

REPORT OF THE MAFF AGRICULTURAL LAND CLASSIFICATION SURVEY
OF LAND AT HAWTON, NEWARK

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 site nearly 34% is classified as Grade 2 with 30% in sub grade 3a and 36% in sub grade 3b.

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 limitations affecting the use of this 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 are soil wetness, droughtiness, and erosion.

To achieve full yield potential a crop requires an adequate supply of soil moisture through 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. Irrigation can significantly enhance the potential of agricultural land and as it is current practice on part of the site, has been taken into account in the ALC grading and upgrades the sub grades 3a to Grade 2 and sub grade 3b to sub grade 3a. Reference will be made to droughtiness where it is a limiting factor in Section 7.

A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock. The soil wetness assessment takes account of a climatic regime, the soil water regime and the texture of the top 25cm of the soil. Reference will be made to soil wetness where it is a limiting factor in Section 7.

5. Background Information

The underlying solid geology is mapped as Older River Gravels over much of the site (sheet 126, Nottingham, scale 1:50,000) with Keuper Marl deposits to the South of Hawton House and deposits of alluvium close to Middle Beck and the River Devon.

6. Agricultural Land Use:

At the time of the survey May - November 1991 the land was under potatoes, cereals, beans and linseed.

7. Agricultural Land Quality

Irrigation - This can significantly enhance the potential of agricultural land in dry areas. Irrigation is used on the land to the west of Hawton House. Where droughtiness limitation exists on sub grades 3a and 3b land, and irrigation is current or recent practice the land may be upgraded by one sub grade.

Grade 2 land - The soil typically has a sandy texture overlying sandy loam and loamy sand and sand or clay at depth. The main limitation to the agricultural use of this land is droughtiness.

Sub grade 3a land - Where soil has a sandy loam texture overlying loamy sand and sand, the main limitation to the agricultural use is droughtiness. To the south of Hawton House sandy clay loam texture overlies clay at about 33cm. Observations of gleying and the depth to the slowly permeable layer in combination with the field capacity day figure of 110 place these soils into wetness class III and hence sub grade 3a. The main limitation to the agricultural use of this land is soil wetness.

Sub grade 3b - Where soils have a loamy sand texture overlying sand, droughtiness is the main limitation to the agricultural use of the land. Close to Middle Beck and the River Devon, the soils have a heavy clay loam texture overlying clay by 33cm. Observations of gleying and the depth to the slowly permeable layer in combination with a field capacity figure of 110 place these soils in wetness class III and are classified as sub grade 3b. The main limitation to their agricultural use is soil wetness.

Other land - includes ponds, buildings and roads.

AGRICULTURAL LAND CLASSIFICATION GRADES - NEWARK

1. AS SHOWN ON ALC MAP

Grade/ Sub-grade	Area (ha)	as % of total area	as % of agricultural land
2	19.7	16	16
3a	53.7	42	43
3b	51.7	40	41
	(125.1)		
Other land	2.4	2	
TOTAL	127.5	100	100

2. AREAS WITH IRRIGATION

Grade/ Sub-grade	Area (ha)	as % of total area	as % of agricultural land
2	42.8	34	34
3a	37.5	29	30
3b	44.8	35	36
	(125.1)		
Other land	2.4	2	
TOTAL	127.5		

RESOURCE PLANNING GROUP
WOLVEHRAMPTON

JANUARY 1992