure of the relative warmth of the locality. The figures of AAR and ATO indicate that there are no climatic limitations on this site.

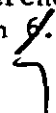
3. Site Limitations:

The assessment of site factors is primarily concerned at the way in which topography influences the use of agricultural machinery and hence the cropping potential of the land. There are no site limitations affecting the use of the land.

4. Soil Limitations:

The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. These may act as limitations separately, in combination or through interactions with climate or site factors. The physical limitations which result from interactions between climate, site and soil wetness, droughtiness and erosion.

To achieve full yield potential a crop requires an adequate supply of soil moisture throughout the season. Droughtiness is most likely to be a significant limitation to crop growth in the areas with relatively low rainfall or high evapo-transpiration or where the soil holds only small reserves of moisture available to plant roots. The severity of the limitation in an area depends on the relationship between the soil properties and climatic factors and the moisture requirements of the crops grown. These relationships are complex and the degree of moisture stress varies from year to year according to the weather. In the ALC system the method used to assess the droughtiness provides an indication of the average droughtiness based on two reference crops, winter wheat and main crop potatoes. The method used to assess droughtiness takes account of crop rooting and foliar characteristics to obtain an estimate of the average soil moisture balance (MB) for the reference crops at a given location. The moisture balance is calculated on the basis of two parameters - the crop adjusted available water capacity of the soil profile and the moisture deficit. Reference will be made to droughtiness where it is a limiting factor in Section 6.



A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock. Excessive soil wetness adversely affects seed germination survival, partly by a reduction in soil temperature and partly by anaerobism. It also inhibits the development of a good root system and can, in extreme cases, lead to plant death. Soil wetness also influences a sensitivity of the soil to structural damage and therefore is a major factor in determining the number of days when the soil is in a suitable condition for cultivation, trafficking by machinery or grazing by livestock. The severity of the limitation is influenced by the amount and frequency of rain in relation to evapo-transpiration, the duration of waterlogging and the texture of the uppermost layers of the soil. References are made to soil wetness where it is a limiting factor in section 7.

5. Background Information:

The underlying geology is mapped as Lower Lias clay with areas of drift material consisting of clays and gravel.

6. Agricultural Land Use:

At the time of the survey, June 1989, the land was under cereals and grass used for sheep, cattle and horse grazing.

7. Agricultural Land Quality (Appendix 1):

Grade 2 land:

The topsoil typically has a sandy loam texture overlying more sandy loam of varying depths between 45 and 60 cm and then overlying loamy sand and sand extending to at least 100 cm. The moisture balance, which is the difference between the available water holding capacity of the soil, a result of soil texture and depth, and the moisture deficits for the site indicate a classification of Grade 2 for this land. The main limiting factor to the agricultural use of this land is the risk of droughtiness.

Subgrade 3a land:

Areas are found near the Oatlands and on the south western boundary of the site. The soils typically have a sandy loam or sandy clay loam topsoil overlying sandy clay loam and clay at depths of between 40 and 60 cm. The presence of gleying and the depth to the slowly permeable layer indicate wetness classes III and IV as appropriate, which in combination with the topsoil texture and a field capacity day figure of 157 days place the land in Subgrade 3a. The main limitation to the agricultural use of this land is the soil wetness.

Subgrade 3b land:

Areas are found on the western boundary of the site, where clay loam topsoils overlie clay, in places by 30 cm. The presence of gleying and

the depth to the slowly permeable layer indicate wetness class IV and in combination with the topsoil texture and the field capacity day figure of 157 a classification of Subgrade 3b. The main limitation to the agricultural use of this land is the soil wetness.

Other land:

Includes ponds and buildings.

Resource Planning Group
June 1989

Agricultural Land Classification Summary

Grade sub/grade	ha	as % of total	as % of agricultural land
2	93.1	79	81
3a	14.2	12	12
3b	8.1	7	7
Sub-total	115.4		
Other land	2.8	2	
TOTAL	118.2	(100)	(100)