

AGRICULTURAL LAND CLASSIFICATION REPORT FOR LAND AT ROSS ON WYE

During the spring of 1990 land on the urban fringes of Ross on Wye was surveyed using the MAFF Revised Agricultural Land Classification system. The land was augered using a 5 cm Dutch auger to a depth of 100 cm or to bedrock if closer to the surface. Approximately 250 ha of land was surveyed on which 225 auger borings and 11 pits were dug to give an average density of one boring every 1.06 ha.

Much of the land is mapped as Grade 2 with smaller areas of Sub-grade 3a and 3b and occasional areas of Grade 1 and Grade 4.

1. Land Use

Most of the site supports grass and winter cereals, although some vegetables, fruit crops and sugar beet are also grown.

2. Site Details and Limitations

2.1 Climatic limitations

The site receives an average annual rainfall of 737 mm and has a Accumulated Temperatures (January-June) of 1469°C. This combination of rainfall and temperature makes the site eligible for Grade 1.

2.2 Location and site limitations

The land lies on the outskirts of Ross on Wye above the floodplain of the River Wye. Most of the land is gently sloping to level but in the North West and along the southern boundary gradients of more than 7° have limited the classification of the land. Most of the land lies between 40-60 metres but altitude varies from more than 100 metres in the extreme south to less than 40 metres in the extreme south west, north west and on the floodplain of the Rudhall Brook.

The Rudhall Brook floods in winter most years and floods are usually of medium duration; some of the lowest lying land is below the level of the river and water stands for long periods once the stream overtops. Flooding has limited this land to Sub-grade 3b and Grade 4.

2.3 Geology and soils

The area is underlain by old red sandstone of the Devonian on which free draining (Wetness Class I), reddish brown sandy loam and occasionally sandy clay loam soils have developed over weathering sandstone. The soils vary in depth from 35 to more than 120 cm deep and depth to bedrock has limited the available

water capacity and hence the agricultural land classification of the land. Lenses of marl occur in the sandstone and some profiles have clay loam or silty clay subsoils. The clay occurs in discontinuous bands and generally does not impede drainage. These areas have not been differentiated on the map.

Very slightly stony topsoils, which contain small rounded quartzite pebbles, overlie sandy loam with soft weathering sandstone fragments. Subsoil stone content varies from 1-20% of the volume of the subsoil, the percentage usually being determined by the depth to bedrock.

To the west of Spring Cottages (614242) and on parts of the Rudhall Brook floodplain heavy clay loam or clay topsoils overlie mottled slowly permeable clay subsoils. These soils fall into Wetness Class IV and wetness is a limiting factor in the classification of the land.

2.4 Interactive limitation

Soil wetness and drought are affected by the interactions between climate, site and soil. Soil wetness is generally not a limiting factor around Ross on Wye with the exception of the areas mentioned above.

The quality of most of the soils around Ross is limited by a susceptibility to drought where the soils are less than 100 cm deep. The susceptibility to drought is determined the difference between the amount of water the soil can hold in the profile (AP) and the medium moisture deficit (MD) which has developed by the end of the critical part of the growing season. The MD on this site is 105 mm for wheat and 97 mm for potatoes. The Moisture Balance (MB), the difference between AP and MD indicates the susceptibility to drought of soils in a given area. The shallow soils have an AP as low as 70 mm whilst the deeper soils have a AP in excess of 135 mm and are eligible for Grade 1.

Some of the farmers have irrigation water available for small areas of cane fruit. This fact has not been taken into consideration in the mapping of land quality because of the small areas involved. A detailed survey should however take the availability of irrigation water into consideration when determining the Agricultural Land Classification grade.

Despite heavy rain in February there was little evidence of erosion and no area required further downgrading because of this limitation.

3. Agricultural Land Classification

3.1 Grade 1

This Grade accounts for 8% of the site. It is mapped to include deep freely drained (wetness class I or wetness class II) sandy loam soils which contain few stones. The land is only very gently sloping and capable of growing a wide range of agricultural and horticultural crops. Examples occur west of Alton Court (604234) and south east of Lower Cleeve (590234).

3.2 Grade 2

This Grade accounts for 36% of the area. It is mapped to include soils which have sandstone occurring in the profile at 85-90 cm. Typically very slightly stony sandy loam overlies similar subsoils which contain fragments of soft weathered sandstone and bands of weathered marl. Soils falls into wetness class I or II. Drought is the main limiting factor with profiles only able to hold between 110 and 130 mm of available water for wheat and 90-110 mm for potatoes. Typical examples occur around Pigeon House Farm (614256), east of Alton Court (607236) and west of Ashfield (594236).

3.3 Sub-grade 3a

This Sub-grade accounts for 18% of the area. It is mapped to include sandy loam soils which typically are underlain by sandstone at depths of 60-70 cm and have AP values of 85-105 for wheat and 90-110 for potatoes. This Sub-grade is commonly found on hill tops and gently sloping ground.

Areas of Grade 2 and Sub-grade 3b occur within the areas mapped as Sub-grade 3a but they could not be delimited at this scale of mapping.

In some areas bands of red brown clay loam or silty clay overlie the weathering sandstone but these did not appear to have a significant effect on the drainage of the profile.

Examples of these soils occur north of the A449 (610258) north of Rudhall Brook (610249) and east of Arbour Hill (591226).

3.4 Sub-grade 3b

This sub-grade accounts for 16% of the area. It is mainly confined to moderately sloping ground with gradients of 7-10° which limit the use of precision equipment. Typically red brown sandy loams of variable depth overlie bed rock eg south of Alton Court (606234). Smaller areas have been mapped over knolls and ridge

tops where shallow (approximately 40-50 cm) sandy loam overlies weathering sandstone. These soils are too droughty for a higher grade with profiles only able to hold between 70-80 mm of available water for wheat and potatoes.

West of Spring Cottages (624243) clay loam and clay soils fall into wetness class IV and consequently into sub-grade 3b. Land on the floodplain could not be graded higher due to the risk of frequent floods.

3.5 Grade 4

These grade accounts for 3% of the area, it is mapped on the floodplain where clay soils remain waterlogged for long periods after flooding and on steeply sloping land in the north west and extreme south.

3.6 Agricultural buildings

Agricultural buildings account for approximately 1% of the area.

3.7 Non-agricultural land

Non-agricultural land accounts for 8% of the area and includes playing fields, woods and large gardens.

3.8 Urban

Nine per cent of the area is mapped as urban.

3.9 Not surveyed

Less than 1% of the areas was in agricultural use but was not surveyed.

4. Summary

A survey of agricultural land around Ross on Wye showed there to be a large proportion of high quality land, with 62% of the survey area and 77% of the agricultural area being mapped as grades 1, 2 and 3a.

<u>Grade</u>	<u>% Total Area</u>	<u>% Agricultural Land</u>
1	8	10
2	36	45
3a	18	22
3b	16	20
4	3	3
Agricultural buildings	1	
Non-agricultural	8	
Urban	9	
Not surveyed	1	
Total	100	100

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