RPT006A

081/98

# Norton

## Agricultural Land Classification

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Resource Planning Team
Bristol
FRCA Western Region

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# NORTON

# AGRICULTURAL LAND CLASSIFICATION SURVEY

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# AGRICULTURAL LAND CLASSIFICATION SURVEY

## INTRODUCTION

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of 522 6 ha of land at Norton Field survey was based on 256 auger borings and 8 soil profile pits and was completed in November 1998

2 The survey was conducted by the Resource Planning Team of FRCA Western Region on behalf of MAFF in its statutory role in the preparation of the Worcestershire Structure Plan

3 Information on climate geology and soils and from previous ALC surveys was considered and presented in the relevant sections Apart from the published regional ALC map (MAFF 1977) which shows the site at a reconnaissance scale as Grade 3 the site had not been surveyed previously The current survey uses the Revised Guidelines and Criteria for grading the quality of agricultural land (MAFF 1988) and supersedes any previous ALC survey Grade descriptions are summarised in Appendix I

4 At the time of survey land cover was arable and grassland Other land which was not surveyed included small areas of woodland residential areas and farm buildings

## SUMMARY

5 The distribution of ALC grades is shown on the accompanying 1 20 000 scale ALC map The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas Areas are summarised in the Table 1

**Table 1 Distribution of ALC grades Norton**

| Grade | Area (ha) | % Surveyed Area (496 6 ha) |
|---|---|---|
| 3a | 129 6 | 26 1 |
| 3b | 361 5 | 72 8 |
| Agricultural land not surveyed | 5 5 | 1 1 |
| Other land | 26 0 | |
| Total site area | 522 6 | |

6 Over two thirds of the site has been mapped as Subgrade 3b These are poorly drained brownish and reddish soils with slowly permeable subsoils which experience a moderate wetness limitation The rest of the site has been mapped as Subgrade 3a These slightly better drained soils are only found in small blocks around the site and the soils within the unit are often variable

## CLIMATE

7 Estimates of climatic variables for this site were derived from the published agricultural climate dataset Climatological Data for Agricultural Land Classification (Meteorological Office 1989) using standard interpolation procedures Data for key points around the site are given in Table 2 below

8 Since the ALC grade of land is determined by the most limiting factor present overall climate is considered first because it can have an overriding influence by restricting land to a lower grade despite more favourable site and soil conditions Parameters used for assessing overall climate are accumulated temperature a measure of relative warmth and average annual rainfall a measure of overall wetness The results shown in Table 2 indicate that there is no overall climatic limitation

9 Climatic variables also affect the ALC grade through interactions with soil conditions The most important interactive variables are Field Capacity Days (FCD) which are used in assessing soil wetness and potential Moisture Deficits calculated for wheat and potatoes which are compared with the moisture available in each profile in assessing soil droughtiness limitations These are described in later sections

**Table 2 Climatic Interpolations Norton**

| Grid Reference | | SO 906 523 | SO 908 506 | SO 913 507 |
|---|---|---|---|---|
| Altitude (m) | | 45 | 30 | 50 |
| Accumulated Temperature (day C) | | 1455 | 1473 | 1450 |
| Average Annual Rainfall (mm) | | 632 | 627 | 629 |
| Overall Climatic Grade | | 1 | 1 | 1 |
| Field Capacity Days | | 134 | 133 | 133 |
| Moisture deficit (mm) | Wheat | 112 | 113 | 111 |
| | Potatoes | 105 | 108 | 104 |

## RELIEF

10 Altitude ranges from 30 metres along the stream in the south of the site to 63 metres at Poplar Cottages in the east of the site The site is gently undulating with some steeper slopes north of Wolverton which are limited to Subgrade 3b but have been recently planted with trees

## GEOLOGY AND SOILS

11 The underlying geology of the site is shown on the published geology map (BGS 1993) as Blue Lias shales and limestone in the south of the site with most of the rest of the site underlain by Mercia Mudstone On the eastern edge and along the track to Mucknell Farm the

Westbury Formation (mainly sandstones) is mapped Drift deposits of alluvium are found along the streams with small areas of glaciofluvial deposits on the higher land An area of terrace deposits are mapped in the south east corner The majority of the soils found in the recent survey were poorly drained clays red soils developed over the Mercia Mudstone and brown gleyed soils over the Blue Lias Formation A few areas of lighter textured better drained soils were found associated with the terrace and glacial deposits

12 Soils were mapped by the Soil Survey of England and Wales at a reconnaissance scale of 1 250 000 (SSEW 1983) as Evesham 2 Association in the south flanked in the east by Whimple 3 North of this along the eastern edge of the site the Denchworth Association is mapped In the west the Brockhurst 2 Association is mapped with a band of Worcester soils between it and the Denchworth soils Worcester soils are also shown in small patches on the western edge of the site More detailed soils information is also available in the 1 25 000 and 1 50 000 scale surveys of the area (SSEW 1982 1986)

13 The Evesham 2 Association is described as slowly permeable calcareous clayey soils or some slowly permeable seasonally waterlogged non calcareous clayey and fine loamy or fine silty over clayey soils The Worcester Association is described as slowly permeable non calcareous and calcareous reddish clayey soils over mudstone shallow on steeper slopes It is associated with similar non calcareous fine loamy over clayey soils Brockhurst 2 soils are slowly permeable seasonally waterlogged reddish fine loamy over clayey and clayey soils Denchworth 2 Association is described as slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils or some fine loamy over clayey soils with only slight seasonal waterlogging and some slowly permeable calcareous clayey soils Whimple 3 soils are reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging Some similar clayey soils are found on brows and slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes

14 The general distribution of poorly drained reddish and brownish soils as indicated by the regional soils map was borne out by the findings of the recent survey The more detailed soils map reveals some of the variations found within the survey such as the lighter textured soils along the eastern fringes of the site and around Brickbarns Farm

## AGRICULTURAL LAND CLASSIFICATION

15 The distribution of ALC grades found by the current survey is shown on the accompanying 1 20 000 scale map and areas are summarised in Table 1 The detail of information shown at this scale is appropriate to the intensity of field survey but could be misleading if enlarged or applied to small areas

### Subgrade 3a

16 Several areas have been mapped as Subgrade 3a good quality agricultural land The area to the north of Hillhouse Farm mainly has medium clay loam topsoils over heavier subsoils The reddish lower subsoils are slowly permeable These soils are assessed as Wetness Class III (see Appendix II) There are occasional heavy clay loam and medium sandy loam topsoils and some Wetness Class II and IV profiles within this area but these Grade 1 2 and 3b profiles are scattered and are included in the Subgrade 3a unit The

Subgrade 3a soils to the west of Brickbarns Farm are similar Wetness Class II reddish soils with medium clay loam topsoils

17 *The land south of Hillhouse Farm has a mix of soils with heavy clay loam or clay* topsoils Some of the topsoils were calcareous and some of the profiles showed evidence of restricted drainage Naturally calcareous soils are usually better structures and therefore more workable allowing a higher grade in certain circumstances The profiles in this block were mainly Subgrade 3a with some Grade 2 These soils were brownish in colour

18 The area of Subgrade 3a around Brickbarns Farm comprises a mixture of soils including several Grade 2 profiles These soils are linked to the glaciofluvial deposits marked on the geology map and the Quorndon and Arrow series on the detailed soils map In this area there are some sandier soils with medium sandy loam topsoils which have a minor droughtiness limitation There are other similar isolated profiles along the eastern edge of the site Also within this unit are some profiles which show evidence of restricted drainage and are limited to Subgrade 3a Since the unit contains a mixture of soils Subgrade 3a is thought to be most appropriate grade

19 The south east block of Subgrade 3a links with the area of Terrace deposits marked on the geology map and also an area of the Arrow Series on the detailed soils map Soil profile pit 8 is at the sandiest part of the unit but shows that there are slowly permeable lower subsoils This pit is actually Grade 2 but is included with Subgrade 3a heavy clay loam topsoil Wetness Class II and Subgrade 3a medium sandy loam topsoil Wetness Class IV profiles in a Subgrade 3a Unit

20 The remaining area of Subgrade 3a around Wolverton includes a series of profiles described by Pit I which have calcareous clay topsoils with slowly permeable layers in the subsoil below 37cm The more workable calcareous topsoils allow these Wetness Class III and II profiles to be upgraded to Subgrade 3a Also within this unit are non calcareous heavy clay loam topsoils with slowly permeable lower subsoils assessed as Wetness Class II These soils are all brownish and have a moderate wetness limitation Subgrade 3a To the north of Wolverton the soils become more variable with a mixture of heavy clay loam sandy clay loam and medium clay loam topsoils The depth to slowly permeable layers if present is variable and these are profiles assessed as Wetness Classes I II III and IV This leads to a range of grades from 2 to 3b but predominantly Subgrade 3a It is felt that these soils are most appropriately included in the more uniform Subgrade 3a unit to the south of Wolverton rather than in the surrounding Subgrade 3b unit

**Subgrade 3b**

21 Most of the site has been mapped as Subgrade 3b moderate quality land The soils fall into two main types In the southern part of the site the soils are brownish and generally not calcareous These soils have slowly permeable subsoils and are assessed as Wetness Class III or IV depending on the depth to the slowly permeable layer and gleying The topsoil textures are heavy clay loam or clay These soils are described by Pits 2 6 and 7 The brownish soils give way to reddish soils approximately north of Mucknell Farm and Wolverton and away from the railway line

22 The reddish soils generally have clay topsoils in the north and heavy clay loam moving south from Sneachill Farm They have slowly permeable subsoils high in the profile These soils were assessed generally as Wetness Class IV Gleying was not always evident in the borings but the soil profile pits 3 4 and 5 showed that the red clay was gleyed Within the northern part of the site there are some lighter topsoils medium clay loams in Wetness Class III profiles which are Subgrade 3a However these few borings are included in the Subgrade 3b unit

**Other Land**

23 A small area at Brickbarns Farm was not surveyed because the ownership was not established Other areas not surveyed included new woodland planting a lake farm buildings and houses

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FRCA Bristol
8 December 1998

## REFERENCES


BRITISH GEOLOGICAL SURVEY (1993) Sheet 199 Worcester 1 50 000 series Solid and Drift edition BGS London

HODGSON J M (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

MAFF (1977) 1 250 000 series Agricultural Land Classification West and East Midlands Regions MAFF Publications Alnwick

MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for grading the quality of agricultural land MAFF Publications Alnwick

METEOROLOGICAL OFFICE (1989) Climatological Data for Agricultural Land Classification Meteorological Office Bracknell

SOIL SURVEY OF ENGLAND AND WALES (1983) Sheet 3 Soils of Midland and Western England 1 250 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1984) Soils and Their Use in Midland and Western England Bulletin No 12 SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1982) Sheet SO85/95 1 25 000 scale SSEW Harpenden

SOIL SURVEY OF ENGLAND AND WALES (1986) Worcester 1 50 000 scale SSEW Harpenden

## APPENDIX I

## 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

**Source** MAFF (1988) Agricultural Land Classification of England and Wales Revised Guidelines and Criteria for Grading the Quality of Agricultural Land MAFF Publications Alnwick

## APPENDIX II

## DEFINITION OF SOIL WETNESS CLASSES

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile

**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 (Ed) (1997) Soil Survey Field Handbook Soil Survey Technical Monograph No 5 Silsoe

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 1 | 1 W | Ploughed | Av Rainfall 632 mm<br>ATO 1455 day C | Blue Lias Limestone/Shale |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | PSD SAMPLES TAKEN |
| 81/98 | 22/10/98 | SO 91535060 | GMS/GMN | | |

| 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 | 30 | C | 10YR52 | 2/HR( ) | None | None | | | | | FVF | Yes | Clear Smooth |
| 2 | 60+ | C | 2 5Y53<br>10YR53<br>5YR44<br>Patches | 2 HR (vi) | CDFO<br>7 5YR56<br>10YR56 | Few | MDCAB | Firm | Poor | Low | FVF | | |

Profile Gleyed From 30 cm

Slowly Permeable Horizon From 30 cm

Wetness Class IV/III (calc)

Wetness Grade 3b/3a

| | | |
|---|---|---|
| Available Water | Wheat | 124 mm |
| | Potatoes | 101mm |
| Moisture Deficit | Wheat | 112 mm |
| | Potatoes | 105 mm |
| Moisture Balance | Wheat | 12 mm |
| | Potatoes | -4 mm |

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b/3a

Main Limiting Factor(s) Wetness

Remarks

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 2 | 0 | Ploughed and seeded | Av Rainfall 632 mm<br>ATO 1455day C | Penrith Group |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | PSD SAMPLES TAKEN |
| 81/98 | 27/10/98 | SO 30335120 | GMN/GMS | | |

| 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 | 30 | C | 10YR53/<br>2 5Y53 | 1 HR ( ) | None | None | | | | | FVF | Yes | Clear<br>Smooth |
| 2 | 60+ | C | 2 5Y53 51 | N<br>C mm C 1 ar<br>od les | MDFO<br>10YR68 | Few | WKCAB | Friable | Mod | Low | FVF | Yes | |

Profile Gleyed From 30 cm

Slowly Permeable Horizon From 30 cm

Wetness Class IV/III (calc)

Wetness Grade 3b/3a

Available Water Wheat 139 mm

Potatoes 115 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 27 mm

Potatoes 10 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b/3a

Main Limiting Factor(s) Wetness

Remarks Borderleine WCIII 3a (calc)

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 3 (Asp 19) | 0 | Cereal | Av Rainfall 632 mm<br>ATO 1455 day C<br>FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | Glaciofluvial Drift deposits |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | | PSD SAMPLES TAKEN |
| 81/98 | 29/10/98 | SO 90855310 | GMN/GMS | | |

| 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 | 27 | HCL | 5YR42 | 2 HR ( ) | None | None | | | | | MF + VF | | Abrupt Smooth |
| 2 | 80+ | C Some SC patches | 2 5YR43 (5YR53) Patches of 7 5YR53 | N | In patches of lighter material CDFO 7 5YR56 | Common | MDCAB tending to Prismatic | Firm | Poor | Poor | CVF MVF on ped faces | | |

Profile Gleyed From 27 cm

Slowly Permeable Horizon From 27 cm

Wetness Class IV

Wetness Grade 3b

Available Water Wheat 127 mm

Potatoes 104 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 15 mm

Potatoes 1 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b

Main Limiting Factor(s) Wetness

Remarks Thin layer of stones boundary H1/H2

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 4 | 0 | Cereal stubble | Av Rainfall 632 mm<br>ATO 1455 day C<br>FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | Mercia Mudstone |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | | PSD SAMPLES TAKEN |
| 81/98 | 20/10/98 | SO 90375335 | GMN/GMS | | – |

| 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 | 26 | HCL | 5YR42 | N g | None | None | | | | | CF + VF | Not Calc | Smooth Clear |
| 2 | 34 | C | 5YR51 43 (5YR53) | N | None | Common | MDCSAB | Friable | Mod | Low | CVF | | Smooth Clear |
| 3 | 70+ | C | 2 5YR43 (2 5YR42) (5YR53) 10Y62 patches of Tea Green Marl | N | 10Y62 | Common | MDCAB | Firm | Mod | Low | CVF | | |

Profile Gleyed From 26 cm

Slowly Permeable Horizon From 34 cm

Wetness Class IV

Wetness Grade 3b

Available Water Wheat 141 mm

Potatoes 117 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 29 mm

Potatoes 12 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b

Main Limiting Factor(s) Wetness

Remarks

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 5 (Asp 2) | 3 W | Cereal Stubble | Av Rainfall 632 mm<br>ATO 1455 day C | Mercia Mudstone |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | PSD SAMPLES TAKEN |
| 81/98 | 29/10/98 | SO90725227 | GMN/GMS | | |

| 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 | 28 | C | 5YR44 | N gl g bl | None | None | | | | | MVF | Not calc | Abrupt Smooth |
| 2 | 60+ | C | 25YR44/ 10Y71 (25YR53) | N | None | Common | MDCAB WK where Tea Green marl | FM | Poor | Low | FVF | | |

Profile Gleyed From 28 cm

Slowly Permeable Horizon From 28 cm

Wetness Class IV

Wetness Grade 3b

Available Water Wheat 125 mm

Potatoes 102 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 13 mm

Potatoes 3 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b

Main Limiting Factor(s) Wetness

Remarks

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 6 | 0 | Maize stubble | Av Rainfall 632 mm<br>ATO 1455 day C | Alluvium |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | PSD SAMPLES TAKEN |
| 81/98 | 23/10/98 | SO 30205192 | GN/GMS | | |

| 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 | 20 | C | 75YR42 | N n | None | None | | | | | CF+VF | Not calc | Clear Wavy |
| 2 | 38 | C | 10YR52 (10YR61) | N | MDMO 75YR56 | Common | MDCAB & WKCSAB | FM | Poor | Poor | CF + VF | | Clear Smooth |
| 3 | 55+ | C | 10YR41 | N | FDFO 75YR56 | None | WKCAB | FM | Poor | Poor | | | |
| | | | | | | | | | | | | | |

Profile Gleyed From 20 cm

Slowly Permeable Horizon From 20 cm

Wetness Class IV

Wetness Grade 3b

Available Water Wheat 122 mm

Potatoes 99 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 10 mm

Potatoes 6 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b

Main Limiting Factor(s) Wetness

Remarks

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 7<br>Asp 125/126 | 0 | Cereal Stubble | Av Rainfall 632 mm<br>ATO 1455 day C<br>FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | Penarth Group |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | | PSD SAMPLES TAKEN |
| 81/98 | 3/11/98 | SO91425160 | GMS/GN | | |

| 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 | 27 | C | 10YR32 | 2 HR ( ) | None | None | | | | | MF + VF | Not | Abrupt Smooth |
| 2 | 45 | C | 10YR44 (25Y52) | 5 HR ( ) | FFFO 10YR56 25Y52 | Few | MDCSAB | Friable | Mod | Poor | CVF | | Clear Smooth |
| 3 | 70+ | C | 5Y63 | N ( ) | MDMO 10YR66 | Common | WKCAB | Firm | Poor | Poor | FVF | | |

Profile Gleyed From 45 cm

Slowly Permeable Horizon From 45 cm

Wetness Class III

Wetness Grade 3b

Available Water Wheat 128 mm

Potatoes 105 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 16 mm

Potatoes 0 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 3b

Main Limiting Factor(s) Wetness

Remarks

| SITE NAME | PROFILE NO | SLOPE AND ASPECT | LAND USE | | PARENT MATERIAL |
|---|---|---|---|---|---|
| Norton | Pit 8 (Asp 248) | 0 | Cereal | Av Rainfall 632 mm<br>ATO 1455 day C<br>FC Days 134<br>Climatic Grade 1<br>Exposure Grade 1 | Terrace deposits |
| JOB NO | DATE | GRID REFERENCE | DESCRIBED BY | | PSD SAMPLES TAKEN |
| 81/98 | 3/11/98 | SO 9190 5050 | GMS/GN | | |

| 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 | 30 | MSL | 10YR43 | 1 HR( ) | None | None | | | | | CVF | None | Clear Smooth |
| 2 | 56 | SCL | 10YR53 | 5 HR( ) | CFDO 75YR56 | None | MDCSAB | FR | Mod | Good | FVF | | Clear Smooth |
| 3 | 80+ | C | 25Y62 (05Y52) | N | MDMO | None | MDCAB | FM | Poor | Poor | FVF | | |

Profile Gleyed From 30

Slowly Permeable Horizon From 56

Wetness Class III

Wetness Grade 2

Available Water Wheat 130 mm

Potatoes 106 mm

Moisture Deficit Wheat 112 mm

Potatoes 105 mm

Moisture Balance Wheat 18 mm

Potatoes 1 mm

Droughtiness Grade 2 (Calculated to 120 cm)

Final ALC Grade 2

Main Limiting Factor(s) Wetness/droughtiness

Remarks