# Soils and Land Suitability of the Motloutse area between Mmadinare and Bobonong

(East Botswana)

A. Markus
C.A.M. Sinnige
A. Remmelzwaal
( eds.)

Field document

August 1988

FAO/UNDP/Govt. of Botswana

Soil Mapping and Advisory Services Project BOT/85/011

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**ABSTRACT**

This report describes the results of a soil survey carried out between 1985 and 1988 in the area around Selebi-Phikwe along the Motloutse river in the middle eastern part of Botswana.
The results include a soil map on the scale 1:50,000, produced after fieldwork with the aid of aerial photographs.
The soil units are based on the legend of the Soil Map of the World (FAO 1974) with some adaptions made specially for Botswana.
This report describes also a land evaluation for the same area respecting traditional dryland farming and small scale irrigated farming.
A soil map and two suitability maps are included, together with profile descriptions of the most common soil units and the results of chemical and mechanical soil analyses.

## INTRODUCTION

The objective of the semi-detailed soil inventary and land evaluation along the Motloutse river is to improve the planning base for agricultural and rural development. The excercise is related to the need to diversify the economic activities in the Selebi-Phikwe area, as the copper-nickel mine is expected to have a limited remaining life.

The survey is aimed at the development of irrigation agriculture, as the results of previous investigation have indicated that both soil and climatic conditions are adverse to the development of dry land farming.

Reconnaisance soil mapping excuted by the FAO Soil Mapping Project was carried out in the early eighties by Venema. Detailed surveys were started late 1985 by Cavaliere Parzaneze as principal surveyor, assisted by other project staff. The first draft report and maps were produced in 1986.

In 1988 Markus and Sinnige, temporarely attached to the project, carried out land evaluation, under the general supervision of the project leader. During this process also the soil map, classification and chemical laboratory results were updated and soil physical characterisation started. All existing data were entered in the Botswana Soil Database.

## SUMMARY OF CONCLUSIONS AND RECOMMANDATIONS

Soils suitable for irrigated agriculture occur mainly in the narrow alluvial strip along the Motloutse river, on the natural levees and terraces.
Part of these soils are found in complexes and associations with less favourable imperfectly drained, clayey soils (partly sodic and/or saline).

In the alluvial area highly suitable class 1 soils (A39, Haplic Xerosol) occupy only a minor area (50 ha), but moderately suitable class 2 soils cover approximately 1700 ha. The size of these homogeneous land units is relatively small. Land with suitability class 3 should not be recommended for cultivation.

The dominant soil type of the uplands and higher valley slopes is shallow and gravelly. These soils are unsuitable for both dryland and irrigation farming.

Soils moderately suitable for irrigation on the slopes and uplands cover approximately 600 ha, and are found mainly around Selebi-Phikwe (G6b, G14a, Luvic Xerosols and Arenic Luvic Xerosols).
Although the estimated physical suitability of these soils is moderate, the potential for irrigation is limited for economic reasons. The distance to the Motloutse river will increase the costs of the water supply and the higher infiltration rate of these sandier soils will increase the quantity of required irrigation water.

The prospects for dryland farming should be rated as disappointing.
The whole area is unsuitable for the production of maize and only limited areas show a marginal to very marginal suitability for sorghum.

Dryland farming of the drought resistant fodder crop Dolichos lablab has moderate suitability (class 2) on the better alluvial soils (A22a, A37a, A39, Cambic Arenosols, Calcic Luvic Xerosols and Haplic Xerosols respectively).
Introduction of this crop is recommended in selected areas.

The use of irrigation water from the Motloutse river downstream of the mine cannot be recommended due to strong pollution by mine waste water, which has probably a high concentration of toxic substances.

# PART I

# SOILS

A. Cavaliere-Parzaneze

with assistence from C. Ketlogetswe
K. Verbeek
A. Remmelzwaal

## 1.1 Location and Communication

The survey area is located in the eastern part of Botswana between latitudes S21°50' and S22°00' at both sides of the Motloutse river, covering a strip of approximately 10 km (Fig. 1 and 2).

The main centre of population is the mining town Selebi-Phikwe, which has about 30,000 inhabitants. The village of Bobonong is a regional centre. Other villages along the Motloutse river are Mmadinare and Tobane.
The area has a tarmac road connection with Serule along the major Gaberone - Francistown road. There is a railway line running from Serule to Selebi-Phikwe.

Fig.1 Location in Botswana

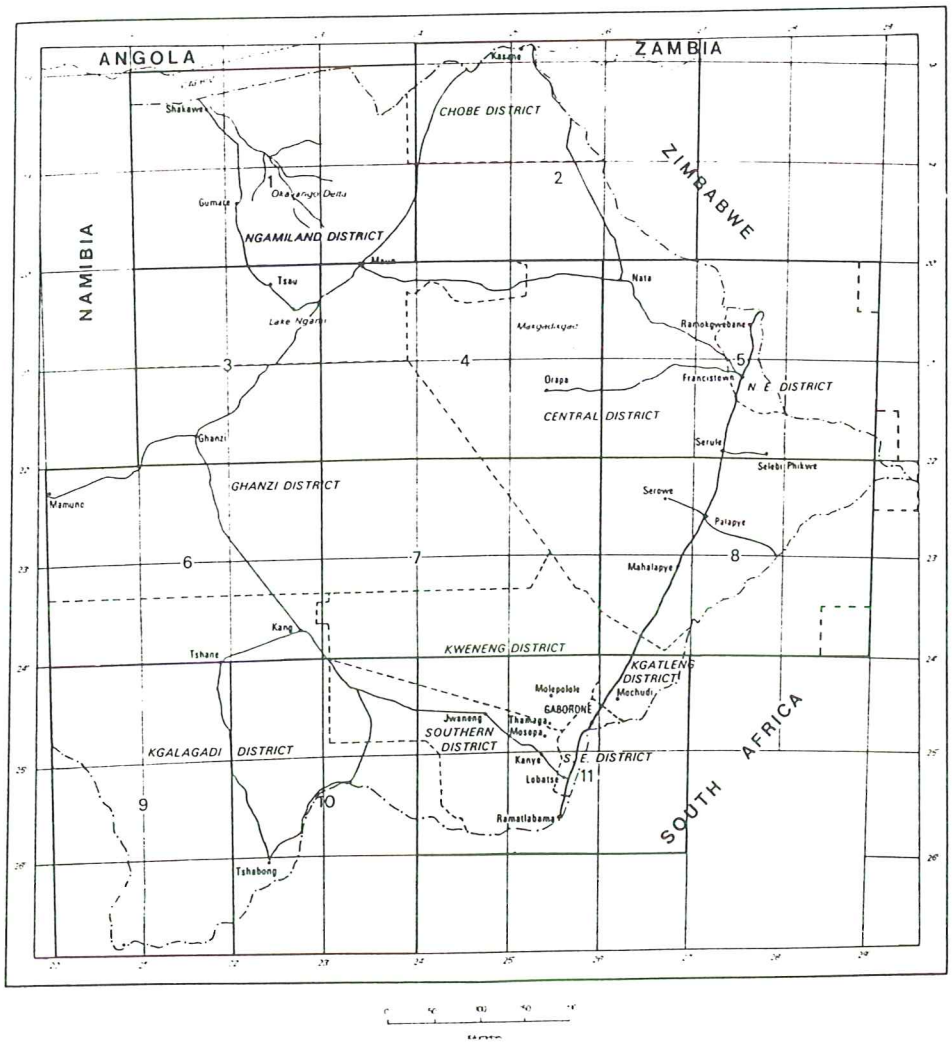
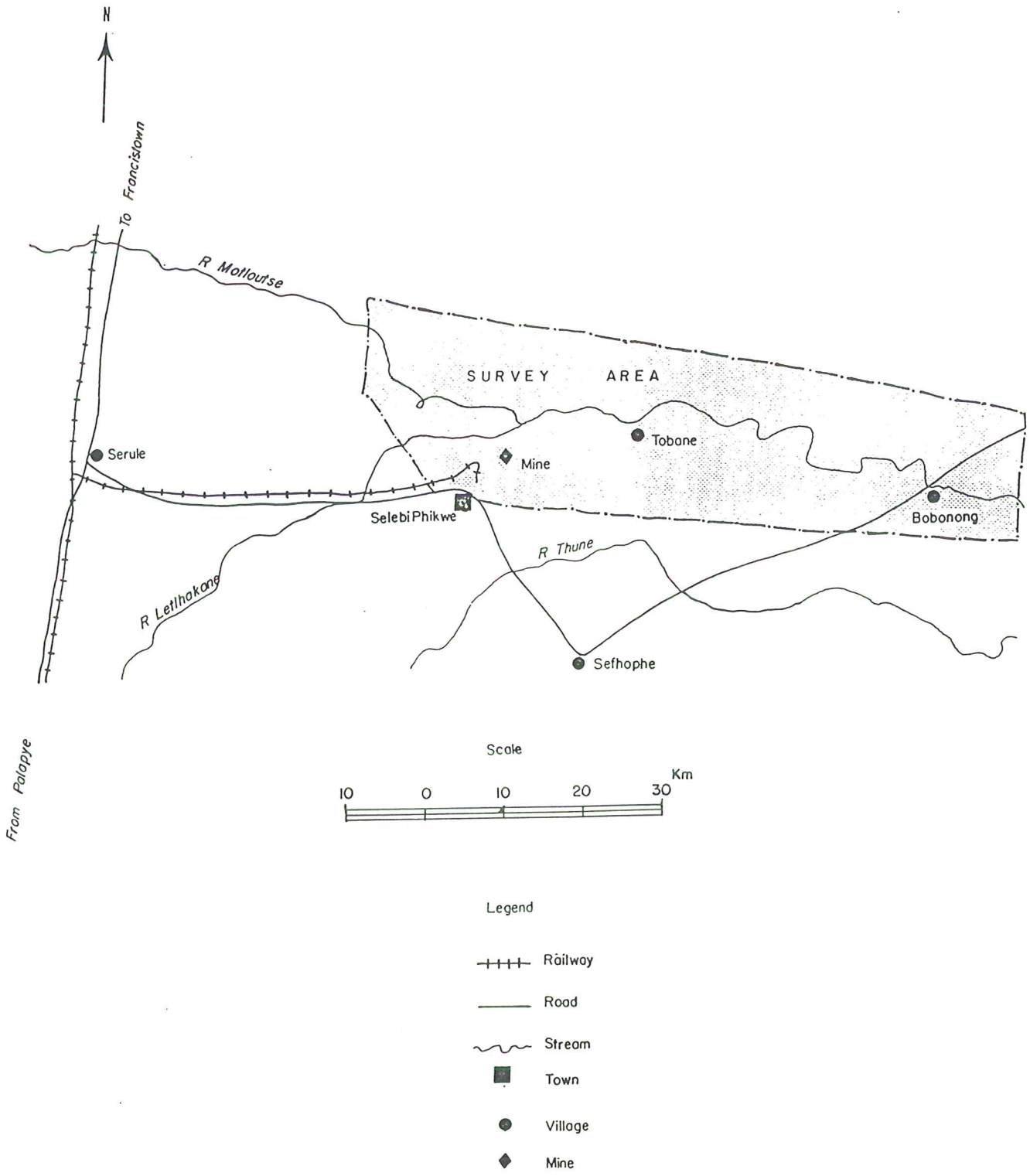


Fig.2 The survey area



## 1.2 Climate

### 1.2.1 Rainfall and Evapotranspiration

The climate of the area is semi-arid with summer rains (October and April). The mean annual rainfall is 467 mm. at Francistown decreasing to 307 mm. towards Bobonong. The variability of the annual rainfall is very high. Mean monthly potential evapotranspiration always exceeds mean monthly rainfall.

### 1.2.2 Temperature

In winter the mean maximum temperature is 25° C, the mean minimum is below 10° C, with frost sometimes occurring in the early morning.
In summer the mean maximum is over 30°C, while the mean minimum is between 15°C and 20°C.

### 1.2.3 Soil moisture regime

Considering the existing climatic data the soils of the area are at the transition between the aridic and the ustic soil moisture regime.

In the aridic moisture regime, the moisture control section in most years is:
1. Dry in all parts more than half the time (cumulative) that the soil temperature at a depth of 50 cm is above 5°C; and
2. Never moist in some or all parts for as long as 90 consecutive days when the soil temperature at a depth of 50 cm is above 8°C.

In the ustic soil moisture regime (for the survey area), the soil moisture control section is dry in some or all parts for 90 or more cumulative days in most years. But the moisture control section is moist in some parts for more than 180 cumulative days, or it is continuously moist in some parts for at least 90 consecutive days.

An aridic moisture regime is normal in arid climates but it can be found also in semi-arid climates depending on physical properties, presence of surface crust and shallowness.
The ustic moisture regime implies still a limited moisture, but moisture availability is present when conditions for plant growth are suitable.
An estimate has been made for all soil units.

The following classification has been applied:
a) An aridic soil moisture regime has been found applicable to:

- i) shallow upland soils and soils on pediments.
- ii) shallow and/or light soils along the Motloutse river.
- iii) soils along secondary streams in positions not likely to receive floodings.

b) A aridic soil moisture regime bordering to ustic has been found applicable to:

- i) medium and heavy textured deep soils in water

receiving position, due to both topography and occasional flooding along the Motloutse river.

ii) deep soils along secondary streams in positions likely to receive flooding.

c) An ustic soil moisture regime bordering to aridic has been found applicable only to valley bottoms and other low lying alluvial areas.

### 1.2.4 Soil temperature regime

The mean annual soil temperature at 50 cm depth is 25.5$^{o}$C, which gives classification as Hyperthermic as the difference between mean summer- and winter soil temperature is more than 5$^{o}$C at the same depth.

## 1.3 Geology

The geology of the western part of the study area consists of metamorphic rocks of the basement complex. in the eastern part basalts and sandstones of the Karoo supergroup occur.

Most of the basement complex consists of migmatitic and granitoid gneisses and high-grade metamorphic tectonites of Precambrium age, falling within the Limpopo mobile belt.Several phases of metamorphism and folding have produced the general WSW-ENE trend.

The Precambrium rocks have been divided into two structurally conformable formations termed the Bounded Gneiss Formation and the Granitic Gneiss Formation respectively.
The Bounded Gneiss Formation consists of variable granitized quartzo-feldspathic gneisses and interbounded amphibolites. The varied lithology is responsible for a characteristic bounded appearance on the air photographs and photogeological structural trendlines are often well developed.
The Granite Gneiss Formation is composed predominantly of migmatitic, porphiroblastic and granitoid gneisses and is photogeologically more homogeneous than the terrain underlain by rocks of the Bounded Gneiss Formation. Within the Granite Gneiss Formation several rock types of the Bounded Gneiss Formation are subordinately present.
The amphibolites and ultramafic intrusive rocks are the host rocks to copper-nickel univeralitizations. A major one is explored at Selebi-Phikwe mine.

The Karoo formations which occur in the Bobonong area are assigned to the Stormberg Series. Represented are sandstones (Cave Sandstone Stage) and basaltic lavas (Drakensberg Lava Stage).
(Geological survey of Botswana, sheet 2127D and 2128C, 1975)

## 1.5 Hydrology

Botswana is divided in three main drainage regions. The largest is the internal drainage of the Kalahari. A second region lies in the south, consisting of the Nossob and Molopo rivers. The third region, the Sashi-Limpopo Catchment, lies to the east of the Kalahari. The survey area lies within the latter catchment area.
None of the rivers in the Sashi-Limpopo Catchment has a perennial flow. Only the Marico river, the Limpopo river and the Notwani river flow for longer periods. The other rivers all flow for only a limited period, often in torrential floods.
The Motloutse belongs to the sand rivertype. Sand rivers are characteristically wide and shallow with a continuous cover of coarse sand of variable depth. This sandbody is valuable in many areas as a perennial water reservoir. It was observed that in some parts, as e.g. some miles upstream of the junction with the Tuni river for, the water appeared to drain out of the sand during the dry season. In other areas however, the water level is maintained in the sand throughout the winter. The Motloutse is one of the major sand rivers with a capacity of water storage and can be used as source of water for irrigation.
The location of the rivers is indicated on fig.2.

## 1.5 Geomorphology

The Alluvial areas

Alluvium is found in a narrow strip along the Motloutse river, the Lethakane river and downstream of the Sedibe river. On both sides of the river natural levees and backswamps occur. In places along the Motloutse river terraces are found.
Natural levees are wedge-shaped ridges of sediment bordering stream channels. The levee gently slopes from the river bank into the backswamp away from the channel.
Natural levees are formed by deposition of sediment when flood waters of a stream overflow the banks. The stream velocity is reduced, causing deposition of the suspended sediment. The coarser sediments are deposited near the channel and grain size decreases away from the channel. The maximum height of natural levees indicates the water level reached during the highest floods.
Backswamps are the lowest-lying parts of a river flood plain. They are poorly drained areas with little or no relief. Backswamps are flat and basins, in which the suspended fine-grained sediments settles down from overbank flows, after the coarser sediments have been deposited on the levees.
Terraces are situated between two levees. They are flat, moderately well drained and consisting of medium textured sediments.

The hardveld

The geomorphology of the basement complex area.
The hardveld is made up of an almost flat to undulating erosion surface.
Around Bobonong the basalt is deeply dissected by the Motloutse river and its tributaries, resulting in a very rugged topography.
The sandstone landscape is gently undulating.

## 1.6 Natural vegetation

The vegetation types of Botswana are described by Field (1978) and Timberlake (1980).
In this relatively densely populated area not much undisturbed areas can be found. *Acacia tortillis* is found encroaching in many vegetation types which can be seen as a sign of disturbance.
The vegetation types often grade in one another. Within an area of any type small areas of other types may be found.
The major vegetation types found are:

1. Tree and shrub savanne on Hardveld (Basement complex).
Dominant species:
*Colophospermum mopane*
*Acacia spp.*
*Combretum spp.*
*Commiphora spp.*
*Sclerocarya caffra*
*Boscia albitrunca*
*Kirkia acuminata*
*Grewia spp.*

2. Shrub savanne on Hardveld (Basalt).
Dominant species:
*Colophospermum mopane*
*Kirkia acuminata*
*Grewia spp.*
*Acacia spp.*

3. Shrub savanne on clay-rich alluvial soils.
- On calcrete or calciumcarbonate rich shallow soils:
  The *Acacia mellifera* shrub savanne.

Dominant species:
*Acacia mellifera*
*Grewia flava*
*Acacia nebrownii* on calcrete ridges.
- On the clay-rich alluvial soils along smaller water courses and rivers and in depressions.

Dominant species:
*Acacia mellifera*
*Acacia tortillis*
*Combretum imberbe*
*Ziziphus mucronata*

4. Riverine woodland. (*Acacia tortillis* fringing woodland.)
Woodland of larger trees fringing the banks of the larger seasonal watercourses.
Dominant species:
*Acacia tortillis*
*Combretum imberbe*
*Acacia karroo*
*Ziziphus mucronata*

## 1.7 Land use

Most of the area is used for traditional grazing by cattle, goats and donkeys. Arable farming is only found in the areas with the better soils. The major part is used for traditional dryland farming or improved traditional dryland farming. The crops are mostly sorghum and maize.
In some minor areas small scale irrigated farming occurs. For example at the confluence of the Motloutse river and the Letlhakane river and at an experimental plot at Bobonong.

A large area near Selebi-Phikwe is occupied by the copper-nickelmine and residential areas. The mine has caused a disturbed landuse pattern around the town.

## 2. SOILS

### 2.1 General

Previous reconnaisance soil surveys in the adjacent N.E. District and Northern Central District were carried out by Mitchell (1976), Venema (1980,1983) and Remmelzwaal(1984).

The survey is carried out following the free survey method, which is based on the recognition of physiographic patterns. The maps are constructed through the combination of interpretation of aereal photographs and satelite imagery with field checks (ground truth). The photos used were run 25 and 26 of the 1981 Motloutse block.

The majority of the observations are augerings and have the purpose of verifying soil boundaries as interpreted from the photographs. Described are the physiography of the site, vegetation, drainage, soil moisture, presence of surface stones/rocks, erosion, and for each horizon the colour, texture, depth and presence of gravel and calcium carbonate.

More detailed observations are made from pits representative for soil units. The soil horizons of these profiles are studied in more detail and sampled. Also described are: mottling, structure, consistence, cutans, cementation, pores, roots, biological features and the nature of the boundaries between horizons. Samples were taken from every horizon if possible.

For the soil description use is made of "Guidelines for Soil Profile Description" ( FAO 1977) and "Botswane soil database: Guidelines for Soil Profile Description" (Remmelzwaal,Waveren 1988) and "Munsell soil color charts" (Munsell Color Division, 1971). All observation points are registered on 1:50,000 Topographical Maps (sheet 2123D3, 2127D4, 2128C3, 2128C4).

Soil analysis is done at Agricultural Research Station at Sebele and includes particle size distribution, exchangeable cations, cation exchange capacity, organic carbon, available phosphorus and electronical conductivity. The used laboratory methods are given in the Laboratory .Procedures Manual (Breithart, 1988).

## 2.2 Soil classification

The soils are classified following the FAO-UNESCO (1974) system with the amendments made by the Soil Mapping Project, as described in the General Soil Legend of Botswana (Remmelzwaal 1988). Also the classification according to Soil Taxonomy (USDA, 1975, 1987) is given. Both systems have in common the principle of diagnostic horizons. The definitions of diagnostic horizons and properties can be found in Soil Taxonomy and in the Legend of the Soil Map of the World (FAO 1974).

As mentioned before in this area two soil moisture regimes occur. In both the FAO and Soil Taxonomy systems this leads to differential classification of part of the otherwise similar soil units. In the Soil Taxonomy classification system it is possible to distinguish soils with an aridic soil moisture regime bordering on ustic. This is not possible in the FAO System.

## 2.3 Soil Legend

Two levels are distinguished in the Soil Legend, main units based on parent rock, and soil units based on soil characteristics. Six main units were distinguished in the Motloutse area:

R Very shallow soils on steep hills
C Soils on highly calcareous rocks and materials (e.g. calcrete and limestones).
A Soils on alluvial deposits.
S Soils on sandstone.
G Soils on acid igneous and metamorphic rocks (including related colluvium).
B Soils on basic igneous and metamorphic rocks (basalts).

Within these main units a number of soil units is distinguished on the basis of soil development, inherent characteristics and phases. About 32 soil units

were recognized in the study area, which are represented on the soil map, unless the occurence is very minor (inclusions).
The soil units are described in terms of classification, soil characteristics, occurence and vegetation. Representative soil profile descriptions and laboratory data for most soil units are given in appendix 2 and 3.

A1 FAO: Pellic Vertisol partly sodic
ST: Typic Pellustert

Deep to very deep, poorly to imperfectly drained, very dark gray to dark grayish brown clay
Flat to almost flat

Characteristics: Structure is weak to moderate coarse to very coarse prismatic breaking into moderate medium to coarse angular blocky. Consistence when dry is hard to very hard in the topsoil increasing to extremely hard in the subsoil. Texture is uniformly clay. Slickensides may occur already in the topsoil and increase in the subsoil, where they are also intersecting, with the formation of wedge shaped aggregates. Surface mulch and gilgai are not well developed. A regular pattern of wide (up to 5 cm at the surface) and deep cracks is common.

Occurrence: Limited to interterrace depressions at Mmadinare and to very narrow backswamps near Bobonong.

Observations: SP16 - SP82

Vegetation: open shrub savanna

A2 FAO: Chromic Vertisol
ST: Mollic Torrert

Deep to very deep imperfectly drained dark grayish brown to reddish brown clayloam to clay
Flat to gently undulating

Characteristics: Structure is moderate to strong coarse to very coarse subangular and angular blocky. Consistence is firm to very firm when moist. Continuous, intersecting slickensides in the subsoil.

Occurrence: Very limited area in interterrace depressions at Bobonong.

Observations: SP94

vegetation: Savanna

A3 FAO: Vertic Cambisol saline and sodic phase
ST: Vertic Ustorthent

Deep to very deep imperfectly drained dark grayish brown sandy clayloam to clay
Flat to gently undulating

Characteristics: Weak to moderate coarse subangular and angular blocky structure. Sodium is moderate (ESP 9.1) in the topsoil and high in the subsoil (ESP >30. Salt accumulation follows the same trend with low values in the topsoil (EC 2.18) and moderate values (EC 9.20) in the subsoil. Very weak gilgai development. Few cracks were observed at the surface.

Occurrence: Limited areas of floodplain along secundary tributaries at Tobane.

Observations: //

Vegetation: Savanna

A5b FAO: Orthic Solonetz saline phase
ST: Salorthidic Natrustalf

Deep to very deep imperfectly to moderately well drained dark grayish brown to strong brown sandy clayloam to clay
Flat to gently undulating

Characteristics: Structure in the topsoil is weak coarse to very coarse subangular blocky and in the subsoil coarse to very coarse prismatic to columnar breaking into weak to moderate medium to very coarse subangular blocky. The consistence of the natric horizon is very hard when dry.

Occurrence: On alluvium deposits along a major tributary at Bobonong where it is relatively spread in the old channel of Motloutse river at Tobane.

Observations: SP36 -_SP135 -_SP136 -_SP143

Vegetation: Open savanna

A22 FAO: Eutric Arenosol
ST: Typic Torripsamment

deep to very deep well to somewhat exsessively drained dark brown to strong brown sands to loamy sands
Flat to gently undulating (natural levees)

Characteristics: Structureless

Occurrence: On natural levees in complex with A34a (Arenic Eutric Regosol, petric phase) at Selebi-Phikwe.
It occurs also in Tobane on natural levees but in more limited extension.

Observations: SP41 - SP115

Vegetation: Open tree savanna

A22a FAO: Cambic Arenosol
ST: Typic Torripsamment

Deep to very deep well to somewhat exsessively drained dark brown to strong brown sands to loamy sands
Flat to gently undulating

Characteristics: Also dark reddish brown to dark brown sand to loamy sand. Structureless to very weak medium to coarse subangular blocky.

Occurrence: Natural levees at Tobane and Bobonong.

Observations: SP37 - SP80 - SP87 - SP90 - SP138 - SP144

Vegetation: Riverine woodland

A33a FAO: Eutric Cambisol sodic/saline phase
ST: Udic Ustochrept

Deep to very deep imperfectly drained dark grayish brown clayloam
Flat

Characteristics: Also clay. The structure is very weak to moderate coarse prismatic breaking in very weak to moderate medium to coarse subangular blocky. The consistence is hard to very hard. Slickensides are moderatly developed already in the topsoil but not enough to form wedge-shaped aggregates. Moderate levels of salt accumulation occur in the subsoil in Selebi-Phikwe.
Transitions occur to Calcic Cambisols with calcereous nodules in the subsoil (Typic Ustochrept - SP51)

Occurrence: Limitated areas in valley bottoms at Selebi-Phikwe and Tobane.

Observations: SP35 - SP39 - SP46 - SP51 - SP54

Vegetation: savanna

A34.1 FAO: Arenic Eutric Regosol - Petric
ST: Typic Torriorthent

Moderately deep to deep well to somewhat excessively drained dark brown to reddish brown sand to loamy sand
Flat to gently undulating

Characteristics: The structure is very weak medium to coarse subangular blocky.

Occurrence: On natural levees in Selebi-Phikwe and lower Terraces in Mmadinare.

Observations: SP20 - SP116

Vegetation: Tree savanna

A36 FAO: Luvic Xerosol
ST: Ustollic/Ustalfic/Typic Haplargid

Deep to very deep moderately well to well drained dark yellowish brown to dark reddish brown sandy loam to sandy clayloam
Flat to undulating

Characteristics: The structure is very weak to weak medium to very coarse subangular blocky. The consistence is in general very hard when dry and very firm when moist.
No calcic horizon appears within 125 cm.

Occurrence: - On broad complex terraces along the Motloutse river at Selebi-Phikwe and Bobonong where it forms the transition between levees and interterrace depressions.
- On terraces of major secondary streams at Selebi-Phikwe and Tobane.
- Along secondary tributaries in Selebi-Phikwe and Bobonong where the parent material is gneiss or sandstone.
- Narrow terraces along Motloutse river in the whole area

Observations: SP11 - SP25 - SP28 - SP58 - SP72 - SP73 - SP76 - SP108 - SP 109 - SP110 - SP111 - SP120 - SP132 - SP137

Vegetation: Riverine woodland and shrub savanna

A36.1 FAO: Arenic Luvic Xerosol
ST: Arenic Haplargid

Deep to very deep moderately well to well drained dark brown to reddish brown loamy sand to sandy clayloam
Gently undulating

Characteristics: An aridic to ustic soil moisture regime. The structure of the topsoil is very weak medium to coarse subangular blocky or structureless, the subsoil has a very weak very coarse subangular blocky structure.

Occurrence: - Natural levees in Selebi-Phikwe and Mmadinare.
- From Tobane to Bobonong in broad terraces where it is the transition from the more sandy levee to the havier more humid swale or from the lower slope to the terraces.

Observations: SP17 - SP18 - SP52 - SP125 - SP128

Vegetation: Savanna, tree savanna and shrub savanna

A36.2 FAO: Luvic Xerosol - Petric
ST: Ustollic/Typic Haplargid

Deep well drained dark brown sandy loams to sandy clay
Gently undulating to almost flat

Characteristics: The structure is massive to weak medium to coarse subangular blocky both in the topsoil and in the sub-soil.

Occurrence: - On the interterrace depressions of the broad terraces along the Motloutse river at Selebi-Phikwe and Tobane.
- Along the major secondary streams at Selebi-Phikwe.
In complex with A22a, A36, A36.1

Observations: SP23 - SP67

Vegetation: Riverine woodland and open tree savanna

A37 FAO: Calcic Luvic Xerosol
(to Calcic Luvisol or
Calcic Eutric Nitosol)
ST: Ustallic/Ustalfic Haplargid

Deep to very deep imperfectly to moderately well drained dark brown to strong brown sandy clayloam to clay
Flat to gently undulating

Characteristics: The soil moisture regime is aridic bordering on ustic. The structure is very weak to weak medium to very coarse subangular blocky. The carbonate concentration is strong in the matrix of the sub-soil, together with abundant lime nodules, cemented in places.

Occurrence: - Along major tributaries at Selebi-Phikwe.
- Mainly along minor tributaries at Bobonong and Mmadinare.
- Along Motloutse river.
- Minor areas at Mmadinare.

Observations: SP9 - SP102 - SP118 - SP141

Vegetation: Riverine woodland and shrubland

A37a FAO: Calcic Luvic Xerosol
ST: Typic Haplargid

Deep to very deep moderately well to well drained yellowish brown to yellowish red sandy loams to sandy clayloam
Terraces

Characteristics: Also dark reddish brown to reddish brown sandy loam to sandy clay. The structure of the topsoil is very weak to weak medium to very coarse subangular blocky and in the subsoil massive to weak coarse to very coarse subangular blocky. A calcic horizon is present within 125 cm.

Occurrence: - In deep uniform terraces along the Motloutse river at Bobonong.
- At deep secondary tributaries where the parent material is basalt.

Observations: SP26 - SP27 - SP79 - SP83 - SP85 - SP96 - SP97

Vegetation: Shrub savanna

A39 FAO: Haplic Xerosol
ST: Aquic Torriorthent

Deep imperfectly to well drained brown to reddish yellow sandy clayloam to sandy clay
Flat to undulating

Characteristics: Also on dark brown sandy loams. The soil moisture regime is aridic bordering on ustic. Slightly sodic (ESP 7%) and gravelly in places.

Occurrence: - In a very limited area at Selebi-Phikwe along the Lethlakane river near the confluence with the Motloutse river.
- Along secondary streams in Tobane.

Observations: SP38 - SP56

Vegetation: Riverine woodland

B1 FAO: Eutric Regosol - Lithic phase
ST: Lithic Torriorthent

Very shallow to shallow well to somewhat excessively drained reddish brown to dark brown sandy loams to clayloam
Undulating to hilly

Characteristics: Shallow profiles with massive to very weak structure. A lithic contact occurs within 50 cm. The soil moisture regime is aridic.

Occurrence: Bobonong upland on basalts. In complex with B1b and B6c.

Observations: //

B1b FAO: Calcaric Regosol - Lithic phase
ST: Lithic Torriothent

As B1, but calcareous

Characteristics: As B1, but calcareous.

Occurrence: Bobonong upland on basalts. In complex with B1 and B6c.

Observations: //

B5c FAO: Luvic Xerosol petric phase
ST: Lithic Haplustalf

Shallow to moderate deep well drained reddish brown to strong brown sandy clay loam to sandy clay
Undulation to rolling (on basalt)
Aridic moisture regime

characteristics: none

Occurrence: East of Tobane on the Basalts in complex with B1 and B1b

Observations: //

B6c FAO: Calcic Luvic Xerosol
partly petric phase some lithic
ST: Typic Haplargid

Shallow to moderately deep well drained dark brown to reddish brown clayloam to clay
Undulating to rolling (on basalt)
Aridic moisture regime

Characteristics: Shallow profiles with very weak to weak subangular blocky medium to coarse structure. The soil moisture regime is aridic.

Occurrence: Bobonong upland on basalt, in complex with B1 and B1b.

Observations: //

C1 FAO: Lithosol
ST: Lithic Torriorthent

Very shallow (less than 10 cm.) moderately well to well drained dark grayish brown to brown loamy sands to clayloam
Flat to undulating

Characteristics: Soils of less than 10 cm. deep.

Occurrence: In small areas on very eroded limestone at Tobane.

Observations: //

C4a

FAO: Calcic Xerosol partly petrocalcic
ST: Ustollic Calciorthid

Shallow to moderately deep imperfectly to well drained very dark gray to reddish brown sandy loams to clayloam
Flat to undulating

Characteristics: Structureless to very weak subangular blocky in the topsoil. Within 50 cm. more than 80% calcrete nodules or calcareous material is present. The soil matrix is strongly calcareous. The soil moisture regime is aridic bordering on ustic.

Occurrence: This unit appears in only one limited area near Bobonong in an abandonned Motloutse valley.

Observations:_SP81

C5a

FAO: Calcic Luvic Xerosol partly petrocalcic
ST: Typic Haplargid to Petrocalcic Paleargid

Shallow to moderately deep moderately well to well drained dark yellowish brown to yellowish red sandy loams to clayloam
Flat to undulating
Aridic soil moisture regime

Characteristics: Shallow profiles with very weak subangular blocky structure.

Occurrence: In small areas on very eroded limestones at Tobane.

Observations: //

G1c FAO: Eutric Regosol - Shallow petric
ST: Lithic Torriorthent

Moderately deep moderately well to well drained dark grayish brown to reddish brown sands to loamy sands
Almost flat to rolling

Characteristics: Shallow profiles with massive to very weak subangular blocky structure. The soil moisture regime is aridic.

Occurrence: Upland on acid igneous and metamorphic rocks. In complex with G1e, G2e and G8a.

Observations: //

Vegetation: Open tree and open shrub savanna

G1e FAO: Lithosol
ST: Lithic Torriorthent

Very shallow well to somewhat excessively drained grayish brown to brown sands to loamy sands
Undulating

Characteristics: The soil moisture regime is aridic.
The 10 cm or less deep soil is structureless to very weak subangular blocky.

Occurrence: Upland on igneous and metamorphic rocks. In complex with G1c, G2e and G8a.

Observations: //

Vegetation: Open savanna and shrub savanna

G2e

FAO: Luvic Xerosol - Shallow petric/petric/petroferric
ST: Lithic/Ustollic/Typic Haplargid

Moderately deep moderately well to well drained grayish brown to red sandy loams to sandy clayloam
Undulating

Characteristics: The structure is in general very weak medium to coarse subangular blocky massive in places. The petric horizon occurs within 75 cm. The soil moisture regime is aridic.

Occurrence: On the uplands in complex with G1c, G1e and G8a.

Observations: SP1 - SP2 - SP24 - SP33 - SP34 - SP42 - SP43 - SP44 - SP64 - SP70 - SP77 - SP112 - SP113 - SP127

Vegetation: Shrub savanna and savanna

G6b

FAO: Luvic Xerosol partly petric/petroferric
ST: Typic/Ustollic Haplargid

Moderately deep to deep moderately well to well drained reddish yellow to red loamy sands to clay. Petric/petroferric not within 75 cm.
Almost flat to undulating

Characteristics: The moisture regime is aridic bordering to ustic. The structure is very weak to weak fine to coarse subangular blocky and may become massive in the subsoil.

Occurrence: - On uplands north of Tobane and near Selebi-Phikwe.

Observations: SP15 - SP31 - SP57 - SP92 - SP124

Vegetation: Savanna, tree savanna and shrubland

G14a

FAO: Arenic Luvic Xerosol
ST: Ustollic/Typic Haplargid
Arenic Ustalfic Haplargid

Very deep well to moderately well drained yellowish red to dark red sandy clayloam to sandy clay
Almost flat to undulating

Characteristics: Topsoil is loamy sand. The structure is massive to weak coarse subangular blocky.

Occurrence: On pediments from acid igneous and metamorphic rocks at Selebi-Phikwe and Tobane.

Observations: SP32 - SP45 - SP47 - SP60 - SP66 - SP75 - SP131 - SP142

Vegetation: Shrub savanna and savanna

S1

FAO: Ferralic Arenosol Lithic phase
ST: Lithic Torriorthent

Very shallow to shallow excessively drained yellowish brown to yellowish red sands and loamy sands
Undulating to hilly
Watershedding

Characteristics: Shallow profiles with a lithic contact within 50 cm.. The soil moisture regime is aridic.

Occurrence: North and west of Bobonong in the uplands on fine sandstones, in complex with S1a, S1b or S12a.

Observations: //

S1a FAO: Ferralic Arenosol
ST: Typic Torripsamment

Moderately deep somewhat excessively drained yellowish to yellowish red or dark reddish brown sands and loamy sands, lithic contact between 50 and 100 cm.
Undulating to hilly
Watershedding

Characteristics: The structure is massive to very weak medium to coarse subangular blocky. The soil moisture regime is aridic.

Occurrence: North and west of Bobonong on coarse sandstones, in complex with S1b.

Observations: SP149

S1b FAO: Arenic Eutric Regosol Petric phase
ST: Typic Torriorthent

Shallow to moderately deep somewhat excessively drained brownish yellow to yellowish red sands and loamy sands
Undulating to hilly
Watershedding

Characteristics: Shallow profiles with massive to very weak medium to coarse subangular blocky structure. The soil moisture regime is aridic.

Occurrence: North and west of Bobonong on coarse sandstones in complex with S1a.

Observations: //

S11a FAO: Arenic Luvic Xerosol
ST: Typic/Arenic Haplargrid

Very deep well to somewhat excessively drained red to brown fine-medium sandy loams; aridic moisture regime
Flat to undulating

Ocurrence: Only one area west of Bobonong, north of the Motloutse river

Observations: SP134

S12a

FAO: Arenic Calcic Luvic Xerosol
ST: Arenic Haplargid/
Petrocalcic Paleargid

Deep to very deep well to somewhat excessively drained brown to yellowish red sandy loams
Flat to undulating
Normal

Characteristics: The structure is massive to very weak subangular blocky. A petrocalcic horizon may occur deeper than 1 meter depth. The soil moisture regime is aridic.

Occurrence: North and west of Bobonong on fine sandstones, mainly in the area south of the Motloutse river.

Observations: SP148

S13a

FAO: Petrocalcic Arenosol
ST: Petrocalcic Paleargid

Moderately deep to very deep well to somewhat excessively drained grayish brown to yellowish red sands and loamy sands
Flat to undulating
Normal
Having a petrocalcic horizon

Characteristics: The structure is massive to very weak subangular blocky. A petrocalcic horizon occurs within 1 meter depth. The soil moisture regime is aridic.

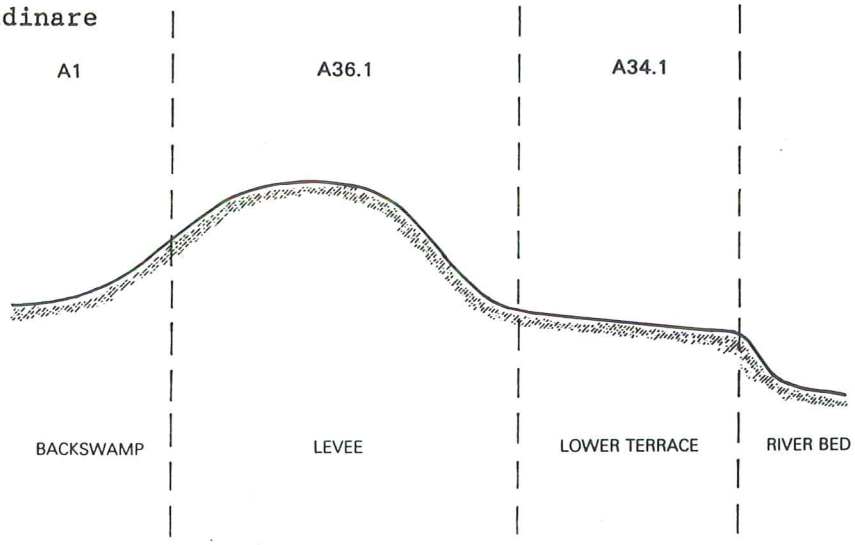
Occurrence: West and North of Bobonong on fine sandstones, south of the Motloutse river.

Observations: SP145 - SP146

## 2.4 Soil Cross Sections

The association of geomorphology and soil mapping units along the Motloutse river is shown in the following cross-sections:

Fig. 3 Mmadinare

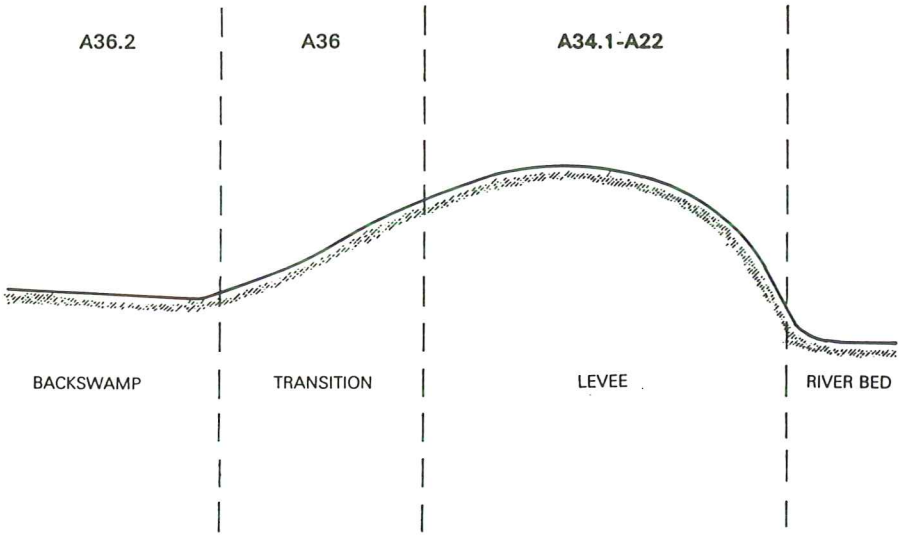



A1 PELLIC VERTISOL

A36.1 ARENIC LUVIC XEROSOL

A34.1 ARENIC EUTRIC REGOSOL

Fig.4 Selebi-Phikwe



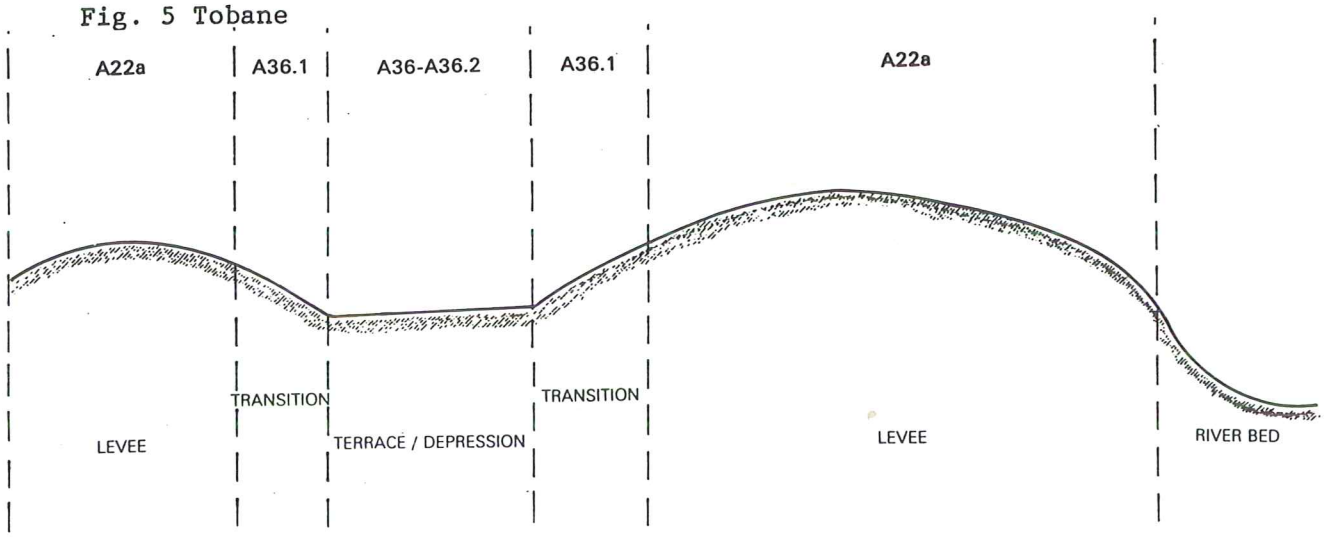

A36.2 LUVIC XEROSOL / PETRIC PHASE

A36 LUVIC XEROSOL

A34.1 ARENIC EUTRIC REGOSOL / PETRIC PHASE

A22 EUTRIC ARENOSOL

Fig. 5 Tobane



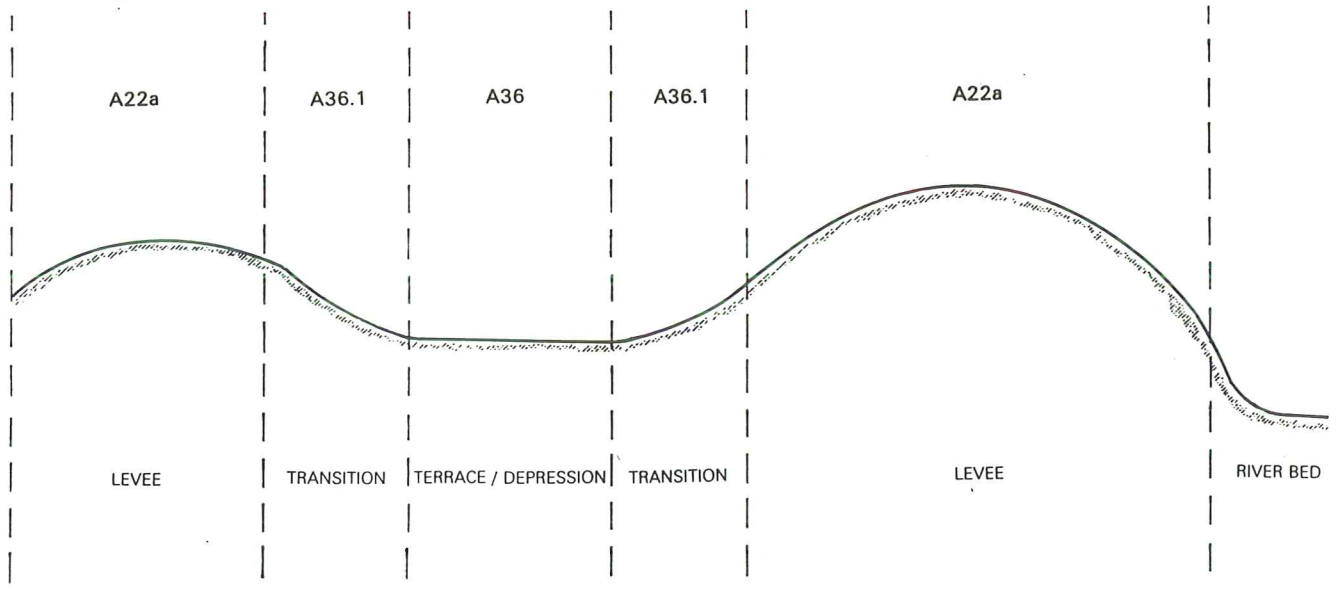

A22a CAMBIC ARENOSOL

A36.1 ARENIC LUVIC XEROSOL

A36 LUVIC XEROSOL

A36.2 LUVIC XEROSOL / PARTLY PETRIC

Fig. 6 Bobonong




A22a CAMBIC ARENOSOL

A36.1 ARENIC LUVIC XEROSOL

A36 LUVIC XEROSOL

The levees are larger, higher and more sandy downstream at Tobane and Bobonong.
The larger and higher levees can be explained by the development of the system downstream. The sandier levees can be explained by the influx of sandier sediments derived from the Karoo Sandstones.
The depressions between two levees only occur at Tobane and Bobonong, whereas upstream the system at Mmadinare and Selebi-Phikwe is characterized by terraces and backswamps.

# PART II

# LANDEVALUATION

A. Markus
C.A.M. Sinnige

## 3 LAND EVALUATION

### 3.1 System of Land Evaluation

The method of land evaluation used is 'A system of land evaluation for arable farming in Botswana', by G.J. Rhebergen (1988), which is based on 'A Framework for Land Evaluation' (FAO 1976).

Four levels of decreasing generalization are recognized:
- Orders
- Classes
- Subclasses
- Units

Orders: There are two orders: S (suitable)
N (non-suitable)

Classes: In Botswana four classes are distinguished within order (S) and two classes within order (N):

S (suitable) : S1
S2
S3
S4
N (non-suitable) : N1
N2

The suitability classes are defined as follows:

S1 highly suitable: Land which is expected to be highly productive for the defined use. High returns amply justify required imputs. No significant limitations.

S2 moderately suitable: Land which is expected to be moderately productive for the defined use. Moderate returns justify required imputs. Limitations reduce crop yield 20-40% and/or increase recurrent costs for production and conservation.

S3 marginally suitable: Land which is expected to have a low productivity for the defined use. Yield benefits are just high enough to justify required inputs. Limitations reduce crop yield 40-60% and/or considerably increase costs for production and conservation.

S4 very marginally suitable: Land which is expected to have a very low productivity for the defined use. It is doubtful whether yield benefits alone justify required inputs. Severe limitations reduce crop yields with 60-80% and/or considerably increase costs for production and conservation.

N1 currently unsuitable land: Land with very severe limitations, which at present cannot be corrected economically.

N2 permanently unsuitable land.

Subdivision of the classes is as follows:

Subclasses: Land suitability subclasses reflect kinds of limitations. They are indicated by lower-case letters, symbolyzing the kind of limitation ( e.g. subclass S2e: limitation caused by erosion).

Units: Land suitability units reflect small differences in production characteristics. Units are indicated by arabic numbers, following a hyphen (e.g. S2e-1)

The evaluation procedure includes four steps as follows:

1. Specification of areas to be evaluated and the kind(s) of land use which have to be considered.
2. Description of kind(s)of landuse and identification of requirements of the use and limitations.
3. Description of landunits and their qualities within the specified areas.
4. Estimations of benefits and inputs for each relevant combination of landuse type and land unit, resulting in a land suitability classification. Benefits not only consists of produce, but also include benefits like the creation of employment.

Steps 2 and 3 are taken simultaneously, the results of one influencing the other.

## 3.2 Application of the System

The land use types considered are: Improved traditional dryland farming and small scale irrigated farming. (see tabel 1 for discription)
The soil mapping units of the Motloutse area were rated for the following land qualities:

Group I related to edaphic and agro-climatic suitability:

(d) Soil drainability (irrigated arable farming only)
(f) Absence of damaging floods
(g) Adequacy of conditions for germination
(m) Moisture availability
(n) Nutrient availability
(o) Oxygen availability in the rootzone
(r) Adequacy of foothold for roots
(t) Absence of toxic substences

Group II related to management and conservation suitability

(e) Resistence to soil erosion
(w) Workability
(x) Adequacy of topography (for irrigated farming)

Each quality was rated, using numbers (1-6). Although an increase in rating number generally corresponds with a decrease in suitability for all land use types, ratings are not the same as suitability classes. Different land use types have different requirements and the weight given to each rating should be established seperately for every land use type and for every crop (e.g. low oxygen availability in the rootzone is a severe limitation for maize but not for paddy rice).
The ratings or 'critical limits' were defined in such a way that they both reflect the range of conditions found in Botswana and are related to the requirements of the relevant land use type and crops.

The following procedure then was followed to get the suitability classification of a land mapping unit:

a. Determination of the ratings for the individual land qualities.
b. Establishment of the relationship between land quality ratings and suitability class by comparing the requirements of specified land use and the ratings. This involves an estimation of inputs and benefits. A consideration of inputs and benefits will show that the weight given to a rating can vary from one land use type to the other and from one crop to another crop.

   The final suitability class of the soil unit is determined by the lowest suitability class of the land qualities considered.

## 3.3 Land Suitability Mapping

### 3.3.1 General

The soil maps scale 1:50,000 are used as a basis for the land suitability maps. The soil mapping units as shown on the soil maps often consist of two or more soil units (either as an association or as a complex). For cartographic reasons it is impractible to evaluate all soil units and to map an association of land suitability (sub)classes. The number of characteristics would be too large (e.g. S3mn-S3m-S2mnot).
The solution chosen is that only the soil unit with the highest suitability class is mapped. In order to give an indication of the area covered by the mapped suitability class the letter S is printed in three lettertypes:

Bold Capital **S**: area coverage per mapping unit 60 - 80%
Capital S: area coverage per mapping unit 40 - 60%
Lower case s: area coverage per mapping unit 20 - 40%.

It should be noted that generally 30% or less of the area of the soil mapping unit is covered by minor soil units (inclusions), which are normally not mentioned in the soil association or complex.

TABEL 1.

DESCRIPTION OF THE LAND USE TYPES

A. Improved Taditional Dryland Farming

| | |
|---|---|
| Produce: | Sorghum, maize, millet, groundnuts, peas, beans, sunflower, dolichos lablab. |
| Yields: | 500 - 600 kg/ha (grain) |
| Market orientation: | Firstly subsistence; sale of surplus |
| Size of holding: | 10 ha; total area planted depends on amount and distribution of rainfall |
| Capital intensity: | Moderate |
| Labour intensity: | Moderate |
| Credit facilities: | Government controlled institutions |
| Farm power: | Oxen, donkeys, mules |
| Technical knowledge: | Good knowledge of modern farming practices related to non-mechanized dryland farming |
| Management practices: | Winter ploughing, early planting, row planting, improved seeds, modest use of fertilizer/manure, insecticides, use of planter and inter-row cultivator, contour ploughing, adequate crop protection against pests, proper storage of harvest. |
| Infrastructure requirements: | Advisory services; depots for sale of supplies (fertilizer, seeds) and storage of produce. |
| Land tenure system: | Communal. |

B. Small Scale Irrigated Farming

| | |
|---|---|
| Produce: | Vegetables, fruits, maize, sorghum and possibly fodder crops. |
| Yields: | 5 - 8 t/ha (grain) |
| Market orientation: | Commercial or as part of other farm activity (dairly, beef production) |
| Size of holding: | Less than 20 ha |
| Capital intensity: | Moderate to high |
| Credit facilities: | Government controlled and commercial banks |
| Labour intensity: | High in case of horticulture |
| Farm power: | Engire for pumping; hand, animal or engine for other farm operations. |
| Technical knowledge: | Moderate to high |
| Management practices: | High inputs in terms of fertilizer, weeding, crop protection, seeds. Type of irrigation depends on topography of land, availability of water, crops, available capital, soil characteristics. |
| Source of water: | (sand) rivers, weirs, boreholes, open water (including small dams) |
| Infrastructure: | Easy access to market assential in case of horticulture; advisory services should be available. |
| Land tenure system: | Freehold or communal. |

### 3.3.2. Results

The results are presented as two different suitability maps, one for improved traditional dryland farming and one for small scale irrigated farming.
The crop that is selected for traditional dryland farming is the fodder crop Dolichos lablab for reasons that it is a more suitable crop in aridic climates as compared to sorghum and maize. For the latter crops the map would show predominantly unsuitable areas.

Compared to Dolichos lablab, millet and sorghum should be rated one to two classes lower, and maize two to three classes.
The crop selected for small scale irrigated farming is maize.
All the ratings and suitability classes are given in appendix 1.
Information on Dolichos lablab and maize is given in appendix 5.

**REFERENCES**


Bhalotra, Y.P.R. Climate of Botswana, part 2
1987

Breitbart, R. Laboratory Procedures Manual. FAO BOT/85 011 Field document.
1988

FAO A Framework for Land Evaluation. Soils Bulletin No.32.
1976

FAO Guidelines for Soil Profile Description
1977

FAO. Guidelines: Land Evaluation for Irrigated Agriculture
1985 FAO Soils bulletin 55

FAO. Yield response to water; FAO irrigation and drainage paper nr.33
1979

FAO-Unesco. Soil Map of the World 1:5000,000, volume 1, Legend
1974

Field, D.I. A handbook of Basic Ecology for range managment in
1978 Botswana

Geological survey of Botswana, (Phikwe) Geological Map, quarter
1975 degree sheet 2127D and 2128C

Huesken, J. Preliminary land evaluation of South East District
1988 scale 1:100,000 FAO BOT/85/011 Field Document

Mitchell, A.J.B. The irrigation potential of soils along the
1976 main rivers of Eastern Botswana: a reconnaissance assessment. Land Resource study nr.7 Land Resources Division, Ministry of Overseas Development

Munsell Color Division, Munsell Soil Color Charts
1971

Reineck, H.E.; Singh, I.B. Depositional Sedimentary Environments
1973

Rhebergen, G.J. A System of Land Evaluation for Arable Farming
1988 in Botswana

Remmelzwaal, A; Soils of Central District, FAO BOT/85/011 Field Document
1984

Remmelzwaal, A. and E.v. Waveren; Botswana Soil Database, Guidelines
1988 for Soil Profile Description, FAO BOT/85/011

Remmelzwaal, A; General Soil Legend of Botswana, FAO BOT/85/011 Field Document
1988

Timberlake, J. Vegetationmap of South East Botswana
1980

USDA, Soil Survey Staff, SMSS Technical Monograph 6. Keys to Soil
1987 Taxonomy

USDA, Soil Survey Staff, SMSS Technical Monograph 6. Keys to Soil
1975 Taxonomy

Venema, J.H. Soils of North East Botswana, FAO BOT/85/011 Field Document
1983

Venema, J.H. Soils of North East Botswana and their suitability
1980 for dryland farming

# APPENDIX 1

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S4o | | S2 | S1 | S2 | | S1 | S4 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | S4ot | | | S2 | S1 | | S1 | S4 | | S1 | S1 | S1 | S4 | | S1 | | S1 | S1 | | |
| | | | - | - | 2 | 2 | 1 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | S4d | | S4-N2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S3d | | S3 | S1 | S1 | | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2t | | S4-N2 | S3 | S1 | | S1 | S2-S3 | | S1 | N2 | S4 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 4 | 3 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | S3d | | S3 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | S2d | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~S2dfo~~ | | ~~S2~~ | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | S2n | | S1 | S1 | S1 | | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | S2d | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4t~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | ~~S2-S3~~ | ~~S2~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | S3t | | S2 | S1 | S1 | | S1 | S2-S3 | | S1 | S1 | S1 | S3 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 4 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S2t | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S2 | | S1 | | S1 | S1 | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2t~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S2~~ | ~~S4~~ | | ~~S1~~ | ~~N2~~ | ~~N2~~ | ~~S3~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | S1dfgno | | S1 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2t~~ | | ~~S4-N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | | ~~S1~~ | ~~N2~~ | ~~S4~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | | ~~2~~ | ~~1~~ | ~~2~~ | ~~5~~ | ~~1~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~4~~ | ~~3~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | | | S4 | S1 | | S2 | S4 | | S1 | N2 | N2 | S3 | | S1 | | S3 | S1 | | |
| | | | - | 1 | 4 | 2 | 4 | 3 | 3 | - | 2 | 4 | 5 | 3 | - | 2 | - | 3 | 1 | - | - |
| B1 | W | S4w | | S2 | S1 | S1 | | | S1 | | S3-S4 | S1 | S1 | S3 | | S3-S4 | | S4-N2 | S1 | | |
| | | | - | 2 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 3 | - | 5 | - | 4 | 1 | - | - |
| B1B | W | S4w | | S2 | S1 | S1 | | | S1 | | S3-S4 | S1 | S1 | S3 | | S3-S4 | | S4-N2 | S1 | | |
| | | | - | 2 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 3 | - | 5 | - | 4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~S3dw~~ | | ~~S3~~ | ~~S1~~ | ~~S1~~ | | | ~~S2-S3~~ | | ~~S2~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S2~~ | | ~~S3~~ | ~~S1~~ | | |
| | | | | ~~3~~ | ~~1~~ | ~~2~~ | ~~6~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~3~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~-~~ | ~~3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | S3ew | | S2 | S1 | S1 | | | S1 | | S2 | S1 | S1 | S2 | | S3 | | S3 | S1 | | |
| | | | - | 2 | 1 | 2 | 5 | - | 1 | - | 3 | 1 | 1 | 2 | - | 4 | - | 3 | 1 | - | - |
| C1 | W | N2r | | S4-N2 | S1 | S1 | | | S1 | | N2 | S1 | S1 | S1 | | S2 | | S4-N2 | S1 | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 3 | - | 4 | 1 | - | - |
| C3A | W | N2r | | S4-N2 | S1 | S1 | | | S1 | | N2 | S1 | S1 | S4 | | S3-S4 | | S4-N2 | S1 | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 5 | 1 | 1 | 4 | - | 5 | - | 4 | 1 | - | - |
| C4A | S | S4t | | S2 | S1 | S1 | | S1 | S2-S3 | | S1 | S1 | S1 | S4 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 4 | 2 | 2 | - | 2 | 1 | 1 | 4 | - | 1 | - | 1 | 1 | - | - |
| C5A | W | S3t | | S2 | S1 | S1 | | | S1 | | S1 | S1 | S1 | S3 | | S2 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 3 | - | 3 | - | 2 | 1 | - | - |
| ~~G14~~ | ~~W~~ | ~~S2n~~ | | | ~~S1~~ | ~~S1~~ | | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | | | ~~1~~ | ~~1~~ | | ~~3~~ | ~~1~~ | | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G14A | WN | S2dn | | | S1 | S1 | | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| G1C | W | S4w | | S3 | S1 | S1 | | S2 | S1 | | S3-S4 | S1 | S1 | S1 | | S3-S4 | | S4-N2 | S1 | | |
| | | | - | 3 | 1 | 2 | 5 | 3 | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1E | W | S4dw | | S4-N2 | S1 | S1 | | | S1 | | S3-S4 | S1 | S1 | S1 | | S3-S4 | | S4-N2 | S1 | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| G2E | W | S3e | | S2 | S1 | S1 | | S1 | S1 | | S2 | S1 | S1 | S1 | | S3-S4 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |
| G6B | WN | S2de | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 3 | - | 1 | 1 | - | - |
| ~~G8A~~ | ~~WN~~ | ~~S3de~~ | | ~~S3~~ | ~~S1~~ | ~~S1~~ | | | ~~S1~~ | | ~~S2~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S3~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | | ~~3~~ | ~~1~~ | ~~1~~ | ~~5~~ | | ~~1~~ | | ~~3~~ | ~~1~~ | ~~1~~ | ~~1~~ | | ~~4~~ | | ~~2~~ | ~~1~~ | | |
| S1 | W | N2r | | S4-N2 | S1 | S1 | | | S1 | | N2 | S1 | S1 | S1 | | S3-S4 | | S4-N2 | S1 | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| S11A | WN | S2d | | S2 | S1 | S1 | | | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| S12A | W | S2d | | S2 | S1 | S1 | | | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high percentage CaCO3. | | | | | | | | | | | | | | | | | | |
| S13A | W | S4t | | S3 | S1 | S1 | | | S1 | | S3-S4 | S1 | S1 | S4 | | S2 | | S1 | S1 | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 4 | 1 | 1 | 4 | - | 3 | - | 2 | 1 | - | - |
| S1A | W | S3de | | S3 | S1 | S1 | | | S1 | | S1 | S1 | S1 | S1 | | S3-S4 | | S1 | S1 | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 2 | 1 | 1 | 1 | - | 5 | - | 1 | 1 | - | - |
| S1B | W | S4d | | S4-N2 | S1 | S1 | | | S1 | | S2 | S1 | S1 | S1 | | S3-S4 | | S3 | S1 | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 3 | 1 | - | - |

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | S4e | | S2 | S1 | S1 | | S1 | S1 | | S2 | S1 | S1 | S1 | | S3-S4 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | - | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S4o | | S2 | S1 | S2 | | S1 | S4 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | S4ot | | S2 | S2 | S1 | | S1 | S4 | | S1 | S1 | S1 | S4 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 2 | 1 | 5 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | S4d | | S1 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S3d | | S1 | S1 | S1 | | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | S4d | | S4-N2 | S3 | S1 | | S1 | S2-S3 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | S3d | | S1 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | S2d | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~S2dfo~~ | | ~~S2~~ | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | S2n | | S1 | S1 | S1 | | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | S2d | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4t~~ | | ~~S4-N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | ~~S2-S3~~ | ~~S2~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | S3t | | S2 | S1 | S1 | | S1 | S2-S3 | | S1 | S1 | S1 | S3 | | S1 | | S1 | S1 | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S2t | | S2 | S1 | S1 | | S1 | S1 | | S1 | S1 | S1 | S2 | | S1 | | S1 | S1 | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2t~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S2~~ | ~~S4~~ | | ~~S1~~ | ~~N2~~ | ~~N2~~ | ~~S3~~ | | ~~S1~~ | | ~~S1~~ | ~~S1~~ | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | S1dfgno | - | S1<br>1 | S1<br>1 | S1<br>1 | 4 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2t~~ | - | ~~S4-N2<br>2~~ | ~~S1<br>1~~ | ~~S1<br>2~~ | ~~5~~ | ~~S1<br>1~~ | ~~S4<br>3~~ | - | ~~S1<br>1~~ | ~~N2<br>4~~ | ~~S4<br>3~~ | ~~S1<br>1~~ | - | ~~S1<br>1~~ | - | ~~S1<br>2~~ | ~~S1<br>1~~ | - | - |
| A5B | S | N2t | - | S1<br>1 | S4<br>4 | S1<br>2 | 4 | S2<br>3 | S4<br>3 | - | S1<br>2 | N2<br>4 | N2<br>5 | S3<br>3 | - | S1<br>2 | - | S3<br>3 | S1<br>1 | - | - |
| B1 | W | S4w | - | S2<br>2 | S1<br>1 | S1<br>2 | 6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |
| B1B | W | S4w | - | S2<br>2 | S1<br>1 | S1<br>2 | 6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S3<br>3 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |
| ~~B2~~ | ~~W~~ | ~~S3dw~~ | - | ~~S3<br>3~~ | ~~S1<br>1~~ | ~~S1<br>2~~ | ~~6~~ | - | ~~S2-S3<br>2~~ | - | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | - | ~~S2<br>3~~ | - | ~~S3<br>3~~ | ~~S1<br>1~~ | - | - |
| B6C | W | S3ew | - | S2<br>2 | S1<br>1 | S1<br>2 | 5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S2<br>2 | - | S3<br>4 | - | S3<br>3 | S1<br>1 | - | - |
| C1 | W | N2r | - | S4-N2<br>4 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>3 | - | S4-N2<br>4 | S1<br>1 | - | - |
| C3A | W | N2r | - | S4-N2<br>4 | S1<br>1 | S1<br>2 | 6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S4<br>4 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |
| C4A | S | S4t | - | S1<br>2 | S1<br>1 | S1<br>1 | 4 | S1<br>2 | S2-S3<br>2 | - | S1<br>2 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| C5A | W | S3t | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S3<br>3 | - | S2<br>3 | - | S1<br>2 | S1<br>1 | - | - |
| G14A | WN | S2dn | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>2 | - | S1<br>1 | S1<br>1 | - | - |
| G1C | W | S4w | - | S1<br>3 | S1<br>1 | S1<br>2 | 5 | S2<br>3 | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |
| G1E | W | S4dw | - | S4-N2<br>4 | S1<br>1 | S1<br>2 | 6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | S3e | - | S2<br>2 | S1<br>1 | S1<br>1 | 6 | S1<br>2 | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S1<br>2 | S1<br>1 | - | - |
| G6B | WN | S2de | - | 2 | S1<br>1 | S1<br>1 | 6 | S1<br>2 | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>3 | - | S1<br>1 | S1<br>1 | - | - |
| ~~G8A~~ | ~~WN~~ | ~~S3de~~ | ~~-~~ | ~~S3<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~5~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>4~~ | ~~-~~ | ~~S1<br>2~~ | ~~S1<br>1~~ | ~~-~~ | ~~-~~ |
| S1 | W | N2r | - | 4 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |
| S11A | WN | S2d | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>2 | - | S1<br>1 | S1<br>1 | - | - |
| S12A | W | S2d | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>2 | - | S1<br>1 | S1<br>1 | - | - |
| | | | Remarks: Can become toxic because of high CaCo3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | S4t | - | S2<br>3 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S4<br>4 | - | S2<br>3 | - | S1<br>2 | S1<br>1 | - | - |
| S1A | W | S3de | - | S1<br>3 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S1<br>1 | S1<br>1 | - | - |
| S1B | W | S4d | - | S1<br>4 | S1<br>1 | S1<br>2 | 6 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S3<br>3 | S1<br>1 | - | - |

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | N2d | - | S4-N2<br>4 | S1<br>1 | S2<br>3 | 3 | S1<br>1 | N1<br>4 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| ~~A1~~ | ~~PS~~ | ~~S4e~~ | ~~-~~ | ~~S2<br>4~~ | ~~S1<br>1~~ | ~~S2<br>3~~ | ~~3~~ | ~~S1<br>1~~ | ~~S4<br>4~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A2 | S | S4ot | - | S4-N2<br>2 | S2<br>2 | S1<br>1 | 5 | S1<br>1 | S4<br>3 | - | S1<br>1 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | - | - |
| A22 | S | S4d | - | S4-N2<br>4 | S1<br>1 | S1<br>1 | 6 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| A22A | S | S3d | - | S3<br>3 | S1<br>1 | S1<br>1 | 4 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| A33A | S | S4d | - | S4-N2<br>4 | S3<br>3 | S1<br>1 | 5 | S1<br>1 | S2-S3<br>2 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | - | - |
| A34.1 | W | S3d | - | S3<br>3 | S1<br>1 | S1<br>1 | 6 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>3 | - | S1<br>1 | S1<br>1 | - | - |
| A36 | S | S2d | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~S2dfo~~ | ~~-~~ | ~~S2<br>2~~ | ~~S2<br>2~~ | ~~S1<br>2~~ | ~~5~~ | ~~S1<br>2~~ | ~~S2-S3<br>2~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | S2n | - | S1<br>1 | S1<br>1 | S1<br>1 | 5 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| A36.2 | S | S2d | - | S2<br>2 | S1<br>1 | S1<br>1 | 6 | S1<br>2 | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4t~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>2~~ | ~~5~~ | ~~S1<br>2~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S4<br>3~~ | ~~S2-S3<br>2~~ | ~~S2<br>2~~ | ~~-~~ | ~~S1<br>2~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~-~~ |
| A37 | S | S3t | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | S1<br>2 | S2-S3<br>2 | - | S1<br>1 | S1<br>1 | S1<br>1 | S3<br>3 | - | S1<br>2 | - | S1<br>1 | S1<br>1 | - | - |
| A37A | S | S2t | - | S2<br>1 | S1<br>1 | S1<br>1 | 4 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S2<br>2 | - | S1<br>2 | - | S1<br>1 | S1<br>1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2t~~ | ~~-~~ | ~~S4-N2<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~6~~ | ~~S2<br>3~~ | ~~S4<br>3~~ | ~~-~~ | ~~S1<br>2~~ | ~~N2<br>4~~ | ~~N2<br>4~~ | ~~S3<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~-~~ |
| A39 | S | S1dfgno | - | S1<br>1 | S1<br>1 | S1<br>1 | 5 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | - | - |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~A39A~~ | ~~S~~ | ~~N2t~~ | ~~-~~ | ~~S4-N2~~ ~~2~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~2~~ | ~~5~~ | ~~S1~~ ~~1~~ | ~~S4~~ ~~3~~ | ~~-~~ | ~~S1~~ ~~1~~ | ~~N2~~ ~~4~~ | ~~S4~~ ~~3~~ | ~~S1~~ ~~1~~ | ~~-~~ | ~~S1~~ ~~1~~ | ~~-~~ | ~~S1~~ ~~2~~ | ~~S1~~ ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | - | S1 1 | S4 4 | S1 2 | 4 | S2 3 | S4 3 | - | S1 2 | N2 4 | N2 5 | S3 3 | - | S1 2 | - | S3 3 | S1 1 | - | - |
| B1 | W | S4w | - | S3 2 | S1 1 | S1 2 | 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | S3-S4 5 | - | S4-N2 4 | S1 1 | - | - |
| B1B | W | S4w | - | S2 2 | S1 1 | S1 2 | 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S3 3 | - | S3-S4 5 | - | S4-N2 4 | S1 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~S3dw~~ | ~~-~~ | ~~S3~~ ~~3~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~2~~ | ~~6~~ | ~~-~~ | ~~S2-S3~~ ~~2~~ | ~~-~~ | ~~S2~~ ~~3~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~1~~ | ~~-~~ | ~~S2~~ ~~3~~ | ~~-~~ | ~~S3~~ ~~3~~ | ~~S1~~ ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | S3ew | - | S2 2 | S1 1 | S1 2 | 5 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S2 2 | - | S3 4 | - | S3 3 | S1 1 | - | - |
| C1 | W | N2r | - | S4-N2 4 | S1 1 | S1 1 | 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S1 1 | - | S2 3 | - | S4-N2 4 | S1 1 | - | - |
| C3A | W | N2r | - | S4-N2 4 | S1 1 | S1 2 | 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S4 4 | - | S3-S4 5 | - | S4-N2 4 | S1 1 | - | - |
| C4A | S | S4t | - | S2 2 | S1 1 | S1 1 | 5 | S1 2 | S2-S3 2 | - | S1 2 | S1 1 | S1 1 | S4 4 | - | S1 1 | - | S1 1 | S1 1 | - | - |
| C5A | W | S3t | - | S2 2 | S1 1 | S1 1 | 5 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S3 3 | - | S2 3 | - | S1 2 | S1 1 | - | - |
| G14A | WN | S2dn | - | 2 | S1 1 | S1 1 | 5 | S2 3 | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S1 2 | - | S1 1 | S1 1 | - | - |
| G1C | W | S4w | - | S3 3 | S1 1 | S1 2 | 6 | S2 3 | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | S3-S4 5 | - | S4-N2 4 | S1 1 | - | - |
| G1E | W | S4dw | - | S4-N2 4 | S1 1 | S1 2 | 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | S3-S4 5 | - | S4-N2 4 | S1 1 | - | - |
| G2E | W | S3e | - | S2 2 | S1 1 | S1 1 | 6 | S1 2 | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | S3-S4 5 | - | S1 2 | S1 1 | - | - |

Land Quality Ratings and Suitability Classes For: SMALL SCALE IRRIGATED FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G6B | WN | S2de | - | S2<br>2 | S1<br>1 | S1<br>1 | 6 | S1<br>2 | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>3 | - | S1<br>1 | S1<br>1 | - | - |
| ~~G8A~~ | ~~WN~~ | ~~S3de~~ | ~~-~~ | ~~S3<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~5~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>4~~ | ~~-~~ | ~~S1<br>2~~ | ~~S1<br>1~~ | ~~-~~ | ~~-~~ |
| S1 | W | N2r | - | S4-N2<br>4 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S4-N2<br>4 | S1<br>1 | - | - |
| S11A | WN | S2d | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>2 | - | S1<br>1 | S1<br>1 | - | - |
| S12A | W | S2de | - | S2<br>2 | S1<br>1 | S1<br>1 | 5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>3 | - | S1<br>1 | S1<br>1 | - | - |
| | | | Remarks: Can become toxic because of high CaCO3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | S4t | - | S3<br>3 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S4<br>4 | - | S2<br>3 | - | S1<br>2 | S1<br>1 | - | - |
| S1A | W | S3de | - | S3<br>3 | S1<br>1 | S1<br>1 | 6 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S1<br>1 | S1<br>1 | - | - |
| S1B | W | S4d | - | S4-N2<br>4 | S1<br>1 | S1<br>2 | 6 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3-S4<br>5 | - | S3<br>3 | S1<br>1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S3g | | | S1 | S3 | S2 | S1 | S2-S3 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | S4t | | | S2 | S2 | S1 | S1 | S2-S3 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | - | 2 | 2 | 1 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S2nm | | | S1 | S1 | S2-S3 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2t | | | S3 | S1 | S3 | S1 | S1 | | S1 | N2 | S3 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 4 | 3 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34 | W | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | S3m | | | S1 | S1 | S3 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| | ~~S~~ | ~~S3m~~ | | | ~~S2~~ | ~~S2~~ | ~~S3~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | S3m | | | S1 | S1 | S3 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4t~~ | | | ~~S1~~ | ~~S2~~ | ~~S2-S3~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | ~~S2~~ | ~~S2~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | S3t | | | S1 | S1 | S2-S3 | S1 | S1 | | S1 | S1 | S1 | S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 4 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S2tem | | | S1 | S1 | S2-S3 | S1 | S1 | | S1 | S1 | S1 | S2 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2t~~ | | | ~~S1~~ | ~~S1~~ | ~~S4-N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~N2~~ | ~~S4~~ | ~~S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | S2m | - | 1 | S1<br>1 | S1<br>1 | S2-S3<br>4 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2t~~ | ~~-~~ | ~~2~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~S3<br>5~~ | ~~S1<br>1~~ | ~~S2-S3<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~N2<br>4~~ | ~~S3<br>3~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | - | 1 | S4<br>4 | S2<br>2 | S2-S3<br>4 | S2<br>3 | S2-S3<br>3 | - | S1<br>2 | N2<br>4 | N2<br>5 | S3<br>3 | - | S2<br>2 | - | S3<br>3 | 1 | - | - |
| B1 | W | N1e | - | 2 | S1<br>1 | S2<br>2 | S4-N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| B1B | W | N1e | - | 2 | S1<br>1 | S2<br>2 | S4-N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~S4m~~ | ~~-~~ | ~~3~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~S4-N2<br>6~~ | ~~-~~ | ~~S1<br>2~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>3~~ | ~~-~~ | ~~S3<br>3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | S4e | - | 2 | S1<br>1 | S2<br>2 | S3<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S2<br>2 | - | S4<br>4 | - | S3<br>3 | 1 | - | - |
| C1 | W | N2r | - | 4 | S1<br>1 | S1<br>1 | S4-N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S4-N2<br>4 | 1 | - | - |
| C3A | W | N2r | - | 4 | S1<br>1 | S2<br>2 | S4-N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S4<br>4 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| C4A | S | S4t | - | 2 | S1<br>1 | S1<br>1 | S2-S3<br>4 | S1<br>2 | S1<br>2 | - | S1<br>2 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| C5A | W | S3mte | - | 2 | S1<br>1 | S1<br>1 | S3<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S3<br>3 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| ~~G14~~ | ~~W~~ | ~~S2ne~~ | ~~-~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>2~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G14A | WN | S3m | - | 2 | S1<br>1 | S1<br>1 | S3<br>5 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| G1C | W | N1e | - | 3 | S1<br>1 | S2<br>2 | S3<br>5 | S2<br>3 | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1E | W | N1e | | | S1 | S2 | S4-N2 | | S1 | | S3-S4 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| G2E | W | N1e | | | S1 | S1 | S4-N2 | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |
| G6B | WN | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S3 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 3 | - | 1 | 1 | - | - |
| ~~G8A~~ | ~~WN~~ | ~~S4e~~ | | | ~~S1~~ | ~~S1~~ | ~~S3~~ | | ~~S1~~ | | ~~S2~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S4~~ | | ~~S2~~ | | | |
| | | | ~~-~~ | ~~3~~ | ~~1~~ | ~~1~~ | ~~5~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~4~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| S1 | W | N2r | | | S1 | S1 | S4-N2 | | S1 | | N2 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| S11A | WN | S3m | | | S1 | S1 | S3 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| S12A | W | S3m | | | S1 | S1 | S3 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high percentage CaCO3. | | | | | | | | | | | | | | | | | | |
| S13A | W | S4tm | | | S1 | S1 | S4-N2 | | S1 | | S3-S4 | S1 | S1 | S4 | | S3 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 4 | 1 | 1 | 4 | - | 3 | - | 2 | 1 | - | - |
| S1A | W | N1e | | | S1 | S1 | S4-N2 | | S1 | | S1 | S1 | S1 | S1 | | N1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 2 | 1 | 1 | 1 | - | 5 | - | 1 | 1 | - | - |
| S1B | W | N1e | | | S1 | S2 | S4-N2 | | S1 | | S2 | S1 | S1 | S1 | | N1 | | S3 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 3 | 1 | - | - |

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | N1e | | | S1 | S1 | | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | - | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S3g | - | 2 | S1<br>1 | S3<br>3 | S2<br>3 | S1<br>1 | S2-S3<br>3 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| A2 | S | S4t | - | 2 | S2<br>2 | S1<br>1 | S3<br>5 | S1<br>1 | S2-S3<br>3 | - | S1<br>1 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S2<br>2 | 1 | - | - |
| A22 | S | S4m | - | 4 | S1<br>1 | S1<br>1 | S4-N2<br>6 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| A22A | S | S2nm | - | 3 | S1<br>1 | S1<br>1 | S2-S3<br>4 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| A33A | S | S3fm | - | 4 | S3<br>3 | S1<br>1 | S3<br>5 | S1<br>1 | S1<br>2 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S2<br>2 | 1 | - | - |
| A34.1 | W | S4m | - | 3 | S1<br>1 | S1<br>1 | S4-N2<br>6 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| A36 | S | S3m | - | 2 | S1<br>1 | S1<br>1 | S3<br>5 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~S3m~~ | ~~-~~ | ~~2~~ | ~~S2<br>2~~ | ~~S2<br>2~~ | ~~S3<br>5~~ | ~~S1<br>2~~ | ~~S1<br>2~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | S3m | - | 1 | S1<br>1 | S1<br>1 | S3<br>5 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| A36.2 | S | S4m | - | 2 | S1<br>1 | S1<br>1 | S4-N2<br>6 | S1<br>2 | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4t~~ | ~~-~~ | ~~1~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~S2-S3<br>4~~ | ~~S1<br>2~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S4<br>3~~ | ~~S2<br>2~~ | ~~S2<br>2~~ | ~~-~~ | ~~S2<br>2~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | S3mt | - | 2 | S1<br>1 | S1<br>1 | S3<br>5 | S1<br>2 | S1<br>2 | - | S1<br>1 | S1<br>1 | S1<br>1 | S3<br>3 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| A37A | S | S2tem | - | 1 | S1<br>1 | S1<br>1 | S2-S3<br>4 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S2<br>2 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2t~~ | ~~-~~ | ~~1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S4-N2<br>6~~ | ~~S2<br>3~~ | ~~S2-S3<br>3~~ | ~~-~~ | ~~S1<br>2~~ | ~~N2<br>4~~ | ~~S4<br>4~~ | ~~S3<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | S2m | - | 1 | S1 1 | S1 1 | S2-S3 4 | S1 2 | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S1 1 | - | S1 1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2t~~ | ~~-~~ | ~~2~~ | ~~S1 1~~ | ~~S2 2~~ | ~~S3 5~~ | ~~S1 1~~ | ~~S2-S3 3~~ | ~~-~~ | ~~S1 1~~ | ~~N2 4~~ | ~~S3 3~~ | ~~S1 1~~ | ~~-~~ | ~~S1 1~~ | ~~-~~ | ~~S2 2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | - | 1 | S4 4 | S2 2 | S2-S3 4 | S2 3 | S2-S3 3 | - | S1 2 | N2 4 | N2 5 | S3 3 | - | S2 2 | - | S3 3 | 1 | - | - |
| B1 | W | N1e | - | 2 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| B1B | W | N1e | - | 2 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S3 3 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~S4m~~ | ~~-~~ | ~~3~~ | ~~S1 1~~ | ~~S2 2~~ | ~~S4-N2 6~~ | ~~-~~ | ~~S1 2~~ | ~~-~~ | ~~S2 3~~ | ~~S1 1~~ | ~~S1 1~~ | ~~S1 1~~ | ~~-~~ | ~~S3 3~~ | ~~-~~ | ~~S3 3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | S4e | - | 2 | S1 1 | S2 2 | S3 5 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S2 2 | - | S4 4 | - | S3 3 | 1 | - | - |
| C1 | W | N2r | - | 4 | S1 1 | S1 1 | S4-N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S1 1 | - | S3 3 | - | S4-N2 4 | 1 | - | - |
| C3A | W | N2r | - | 4 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S4 4 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| C4A | S | S4t | - | 2 | S1 1 | S1 1 | S2-S3 4 | S1 2 | S1 2 | - | S1 2 | S1 1 | S1 1 | S4 4 | - | S1 1 | - | S1 1 | 1 | - | - |
| C5A | W | S3mte | - | 2 | S1 1 | S1 1 | S3 5 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S3 3 | - | S3 3 | - | S2 2 | 1 | - | - |
| G14A | WN | S3m | - | 2 | S1 1 | S1 1 | S3 5 | S2 3 | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S2 2 | - | S1 1 | 1 | - | - |
| G1C | W | N1e | - | 3 | S1 1 | S2 2 | S3 5 | S2 3 | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| G1E | W | N1e | - | 4 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | N1e | | | S1 | S1 | S4-N2 | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |
| G6B | WN | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S3 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 3 | - | 1 | 1 | - | - |
| ~~G8A~~ | ~~WN~~ | ~~S4e~~ | | | ~~S1~~ | ~~S1~~ | ~~S3~~ | | ~~S1~~ | | ~~S2~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S4~~ | | ~~S2~~ | | | |
| | | | ~~-~~ | ~~3~~ | ~~1~~ | ~~1~~ | ~~5~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~4~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| S1 | W | N2r | | | S1 | S1 | S4-N2 | | S1 | | N2 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| S11A | WN | S3m | | | S1 | S1 | S3 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| S12A | W | S3m | | | S1 | S1 | S3 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high CaCo3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | S4tm | | | S1 | S1 | S4-N2 | | S1 | | S3-S4 | S1 | S1 | S4 | | S3 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 4 | 1 | 1 | 4 | - | 3 | - | 2 | 1 | - | - |
| S1A | W | N1e | | | S1 | S1 | S4-N2 | | S1 | | S1 | S1 | S1 | S1 | | N1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 2 | 1 | 1 | 1 | - | 5 | - | 1 | 1 | - | - |
| S1B | W | N1e | | | S1 | S2 | S4-N2 | | S1 | | S2 | S1 | S1 | S1 | | N1 | | S3 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 3 | 1 | - | - |

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S4o | | | S1 | S3 | S2 | S1 | S4 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 3 | 3 | 1 | 4 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A1~~ | ~~PS~~ | ~~S3g~~ | | | ~~S1~~ | ~~S3~~ | ~~S2~~ | ~~S1~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~4~~ | ~~1~~ | ~~3~~ | ~~3~~ | ~~1~~ | ~~4~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A2 | S | S4t | | | S2 | S1 | S3 | S1 | S2-S3 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | 2 | 2 | 1 | 5 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S2nm | | | S1 | S1 | S2-S3 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | S3fm | | | S3 | S1 | S3 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S3 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 3 | - | 1 | 1 | - | - |
| A36 | S | S3m | | | S1 | S1 | S3 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36A | S | S3m | | | S2 | S2 | S3 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 2 | 2 | 5 | 2 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.1 | S | S3m | | | S1 | S1 | S3 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | S4m | | | S1 | S1 | S4-N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36D | S | S4t | | | S1 | S2 | S3 | S1 | S1 | | S1 | S4 | S2 | S2 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 2 | 5 | 2 | 1 | - | 1 | 3 | 2 | 2 | - | 2 | - | 1 | 1 | - | - |
| A37 | S | S3mt | | | S1 | S1 | S3 | S1 | S1 | | S1 | S1 | S1 | S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S2tem | | | S1 | S1 | S2-S3 | S1 | S1 | | S1 | S1 | S1 | S2 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| A37C | S | N2t | | | S1 | S1 | S4-N2 | S2 | S2-S3 | | S1 | N2 | S4 | S3 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 6 | 3 | 3 | - | 2 | 4 | 4 | 3 | - | 1 | - | 1 | 1 | - | - |
| A39 | S | S3m | | | S1 | S1 | S3 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~A39A~~ | ~~S~~ | ~~N2t~~ | ~~-~~ | ~~2~~ | ~~S1 1~~ | ~~S2 2~~ | ~~S3 5~~ | ~~S1 1~~ | ~~S2-S3 3~~ | ~~-~~ | ~~S1 1~~ | ~~N2 4~~ | ~~S3 3~~ | ~~S1 1~~ | ~~-~~ | ~~S1 1~~ | ~~-~~ | ~~S2 2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | - | 1 | S4 4 | S2 2 | S2-S3 4 | S2 3 | S2-S3 3 | - | S1 2 | N2 4 | N2 5 | S3 3 | - | S2 2 | - | S3 3 | 1 | - | - |
| B1 | W | N1e | - | 2 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| B1B | W | N1e | - | 2 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S3 3 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~S4m~~ | ~~-~~ | ~~3~~ | ~~S1 1~~ | ~~S2 2~~ | ~~S4-N2 6~~ | ~~-~~ | ~~S1 2~~ | ~~-~~ | ~~S2 3~~ | ~~S1 1~~ | ~~S1 1~~ | ~~S1 1~~ | ~~-~~ | ~~S3 3~~ | ~~-~~ | ~~S3 3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | S4e | - | 2 | S1 1 | S2 2 | S3 5 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S2 2 | - | S4 4 | - | S3 3 | 1 | - | - |
| C1 | W | N2r | - | 4 | S1 1 | S1 1 | S4-N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S1 1 | - | S3 3 | - | S4-N2 4 | 1 | - | - |
| C3A | W | N2r | - | 4 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S4 4 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| C4A | S | S4t | - | 2 | S1 1 | S1 1 | S3 5 | S1 2 | S1 2 | - | S1 2 | S1 1 | S1 1 | S4 4 | - | S1 1 | - | S1 1 | 1 | - | - |
| C5A | W | S3mte | - | 2 | S1 1 | S1 1 | S3 5 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S3 3 | - | S3 3 | - | S2 2 | 1 | - | - |
| G14A | WN | S3m | - | 2 | S1 1 | S1 1 | S3 5 | S2 3 | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S2 2 | - | S1 1 | 1 | - | - |
| G1C | W | N1e | - | 3 | S1 1 | S2 2 | S4-N2 6 | S2 3 | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| G1E | W | N1e | - | 4 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| G2E | W | N1e | - | 2 | S1 1 | S1 1 | S4-N2 6 | S1 2 | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S2 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: DOLICHOS LABLAB

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~G6B~~ | ~~WN~~ | ~~S4m~~ | | ~~2~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~1~~ | ~~S4-N2~~ ~~6~~ | ~~S1~~ ~~2~~ | ~~S1~~ ~~1~~ | | ~~S1~~ ~~2~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~1~~ | ~~S1~~ ~~1~~ | | ~~S3~~ ~~3~~ | | ~~S1~~ ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G8A | WN | S4e | - | 3 | S1 1 | S1 1 | S3 5 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | S4 4 | - | S2 2 | 1 | - | - |
| S1 | W | N2r | - | 4 | S1 1 | S1 1 | S4-N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| S11A | WN | S3m | - | 2 | S1 1 | S1 1 | S3 5 | - | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S2 2 | - | S1 1 | 1 | - | - |
| S12A | W | S3me | - | 2 | S1 1 | S1 1 | S3 5 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S1 1 | - | S3 3 | - | S1 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high CaCO3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | S4tm | - | 3 | S1 1 | S1 1 | S4-N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S4 4 | - | S3 3 | - | S2 2 | 1 | - | - |
| S1A | W | N1e | - | 3 | S1 1 | S1 1 | S4-N2 6 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S1 1 | 1 | - | - |
| S1B | W | N1e | - | 4 | S1 1 | S2 2 | S4-N2 6 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S3 3 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S3gm | | | S1 | S3 | S3 | S1 | S2-S3 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | S4t | | | S2 | S2 | S1 | S1 | S2-S3 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | - | 2 | 2 | 1 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S4m | | | S1 | S1 | S4 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2m | | | S3 | S1 | N2 | S1 | S1 | | S1 | S4 | S3 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 4 | 3 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~N2m~~ | | | ~~S2~~ | ~~S2~~ | ~~N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4m~~ | | | ~~S1~~ | ~~S2~~ | ~~S4~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S3~~ | ~~S2~~ | ~~S1~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | S4m | | | S1 | S1 | S4 | S1 | S1 | | S1 | S1 | S1 | S2-S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 4 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S4m | | | S1 | S1 | S4 | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S4~~ | ~~S4~~ | ~~S2-S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | | ~~1~~ | | ~~1~~ | ~~1~~ | | |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | S4m | - | 1 | S1<br>1 | S1<br>1 | S4<br>4 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2m~~ | | ~~2~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>5~~ | ~~S1<br>1~~ | ~~S2-S3<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~S4<br>4~~ | ~~S3<br>3~~ | ~~S1<br>1~~ | | ~~S1<br>1~~ | | ~~S2<br>2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | - | 1 | S4<br>4 | S2<br>2 | S4<br>4 | S2<br>3 | S2-S3<br>3 | - | S1<br>2 | S4<br>4 | N2<br>5 | S2-S3<br>3 | - | S2<br>2 | - | S3<br>3 | 1 | - | - |
| B1 | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S2-S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| B1B | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S2-S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~N2m~~ | | ~~3~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>6~~ | | ~~S1<br>2~~ | | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | | ~~S3<br>3~~ | | ~~S3<br>3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>2 | - | S4<br>4 | - | S3<br>3 | 1 | - | - |
| C1 | W | N2mr | - | 4 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S4-N2<br>4 | 1 | - | - |
| C3A | W | N2mr | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S4<br>4 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| C4A | S | S4mt | - | 2 | S1<br>1 | S1<br>1 | S4<br>4 | S1<br>2 | S1<br>2 | - | S1<br>2 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| C5A | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S2-S3<br>3 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| ~~G14~~ | ~~W~~ | ~~S2ne~~ | | | ~~S1<br>1~~ | ~~S1<br>1~~ | | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>2~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G14A | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| G1C | W | N2m | - | 3 | S1<br>1 | S2<br>2 | N2<br>5 | S2<br>3 | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1E | W | N2m | | | S1 | S2 | N2 | | S1 | | S3-S4 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| G2E | W | N2m | | | S1 | S1 | N2 | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |
| ~~G6B~~ | ~~WN~~ | ~~N2m~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S3~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G8A | WN | N2m | | | S1 | S1 | N2 | | S1 | | S2 | S1 | S1 | S1 | | S4 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 5 | - | 1 | - | 3 | 1 | 1 | 1 | - | 4 | - | 2 | 1 | - | - |
| S1 | W | N2mr | | | S1 | S1 | N2 | | S1 | | N2 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| S11A | WN | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| S12A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high percentage CaCO3. | | | | | | | | | | | | | | | | | | |
| S13A | W | N2m | | | S1 | S1 | N2 | | S1 | | S3-S4 | S1 | S1 | S4 | | S3 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 4 | 1 | 1 | 4 | - | 3 | - | 2 | 1 | - | - |
| S1A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | N1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 2 | 1 | 1 | 1 | - | 5 | - | 1 | 1 | - | - |
| S1B | W | N2m | | | S1 | S2 | N2 | | S1 | | S2 | S1 | S1 | S1 | | N1 | | S3 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 3 | 1 | - | - |

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | N1e | | | S1 | S1 | | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | - | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S3gm | | | S1 | S3 | S3 | S1 | S2-S3 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | N2m | | | S2 | S1 | N2 | S1 | S2-S3 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | 2 | 2 | 1 | 5 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S4m | | | S1 | S1 | S4 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2m | | | S3 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~N2m~~ | | | ~~S2~~ | ~~S2~~ | ~~N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~S4m~~ | | | ~~S1~~ | ~~S2~~ | ~~S4~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S3~~ | ~~S2~~ | ~~S1~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S2-S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S4m | | | S1 | S1 | S4 | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S4~~ | ~~S4~~ | ~~S2-S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | | ~~1~~ | | ~~1~~ | ~~1~~ | | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | S4m | - | 1 | S1<br>1 | S1<br>1 | S4<br>4 | S1<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2m~~ | ~~-~~ | ~~2~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>5~~ | ~~S1<br>1~~ | ~~S2-S3<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~S4<br>4~~ | ~~S3<br>3~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | - | 1 | S4<br>4 | S2<br>2 | S4<br>4 | S2<br>3 | S2-S3<br>3 | - | S1<br>2 | S4<br>4 | N2<br>5 | S2-S3<br>3 | - | S2<br>2 | - | S3<br>3 | 1 | - | - |
| B1 | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| B1B | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S2-S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~N2m~~ | ~~-~~ | ~~3~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>6~~ | ~~-~~ | ~~S1<br>2~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>3~~ | ~~-~~ | ~~S3<br>3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>2 | - | S4<br>4 | - | S3<br>3 | 1 | - | - |
| C1 | W | N2mr | - | 4 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S4-N2<br>4 | 1 | - | - |
| C3A | W | N2mr | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S4<br>4 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| C4A | S | S4mt | - | 2 | S1<br>1 | S1<br>1 | S4<br>4 | S1<br>2 | S1<br>2 | - | S1<br>2 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| C5A | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S2-S3<br>3 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| G14A | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | S2<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| G1C | W | N2m | - | 3 | S1<br>1 | S2<br>2 | N2<br>5 | S2<br>3 | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| G1E | W | N2m | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | N2m | | | S1 | S1 | N2 | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |
| ~~G6B~~ | ~~WN~~ | ~~N2m~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S3~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G8A | WN | N2m | | | S1 | S1 | N2 | | S1 | | S2 | S1 | S1 | S1 | | S4 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 5 | - | 1 | - | 3 | 1 | 1 | 1 | - | 4 | - | 2 | 1 | - | - |
| S1 | W | N2mr | | | S1 | S1 | N2 | | S1 | | N2 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| S11A | WN | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| S12A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high CaCo3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | N2m | | | S1 | S1 | N2 | | S1 | | S3-S4 | S1 | S1 | S4 | | S3 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 4 | 1 | 1 | 4 | - | 3 | - | 2 | 1 | - | - |
| S1A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | N1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 2 | 1 | 1 | 1 | - | 5 | - | 1 | 1 | - | - |
| S1B | W | N2m | | | S1 | S2 | N2 | | S1 | | S2 | S1 | S1 | S1 | | N1 | | S3 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 3 | 1 | - | - |

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S4o | | | S1 | S3 | S3 | S1 | S4 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 3 | 3 | 1 | 4 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A1~~ | ~~PS~~ | ~~S3gm~~ | | | ~~S1~~ | ~~S3~~ | ~~S3~~ | ~~S1~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~4~~ | ~~1~~ | ~~3~~ | ~~3~~ | ~~1~~ | ~~4~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A2 | S | N2m | | | S2 | S1 | N2 | S1 | S2-S3 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | 2 | 2 | 1 | 5 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | S4m | | | S1 | S1 | S4 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2m | | | S3 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S3 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 3 | - | 1 | 1 | - | - |
| A36 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~N2m~~ | | | ~~S2~~ | ~~S2~~ | ~~N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | | ~~1~~ | | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S2~~ | ~~N2~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | ~~S3~~ | ~~S2~~ | ~~S1~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S2-S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | S4m | | | S1 | S1 | S4 | S1 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S4~~ | ~~S4~~ | ~~S2-S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A39 | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~A39A~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S2~~ | ~~N2~~ | ~~S1~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S4~~ | ~~S3~~ | ~~S1~~ | | ~~S1~~ | | ~~S2~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~1~~ | ~~2~~ | ~~5~~ | ~~1~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~4~~ | ~~3~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2t | | | S4 | S2 | S4 | S2 | S2-S3 | | S1 | S4 | N2 | S2-S3 | | S2 | | S3 | | | |
| | | | - | 1 | 4 | 2 | 4 | 3 | 3 | - | 2 | 4 | 5 | 3 | - | 2 | - | 3 | 1 | - | - |
| B1 | W | N2m | | | S1 | S2 | N2 | | S1 | | S3-S4 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 2 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| B1B | W | N2m | | | S1 | S2 | N2 | | S1 | | S3-S4 | S1 | S1 | S2-S3 | | N1 | | S4-N2 | | | |
| | | | - | 2 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 3 | - | 5 | - | 4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~N2m~~ | | | ~~S1~~ | ~~S2~~ | ~~N2~~ | | ~~S1~~ | | ~~S2~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S3~~ | | ~~S3~~ | | | |
| | | | ~~-~~ | ~~3~~ | ~~1~~ | ~~2~~ | ~~6~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~3~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~-~~ | ~~3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | N2m | | | S1 | S2 | N2 | | S1 | | S2 | S1 | S1 | S1 | | S4 | | S3 | | | |
| | | | - | 2 | 1 | 2 | 5 | - | 1 | - | 3 | 1 | 1 | 2 | - | 4 | - | 3 | 1 | - | - |
| C1 | W | N2mr | | | S1 | S1 | N2 | | S1 | | N2 | S1 | S1 | S1 | | S3 | | S4-N2 | | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 3 | - | 4 | 1 | - | - |
| C3A | W | N2mr | | | S1 | S2 | N2 | | S1 | | N2 | S1 | S1 | S4 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 5 | 1 | 1 | 4 | - | 5 | - | 4 | 1 | - | - |
| C4A | S | N2m | | | S1 | S1 | N2 | S1 | S1 | | S1 | S1 | S1 | S4 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 2 | 1 | 1 | 4 | - | 1 | - | 1 | 1 | - | - |
| C5A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S2-S3 | | S3 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 3 | - | 3 | - | 2 | 1 | - | - |
| G14A | WN | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| G1C | W | N2m | | | S1 | S2 | N2 | S2 | S1 | | S3-S4 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 3 | 1 | 2 | 6 | 3 | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| G1E | W | N2m | | | S1 | S2 | N2 | | S1 | | S3-S4 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| G2E | W | N2m | | | S1 | S1 | N2 | S1 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: SORGHUM

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~G6B~~ | ~~WN~~ | ~~N2m~~ | ~~-~~ | ~~2~~ | ~~S1 1~~ | ~~S1 1~~ | ~~N2 6~~ | ~~S1 2~~ | ~~S1 1~~ | ~~-~~ | ~~S1 2~~ | ~~S1 1~~ | ~~S1 1~~ | ~~S1 1~~ | ~~-~~ | ~~S3 3~~ | ~~-~~ | ~~S1 1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G8A | WN | N2m | - | 3 | S1 1 | S1 1 | N2 5 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | S4 4 | - | S2 2 | 1 | - | - |
| S1 | W | N2mr | - | 4 | S1 1 | S1 1 | N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| S11A | WN | N2m | - | 2 | S1 1 | S1 1 | N2 5 | - | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S2 2 | - | S1 1 | 1 | - | - |
| S12A | W | N2m | - | 2 | S1 1 | S1 1 | N2 5 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S1 1 | - | S3 3 | - | S1 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high CaCO3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | N2m | - | 3 | S1 1 | S1 1 | N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S4 4 | - | S3 3 | - | S2 2 | 1 | - | - |
| S1A | W | N2m | - | 3 | S1 1 | S1 1 | N2 6 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S1 1 | 1 | - | - |
| S1B | W | N2m | - | 4 | S1 1 | S2 2 | N2 6 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S3 3 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S4mo | | | S1 | S3 | S4 | S1 | S4 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | S4ot | | | S2 | S2 | S2 | S1 | S4 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | - | 2 | 2 | 1 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | N2m | | | S1 | S1 | N2 | S3 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2mt | | | S3 | S1 | N2 | S1 | S2-S3 | | S1 | N2 | S4 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 4 | 3 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36.~~ | ~~S~~ | ~~N2m~~ | | | ~~S2~~ | ~~S2~~ | ~~N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | N2m | | | S1 | S1 | N2 | S3 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S2~~ | ~~N2~~ | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | ~~S2-S3~~ | ~~S2~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | N2m | | | S1 | S1 | N2 | S2 | S2-S3 | | S1 | S1 | S1 | S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 4 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S2 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2mt~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S3~~ | ~~S4~~ | | ~~S1~~ | ~~N2~~ | ~~N2~~ | ~~S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | | |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | N2m | - | 1 | S1<br>1 | S1<br>1 | N2<br>4 | S2<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2mt~~ | ~~-~~ | ~~2~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>5~~ | ~~S1<br>1~~ | ~~S4<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~N2<br>4~~ | ~~S4<br>3~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2mt | - | 1 | S4<br>4 | S2<br>2 | N2<br>4 | S3<br>3 | S4<br>3 | - | S1<br>2 | N2<br>4 | N2<br>5 | S3<br>3 | - | S2<br>2 | - | S3<br>3 | 1 | - | - |
| B1 | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| B1B | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~N2m~~ | ~~-~~ | ~~3~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>6~~ | ~~-~~ | ~~S2-S3<br>2~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>3~~ | ~~-~~ | ~~S3<br>3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S2<br>2 | - | S4<br>4 | - | S3<br>3 | 1 | - | - |
| C1 | W | N2mr | - | 4 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S4-N2<br>4 | 1 | - | - |
| C3A | W | N2mr | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S4<br>4 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| C4A | S | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>4 | S2<br>2 | S2-S3<br>2 | - | S1<br>2 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| C5A | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S3<br>3 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| ~~G14~~ | ~~W~~ | ~~S3n~~ | | | ~~S1<br>1~~ | ~~S1<br>1~~ | | ~~S3<br>3~~ | ~~S1<br>1~~ | | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | | ~~S2<br>2~~ | | ~~S1<br>1~~ | ~~1~~ | | |
| G14A | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | S3<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| G1C | W | N2m | - | 3 | S1<br>1 | S2<br>2 | N2<br>5 | S3<br>3 | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 2D3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1E | W | N2m | | | S1 | S2 | N2 | | S1 | | S3-S4 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 4 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| G2E | W | N2m | | | S1 | S1 | N2 | S2 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |
| ~~G6B~~ | ~~WN~~ | ~~N2m~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S3~~ | | ~~S1~~ | | | |
| | | | | ~~2~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~2~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G8A | WN | N2m | | | S1 | S1 | N2 | | S1 | | S2 | S1 | S1 | S1 | | S4 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 5 | - | 1 | - | 3 | 1 | 1 | 1 | - | 4 | - | 2 | 1 | - | - |
| S1 | W | N2mr | | | S1 | S1 | N2 | | S1 | | N2 | S1 | S1 | S1 | | N1 | | S4-N2 | | | |
| | | | - | 4 | 1 | 1 | 6 | - | 1 | - | 5 | 1 | 1 | 1 | - | 5 | - | 4 | 1 | - | - |
| S11A | WN | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| S12A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | - | 1 | - | 2 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high percentage CaCO3. | | | | | | | | | | | | | | | | | | |
| S13A | W | N2m | | | S1 | S1 | N2 | | S1 | | S3-S4 | S1 | S1 | S4 | | S3 | | S2 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 4 | 1 | 1 | 4 | - | 3 | - | 2 | 1 | - | - |
| S1A | W | N2m | | | S1 | S1 | N2 | | S1 | | S1 | S1 | S1 | S1 | | N1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | - | 1 | - | 2 | 1 | 1 | 1 | - | 5 | - | 1 | 1 | - | - |
| S1B | W | N2m | | | S1 | S2 | N2 | | S1 | | S2 | S1 | S1 | S1 | | N1 | | S3 | | | |
| | | | - | 4 | 1 | 2 | 6 | - | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 3 | 1 | - | - |

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | N1e | | | S1 | S1 | | S2 | S1 | | S2 | S1 | S1 | S1 | | N1 | | S2 | | | |
| | | | - | 2 | 1 | 1 | - | 2 | 1 | - | 3 | 1 | 1 | 1 | - | 5 | - | 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | S4mo | | | S1 | S3 | S4 | S1 | S4 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 3 | 3 | 1 | 3 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A2 | S | N2m | | | S2 | S1 | N2 | S1 | S4 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | 2 | 2 | 1 | 5 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | N2m | | | S1 | S1 | N2 | S3 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2m | | | S3 | S1 | N2 | S1 | S2-S3 | | S1 | S1 | S1 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S2 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 2 | - | 1 | 1 | - | - |
| A36 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~N2m~~ | | | ~~S2~~ | ~~S2~~ | ~~N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | N2m | | | S1 | S1 | N2 | S3 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S2~~ | ~~N2~~ | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | ~~S2-S3~~ | ~~S2~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | | ~~1~~ | ~~1~~ | ~~2~~ | ~~4~~ | ~~2~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | N2m | | | S1 | S1 | N2 | S2 | S2-S3 | | S1 | S1 | S1 | S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S2 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2mt~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S3~~ | ~~S4~~ | | ~~S1~~ | ~~N2~~ | ~~N2~~ | ~~S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A39 | S | N2m | - | 1 | S1<br>1 | S1<br>1 | N2<br>4 | S2<br>2 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A39A~~ | ~~S~~ | ~~N2mt~~ | ~~-~~ | ~~2~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>5~~ | ~~S1<br>1~~ | ~~S4<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~N2<br>4~~ | ~~S4<br>3~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S2<br>2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2mt | - | 1 | S4<br>4 | S2<br>2 | N2<br>4 | S3<br>3 | S4<br>3 | - | S1<br>2 | N2<br>4 | N2<br>5 | S3<br>3 | - | S2<br>2 | - | S3<br>3 | 1 | - | - |
| B1 | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| B1B | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S3<br>3 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~N2m~~ | ~~-~~ | ~~3~~ | ~~S1<br>1~~ | ~~S2<br>2~~ | ~~N2<br>6~~ | ~~-~~ | ~~S2-S3<br>2~~ | ~~-~~ | ~~S2<br>3~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>3~~ | ~~-~~ | ~~S3<br>3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | N2m | - | 2 | S1<br>1 | S2<br>2 | N2<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S2<br>2 | - | S4<br>4 | - | S3<br>3 | 1 | - | - |
| C1 | W | N2mr | - | 4 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S4-N2<br>4 | 1 | - | - |
| C3A | W | N2mr | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S4<br>4 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| C4A | S | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>4 | S2<br>2 | S2-S3<br>2 | - | S1<br>2 | S1<br>1 | S1<br>1 | S4<br>4 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| C5A | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S3<br>3 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| G14A | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | S3<br>3 | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| G1C | W | N2m | - | 3 | S1<br>1 | S2<br>2 | N2<br>5 | S3<br>3 | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| G1E | W | N2m | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 3B4

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G2E | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>6 | S2<br>2 | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S2<br>2 | 1 | - | - |
| ~~G6B~~ | ~~WN~~ | ~~N2m~~ | ~~-~~ | ~~2~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~N2<br>6~~ | ~~S2<br>2~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>2~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S3<br>3~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| G8A | WN | N2m | - | 3 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | S4<br>4 | - | S2<br>2 | 1 | - | - |
| S1 | W | N2mr | - | 4 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| S11A | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| S12A | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high CaCo3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | N2m | - | 3 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S4<br>4 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| S1A | W | N2m | - | 3 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S1<br>1 | 1 | - | - |
| S1B | W | N2m | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S3<br>3 | 1 | - | - |

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PS | N1o | - | 4 | S1<br>1 | S3<br>3 | S4<br>3 | S1<br>1 | N1<br>4 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S1<br>1 | - | S1<br>1 | 1 | - | - |
| ~~A1~~ | ~~PS~~ | ~~S4mo~~ | ~~-~~ | ~~4~~ | ~~S1<br>1~~ | ~~S3<br>3~~ | ~~S4<br>3~~ | ~~S1<br>1~~ | ~~S4<br>4~~ | ~~-~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~-~~ | ~~S1<br>1~~ | ~~1~~ | ~~-~~ | ~~-~~ |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A2 | S | N2m | | | S2 | S1 | N2 | S1 | S4 | | S1 | S1 | S1 | S4 | | S1 | | S2 | | | |
| | | | - | 2 | 2 | 1 | 5 | 1 | 3 | - | 1 | 1 | 1 | 4 | - | 1 | - | 2 | 1 | - | - |
| A22 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 4 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A22A | S | N2m | | | S1 | S1 | N2 | S3 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 4 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A33A | S | N2m | | | S3 | S1 | N2 | S1 | S2-S3 | | S1 | S1 | S1 | S1 | | S1 | | S2 | | | |
| | | | - | 4 | 3 | 1 | 5 | 1 | 2 | - | 1 | 1 | 1 | 1 | - | 1 | - | 2 | 1 | - | - |
| A34.1 | W | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S3 | | S1 | | | |
| | | | - | 3 | 1 | 1 | 6 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 3 | - | 1 | 1 | - | - |
| A36 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36A~~ | ~~S~~ | ~~N2m~~ | | | ~~S2~~ | ~~S2~~ | ~~N2~~ | ~~S2~~ | ~~S2-S3~~ | | ~~S1~~ | ~~S1~~ | ~~S1~~ | ~~S1~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~2~~ | ~~2~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A36.1 | S | N2m | | | S1 | S1 | N2 | S3 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 3 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| A36.2 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 6 | 2 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |
| ~~A36D~~ | ~~S~~ | ~~N2m~~ | | | ~~S1~~ | ~~S2~~ | ~~N2~~ | ~~S2~~ | ~~S1~~ | | ~~S1~~ | ~~S4~~ | ~~S2-S3~~ | ~~S2~~ | | ~~S2~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~2~~ | ~~5~~ | ~~2~~ | ~~1~~ | | ~~1~~ | ~~3~~ | ~~2~~ | ~~2~~ | ~~-~~ | ~~2~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A37 | S | N2m | | | S1 | S1 | N2 | S2 | S2-S3 | | S1 | S1 | S1 | S3 | | S2 | | S1 | | | |
| | | | - | 2 | 1 | 1 | 5 | 2 | 2 | - | 1 | 1 | 1 | 3 | - | 2 | - | 1 | 1 | - | - |
| A37A | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S2 | | S2 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 4 | 2 | 1 | - | 1 | 1 | 1 | 2 | - | 2 | - | 1 | 1 | - | - |
| ~~A37C~~ | ~~S~~ | ~~N2mt~~ | | | ~~S1~~ | ~~S1~~ | ~~N2~~ | ~~S3~~ | ~~S4~~ | | ~~S1~~ | ~~N2~~ | ~~N2~~ | ~~S3~~ | | ~~S1~~ | | ~~S1~~ | | | |
| | | | ~~-~~ | ~~1~~ | ~~1~~ | ~~1~~ | ~~6~~ | ~~3~~ | ~~3~~ | ~~-~~ | ~~2~~ | ~~4~~ | ~~4~~ | ~~3~~ | ~~-~~ | ~~1~~ | ~~-~~ | ~~1~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A39 | S | N2m | | | S1 | S1 | N2 | S2 | S1 | | S1 | S1 | S1 | S1 | | S1 | | S1 | | | |
| | | | - | 1 | 1 | 1 | 5 | 2 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~A39A~~ | ~~S~~ | ~~N2mt~~ | ~~-~~ | ~~2~~ | ~~S1 1~~ | ~~S2 2~~ | ~~N2 5~~ | ~~S1 1~~ | ~~S4 3~~ | ~~-~~ | ~~S1 1~~ | ~~N2 4~~ | ~~S4 3~~ | ~~S1 1~~ | ~~-~~ | ~~S1 1~~ | ~~-~~ | ~~S2 2~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| A5B | S | N2mt | - | 1 | S4 4 | S2 2 | N2 4 | S3 3 | S4 3 | - | S1 2 | N2 4 | N2 5 | S3 3 | - | S2 2 | - | S3 3 | 1 | - | - |
| B1 | W | N2m | - | 2 | S1 1 | S2 2 | N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| B1B | W | N2m | - | 2 | S1 1 | S2 2 | N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S3 3 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| ~~B2~~ | ~~W~~ | ~~N2m~~ | ~~-~~ | ~~3~~ | ~~S1 1~~ | ~~S2 2~~ | ~~N2 6~~ | ~~-~~ | ~~S2-S3 2~~ | ~~-~~ | ~~S2 3~~ | ~~S1 1~~ | ~~S1 1~~ | ~~S1 1~~ | ~~-~~ | ~~S3 3~~ | ~~-~~ | ~~S3 3~~ | ~~1~~ | ~~-~~ | ~~-~~ |
| B6C | W | N2m | - | 2 | S1 1 | S2 2 | N2 5 | - | S1 1 | - | S2 3 | S1 1 | S1 1 | S2 2 | - | S4 4 | - | S3 3 | 1 | - | - |
| C1 | W | N2mr | - | 4 | S1 1 | S1 1 | N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S1 1 | - | S3 3 | - | S4-N2 4 | 1 | - | - |
| C3A | W | N2mr | - | 4 | S1 1 | S2 2 | N2 6 | - | S1 1 | - | N2 5 | S1 1 | S1 1 | S4 4 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| C4A | S | N2m | - | 2 | S1 1 | S1 1 | N2 5 | S2 2 | S2-S3 2 | - | S1 2 | S1 1 | S1 1 | S4 4 | - | S1 1 | - | S1 1 | 1 | - | - |
| C5A | W | N2m | - | 2 | S1 1 | S1 1 | N2 5 | - | S1 1 | - | S1 2 | S1 1 | S1 1 | S3 3 | - | S3 3 | - | S2 2 | 1 | - | - |
| G14A | WN | N2m | - | 2 | S1 1 | S1 1 | N2 5 | S3 3 | S1 1 | - | S1 1 | S1 1 | S1 1 | S1 1 | - | S2 2 | - | S1 1 | 1 | - | - |
| G1C | W | N2m | - | 3 | S1 1 | S2 2 | N2 6 | S3 3 | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| G1E | W | N2m | - | 4 | S1 1 | S2 2 | N2 6 | - | S1 1 | - | S3-S4 4 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S4-N2 4 | 1 | - | - |
| G2E | W | N2m | - | 2 | S1 1 | S1 1 | N2 6 | S2 2 | S1 1 | - | S2 3 | S1 1 | S1 1 | S1 1 | - | N1 5 | - | S2 2 | 1 | - | - |

Land Quality Ratings and Suitability Classes For: IMPROVED TRADITIONAL DRYLAND FARMING  Main Crop: MAIZE

Topographic Map (1:2500000): 24 Palapye  Location Code(s) Soil Profiles PN * TC * PS * BS

Agro Climatic Zone: 4B3

| UNIT | SITE | SUIT. CLASS | Temp (c) | Drain (d) | Floods (f) | Germ (g) | Moist (m) | Nutr (n) | Oxygen (o) | Water (q) | Roots (r) | Salin (t) | Sodic (t) | CaCO3 (t) | Access (a) | Erosion (e) | Pests (p) | Work (w) | Topo (x) | Flood (y) | Drain (z) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G6B | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>6 | S2<br>2 | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S1<br>1 | 1 | - | - |
| G8A | WN | N2m | - | 3 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | S4<br>4 | - | S2<br>2 | 1 | - | - |
| S1 | W | N2mr | - | 4 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | N2<br>5 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S4-N2<br>4 | 1 | - | - |
| S11A | WN | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>1 | S1<br>1 | S1<br>1 | S1<br>1 | - | S2<br>2 | - | S1<br>1 | 1 | - | - |
| S12A | W | N2m | - | 2 | S1<br>1 | S1<br>1 | N2<br>5 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | S3<br>3 | - | S1<br>1 | 1 | - | - |
| | | | Remarks: Can become toxic because of high CaCO3 percentages. | | | | | | | | | | | | | | | | | | |
| S13A | W | N2m | - | 3 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | S3-S4<br>4 | S1<br>1 | S1<br>1 | S4<br>4 | - | S3<br>3 | - | S2<br>2 | 1 | - | - |
| S1A | W | N2m | - | 3 | S1<br>1 | S1<br>1 | N2<br>6 | - | S1<br>1 | - | S1<br>2 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S1<br>1 | 1 | - | - |
| S1B | W | N2m | - | 4 | S1<br>1 | S2<br>2 | N2<br>6 | - | S1<br>1 | - | S2<br>3 | S1<br>1 | S1<br>1 | S1<br>1 | - | N1<br>5 | - | S3<br>3 | 1 | - | - |

# APPENDIX 2

SOIL PROFILE DESCRIPTION | Profile: SP 0003 | Unit: Glc | Status: 3

SHEET : 2127D3
LOCATION : 4.5km W of Mmadinare.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Eutric Regosol shallow petric phase
ST : Typic Torriorthent
LANDFORM : plain
TOPOGRAPHY: undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Colophospermum mopane (dom.) Boscia albitrunca Acacia albida
: Shrubs - Combretum apiculatum (dom.) Commiphora pyracanthoides subsp. glandulosa
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 15 cm
SURF.STONES: none
EROSION : strong sheet erosion

GRID : PF-724-825
COORD: 21-51-57-S 27-42-09-E
LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even
VEGETATION: open tree savanna
ROCK TYPE: granite
ROCK OUTCROP: very few rocky

DATE: 08/10/85
ELEV: 882 m
SMR: aridic
POSITION: higher part
SLOPE : 0 - 1 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : somewhat excessively drained
HUMAN INF: nil

REMARKS: Upper 10cm of C horizon predominantly gravels.

SAMPLES: A: 0 - 15

A 0 - 15 cm 7.5YR 3/ 4 (moist) and 7.5YR 4.5/4 (dry), loamy sand, massive structure, slightly hard, broken thin clay cutans, common fine pores, few fine and medium rock fragments, non calcareous, few fine roots, clear smooth boundary:

C 15 cm + dominant medium and coarse rock fragments,

SOIL PROFILE DESCRIPTION

Profile: SP 0015 Unit: G6b Status:

SHEET : 2127D3
LOCATION : 3.35km NNW Mmadinare.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Luvic Xerosol petric phase
ST : Typic Haplargid
LANDFORM : plain
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Colophospermum mopane (dom.) Acacia erubescens
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Colophospermum mopane Boscia albitrunca Dichrostachys cinerea
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 90 cm
SURF.STONES: very few stones
EROSION : moderate rill erosion

GRID : PF-756-839
COORD: 21-50-59-S 27-45-56-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even

VEGETATION: savanna

ROCK TYPE: gneiss

ROCK OUTCROP: few rocky

DATE: 11/10/85
ELEV: 838 m

SMR: aridic to ustic

POSITION: intermediate part
SLOPE : 0 - 1 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS:

SAMPLES: A: 0 - 15 B: 15 - 25 C: 30 - 50 D: 60 - 90

A 0 - 15 cm 7.5YR 3.5/4 (moist) and 7.5YR 4.5/4 (dry), loamy sand, very weak fine to coarse subangular blocky structure, soft, common fine pores, non calcareous, few fine and medium roots, clear wavy boundary:

Bt1 15 - 25 cm 7.5YR 3/4 (moist) and 7.5YR 4/4 (dry), sandy loam, very weak fine to coarse subangular blocky structure, slightly hard, broken thin cutans, common fine and medium pores, non calcareous, common fine and common medium and coarse roots, clear wavy boundary:

Bt2 25 - 55 cm 6YR 3.5/4 (moist) and 6YR 4/6 (dry), sandy clay, massive very weak medium and coarse subangular blocky structure, hard, broken moderately thick cutans, many fine and few medium pores, non calcareous, few fine and many coarse roots, gradual smooth boundary:

Bt3 55 - 90 cm 5YR 3/4 (moist) and 5YR 3.5/6 (dry), sandy clay loam, massive very weak medium and coarse subangular blocky structure, hard, broken moderately thick cutans, many fine and medium pores, non calcareous, few fine and medium roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0017 Unit: A36l Status:

SHEET : 2127D3
LOCATION : 3.25km NNW Mmadinare.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Luvic Xerosol
ST : Arenic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Boscia albitrunca (dom.)
: Shrubs - Acacia tortilis subs. heterocantha (dom.)
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 130 cm
SURF.STONES: none
EROSION : moderate rill erosion

GRID : PF-759-841
COORD: 21-50-55-S 27-44-06-E

LAND ELEMENT : levee
MICRO TOPOGRAPHY: uneven

VEGETATION: savanna

ROCK TYPE:

ROCK OUTCROP: none

DATE: 11/10/85
ELEV: 830 m

SMR:

POSITION:
SLOPE : 0 - 1 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS: Augering from 90cm;arenic phase

SAMPLES: A: 0 - 15 B: 20 - 40 C: 60 - 80 D: 110 - 130

A1 0 - 15 cm 10YR 3/3 (moist) and 10YR 5/3 (dry), sand, very weak fine and medium subangular blocky structure, soft, common fine and medium pores, non calcareous, few fine and medium roots, clear smooth boundary:

A2 15 - 45 cm 10YR 3-/3 (moist) and 10YR 4.5/3 (dry), sand, very weak medium and coarse subangular blocky structure, soft, many fine and medium pores, non calcareous, common fine and medium roots, clear smooth boundary:

Bt 45 - 90 cm 10YR 3/2.5 (moist) and 10YR 4/3 (dry), loamy sand, massive structure, slightly hard, patchy thin cutans, many fine and common medium pores, non calcareous, very few fine and medium roots, clear smooth boundary:

Bc 90 - 130 cm 10YR 3/2.5 (moist) and 10YR 4/3 (dry), loamy coarse sand, frequent quartz rock fragments, non calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0023 Unit: A362 Status:

SHEET : 2127D4
LOCATION : Mmadinare 4.5km S. Mmadinare S. Letlhakane river.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Luvic Xerosol petric phase
ST : Typic Haplargid
LANDFORM : flood plain
TOPOGRAPHY: almost flat
SURF. CHAR: slight sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: no apparent management system
SPECIES : Trees - Acacia mellifera (dom.) Acacia luederitzii Acacia tortilis subs. heterocantha
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 20 , slightly moist 20 - 95 cm
SURF.STONES: none
EROSION : nil

GRID : NF-776-766
COORD: 21-54-55-S 27-45-04-E

LAND ELEMENT :
MICRO TOPOGRAPHY: uneven

VEGETATION: open tree savanna

ROCK TYPE:

ROCK OUTCROP: none

DATE: 14/10/85
ELEV: 835 m

SMR: aridic

POSITION: higher part
SLOPE : 0 - 1 %

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS:

SAMPLES: A: 0 - 10 B: 30 - 50 C: 70 - 90

A 0 - 10 cm 10YR 3.5/2.5 (moist) and 10YR 4/3.5 (dry), sandy loam to sandy clay loam, massive very weak medium and coarse subangular blocky structure, slightly hard, broken moderately thick cutans, common fine and few medium pores, non calcareous, few fine and medium roots, abrupt smooth boundary:

Bt 10 - 55 cm 7.5YR 3/2 (moist) and 7.5YR 3/ 3 (dry), sandy clay loam, weak medium and coarse subangular blocky structure, hard, broken moderately thick cutans, common fine and few medium pores, non calcareous, few fine and medium roots, abrupt smooth boundary:

C 55 - 95 cm 10YR 3/2 (moist) and 10YR 3.5/3 (dry), sandy clay loam to sandy clay, massive structure, hard, broken moderately thick cutans, common fine and few medium pores, frequent quartz rock fragments, non calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0028 Unit: A36 Status:

SHEET : 2127D4
LOCATION : 7km NNW S.P. mine S. Letlhakane river.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Luvic Xerosol petric phase
ST : Ustollic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: almost flat
SURF. CHAR: moderate sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia tortilis subs. heterocantha (dom.) Combretum imberbe Ziziphus mucronata
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 90 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : NP-826-777
COORD: 21-54-19-S 27-48-22-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: uneven

VEGETATION: woodland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 15/10/85
ELEV: 823 m

SMR: aridic to ustic

POSITION: intermediate part
SLOPE : 0 - 0.5% straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : imperfectly drained

HUMAN INF: nil

REMARKS: Many Termite mounds 1.5-2.0m high

SAMPLES: A: 0 - 10 B: 20 - 40 C: 60 - 80

A 0 - 10 cm 7.5YR 3/2 (moist) and 10YR 3.5/3 (dry), sandy loam to sandy clay loam, very weak fine and medium subangular blocky structure, slightly hard, many fine pores, non calcareous, common fine roots, clear wavy boundary:

Bt1 10 - 50 cm 7.5YR 2/1 (moist) and 7.5YR 3/2 (dry), sandy clay loam, weak medium and coarse subangular and angular blocky structure, hard, broken moderately thick cutans, many fine and few medium pores, non calcareous, many insect activity, common fine and medium roots, diffuse smooth boundary:

Bt2 50 - 90 cm 7.5YR 2/1 (moist) and 7.5YR 3/2 (dry), sandy clay loam, massive very weak medium and coarse subangular blocky structure, hard, broken moderately thick cutans, non calcareous, many insect activity, common fine and medium roots,

SOIL PROFILE DESCRIPTION | Profile: SP 0037 | Unit: A22a | Status: 2

SHEET : 2128C3
LOCATION : Tobane 0.75km to 2km NW tOBANE.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Cambic Arenosol
ST : Typic Torripsamment
LANDFORM : valley
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: no apparent management system
SPECIES : Trees - Acacia erioloba (dom.) Acacia tortilis subs. heterocantha Boscia albitrunca Combretum hereroense
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - 15 , dry 15 - 100 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : PF-072-778
COORD: 21-54-14-S 28-02-18-E
LAND ELEMENT : levee
MICRO TOPOGRAPHY: even
VEGETATION: open tree savanna
ROCK TYPE:
ROCK OUTCROP: none

DATE: 17/10/85
ELEV: 775 m
SMR: aridic
POSITION:
SLOPE : 0 - 1 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : somewhat excessively drained
HUMAN INF: nil

REMARKS:

SAMPLES: A: 0 - 20 B: 40 - 60

A 0 - 35 cm 5YR 4/6 (moist), sand, single grain structure, loose, few fine pores, non calcareous, many fine roots, gradual smooth boundary:

Bw 35 - 100 cm 5YR 3.5/4 (moist) and 5YR 4.5/4 (dry), sand, single grain very weak medium subangular blocky structure, soft, many fine pores, non calcareous, common fine roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0042 Unit: G2e Status:

SHEET : 2127D4
LOCATION : 2km NW Selebi Phikwe mine.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Luvic Xerosol shallow petric phase
ST : Typic Haplargid
LANDFORM : plain
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: no apparent management system
SPECIES : Trees -
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Acacia luederitzii Acacia mellifera Dichrostachys cinerea
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 15 , moist 15 - 65 cm
SURF.STONES: very few
EROSION : moderate sheet erosion and moderate wind erosion/deposition

GRID : PF-860-738
COORD: 21-56-25-S 27-50-00-E
LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even
VEGETATION: open shrub savanna
ROCK TYPE: gneiss
ROCK OUTCROP: very few rocky

DATE: 02/12/85
ELEV: 841 m
SMR: aridic to ustic
POSITION: middle slope
SLOPE : 3 - 4 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : well drained
HUMAN INF: ploughing

REMARKS:

SAMPLES: A: 0 - 15 B: 15 - 30 C: 30 - 45 D: 45 - 65

Ap 0 - 15 cm 5YR 3/4 (moist) and 5YR 4.5/6 (dry), loamy sand, very weak medium and coarse subangular blocky structure, soft, common fine and few medium pores, non calcareous, few very fine roots, clear smooth boundary:

Bt1 15 - 30 cm 2.5YR 3/3 (moist) and 2.5YR 3.5/4 (dry), sandy clay loam, very weak medium and coarse subangular blocky structure, friable, patchy thin clay cutans, common fine and medium pores, non calcareous, few fine roots, clear smooth boundary:

Bt2 30 - 45 cm 2.5YR 3/4 (moist) and 2.5YR 4/4 (dry), sandy clay loam to sandy clay, very weak medium and coarse subangular blocky structure, friable, broken moderately thick clay cutans, common fine and medium pores, few fine quartz rock fragments, non calcareous, few fine roots, gradual smooth boundary:

C1 45 - 65 cm 2.5YR 3/4 (moist) and 2.5YR 4/4 (dry), sandy clay loam to sandy clay, very weak medium and coarse subangular blocky structure, friable, common fine and medium pores, frequent fine and medium quartz rock fragments, frequent fine hard iron-manganese concretions, non calcareous, clear smooth boundary:

C2 65 cm + non calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0043 Unit: G2e Status: 2

SHEET : 2127D4
LOCATION : 2.5km NW Selebi-Phikwe mine.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Luvic Xerosol petric phase
ST : Typic Haplargid
LANDFORM : plain
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE:
SPECIES : Trees -
: Shrubs - Colophospermum mopane (dom.) Acacia erubescens Acacia tortilis subs. heterocantha Grewia bicolor
: Grasses-
PARENT MATERIAL: colluvium
MOIST. COND: dry 0 - 10 , moist 10 - 70 cm
SURF.STONES: very few
EROSION : moderate sheet erosion

GRID : PF-866-746
COORD: 21-56-00-S 27-50-22-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even

VEGETATION: shrub savanna

ROCK TYPE: granite

ROCK OUTCROP: none

DATE: 02/12/85
ELEV: 832 m

SMR: aridic

POSITION: middle slope
SLOPE : 1 - 2 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS:

SAMPLES: A: 0 - 10 B: 15 - 30 C: 50 - 70

A 0 - 10 cm 7.5YR 3/4 (moist) and 7.5YR 4.5/6 (dry), loamy sand, very weak coarse subangular blocky structure, soft, many very fine and few fine pores, non calcareous, few very fine roots, clear smooth boundary:

Bt1 10 - 30 cm 5YR 3/4 (moist), sandy loam to sandy clay loam, very weak medium and coarse subangular blocky structure, friable, patchy thin clay cutans, common very fine and fine pores, few fine rounded rock fragments, non calcareous, few fine and medium roots, gradual smooth boundary:

Bt2 30 - 70 cm 2.5YR 3/4 (moist), sandy clay loam, weak medium and coarse subangular blocky structure, friable, patchy thin clay cutans and moderately thick cutans, common very fine and fine pores, frequent fine rounded rock fragments, non calcareous, few fine roots, clear wavy boundary:

C 70 cm + very frequent fine rounded rock fragments, non calcareous,

SOIL PROFILE DESCRIPTION | Profile: SP 0046 Unit: A33a Status:

SHEET : 2127D4
LOCATION : 4.7km NNW sp mine.
AUTHOR(S): A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Eutric Cambisol saline phase
ST : Udic Ustochrept
LANDFORM : valley
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 85 cm
SURF.STONES: none
EROSION : strong sheet erosion and moderate gully erosion

GRID : PF-869-775
COORD: 21-54-26-S 27-50-33-E
LAND ELEMENT : valley floor
MICRO TOPOGRAPHY: even
VEGETATION: savanna
ROCK TYPE:
ROCK OUTCROP: none

DATE: 03/12/85
ELEV: 815 m
SMR: aridic to ustic
POSITION: intermediate part
SLOPE : 0 - 1 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : imperfectly drained
HUMAN INF: nil

REMARKS: In complex with vertic cambisols

SAMPLES: A: 0 - 10 B: 10 - 30 C: 60 - 80

Ac 0 - 10 cm 10YR 3/3 (moist) and 10YR 4.5/4 (dry), clay loam, moderate very coarse granular structure, slightly hard, few very fine pores, non calcareous, many very fine and fine and few medium roots, gradual irregular boundary:

2B1 10 - 30 cm 10YR 3/1 (moist) and 10YR 3.5/1 (dry), clay, moderate coarse prismatic moderate coarse subangular blocky structure, hard, patchy slickensides, few very fine pores, non calcareous, common very fine and common fine and medium roots, gradual smooth boundary:

2B2 30 - 85 cm 10YR 3/1 (moist) and 10YR 3.5/1 (dry), clay, moderate coarse prismatic moderate medium subangular and angular blocky structure, very hard, continuous slickensides, few very fine pores, non calcareous, common very fine and common fine and medium roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0052 Unit: A36 Status:

SHEET : 2127D4
LOCATION : 1.5km NW Letlhakane-Motloutse confluence.
AUTHOR(S): G.Baert C.Ketlogetswe R.Kelebemang
CLASSIFICATION FAO: Luvic Xerosol
ST : Arenic Haplargid
LANDFORM :
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: no apparent management system
SPECIES : Trees - Acacia nilotica (dom.) Acacia mellifera Ziziphus mucronata Boscia albitrunca
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 160 cm
SURF.STONES: none
EROSION : nil

GRID : PF-903-787
COORD: 21-53-46-S 27-52-30-E
LAND ELEMENT : levee
MICRO TOPOGRAPHY: uneven
VEGETATION: tree savanna
ROCK TYPE:
ROCK OUTCROP: none

DATE: 04/12/85
ELEV: 808 m
SMR: aridic to ustic
POSITION:
SLOPE : 0 - 2 %
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : well to somewhat excessively drained
HUMAN INF: nil

REMARKS: Old pit-Augering from 90cm. Arenic phase

SAMPLES: A: 0 - 20 B: 30 - 50 C: 70 - 90 D: 130 - 150

A 0 - 20 cm 6YR 3/4 (moist) and 5YR 3/3.5 (dry), loamy sand, very weak coarse and very coarse subangular blocky structure, soft, common very fine and fine pores, non calcareous, few very fine roots, gradual smooth boundary:

Bt1 20 - 65 cm 6YR 4/4 (moist) and 5YR 3/3.5 (dry), loamy sand, single grain very weak coarse subangular blocky structure, soft, many very fine and few fine pores, non calcareous, few very fine roots, gradual smooth boundary:

Bt2 65 - 100 cm 5YR 4/4 (moist) and 5YR 4.5/6 (dry), sandy loam, massive structure, slightly hard, patchy thin cutans, many very fine and few fine pores, non calcareous, few very fine roots, gradual boundary:

Bt3 100 - 160 cm 5YR 4/5 (moist) and 5YR 5/5 (dry), sandy loam to sandy clay loam, non calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0056 Unit: A39 Status:

SHEET : 2127D4
LOCATION : 2km WSW. Motloutse-Letlhakane confluence.
AUTHOR(S): G.Baert R.Kelebemang C.Ketlogetswe
CLASSIFICATION FAO: Haplic Xerosol
ST : Aquic Torriorthent
LANDFORM : fluvial terrace
TOPOGRAPHY: almost flat
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia karroo (dom.) Acacia tortilis subs. heterocantha Combretum imberbe Ziziphus mucronata
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 25 , slightly moist 25 - 150 cm
SURF.STONES: none
EROSION : nil

GRID : PF-907-784
COORD: 21-53-58-S 27-52-36-E

LAND ELEMENT : terrace
MICRO TOPOGRAPHY: uneven

VEGETATION: woodland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 05/12/85
ELEV: 804 m

SMR: aridic to ustic

POSITION: intermediate part
SLOPE : 0 - 1 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: borrow pits

REMARKS: Augering from 90cm, combretum aereroensis also added.

SAMPLES: A: 0 - 20 B: 30 - 50 C: 80 - 100 D: 130 - 150

A 0 - 25 cm 10YR 3/2 (moist) and 10YR 3.5/3 (dry), sandy loam, massive very weak coarse and very coarse subangular blocky structure, slightly hard, many very fine and common fine pores, non calcareous, clear smooth boundary:

Bt1 25 - 120 cm 7.5YR 3/2 (moist), sandy loam to sandy clay loam, massive structure, firm, broken thin cutans, common very fine and common fine pores, non calcareous, gradual boundary:

Bt2 120 - 150 cm 9YR 3/3 (moist), sandy loam to sandy clay loam, non calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0067 Unit: A362 Status:

SHEET : 2127D4
LOCATION : Tobane 3km WSE Motloutse-Sampowane confl..
AUTHOR(S): G.Baert C.Ketlogetswe R.Kelebemang
CLASSIFICATION FAO: Luvic Xerosol petric phase
ST : Ustollic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: almost flat
SURF. CHAR: no sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: traditional grazing
SPECIES : Trees - Combretum imberbe (dom.) Combretum hereroense Acacia erioloba Acacia fleckii
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 30 , slightly moist 30 - 115 cm
SURF.STONES: none
EROSION : nil

GRID : PF-995-805
COORD: 21-52-46-S 27-57-51-E

LAND ELEMENT :
MICRO TOPOGRAPHY: uneven

VEGETATION: woodland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 06/12/85
ELEV: 789 m

SMR: aridic to ustic

POSITION:
SLOPE : 0 - 1 %

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS: A. tortillis, L. capassa, Z. mucronata were also added. Augering from 85cm.

SAMPLES: A: 0 - 20 B: 30 - 50 C: 65 - 85 D: 90 - 110

A 0 - 25 cm 7.5YR 3/2 (moist) and 7.5YR 3/3 (dry), coarse sand, massive structure, soft, common very fine and fine pores, non calcareous, common very fine roots, clear smooth boundary:

Bt1 25 - 60 cm 10YR 3/3 (moist) and 10YR 4/3 (dry), sandy loam, massive structure, friable, patchy thin cutans, many very fine and common fine pores, non calcareous, common very fine roots, clear smooth boundary:

Bt2 60 - 90 cm 7.5YR 3/3 (moist) and 7.5YR 4/3 (dry), sandy clay loam to sandy clay, massive structure, firm, broken thin cutans and moderately thick cutans, many very fine and common fine pores, non calcareous, common very fine roots, clear boundary:

C 90 - 115 cm 7.5YR 3/3 (moist) and 7.5YR 4/3 (dry), sandy clay, frequent rounded quartzite rock fragments, non calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0079 Unit: A37a Status:

SHEET : 2128C4
LOCATION : 3.7km NNW Bobonong.
AUTHOR(S): G.Baert C.Ketlogetswe
CLASSIFICATION FAO: Calcic Luvic Xerosol
ST : Typic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs - Acacia tortilis subs. heterocantha (dom.)
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 25 , slightly moist 25 - 150 cm
SURF.STONES: none
EROSION : nil

GRID : PF-452-735
COORD: 21-56-22-S 28-24-20-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even

VEGETATION: shrubland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 08/12/85
ELEV: 695 m

SMR: aridic

POSITION: intermediate part
SLOPE : 0 - 1 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : moderately well drained

HUMAN INF: nil

REMARKS: Augering from 90cm

SAMPLES: A: 0 - 20 B: 30 - 60 C: 70 - 90 D: 110 - 130

A 0 - 20 cm 9YR 3/2.5 (moist) and 9YR 4/3.5 (dry), sandy loam, very weak coarse and very coarse subangular blocky structure, slightly hard, common very fine and fine pores, non calcareous, common very fine roots, clear smooth boundary:

Bt 20 - 65 cm 7.5YR 3/3 (moist) and 7.5YR 4/4 (dry), sandy loam, massive structure, firm, patchy thin cutans, common very fine and many fine pores, very few fine hard calcareous white nodules and very few coarse hard calcareous white nodules, non calcareous, common very fine roots, clear smooth boundary:

Btk1 65 - 95 cm 7.5YR 3/4 (moist) and 7.5YR 4/4 (dry), sandy loam to sandy clay loam, massive structure, friable, patchy thin cutans, many very fine and common fine pores, frequent fine hard calcareous white nodules and frequent coarse hard calcareous white nodules, strongly calcareous, few very fine roots, gradual boundary:

Btk2 95 - 150 cm 7.5YR 4.5/4 (moist) and 7.5YR 5/4 (dry), sandy clay loam, frequent fine hard calcareous white nodules and frequent coarse hard calcareous white nodules, strongly calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0080 Unit: A22a Status:

SHEET : 2128C4
LOCATION : 3km NNW Bobonong, S Motloutse river.
AUTHOR(S): G.Baert A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Cambic Arenosol
ST : Typic Torripsamment
LANDFORM :
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 125 cm
SURF.STONES: none
EROSION : nil

GRID : PF-462-732
COORD: 21-56-34-S 28-24-56-E
LAND ELEMENT : levee
MICRO TOPOGRAPHY: even
VEGETATION:
ROCK TYPE:
ROCK OUTCROP: none

DATE: 08/12/85
ELEV: 705 m
SMR: aridic
POSITION:
SLOPE : 0 - 3 %
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : somewhat excessively drained
HUMAN INF: nil

REMARKS: Description in a gully at the side of the road.

SAMPLES: A: 0 - 15 B: 20 - 40 C: 80 - 100

Ap 0 - 15 cm 7.5YR 3/4 (moist) and 7.5YR 5/6 (dry), loamy sand, massive structure, soft, common very fine and few fine pores, non calcareous, common very fine and few fine roots, clear smooth boundary:

Bw1 15 - 40 cm 5YR 3/4 (moist) and 6YR 4/6 (dry), loamy sand, massive structure, soft, common very fine and few fine pores, non calcareous, common very fine and few fine roots, gradual smooth boundary:

Bw2 40 - 125 cm 5YR 3/4 (moist) and 5YR 4/6 (dry), loamy sand, massive structure, soft, common very fine and few fine pores, non calcareous, common very fine and few fine roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0081 Unit: C4a Status:

SHEET : 2128C4
LOCATION : 3.25km NNW Bobonong S. Motloutse river.
AUTHOR(S): G.Baert A.Cavaliere-Parzaneze R.Kelebemang C.Ketlogetswe
CLASSIFICATION FAO: Calcic Xerosol petrocalcic phase
ST : Ustollic Calciorthid
LANDFORM :
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks,
LAND USE: no apparent management system
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 65 cm
SURF.STONES: none
EROSION : nil

GRID : PF-462-744
COORD: 21-56-35-S 28-24-58-E

LAND ELEMENT : channel
MICRO TOPOGRAPHY: uneven

VEGETATION: Nil

ROCK TYPE:

ROCK OUTCROP: none

DATE: 08/12/85
ELEV: 691 m

SMR: aridic

POSITION:
SLOPE : 0 - 1 %

GRASSCOVER: < 10 %

GEOL.UNIT:
DRAINAGE : imperfectly drained

HUMAN INF: ploughing

REMARKS: Strong increase of carbonates at 40cm (calcic horizon)

SAMPLES: A: 0 - 15 B: 15 - 25

Apk 0 - 15 cm 10YR 2/1 (moist) and 10YR 4/2 (dry), sandy loam, weakly coherent massive structure, soft, strongly calcareous, many very fine roots, clear wavy boundary:

Bk 15 - 25 cm 10YR 3/1 (moist) and 10YR 3/2 (dry), sandy loam, very weak coarse subangular blocky structure, soft, many very fine and fine pores, strongly calcareous, many very fine roots, clear wavy boundary:

Ck 25 - 40 cm 0 / (moist) and 0 / (dry), dominant rounded rock fragments, strongly calcareous, many very fine roots, clear wavy boundary:

Cck 40 - 65 cm 0 / (moist) and 0 / (dry), weakly cemented, dominant rock fragments, dominant coarse hard nodules, non calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0082 Unit: A1 Status:

SHEET : 2128C4
LOCATION : 2.75km NNW Bobonong.
AUTHOR(S): A.Cavaliere-Parzaneze G.Baert R.Kelebemang C.Ketlogetswe
CLASSIFICATION FAO: Pellic Vertisol
ST : Typic Pellustert
LANDFORM :
TOPOGRAPHY: gently undulating
SURF. CHAR: strong sealing, cracks 5 cm wide,
LAND USE: no apparent management system
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - 120 cm
SURF.STONES: none
EROSION : nil

GRID : PF-462-728
COORD: 21-57-09-S 28-24-57-E

LAND ELEMENT : backswamp
MICRO TOPOGRAPHY:

VEGETATION: Nil

ROCK TYPE:

ROCK OUTCROP: none

DATE: 09/12/86
ELEV: 691 m

SMR: ustic to aridic

POSITION:
SLOPE : 0 - 1 %

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : imperfectly drained

HUMAN INF: ploughing

REMARKS: Augering from 80cm, 1-2cm mulch on the surface.

SAMPLES: A: 0 - 10 B: 15 - 35 C: 70 - 90

Ap 0 - 10 cm 10YR 2/1 (moist), clay, weak medium and coarse subangular blocky structure, firm, common very fine and fine pores, non calcareous, many very fine roots, clear irregular boundary:

Bw1 10 - 40 cm 10YR 2/1 (moist), clay, weak very coarse prismatic structure, firm, broken thin slickensides, common very fine and few fine pores, non calcareous, common very fine and fine roots, gradual smooth boundary:

Bw2 40 - 110 cm 10YR 3/1 (moist), clay, very weak prismatic structure, friable, continuous moderately thick intersecting slickensides, few very fine and fine pores, slightly calcareous, common very fine roots, clear boundary:

C 110 - 120 cm 0 / (moist) and 0 / (dry), very frequent rounded rock fragments, slightly calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0083 Unit: A37a Status:

SHEET : 2128C4
LOCATION : 4.5km Bobonong, N of Motloutse river.
AUTHOR(S): A.Cavaliere-Parzaneze G.Baert R.Kelebemang C.Ketlogetswe
CLASSIFICATION FAO: Calcic Luvic Xerosol
ST : Typic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Acacia mellifera
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 10 , moist 10 - 190 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : PF-456-745
COORD: 21-55-50-S 28-24-37-E
LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even
VEGETATION: shrub savanna
ROCK TYPE:
ROCK OUTCROP: none

DATE: 19/12/85
ELEV: 694 m
SMR: aridic
POSITION: intermediate part
SLOPE : 0 - 3 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : well drained
HUMAN INF: nil

REMARKS: Augering from 90cm

SAMPLES: A: 0 - 20 B: 20 - 40 C: 45 - 65 D: 80 - 100 E: 130 - 150 F: 170 - 190

A1 0 - 20 cm 7.5YR 3/3 (moist) and 7.5YR 4/4 (dry), loamy coarse sand, very weak coarse and very coarse subangular blocky structure, slightly hard, common very fine and few fine pores, non calcareous, common very fine roots, clear smooth boundary:

k1 20 - 40 cm 6YR 3.5/3 (moist), coarse sandy loam, weakly coherent massive structure, friable, common very fine and few fine pores, strongly calcareous, common very fine and few fine roots, gradual smooth boundary:

Btk2 40 - 70 cm 6YR 3.5/4 (moist), coarse sandy loam, massive structure, friable, patchy thin cutans, common very fine pores, strongly calcareous, common very fine and few fine roots, gradual smooth boundary:

Btk3 70 - 110 cm 5YR 4/4 (moist), coarse sandy loam, broken thin cutans, common very fine pores, strongly calcareous, few very fine and fine roots, gradual boundary:

Btk4 110 - 170 cm 5YR 4/5 (moist), coarse sandy loam, strongly calcareous, no roots, gradual boundary:

Btk5 170 - 190 cm 7.5YR 4.5/6 (moist), coarse sandy loam to sandy clay loam, strongly calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0092 Unit: G6b Status:

SHEET : 2127D4
LOCATION : 3.5km NNE SP. mine.
AUTHOR(S): A.Remmelzwaal C.Ketlogetswe A.Cavaliere-Parzaneze
CLASSIFICATION FAO: Luvic Xerosol petric phase
ST : Typic Haplargid
LANDFORM : plain
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE:
SPECIES : Trees - Boscia albitrunca (dom.) Combretum mossambicense
: Shrubs - Acacia mellifera (dom.) Acacia tortilis subs. heterocantha Acacia erioloba
: Grasses-
PARENT MATERIAL: colluvium
MOIST. COND: dry 0 - 90 cm
SURF.STONES: none
EROSION : moderate sheet erosion

GRID : PF-901-756
COORD: 21-55-26-S 27-52-20-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even

VEGETATION: shrubland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 11/02/86
ELEV: 819 m

SMR: aridic to ustic

POSITION: middle slope
SLOPE : 0 - 2 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS:

SAMPLES: A: 0 - 15 B: 15 - 30 C: 35 - 55 D: 65 - 85

A 0 - 15 cm 3.5YR 3/5 (moist) and 5YR 4/4 (dry), loamy sand to sandy loam, very weak very coarse subangular blocky structure, slightly hard, common fine and few medium pores, few quartz rock fragments, non calcareous, common fine roots, clear smooth boundary:

Bt1 15 - 30 cm 2.5YR 3/4 (moist) and 3.5YR 4/4 (dry), sandy loam to sandy clay loam, very weak coarse subangular blocky structure, hard, broken moderately thick cutans, common fine and few medium pores, few quartz rock fragments, non calcareous, common fine roots, clear smooth boundary:

BT2 30 - 60 cm 2.5YR 3/4 (moist) and 2.5YR 4/5 (dry), sandy clay loam to sandy clay, massive structure, hard, broken moderately thick cutans, few fine and medium pores, frequent fine rock fragments, non calcareous, few fine roots, gradual smooth boundary:

Bt3 60 - 90 cm 2.5YR 3/4 (moist) and 2.5YR 4/5 (dry), sandy clay, massive structure, hard, broken moderately thick cutans, few fine and medium pores, frequent fine rock fragments, non calcareous, very few fine roots,

C 90 cm + 0 / (moist) and 0 / (dry), non calcareous,

SOIL PROFILE DESCRIPTION | Profile: SP 0094 | Unit: A2 | Status:

SHEET : 2128C4
LOCATION : 2km N. Bobonong N. of Motloutse river.
AUTHOR(S): A.Remmelzwaal A.Cavaliere-Parzaneze C.Ketlogetswe
CLASSIFICATION FAO: Chromic Vertisol
ST : Mollic Torrert
LANDFORM : pediment
TOPOGRAPHY: gently undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: no apparent management system, crops: sorghum, peas
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: slightly moist 0 - 10 , moist 10 - 100 cm
SURF.STONES: none
EROSION : nil

GRID : PF-472-721
COORD: 21-57-10-S 28-25-33-E
LAND ELEMENT :
MICRO TOPOGRAPHY:
VEGETATION:
ROCK TYPE:
ROCK OUTCROP: none

DATE: 13/07/86
ELEV: 688 m
SMR: ustic-aquic
POSITION:
SLOPE : 0 - 1 %
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : imperfectly drained
HUMAN INF: ploughing

REMARKS:

SAMPLES: A: 0 - 10 B: 10 - 20 C: 30 - 50 D: 65 - 80

Ap 0 - 10 cm 10YR 3/1.5 (moist) and 10YR 4/1.5 (dry), clay, strong medium and coarse granular structure, hard, few very fine pores, very few rounded rock fragments, very few fine hard calcareous white nodules, strongly calcareous, common very fine and fine roots, abrupt wavy boundary:

Bw1 10 - 20 cm 10YR 3/1.5 (moist), clay, moderate very coarse subangular blocky structure, firm to very firm, patchy slickensides, common very fine pores, very few fine hard calcareous white nodules, moderately calcareous, common very fine and fine roots, gradual wavy boundary:

Bw1 20 - 60 cm 10YR 3/1.5 (moist), clay, strong coarse and very coarse subangular blocky structure, firm to very firm, continuous intersecting slickensides, common very fine pores, very few fine hard calcareous white nodules, moderately calcareous, common very fine and fine roots, gradual wavy boundary:

Bw3 60 - 100 cm 10YR 3/1 (moist), clay, strong coarse and very coarse angular blocky structure, very firm, continuous intersecting slickensides, few very fine pores, few fine hard calcareous white nodules, strongly calcareous, very few very fine roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0110 Unit: A36 Status:

SHEET : 2127D4
LOCATION : 3km NE Mmadinare, 12.5km NW SP mine S. Motloutse R.
AUTHOR(S): A.Remmelzwaal A.Cavaliere-Parzaneze K.Verbeek R.Kelebemang
CLASSIFICATION FAO: Luvic Xerosol
ST : Ustalfic Haplargid
LANDFORM :
TOPOGRAPHY: almost flat
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: no apparent management system
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - , slightly moist - 110, moist 110 - 150 cm
SURF.STONES: none
EROSION :

GRID : PF-799-827
COORD: 21-51-35-S 27-46-28-E

LAND ELEMENT : levee
MICRO TOPOGRAPHY: uneven

VEGETATION: Nil

ROCK TYPE:

ROCK OUTCROP: none

DATE: 07/05/86
ELEV: 823 m

SMR: aridic to ustic

POSITION:
SLOPE : 0 - 2 %

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : moderately well drained

HUMAN INF: ploughing

REMARKS: Augering from 80cm

SAMPLES: A: 0 - 20 B: 25 - 45 C: 70 - 90 D: 130 - 150

A 0 - 25 cm 10YR 3/3 (moist) and 10YR 4/3 (dry), sandy loam, very weak medium subangular blocky structure, very friable, few fine pores, non calcareous, common very fine and fine roots, clear wavy boundary:

Bt1 25 - 90 cm 10YR 3/2.5 (moist) and 10YR 4/2.5 (dry), sandy clay loam, weak medium subangular blocky structure, friable, broken moderately thick cutans, few fine pores, few fine rock fragments, non calcareous, diffuse boundary:

Bt2 90 - 150 cm 10YR 3/3 (moist) and 10YR 4/3 (dry), sandy loam, frequent fine rock fragments, non calcareous,

SOIL PROFILE DESCRIPTION | Profile: SP 0115 Unit: A22 Status:

SHEET : 2127D4
LOCATION : 2.4km NE Motloutse-Letlhakane confl. N. Motlo. R..
AUTHOR(S): K.Verbeek A.Cavaliere-Parzaneze A.Remmelzwaal R.Kelebemang
CLASSIFICATION FAO: Eutric Arenosol
ST : Typic Torripsamment
LANDFORM :
TOPOGRAPHY: almost flat
SURF. CHAR: no cracks,
LAND USE:
SPECIES : Trees - Acacia karroo (dom.) Acacia luederitzii Acacia tortilis subs. heterocantha Acacia mellifera
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 10 , slightly moist 10 - 110 cm
SURF.STONES: none
EROSION : nil

GRID : PF-548-798
COORD: 21-53-09-S 27-54-31-E
LAND ELEMENT : levee
MICRO TOPOGRAPHY: uneven
VEGETATION: open tree savanna
ROCK TYPE:
ROCK OUTCROP: none

DATE: 08/05/86
ELEV: 806 m
SMR: aridic
POSITION:
SLOPE : 3 - 4 %
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : somewhat excessively drained
HUMAN INF: nil

REMARKS: Acacia mellifera also added.

SAMPLES: A: 0 - 15 B: 30 - 50 C: 80 - 100

A 0 - 15 cm 10YR 4/4 (moist) and 10YR 6/3 (dry), sand, weak medium and coarse subangular blocky structure, slightly hard, few very fine pores, very few rounded rock fragments, non calcareous, few very fine and fine roots, gradual smooth boundary:

C 15 - 110 cm 10YR 4/4 (moist) and 10YR 6/3 (dry), sand, single grain structure, loose, few very fine pores, very few flat rock fragments, non calcareous, few very fine and fine roots,

SOIL PROFILE DESCRIPTION | Profile: SP 0116 Unit: A34l Status:

SHEET : 2127D4
LOCATION : SP. 2.5km NE Motloutse-Letlhakane confl. N. Mot. R.
AUTHOR(S): A.Cavaliere-Parzaneze A.Remmelzwaal K.Verbeek
CLASSIFICATION FAO: Arenic Eutric Regosol petric phase
ST : Typic Torriorthent
LANDFORM :
TOPOGRAPHY: almost flat
SURF. CHAR: no cracks,
LAND USE:
SPECIES : Trees - Combretum imberbe (dom.) Combretum hereroense Acacia tortilis subs. heterocantha Acacia erubescens
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - 115 cm
SURF.STONES:
EROSION :

GRID : PF-549-797
COORD: 21-53-14-S 27-54-36-E
LAND ELEMENT : levee
MICRO TOPOGRAPHY: uneven
VEGETATION:
ROCK TYPE:
ROCK OUTCROP: rocky

DATE: 08/05/86
ELEV: 808 m
SMR: aridic to ustic
POSITION:
SLOPE : 1 - 2 %
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : well drained
HUMAN INF:

REMARKS: Acacia karroo also added.

SAMPLES: A: 0 - 20 B: 30 - 50 C: 60 - 80 D: 90 - 110

A 0 - 25 cm 10YR 3/2.5 (moist), coarse sand to loamy sand, very weak medium and coarse subangular blocky structure, very friable, few very fine and common very fine pores, very few fine rounded rock fragments, non calcareous, common fine and medium roots, gradual smooth boundary:

Bw1 25 - 55 cm 10YR 2.5/2 (moist), coarse sand to loamy sand, weak fine to coarse subangular blocky structure, very friable, few very fine and common very fine pores, few fine rounded rock fragments, non calcareous, common fine and medium roots, clear wavy boundary:

Bw2 55 - 85 cm 9YR 3/3 (moist), coarse sand to loamy sand, very weak medium and coarse subangular blocky structure, friable, few very fine and common very fine pores, frequent fine rounded rock fragments, non calcareous, common fine and medium roots, clear wavy boundary:

C 85 - 115 cm 9YR 3/3 (moist), fine sand, single grain structure, loose, few very fine and common very fine pores, dominant fine rounded and dominant coarse rounded rock fragments, non calcareous, few fine and medium roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0118 Unit: A37 Status:

SHEET : 2127D4
LOCATION : 11.5km NE SP mine. S. Motloutse river.
AUTHOR(S): C.Ketlogetswe A.Remmelzwaal A.Cavaliere-Parzaneze
CLASSIFICATION FAO: Calcic Luvic Xerosol
ST : Ustollic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia tortilis subs. heterocantha (dom.) Acacia karroo Acacia nilotica
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - 150 cm
SURF.STONES: none
EROSION : nil

GRID : PF-971-798
COORD: 21-53-12-S 27-56-27-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: uneven

VEGETATION: woodland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 08/05/86
ELEV: 791 m

SMR: aridic to ustic

POSITION: intermediate part
SLOPE : 0 - 0.5% straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : imperfectly to moderately well drained

HUMAN INF: nil

REMARKS: Augering from 100cm

SAMPLES: A: 0 - 15 B: 15 - 30 C: 50 - 70 D: 120 - 150

A 0 - 15 cm 10YR 3/3 (moist), sandy loam to clay loam, weak medium subangular blocky structure, friable, common very fine and fine pores, non calcareous, common very fine roots, clear wavy boundary:

Bt1 15 - 30 cm 10YR 3/3 (moist), sandy clay to clay loam, weak medium to very coarse subangular blocky structure, firm, broken moderately thick cutans, common very fine and fine pores, moderately calcareous, common very fine and fine roots, clear smooth boundary:

Btk1 30 - 100 cm 10YR 3/3 (moist), sandy clay to clay loam, weak medium and coarse subangular blocky structure, firm, broken moderately thick cutans, common very fine and fine pores, few fine soft calcareous white nodules, moderately calcareous, common very fine and fine roots, diffuse boundary:

Btk2 100 - 150 cm 10YR 3/3 (moist), clay loam to clay, moderately calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0131 Unit: G14a Status:

SHEET : 2128C3
LOCATION : 15.7km NW Tobane S. Motloutse river.
AUTHOR(S): A.Cavaliere-Parzaneze K.Verbeek
CLASSIFICATION FAO: Luvic Xerosol
ST : Ustalfic Haplargid
LANDFORM : fluvial terrace
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia tortilis subs. heterocantha (dom.) Acacia karroo Acacia nilotica Acacia erioloba
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - 110 cm
SURF.STONES: none
EROSION : nil

GRID : PF-233-793
COORD: 21-53-14-S 28-11-41-E

LAND ELEMENT :
MICRO TOPOGRAPHY: even

VEGETATION: woodland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 10/05/86
ELEV: 740 m

SMR: aridic to ustic

POSITION:
SLOPE : 0 - 1 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS: COH also added; arenic phase

SAMPLES: A: 0 - 20 B: 20 - 40 C: 50 - 70 D: 90 - 110

A 0 - 20 cm 10YR 2.5/2 (moist) and 10YR 3/2.5 (dry), sand, very weak medium and coarse subangular blocky structure, very friable, few very fine pores, non calcareous, few fine roots, gradual smooth boundary:

Bw 20 - 40 cm 10YR 3/2 (moist), loamy sand, very weak medium subangular blocky structure, very friable, few very fine and fine pores, non calcareous, few very fine and fine roots, clear smooth boundary:

Bt 40 - 90 cm 7.5YR 3/2 (moist), sandy loam, very weak medium and coarse subangular blocky structure, very friable, patchy thin cutans, common very fine pores, non calcareous, common fine and medium roots, clear smooth boundary:

C 90 - 110 cm 7.5YR 3/2 (moist), single grain structure, loose, dominant fine rock fragments, non calcareous, few fine roots,

SOIL PROFILE DESCRIPTION | Profile: SP 0134 Unit: S11a Status:

SHEET : 2128C4
LOCATION : 8km NW Bobonong N Motloutse river.
AUTHOR(S): K.Verbeek A.Cavaliere-Parzaneze
CLASSIFICATION FAO: Luvic Xerosol
ST : Typic Haplargid
LANDFORM :
TOPOGRAPHY: almost flat
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: no apparent management system
SPECIES : Trees -
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Combretum imberbe Lonchocarpus capassa Ziziphus mucronata
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: moist 0 - 150 cm
SURF.STONES: none
EROSION : nil

GRID : PF-402-744
COORD: 21-55-55-S 28-21-33-E
LAND ELEMENT :
MICRO TOPOGRAPHY: uneven
VEGETATION: savanna
ROCK TYPE: sandstone
ROCK OUTCROP: none

DATE: 11/05/86
ELEV: 692 m
SMR: aridic
POSITION: middle slope
SLOPE : 0 - 2 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : moderately well drained
HUMAN INF: ploughing

REMARKS: Augering from 90cm

SAMPLES: A: 0 - 20 B: 30 - 50 C: 80 - 100 D: 130 - 150

A 0 - 20 cm 7.5YR 3/2 (moist), weak to moderate medium and coarse subangular blocky structure, friable, common very fine and fine pores, non calcareous, no roots, clear smooth boundary:

Bt1 20 - 110 cm 7.5YR 3/2 (moist), fine sandy loam, weak medium and coarse subangular blocky structure, friable, patchy thin clay cutans, common very fine and fine pores, non calcareous, common very fine and fine roots, clear wavy boundary:

Bt2 110 - 150 cm 7.5YR 3.5/3.5 (moist), sandy loam, non calcareous,

SOIL PROFILE DESCRIPTION | Profile: SP 0137 Unit: A36 Status:

SHEET : 2128C4
LOCATION : 7.75km NW Bobonong N Motloutse river.
AUTHOR(S): K.Verbeek R.Kelebemang
CLASSIFICATION FAO: Luvic Xerosol
ST : Ustalfic Haplargid
LANDFORM :
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia tortilis subs. heterocantha (dom.) Acacia nilotica Combretum imberbe Combretum hereroense
: Shrubs -
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: moist 0 - 5 , dry 5 - 90 cm
SURF.STONES: none
EROSION :

GRID : PF-402-741
COORD: 21-56-05-S 28-21-30-E
LAND ELEMENT : channel
MICRO TOPOGRAPHY: uneven
VEGETATION: tree savanna
ROCK TYPE:
ROCK OUTCROP: none

DATE: 11/05/86
ELEV: 689 m
SMR: aridic to ustic
POSITION:
SLOPE : 1 - 2 % straight
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : imperfectly drained
HUMAN INF: nil

REMARKS: Grewia flava also added

SAMPLES: A: 0 - 10 B: 20 - 40 C: 60 - 80

A 0 - 10 cm 7.5YR 3/4 (moist) and 7.5YR 4/4 (dry), sandy loam, weak coarse subangular blocky structure, slightly hard to hard, many very fine and fine pores, non calcareous, common very fine and fine roots, clear smooth boundary:

Bt1 10 - 50 cm 7.5YR 3/3 (moist), sandy clay loam to sandy clay, weak medium and coarse subangular blocky structure, firm, broken moderately thick cutans, many very fine and fine pores, non calcareous, common fine and medium roots, clear smooth boundary:

Bt2 50 - 90 cm 7.5YR 3/3 (moist), few fine faint clear reddish mottles, sandy clay, massive structure, very firm, patchy thin cutans, common very fine pores, few fine rock fragments, non calcareous, few fine and medium roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0141 Unit: A37 Status: 2

SHEET : 2121D3
LOCATION : 8.5 km NNW SP. Mine S Motloutse river.
AUTHOR(S): N. Sinnige
CLASSIFICATION FAO: Calcic Luvic Xerosol
ST : Ustalfic Haplargid
LANDFORM : valley
TOPOGRAPHY: almost flat
SURF. CHAR: slight sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: disturbed vegetation
SPECIES : Trees - Acacia tortilis subs. heterocantha (dom.)
: Shrubs - Acacia tortilis subs. heterocantha (dom.)
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: slightly moist 0 - 6 , moist 6 - 130 cm
SURF.STONES: none
EROSION : nil

GRID : NF-846-807
COORD: 21-52-41-S 27-49-12-E

LAND ELEMENT : terrace
MICRO TOPOGRAPHY: even

VEGETATION: savanna

ROCK TYPE:

ROCK OUTCROP: none

DATE: 28/06/88
ELEV: 816 m

SMR: aridic to ustic

POSITION: intermediate part
SLOPE : 0.0 - 1 % convex

GRASSCOVER: 30 - 70 %

GEOL.UNIT:
DRAINAGE : moderately well drained

HUMAN INF: nil

REMARKS: Old field, still grazing

SAMPLES: A: 0 - 0 B: 0 - 0 C: 0 - 0 D: 0 - 0 E: 0 - 0 A: 0 - 6 B: 15 - 35 C: 50 - 70 D: 80 - 100 E: 110 - 130

A 0 - 6 cm 10YR 6/3 (dry) and 10YR 3.5/3 (moist), sandy loam (12% clay), very weak medium and coarse subangular blocky structure, soft, common fine and few medium pores, non calcareous, many very fine and fine roots, clear smooth boundary:

Bt1 6 - 45 cm 10YR 2.5/2 (moist), sandy clay loam (30% clay), very weak medium and coarse prismatic structure, firm, broken thin clay and humus cutans on pedfaces, common very fine and fine pores, non calcareous, few termite/ant activity, few very fine and fine roots, gradual smooth boundary:

Bt2 45 - 75 cm 10YR 3/1 (moist), clay loam to clay (40% clay), weak to moderate medium and coarse angular blocky falling apart into moderate fine and medium angular blocky structure, firm, broken moderately thick clay and humus cutans on pedfaces, few very fine and fine pores, frequent fine irregular hard calcareous white nodules, slightly calcareous, common termite/ant activity, very few very fine and fine roots, gradual smooth boundary:

Bt3 75 - 110 cm 10YR 4/3 (moist), clay (50% clay), very weak fine and medium angular blocky falling apart into weak fine angular blocky structure, friable to firm, continuous moderately thick clay and humus cutans on pedfaces and none cutans, few very fine and fine pores, very few fine angular slightly weathered quartz rock fragments, few fine irregular hard calcareous white nodules, slightly calcareous, very few very fine and fine roots, gradual smooth boundary:

Bt4 110 - 130 cm 10YR 3.5/6 (moist), clay (55% clay), very weak medium angular and subangular blocky structure, friable, continuous thin clay cutans on pedfaces, few very fine and fine pores, few fine irregular hard calcareous white nodules, strongly calcareous, few infilled burrows, very few very fine and fine roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0142 Unit: G14a Status: 2

SHEET : 2127D4
LOCATION : 320 meter from junction at river Selebi-phikwe.
AUTHOR(S): J.Maembolwa A. Markus N. Sinnige
CLASSIFICATION FAO: Luvic Xerosol
ST : Arenic-ustallic Haplargid
LANDFORM : plain
TOPOGRAPHY: almost flat
SURF. CHAR: no sealing, no cracks, nil evidence of salt, bleached sand on surface
LAND USE: traditional grazing
SPECIES : Trees - Acacia mellifera (dom.) Dichrostachys cinerea Colophospermum mopane
: Shrubs - Acacia mellifera (dom.) Colophospermum mopane Dichrostachys cinerea
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: moist 0 - 150 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : NF-911-738
COORD: 21-56-24-S 27-53-04-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: low hummocks

VEGETATION: savanna

ROCK TYPE: gneiss

ROCK OUTCROP: none

DATE: 30/06/88
ELEV: 825 m

SMR: aridic

POSITION: upper slope
SLOPE : 0.0 - 2 % convex

GRASSCOVER: 30 - 70 %

GEOL.UNIT:
DRAINAGE : well drained

HUMAN INF: nil

REMARKS: Field nearby with sorghum

SAMPLES: A: 0 - 0 B: 0 - 0 C: 0 - 0 D: 0 - 0 A: 0 - 20 B: 25 - 45 C: 55 - 75 D: 110 - 130

A 0 - 20 cm 5YR 4/5 (moist), loamy sand (10% clay), very weak medium to very coarse subangular blocky structure, very friable, few very fine and fine pores, non calcareous, common very fine and fine roots, gradual smooth boundary:

Bt1 20 - 50 cm 5YR 4/6 (moist), loamy sand (15% clay), very weak medium to very coarse subangular blocky structure, very friable to friable, patchy thin clay and humus cutans on pedfaces, common very fine and fine and few medium pores, non calcareous, common very fine and fine roots, gradual smooth boundary:

Bt2 50 - 85 cm 4YR 4/8 (moist), sandy loam (17% clay), very weak medium to very coarse angular and subangular blocky structure, friable to firm, patchy thin clay and humus cutans on pedfaces, common very fine and fine pores, non calcareous, few very fine and fine roots, gradual smooth boundary:

Bt3 85 - 130 cm 3YR 4/8 (moist), sandy loam (20% clay), very weak coarse and very coarse angular and subangular blocky structure, friable to firm, broken thin clay and humus cutans on pedfaces, many very fine and few fine pores, non calcareous, few very fine and fine roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0143 Unit: A5b Status: 2

SHEET : 2128C3
LOCATION : in Tobane in old channel.
AUTHOR(S): K.Verbeek J.Maembolwa A. Markus N. Sinnige
CLASSIFICATION FAO: Orthic Solonetz
ST : Salorthidic Natrustalf
LANDFORM : valley
TOPOGRAPHY: almost flat
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia tortilis subs. heterocantha (dom.)
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Acacia nebrownii
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 90 , slightly moist 90 - 115 cm
SURF.STONES: none
EROSION : slight wind erosion

GRID : PF-075-776
COORD: 21-54-19-S 28-02-28-E

LAND ELEMENT : channel
MICRO TOPOGRAPHY: low hummocks

VEGETATION: open savanna

ROCK TYPE:

ROCK OUTCROP: none

DATE: 12/07/88
ELEV: 774 m

SMR: aridic/ustic

POSITION: intermediate part
SLOPE : 0.0 - 1 % straight

GRASSCOVER: 10 - 30 %

GEOL.UNIT:
DRAINAGE : imperfectly drained

HUMAN INF: clearing

REMARKS: 1. Fine platy stratification in A. Rock fragments mixture of different rock types. 2.2Btk1: Top has angular boundary between vert./horiz. planes. Bleach sand on top of vert. - pedfaces. 3. 2Btk2: brown sand along vert. pedfaces. Erosion surface between A/B

SAMPLES: A: 0 - 0 B: 0 - 0 C: 0 - 0 D: 0 - 0 E: 0 - 0 A: 0 - 10 B: 10 - 25 C: 30 - 50 D: 65 - 85 E: 90 - 115

A 0 - 10 cm 7.5YR 5/6 (dry) and 7.5YR 4/6 (moist), sand ( 5% clay), weak medium and coarse subangular blocky structure, soft to slightly hard, few very fine and fine pores, frequent fine rounded weathered rock fragments, non calcareous, common very fine and fine roots, abrupt wavy boundary:

2Btk1 10 - 25 cm 5YR 4/6 (moist) and 5YR 4.5/6 (dry), common medium distinct diffuse reddish mottles, sandy clay (45% clay), weak to moderate medium and coarse prismatic falling apart into weak to moderate fine to coarse subangular blocky structure, slightly hard, patchy moderately thick clay cutans, many very fine and fine pores, few fine rounded weathered gneiss rock fragments, frequent fine irregular soft calcareous white soft segregations, strongly calcareous, few very fine and fine roots, clear wavy boundary:

2Btk2 25 - 50 cm 5YR 3/4 (moist) and 5YR 4/ 4 (dry), common fine distinct sharp bluish-black mottles, clay (45% clay), very weak fine and medium prismatic falling apart into weak to moderate fine and medium angular and subangular blocky structure, hard, broken pressure faces, common very fine and fine pores, few fine rounded weathered gneiss rock fragments, frequent fine irregular hard and soft iron-manganese reddish-brown nodules and few fine irregular soft calcareous reddish-brown soft segregations, moderately calcareous, very few very fine roots, clear wavy boundary:

2Btk3 50 - 95 cm 5YR 5/8 and 5YR 4/4 mottled (dry), common fine distinct sharp bluish-black mottles, clay (45% clay), weak medium and coarse prismatic falling apart into weak to moderate coarse angular and subangular blocky structure, hard to very hard, broken pressure faces on horizontal pedfaces, many very fine and fine pores, few fine rounded weathered gneiss rock fragments, frequent fine irregular hard and soft iron-manganese reddish-brown nodules and very few fine irregular soft calcareous reddish-brown soft segregations, moderately calcareous, no roots, gradual wavy boundary:

2Btk4 95 - 110 cm 5YR 5/8 and 5YR 4/4 mottled (dry), few fine distinct sharp bluish-black mottles, clay (45% clay), very weak medium prismatic weak medium and coarse angular and subangular blocky structure, hard, patchy partly intersecting slickensides and patchy pressure faces on horizontal pedfaces, many very fine and fine pores, very few fine rounded weathered gneiss rock fragments, few fine irregular hard and soft iron-manganese reddish-brown nodules and very few fine irregular soft calcareous reddish-brown soft segregations, slightly calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0144 Unit: A22a Status: 2

SHEET : 2128C3
LOCATION : 1.5 km NNW Motloutse-Lethlakane confluence.
AUTHOR(S): J.Maembolwa K.Kgatlwane K.Verbeek A. Markus
CLASSIFICATION FAO: Cambic Arenosol
ST : Typic Torripsamment
LANDFORM : alluvial plain
TOPOGRAPHY: undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia erioloba (dom.) Combretum imberbe Combretum hereroense Acacia tortilis subs. heterocantha
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Ziziphus mucronata Grewia flava
: Grasses-
PARENT MATERIAL: alluvium
MOIST. COND: dry 0 - 90 , slightly moist 90 - 120 cm
SURF.STONES: none
EROSION : slight sheet erosion and slight wind erosion

GRID : PF-901-792
COORD: 21-53-25-S 27-52-25-E

LAND ELEMENT : levee
MICRO TOPOGRAPHY: termite mounds

VEGETATION: woodland

ROCK TYPE:

ROCK OUTCROP: none

DATE: 13/07/88
ELEV: 810 m

SMR: aridic/ustic

POSITION: crest
SLOPE : 0.0 - 3 % convex

GRASSCOVER: 10 - 30 %

GEOL.UNIT:
DRAINAGE : somewhat excessively drained

HUMAN INF: nil

REMARKS: Platy structure topsoil, loose sand on top.

SAMPLES: A: 0 - 0 B: 0 - 0 C: 0 - 0 D: 0 - 0 A: 0 - 15 B: 25 - 45 C: 55 - 75 D: 90 - 110

A 0 - 15 cm 10YR 3.5/4 (moist) and 10YR 5/3.5 (dry), sand ( 7% clay), weak medium and coarse subangular blocky structure, soft, few very fine and fine pores, few fine rounded slightly weathered quartz rock fragments, non calcareous, many very fine and fine roots, clear wavy boundary:

B1 15 - 50 cm 10YR 3.5/4 (moist) and 10YR 5/4 (dry), loamy sand ( 7% clay), very weak medium and coarse subangular blocky structure, soft to slightly hard, common very fine and fine pores, few fine rounded slightly weathered quartz rock fragments, non calcareous, common very fine and fine and common medium roots, gradual wavy boundary:

B2 50 - 85 cm 9YR 3.5/4 (moist) and 9YR 5/4 (dry), loamy sand ( 7% clay), weakly coherent massive structure, slightly hard, common very fine and fine pores, few fine rounded slightly weathered quartz rock fragments, non calcareous, few medium and coarse and common very fine and fine roots, gradual wavy boundary:

B3 85 - 120 cm 9YR 3.5/5 (moist) and 9YR 5.5/5 (dry), loamy sand ( 7% clay), massive structure, slightly hard to hard, common very fine and fine pores, non calcareous, few medium and coarse and few very fine and fine roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0145 Unit: S13a Status: 3

SHEET : 2128C4
LOCATION : Mosalakwane 13 km of Bobonong.
AUTHOR(S): A.Remmelzwaal K.Verbeek K.Kgatlwane J.Maembolwa
CLASSIFICATION FAO: Petrocalcic Arenosol petrocalcic phase
ST : Petrocalcic Paleargid
LANDFORM : plain
TOPOGRAPHY: undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs - Acacia tortilis subs. heterocantha (dom.)
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 35 , slightly moist 35 - 80 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : PF-337-712
COORD: 21-57-50-S 28-17-50-E

LAND ELEMENT : ridge
MICRO TOPOGRAPHY: low hummocks

VEGETATION: open shrub savanna

ROCK TYPE: sandstone

ROCK OUTCROP: none

DATE: 14/07/88
ELEV: 716 m

SMR: aridic

POSITION: crest
SLOPE : 1 - 2 % convex

GRASSCOVER: 30 - 70 %

GEOL.UNIT:
DRAINAGE : somewhat excessively drained

HUMAN INF: borrow pits

REMARKS: Parent material is poorly sorted sandstone

SAMPLES: A: 0 - 0 B: 0 - 0 C: 0 - 0 D: 0 - 0 A: 0 - 20 B: 20 - 35 C: 35 - 55 D: 60 - 80

A 0 - 20 cm 5YR 3/4 (moist) and 5YR 4/5 (dry), sand to loamy sand, very weak medium and coarse subangular blocky structure, slightly hard friable, common very fine and fine pores, very few fine rounded slightly weathered quartz rock fragments, non calcareous, few termite/ant activity, common very fine and fine and few fine roots, clear smooth boundary:

Bt1 20 - 35 cm 5YR 3/3.5 (moist) and 5YR 4/3.5 (dry), loamy sand, very weak coarse and very coarse subangular blocky structure, soft to slightly hard friable, patchy thin clay cutans on pedfaces, many very fine and fine pores, very few fine angular slightly weathered quartz rock fragments, non calcareous, few termite/ant activity, common very fine and few fine and medium roots, clear smooth boundary:

Bt2 35 - 80 cm 2.5YR 3/4 (moist) and 2.5YR 4/3.5 (dry), loamy sand to sandy loam, weak medium to very coarse subangular blocky structure, slightly hard friable, broken thin clay cutans on pedfaces, many very fine and fine pores, very few fine angular slightly weathered quartz rock fragments, non calcareous, few termite/ant activity, few very fine and fine roots, abrupt irregular boundary:

Cmk 80 cm + 10YR 7/2 (moist) and 10YR 8/1 (dry), strongly coherent massive structure, extremely hard, cemented, extremely calcareous, no roots,

SOIL PROFILE DESCRIPTION

Profile: SP 0146 Unit: S13a Status: 4

SHEET : 2128C4
LOCATION : Mosalakwe 10 km of Bobonong.
AUTHOR(S): A.Remmelzwaal A. Markus N. Sinnige K.Verbeek
CLASSIFICATION FAO: Calcic Arenosol petrocalcic phase
ST : Petrocalcic Paleargid
LANDFORM : hill
TOPOGRAPHY: undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia mellifera
: Shrubs - Acacia tortilis subs. heterocantha (dom.) Acacia mellifera
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 40 cm
SURF.STONES: very few gravel
EROSION : slight sheet erosion

GRID : PF-362-712
COORD: 21-56-35-S 28-19-10-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: uneven

VEGETATION: open shrub savanna

ROCK TYPE: sandstone

ROCK OUTCROP: none

DATE: 14/07/88
ELEV: 714 m

SMR: aridic

POSITION: upper slope
SLOPE : 3 - 4 %

GRASSCOVER: 30 - 70 %

GEOL.UNIT:
DRAINAGE : somewhat excessively drained

HUMAN INF: nil

REMARKS: Transitional thin layer of nodular calcrete to Cmk. Calcrete outcrops at top of hill 50 meter upslope, 50 meter downslope nodular calcrete 30-80 on top of petro-calcic unit C

SAMPLES:

A 0 - 15 cm 7.5YR 3/4 (moist) and 7.5YR 4/6 (dry), fine sand ( 5% clay), soft, non calcareous, gradual boundary:

B 15 - 30 cm 6YR 3/6 (moist) and 6YR 4/6 (dry), fine sand ( 5% clay), soft, non calcareous,

Cmk 30 cm + cemented, extremely calcareous,

SOIL PROFILE DESCRIPTION | Profile: SP 0147 | Unit: S5 | Status: 4

SHEET : 2128C4
LOCATION : Mosalakwana 10 km west of Bobonong.
AUTHOR(S): A.Remmelzwaal K.Verbeek A. Markus N. Sinnige
CLASSIFICATION FAO: Ferralic Arenosol
ST : Typic Torripsamment
LANDFORM : plain
TOPOGRAPHY: undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs - Acacia tortilis subs. heterocantha (dom.)
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 5 , slightly moist 5 - 120 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : PF-361-712
COORD: 21-56-35-S 28-19-05-E
LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: low hummocks
VEGETATION: open shrub savanna
ROCK TYPE: sandstone
ROCK OUTCROP: none

DATE: 14/07/88
ELEV: 712 m
SMR: aridic
POSITION: middle slope
SLOPE : 0.0 - 2 %
GRASSCOVER:
GEOL.UNIT:
DRAINAGE : somewhat excessively/excessively drained
HUMAN INF: nil

REMARKS: Lands at 30 meter

SAMPLES:

A 0 - 30 cm 7.5YR 4/6 (moist) and 7.5YR 5/6 (dry), fine sand ( 7% clay), soft friable, non calcareous, gradual boundary:

B 30 - 70 cm 7.5YR 3/5 (moist) and 7.5YR 4.5/5 (dry), fine sand ( 7% clay), friable, non calcareous, gradual boundary:

Bt 70 - 120 cm 7.5YR 4/6 (moist) and 7.5YR 5/6 (dry), loamy fine sand (10% clay), friable, non calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0148 Unit: S12a Status: 4

SHEET : 2128C4
LOCATION : Mosalakwana 10 km of Bobonong.
AUTHOR(S): A.Remmelzwaal A. Markus N. Sinnige K.Verbeek
CLASSIFICATION FAO: Arenic Calcic Luvisol
ST : Arenic Haplargid
LANDFORM : plain
TOPOGRAPHY: undulating
SURF. CHAR: no sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees -
: Shrubs -
: Grasses-
PARENT MATERIAL: in situ weathered
MOIST. COND: dry 0 - 40 , slightly moist 40 - 120 cm
SURF.STONES: none
EROSION :

GRID : PF-360-712
COORD: 21-56-35-S 28-19-00-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: even

VEGETATION:

ROCK TYPE: sandstone

ROCK OUTCROP: none

DATE: 14/07/88
ELEV: 711 m

SMR: aridic

POSITION: lower slope
SLOPE : 0 - 1 % straight

GRASSCOVER:

GEOL.UNIT:
DRAINAGE :

HUMAN INF: nil

REMARKS: Field at 30 meter augering from 80 cm, wheatered sandstone at 170 meter.

SAMPLES:

Ac 0 - 40 cm 9YR 4/4 (moist) and 9YR 5/5 (dry), fine sand, weak medium and coarse subangular blocky structure, soft to slightly hard, common very fine and fine pores, non calcareous, many very fine and fine roots, clear smooth boundary:

2Ab 40 - 55 cm 9.5YR 3.5/4 (moist), loamy fine sand to sandy loam (12% clay), weak medium and coarse subangular and angular blocky structure, friable, many fine and medium pores, non calcareous, common very fine and fine roots, clear smooth boundary:

2Bt 55 - 90 cm 9YR 3.5/4 (moist), sandy loam, weak medium and coarse subangular and angular blocky structure, friable, broken thin clay cutans on pedfaces, many fine and medium pores, non calcareous, common very fine and fine roots, clear boundary:

2Btk1 90 - 125 cm 7.5YR 4.5/6 (moist), sandy loam, friable, few medium irregular soft argilleous white soft segregations, slightly calcareous, clear boundary:

2Btk2 125 - 170 cm 7.5YR 5/5 (moist), sandy loam (18% clay), friable to firm, few coarse irregular soft argilleous white soft segregations, strongly calcareous,

SOIL PROFILE DESCRIPTION | Profile: SP 0149 Unit: Sla Status: 4

SHEET : 2128C4
LOCATION : Mosalakwana 10 km. of Bobonong near Motloutse.
AUTHOR(S): A.Remmelzwaal K.Verbeek N. Sinnige A. Markus
CLASSIFICATION FAO: Ferralic Arenosol
ST : Typic Torripsamment
LANDFORM : sand plain
TOPOGRAPHY: gently undulating
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia nilotica (dom.) Acacia erioloba Combretum imberbe
: Shrubs - Combretum imberbe (dom.)
: Grasses-
PARENT MATERIAL: colluvium
MOIST. COND: dry 0 - 70 , slightly moist 70 - 120 cm
SURF.STONES: none
EROSION : slight sheet erosion

GRID : PF-359-715
COORD: 21-57-30-S 28-18-50-E
LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: uneven
VEGETATION: savanna
ROCK TYPE: sandstone
ROCK OUTCROP: none

DATE: 14/07/88
ELEV: 709 m
SMR: aridic
POSITION: intermediate part
SLOPE : 1 - 2 % straight
GRASSCOVER: > 70 %
GEOL.UNIT:
DRAINAGE : somewhat excessively drained
HUMAN INF: clearing

REMARKS: The lithic contact is calcareous

SAMPLES:

A 0 - 20 cm 10YR 3/4 (moist) and 10YR 4/4 (dry), fine sand, soft, non calcareous, clear boundary:

B 20 - 70 cm 10YR 3/6 (moist) and 10YR 4/6 (dry), loamy fine sand, soft, very few fine and medium angular weathered rock fragments, non calcareous,

Crmk 70 cm + cemented, moderately calcareous,

SOIL PROFILE DESCRIPTION

Profile: SP 0150 Unit: S3 Status: 4

SHEET : 2128C4
LOCATION : Mosalakwane 10 km west of Bobonong near Motloutse.
AUTHOR(S): A.Remmelzwaal K.Verbeek N. Sinnige A. Markus
CLASSIFICATION FAO: Ferralic Arenosol
ST : Typic Ustipsamment
LANDFORM : plain
TOPOGRAPHY: almost flat
SURF. CHAR: slight sealing, no cracks, nil evidence of salt,
LAND USE: traditional grazing
SPECIES : Trees - Acacia nilotica (dom.) Acacia erioloba Combretum imberbe
: Shrubs - Combretum imberbe (dom.)
: Grasses-
PARENT MATERIAL: colluvium
MOIST. COND:
SURF.STONES: none
EROSION : slight sheet erosion

GRID : PF-358-715
COORD: - - 0-S 28-18-55-E

LAND ELEMENT : not applicable
MICRO TOPOGRAPHY: uneven

VEGETATION: savanna

ROCK TYPE: sandstone

ROCK OUTCROP: none

DATE: 14/07/88
ELEV: 709 m

SMR: aridic

POSITION: intermediate part
SLOPE : 1 - 2 % straight

GRASSCOVER: > 70 %

GEOL.UNIT:
DRAINAGE : somewhat excessively drained

HUMAN INF: clearing

REMARKS:

SAMPLES:

A 0 - 20 cm 10YR 4.5/4 (dry) and 10YR 3/4 (moist), fine sand, slightly hard, non calcareous, clear boundary:

B1 20 - 100 cm 10YR 4.5/5 (dry) and 10YR 3.5/5 (moist), loamy fine sand, very friable, non calcareous, clear boundary:

B2 100 - 120 cm 10YR 4.5/5 (dry) and 10YR 3.5/5 (moist), loamy fine sand, very friable, non calcareous,

# APPENDIX 3

# Standard Soil Analysis

Soil Chemistry Laboratory Soil Mapping and Advisory Services
FAO UN and Government of Botswana

Date:29/09/88 Preliminary data

**EC determination:**
'*': 1:2.5 or 1:5 extract, otherwise saturated paste extract

**Phosphorus determination:** Bray and Kurtz I method

**Organic carbon determination:** Modified Walkeley and Black method

**Cation Exchange Capacity determination:** Ammonium acetate method at pH 7.0

**Exchangeable Cations determination:** In Ammonium acetate extract
with Atomic Absorption Spectrometer

**PBS:** Percent Base Saturation °(Ca+Mg+K+Na)*100/CEC%

**CECcl:** CEC of clay fraction, corrected for org. matter.
OM correction based on: Conversion factor org. C to org matter: 2
CEC-OM: 200 meq/100 g org. matter

**Meth:** Method.used for Part. size determination:
HYD=Hydrometer method, PIP=Pipette method

**Pret:** Pretreatment for Part. size determination:
om=org. matter, fe=iron oxides, ss=soluble salts, ca=carbonates

**Profile: SP0003**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 602 | 6.16 | 5.67 | 0.0* | 8.1 | 0.2 | 5.7 | 2.7 | 0.8 | 0.4 | 0.1 | 70 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 602 | 6.2 | 11.4 | 16.9 | 25.1 | 15.7 | 9.3 | 4.7 | 10.7 | 46 | HYD | om |

**Profile: SP0015**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 609 | 6.75 | 5.92 | 0.0% | 22.2 | 0.2 | 4.6 | 2.1 | 1.2 | 0.4 | 0.1 | 83 |
| B | 610 | 6.94 | 6.20 | 0.0% | 6.9 | 0.1 | 7.2 | 3.1 | 1.8 | 0.7 | 0.1 | 79 |
| C | 611 | 6.98 | 6.28 | 0.0% | 4.1 | 0.2 | 10.6 | 5.8 | 2.3 | 0.8 | 0.1 | 85 |
| D | 612 | 7.33 | 6.79 | 0.0% | 4.0 | 0.1 | 12.1 | 8.7 | 2.7 | 0.4 | 0.2 | 99 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 609 | 4.9 | 12.2 | 18.1 | 33.2 | 15.1 | 7.0 | 0.0 | 9.5 | 40 | HYD | cm |
| B | 610 | 3.2 | 10.7 | 16.6 | 31.1 | 15.5 | 7.9 | 1.2 | 13.7 | 50 | HYD | cm |
| C | 611 | 4.5 | 12.7 | 16.3 | 27.1 | 13.4 | 6.7 | 2.3 | 17.1 | 57 | HYD | cm |
| D | 612 | 3.4 | 10.0 | 15.2 | 26.1 | 13.0 | 5.9 | 3.1 | 23.4 | 50 | HYD | cm |

**Profile: SP0017**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 616 | 6.78 | 5.84 | 0.0% | 21.5 | 0.2 | 3.8 | 1.6 | 0.6 | 0.3 | 0.1 | 68 |
| B | 617 | 6.90 | 5.99 | 0.0% | 4.5 | 0.1 | 4.5 | 2.2 | 1.0 | 0.3 | 0.1 | 80 |
| C | 618 | 7.18 | 6.46 | 0.0% | 5.4 | 0.1 | 7.1 | 4.0 | 1.6 | 0.5 | 0.1 | 87 |
| D | 619 | 7.35 | 6.68 | 0.0% | 5.5 | 0.0 | 5.9 | 3.8 | 1.2 | 0.4 | 0.1 | 93 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 616 | 4.3 | 18.6 | 23.1 | 29.6 | 10.3 | 5.6 | 1.1 | 7.4 | 41 | HYD | cm |
| B | 617 | 6.3 | 18.9 | 21.0 | 28.2 | 10.6 | 5.3 | 2.0 | 7.7 | 53 | HYD | cm |
| C | 618 | 8.5 | 15.8 | 19.1 | 25.6 | 9.0 | 3.8 | 2.7 | 16.1 | 42 | HYD | |
| D | 619 | 17.3 | 26.8 | 18.3 | 16.5 | 5.8 | 3.3 | 1.9 | 10.1 | 58 | HYD | cm |

**Profile: SP0023**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 625 | 7.65 | 6.84 | 0.1% | 22.7 | 0.4 | 9.0 | 6.1 | 2.3 | 0.7 | 0.1 | 100 |
| B | 626 | 7.39 | 7.34 | 0.8% | 10.1 | 0.4 | 17.8 | 15.4 | 4.9 | 0.8 | 0.7 | 100 |
| C | 627 | 7.92 | 7.66 | 0.5% | 7.2 | 0.2 | 18.0 | 27.7 | 5.4 | 0.7 | 0.6 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 625 | 4.0 | 11.7 | 14.8 | 20.3 | 12.2 | 10.2 | 7.6 | 19.3 | 38 | HYD | cm |
| B | 626 | 6.1 | 10.8 | 10.8 | 14.5 | 9.3 | 8.7 | 8.3 | 31.6 | 51 | HYD | cm |
| C | 627 | 6.7 | 11.7 | 9.9 | 11.8 | 8.0 | 7.9 | 8.7 | 35.3 | 49 | HYD | cm |

**Profile: SP0028**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 630 | 7.28 | 6.09 | 0.1% | 20.9 | 0.7 | 13.2 | 7.8 | 2.9 | 1.3 | 0.3 | 93 |
| B | 631 | 7.41 | 6.59 | 0.1% | 2.0 | 0.7 | 19.6 | 14.2 | 4.4 | 1.9 | 0.2 | 100 |
| C | 632 | 7.71 | 6.82 | 0.2% | 5.4 | 0.4 | 20.5 | 15.8 | 4.5 | 0.9 | 0.3 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 630 | 3.6 | 14.1 | 14.6 | 16.6 | 11.6 | 10.9 | 9.0 | 19.7 | 53 | HYD | cm |
| B | 631 | 4.5 | 12.6 | 11.2 | 12.6 | 8.7 | 8.7 | 9.7 | 32.0 | 52 | HYD | cm |
| C | 632 | 7.1 | 14.8 | 11.2 | 10.4 | 6.5 | 5.1 | 10.4 | 34.5 | 55 | HYD | cm |

**Profile: SP0037**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 651 | 6.50 | 5.60 | 0.0% | 1.2 | 0.1 | 2.9 | 0.6 | 0.5 | 1.0 | 0.1 | 76 |
| B | 652 | 5.20 | 4.20 | 0.0% | 3.9 | 0.0 | 3.9 | 0.7 | 0.6 | 0.3 | 0.0 | 41 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 651 | 12.7 | 33.9 | 26.9 | 13.2 | 4.1 | 1.7 | 2.6 | 4.9 | 51 | HYD | cm |
| B | 652 | 11.9 | 31.1 | 24.5 | 15.8 | 5.8 | 2.7 | 0.0 | 8.2 | 48 | HYD | cm |

**Profile: SP0042**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 660 | 4.81 | 4.42 | 0.0% | 5.5 | 0.1 | 3.4 | 1.1 | 0.5 | 0.4 | 0.1 | 62 |
| B | 661 | 5.38 | 5.16 | 0.0% | 2.4 | 0.1 | 8.3 | 4.6 | 1.7 | 0.8 | 0.1 | 87 |
| C | 662 | 5.84 | 5.29 | 0.0% | 2.2 | 0.1 | 8.9 | 5.5 | 2.3 | 0.8 | 0.1 | 98 |
| D | 663 | 5.80 | 5.24 | 0.0% | 2.2 | 0.1 | 11.9 | 5.7 | 2.5 | 0.9 | 0.1 | 77 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 660 | 4.6 | 14.8 | 23.1 | 23.3 | 11.0 | 5.1 | 3.3 | 14.8 | 20 | HYD | cm |
| B | 661 | 8.4 | 17.9 | 20.4 | 16.7 | 7.5 | 2.7 | 3.2 | 23.1 | 34 | HYD | cm |
| C | 662 | 6.9 | 17.4 | 20.3 | 14.5 | 6.9 | 3.5 | 2.3 | 28.1 | 30 | HYD | cm |
| D | 663 | 8.7 | 13.8 | 17.1 | 13.7 | 7.2 | 4.6 | 3.9 | 31.2 | 37 | HYD | cm |

**Profile: SP0043**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 664 | 5.00 | 4.42 | 0.0% | 8.7 | 0.1 | 5.7 | 1.4 | 0.8 | 0.3 | 0.1 | 46 |
| B | 665 | 5.27 | 4.98 | 0.0% | 2.4 | 0.1 | 7.5 | 3.5 | 1.8 | 0.6 | 0.0 | 79 |
| C | 666 | 5.50 | 5.20 | 0.0% | 1.0 | 0.1 | 11.1 | 6.0 | 2.9 | 0.6 | 0.1 | 86 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 664 | 3.9 | 16.1 | 23.0 | 24.3 | 11.2 | 7.1 | 1.5 | 12.9 | 41 | HYD | cm |
| B | 665 | 8.5 | 16.6 | 19.2 | 18.5 | 8.4 | 4.7 | 2.6 | 21.3 | 33 | HYD | cm |
| C | 666 | 5.4 | 11.1 | 14.5 | 16.1 | 9.3 | 5.9 | 3.9 | 33.8 | 32 | HYD | cm |

**Profile: SP0046**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 674 | 6.51 | 6.10 | 0.2% | 7.0 | 1.9 | 23.7 | 13.2 | 6.4 | 1.6 | 0.1 | 90 |
| B | 675 | 7.10 | 7.02 | 1.9% | 2.5 | 1.6 | 36.1 | 20.7 | 12.3 | 0.9 | 2.0 | 99 |
| C | 676 | 7.35 | 6.83 | 3.4% | 4.0 | 1.7 | 38.3 | 25.6 | 14.0 | 1.0 | 2.1 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 674 | 1.4 | 2.9 | 2.4 | 6.4 | 14.8 | 19.2 | 16.3 | 36.7 | 44 | HYD | cm |
| B | 675 | 2.3 | 4.7 | 4.6 | 5.4 | 4.7 | 7.4 | 16.8 | 54.2 | 55 | HYD | cm |
| C | 676 | 1.3 | 3.7 | 3.7 | 4.2 | 4.3 | 5.4 | 14.4 | 63.0 | 50 | HYD | cm |

**Profile: SP0052**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 695 | 5.90 | 5.10 | 0.0% | 11.9 | 0.1 | 5.7 | 2.2 | 1.0 | 0.7 | 0.1 | 70 |
| B | 696 | 5.70 | 5.00 | 0.0% | 10.0 | 0.1 | 5.4 | 1.4 | 1.4 | 0.7 | 0.0 | 65 |
| C | 697 | 5.90 | 5.50 | 0.0% | 6.6 | 0.1 | 8.3 | 3.4 | 2.7 | 0.8 | 0.1 | 84 |
| D | 698 | 6.50 | 6.00 | 0.0% | 4.6 | 0.1 | 9.8 | 6.0 | 3.0 | 0.3 | 0.0 | 95 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 695 | 3.9 | 13.5 | 22.0 | 31.2 | 13.3 | 4.5 | 3.0 | 8.5 | 62 | HYD | cm |
| B | 696 | 2.0 | 15.1 | 24.3 | 30.1 | 11.8 | 4.2 | 2.3 | 10.2 | 49 | HYD | cm |
| C | 697 | 3.5 | 15.7 | 23.3 | 25.5 | 10.0 | 4.3 | 1.2 | 16.5 | 48 | HYD | cm |
| D | 698 | 3.8 | 15.0 | 22.8 | 23.3 | 8.3 | 4.0 | 3.0 | 19.6 | 48 | HYD | cm |

**Profile: SP0056**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 704 | 7.00 | 6.00 | 0.2% | 12.2 | 0.7 | 11.9 | 9.7 | 2.1 | 0.8 | 0.0 | 100 |
| B | 705 | 6.90 | 6.20 | 0.1% | 5.6 | 0.4 | 11.2 | 9.4 | 1.8 | 0.8 | 0.0 | 100 |
| C | 706 | 7.99 | 7.49 | 0.2% | 4.7 | 0.2 | 11.3 | 17.3 | 2.1 | 0.6 | 0.0 | 100 |
| D | 707 | 8.10 | 7.64 | 0.3% | 9.7 | 0.1 | 8.6 | 14.4 | 2.3 | 0.5 | 0.1 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 704 | 2.9 | 14.3 | 23.5 | 21.4 | 9.1 | 6.2 | 4.1 | 18.5 | 49 | HYD | cm |
| B | 705 | 2.5 | 13.8 | 26.2 | 21.2 | 8.7 | 5.4 | 3.7 | 18.5 | 52 | HYD | cm |
| C | 706 | 5.9 | 19.5 | 23.7 | 18.2 | 6.7 | 3.9 | 3.4 | 18.6 | 56 | HYD | cm |
| D | 707 | 3.6 | 20.1 | 31.0 | 20.6 | 5.5 | 3.3 | 2.9 | 13.0 | 63 | HYD | cm |

**Profile: SP0067**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | 707 | 3.6 | 20.1 | 31.0 | 20.6 | 5.5 | 3.3 | 2.9 | 13.0 | 63 | HYD om |

**Profile: SP0067**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 732 | 6.60 | 5.90 | 0.1* | 3.9 | 0.4 | 6.3 | 5.2 | 1.3 | 0.4 | 0.0 | 110 |
| B | 733 | 6.30 | 5.60 | 0.1* | 2.7 | 0.4 | 8.3 | 5.5 | 1.3 | 0.4 | 0.1 | 88 |
| C | 734 | 6.20 | 5.50 | 0.1* | 3.8 | 0.2 | 9.5 | 5.0 | 1.1 | 0.6 | 0.1 | 72 |
| D | 735 | 6.90 | 6.10 | 0.1* | 3.9 | 0.1 | 12.1 | 6.8 | 1.5 | 0.5 | 0.1 | 74 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 732 | 11.5 | 14.2 | 23.5 | 22.7 | 10.2 | 5.5 | 1.9 | 11.3 | 42 | HYD | |
| B | 733 | 7.6 | 24.3 | 22.0 | 18.3 | 8.8 | 3.4 | 2.0 | 14.1 | 48 | HYD | |
| C | 734 | 5.9 | 20.8 | 20.1 | 18.3 | 9.3 | 5.6 | 1.0 | 19.8 | 44 | HYD | |
| D | 735 | 18.6 | 22.1 | 17.0 | 14.0 | 6.8 | 3.5 | 3.7 | 14.8 | 79 | HYD | |

**Profile: SP0079**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 759 | 6.20 | 6.00 | 0.1* | 4.1 | 0.2 | 8.9 | 5.5 | 3.0 | 0.2 | 0.0 | 98 |
| B | 760 | 6.70 | 6.40 | 0.1* | 1.1 | 0.2 | 12.7 | 9.4 | 4.1 | 0.1 | 0.0 | 100 |
| C | 761 | 7.40 | 7.30 | 0.2* | 0.5 | 0.1 | 10.3 | 37.0 | 4.6 | 0.1 | 0.0 | 100 |
| D | 762 | 7.80 | 7.50 | 0.2* | 1.0 | 0.1 | 10.6 | 55.9 | 7.4 | 0.1 | 0.0 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 759 | 2.4 | 6.8 | 9.1 | 22.4 | 30.2 | 14.3 | 2.9 | 11.8 | 69 | HYD om | |
| B | 760 | 1.2 | 4.4 | 8.6 | 16.9 | 30.1 | 16.4 | 6.6 | 15.7 | 76 | HYD om | |
| C | 761 | 5.2 | 9.9 | 10.5 | 22.7 | 18.3 | 11.4 | 4.1 | 17.9 | 55 | HYD om | |
| D | 762 | 7.1 | 10.4 | 10.1 | 21.8 | 15.5 | 9.7 | 5.3 | 20.2 | 50 | HYD om | |

**Profile: SP0080**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 763 | 6.00 | 5.60 | 0.1* | 6.1 | 0.1 | 5.2 | 2.5 | 1.1 | 0.2 | 0.0 | 73 |
| B | 764 | 5.80 | 5.40 | 0.0* | 3.9 | 0.1 | 5.7 | 2.8 | 1.4 | 0.2 | 0.0 | 77 |
| C | 765 | 5.90 | 5.50 | 0.1* | 2.3 | 0.0 | 6.5 | 3.4 | 1.7 | 0.2 | 0.0 | 82 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 763 | 5.4 | 22.0 | 25.9 | 21.7 | 9.8 | 4.3 | 2.4 | 8.6 | 56 | HYD om | |
| B | 764 | 6.0 | 20.1 | 23.2 | 22.3 | 10.5 | 3.6 | 3.1 | 11.2 | 47 | HYD om | |
| C | 765 | 8.9 | 24.9 | 25.9 | 16.8 | 5.8 | 3.3 | 2.1 | 12.2 | 53 | HYD om | |

**Profile: SP0081**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 766 | 7.60 | 7.30 | 0.1* | 11.0 | 0.5 | 10.7 | 30.0 | 2.3 | 0.4 | 0.0 | 100 |
| B | 767 | 7.60 | 7.30 | 0.2* | 5.3 | 0.5 | 12.5 | 51.5 | 2.9 | 0.4 | 0.0 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 766 | 5.8 | 10.6 | 18.3 | 27.9 | 12.9 | 7.0 | 3.7 | 13.7 | 64 | HYD om | |
| B | 767 | 5.4 | 10.2 | 17.5 | 27.4 | 13.1 | 7.2 | 3.5 | 15.8 | 66 | HYD om | |

**Profile: SP0082**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 768 | 7.20 | 6.25 | 0.4* | 21.8 | 1.5 | 57.7 | 53.5 | 14.6 | 0.9 | 0.0 | 100 |
| B | 769 | 7.00 | 6.40 | 0.2* | 7.0 | 1.0 | 57.0 | 46.1 | 16.7 | 0.5 | 0.0 | 100 |
| C | 770 | 7.50 | 7.20 | 0.3* | 3.8 | 1.0 | 57.5 | 45.1 | 21.1 | 0.4 | 0.1 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 768 | 0.4 | 0.8 | 1.0 | 2.5 | 6.1 | 17.4 | 23.2 | 48.5 | 107 | HYD om | |
| B | 769 | 0.1 | 1.1 | 1.3 | 3.8 | 6.7 | 11.1 | 18.5 | 57.3 | 92 | HYD om | |
| C | 770 | 1.0 | 1.3 | 1.6 | 4.0 | 6.8 | 9.3 | 30.6 | 45.4 | 118 | HYD om | |

**Profile: SP0083**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 771 | 7.40 | 6.30 | 0.1* | 12.0 | 0.2 | 8.3 | 6.4 | 1.1 | 0.8 | 0.0 | 100 |
| B | 772 | 7.80 | 7.30 | 0.1* | 4.1 | 0.1 | 9.4 | 14.3 | 1.1 | 0.3 | 0.0 | 167 |
| C | 773 | 7.90 | 7.40 | 0.2* | 2.8 | 0.1 | 10.8 | 22.5 | 1.2 | 0.3 | 0.0 | 222 |
| D | 774 | 7.75 | 7.30 | 0.2* | 2.8 | 0.1 | 12.1 | 21.2 | 1.4 | 0.4 | 0.1 | 191 |
| E | 775 | 7.80 | 7.40 | 0.2* | 2.5 | 0.0 | 11.8 | 33.5 | 2.7 | 0.3 | 0.1 | 310 |
| F | 776 | 7.90 | 7.40 | 0.1* | 0.4 | 0.0 | 12.0 | 47.5 | 3.0 | 0.3 | 0.2 | 425 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 771 | 5.8 | 17.1 | 21.8 | 23.4 | 11.2 | 5.5 | 2.7 | 12.5 | 60 | HYD | cm |
| B | 772 | 9.4 | 19.9 | 19.1 | 19.1 | 10.3 | 5.4 | 3.5 | 13.2 | 68 | HYD | cm |
| C | 773 | 9.2 | 21.4 | 20.9 | 16.5 | 8.2 | 3.8 | 5.1 | 14.8 | 70 | HYD | cm |
| D | 774 | 9.6 | 19.6 | 19.1 | 17.1 | 9.0 | 5.9 | 2.1 | 17.6 | 66 | HYD | cm |
| E | 775 | 8.9 | 17.4 | 18.2 | 17.4 | 9.7 | 3.5 | 4.9 | 20.0 | 59 | HYD | cm |
| F | 776 | 10.4 | 16.9 | 16.4 | 16.5 | 8.2 | 7.1 | 3.5 | 20.9 | 57 | HYD | cm |

**Profile: SP0092**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 789 | 6.35 | 5.05 | 0.0* | 2.4 | 0.4 | 5.9 | 3.8 | 0.8 | 0.6 | 0.0 | 88 |
| B | 790 | 6.59 | 6.15 | 0.0* | 1.0 | 0.1 | 8.6 | 5.5 | 1.3 | 0.6 | 0.0 | 86 |
| C | 791 | 6.93 | 6.44 | 0.0* | 1.7 | 0.0 | 10.2 | 7.5 | 2.1 | 0.4 | 0.1 | 99 |
| D | 792 | 6.33 | 5.88 | 0.0* | 1.8 | 0.2 | 10.3 | 6.7 | 2.1 | 0.4 | 0.2 | 91 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 789 | 7.2 | 20.9 | 20.2 | 19.2 | 8.9 | 5.6 | 3.9 | 14.1 | 30 | HYD | cm |
| B | 790 | 6.8 | 17.7 | 19.1 | 19.4 | 9.6 | 5.5 | 3.9 | 18.0 | 46 | HYD | cm |
| C | 791 | 8.3 | 14.8 | 14.8 | 14.8 | 7.4 | 1.5 | 3.2 | 35.2 | 29 | HYD | |
| D | 792 | 13.7 | 16.9 | 12.9 | 11.8 | 5.6 | 4.4 | 4.7 | 30.0 | 32 | HYD | cm |

**Profile: SP0094**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 793 | 7.66 | 7.22 | 0.0* | 2.7 | 1.1 | 55.4 | 81.3 | 9.5 | 1.3 | 0.2 | 100 |
| B | 794 | 7.68 | 7.23 | 0.0* | 1.5 | 1.0 | 55.2 | 81.7 | 10.0 | 1.1 | 0.2 | 100 |
| C | 795 | 7.62 | 7.16 | 0.0* | 0.5 | 1.0 | 56.4 | 81.2 | 14.7 | 0.7 | 0.5 | 100 |
| D | 796 | 7.71 | 7.15 | 0.0* | 1.3 | 1.0 | 56.2 | 79.0 | 18.0 | 0.7 | 0.9 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 793 | 1.0 | 1.6 | 1.9 | 8.0 | 10.5 | 7.4 | 12.7 | 57.0 | 89 | HYD | cm |
| B | 794 | 0.8 | 1.4 | 1.4 | 6.2 | 9.5 | 10.2 | 13.3 | 57.2 | 90 | HYD | cm |
| C | 795 | 0.8 | 1.2 | 1.4 | 6.8 | 11.1 | 10.5 | 11.9 | 56.3 | 93 | HYD | cm |
| D | 796 | 0.6 | 1.0 | 1.1 | 5.1 | 8.9 | 8.4 | 12.5 | 62.4 | 84 | HYD | cm |

**Profile: SP0110**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 820 | 6.72 | 6.03 | 0.1* | 40.7 | 0.8 | 9.2 | 6.5 | 1.3 | 1.0 | 0.2 | 98 |
| B | 821 | 6.86 | 6.23 | 0.2* | 25.3 | 0.8 | 10.8 | 7.7 | 1.7 | 0.8 | 0.0 | 94 |
| C | 822 | 7.49 | 6.80 | 0.2* | 13.3 | 0.7 | 11.0 | 8.3 | 1.6 | 0.4 | 0.1 | 95 |
| D | 823 | 8.30 | 7.63 | 0.3* | 11.3 | 0.6 | 13.2 | 18.8 | 2.1 | 0.4 | 0.2 | 163 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 820 | 1.5 | 14.9 | 17.6 | 21.7 | 12.4 | 9.5 | 4.5 | 20.4 | 29 | HYD | |
| B | 821 | 6.7 | 15.8 | 16.1 | 19.3 | 10.4 | 5.9 | 2.1 | 24.6 | 31 | HYD | |
| C | 822 | 7.8 | 16.9 | 14.8 | 17.7 | 10.4 | 7.1 | 4.9 | 21.5 | 38 | HYD | |
| D | 823 | 10.4 | 19.2 | 16.8 | 14.5 | 7.2 | 4.1 | 2.1 | 26.7 | 40 | HYD | |

**Profile: SP0115**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 835 | 5.49 | 4.32 | 0.0* | 27.0 | 0.4 | 2.8 | 1.1 | 0.5 | 0.4 | 0.0 | 71 |
| B | 836 | 5.40 | 4.64 | 0.0* | 5.8 | 0.3 | 4.3 | 1.3 | 0.9 | 0.3 | 0.1 | 60 |
| C | 837 | 5.59 | 4.77 | 0.0* | 5.7 | 0.1 | 3.6 | 1.2 | 0.6 | 0.3 | 0.1 | 61 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 835 | 6.1 | 21.6 | 34.4 | 19.9 | 6.7 | 3.7 | 2.7 | 5.4 | 22 | HYD | |
| B | 836 | 5.4 | 19.8 | 30.8 | 21.4 | 8.8 | 4.9 | 1.6 | 8.1 | 38 | HYD | |
| C | 837 | 4.8 | 20.9 | 34.4 | 18.7 | 6.8 | 2.2 | 0.9 | 11.9 | 27 | HYD | |

**Profile: SP0116**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 838 | 8.21 | 7.47 | 0.2* | 1.6 | 0.5 | 9.9 | 8.7 | 0.5 | 1.2 | 0.0 | 100 |
| B | 839 | 8.26 | 7.59 | 0.2* | 0.9 | 0.1 | 7.5 | 8.0 | 0.4 | 0.7 | 0.0 | 100 |
| C | 840 | 8.36 | 7.55 | 0.3* | 2.0 | 0.1 | 6.6 | 27.8 | 0.3 | 0.6 | 0.0 | 100 |
| D | 841 | 8.05 | 7.47 | 0.1* | 0.9 | 0.1 | 4.1 | 10.9 | 0.2 | 0.4 | 0.1 | 100 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 838 | 1.5 | 15.1 | 16.7 | 19.4 | 9.3 | 5.7 | 1.0 | 32.2 | 25 | HYD | |
| B | 839 | 26.6 | 24.2 | 15.5 | 14.2 | 6.1 | 2.3 | 0.4 | 10.6 | 67 | HYD | |
| C | 840 | 29.1 | 20.1 | 12.5 | 12.1 | 7.0 | 2.1 | 6.4 | 10.6 | 58 | HYD | |
| D | 841 | 27.8 | 24.3 | 17.4 | 13.6 | 5.5 | 3.5 | 1.7 | 6.7 | 55 | HYD | |

**Profile: SP0118**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 842 | 8.11 | 7.46 | 0.3* | 0.7 | 0.5 | 16.3 | 18.3 | 2.8 | 0.9 | 0.3 | 136 |
| B | 843 | 8.14 | 7.48 | 0.3* | 0.8 | 0.2 | 18.1 | 19.5 | 3.4 | 1.0 | 0.7 | 136 |
| C | 844 | 8.42 | 7.73 | 0.3* | 0.8 | 0.1 | 18.3 | 36.8 | 5.9 | 0.8 | 0.6 | 240 |
| D | 845 | 8.92 | 8.14 | 0.8* | 1.4 | 0.1 | 24.8 | 26.4 | 8.0 | 0.8 | 0.8 | 145 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 842 | 2.1 | 5.7 | 8.7 | 20.8 | 15.3 | 12.2 | 7.5 | 30.1 | 48 | HYD | |
| B | 843 | 2.4 | 5.5 | 8.0 | 19.1 | 15.1 | 9.9 | 11.0 | 31.6 | 55 | HYD | |
| C | 844 | 3.5 | 9.1 | 9.6 | 14.3 | 11.4 | 9.0 | 10.3 | 34.4 | 52 | HYD | |
| D | 845 | 3.1 | 5.3 | 6.0 | 14.2 | 4.9 | 8.7 | 11.0 | 48.4 | 50 | HYD | |

**Profile: SP0131**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 864 | 6.09 | 5.48 | 0.0* | 1.4 | 0.6 | 11.5 | 6.1 | 1.4 | 0.8 | 0.1 | 73 |
| B | 865 | 6.41 | 6.01 | 0.0* | 5.1 | 0.2 | 9.0 | 4.4 | 1.3 | 0.5 | 0.1 | 70 |
| C | 866 | 7.00 | 6.63 | 0.0* | 4.5 | 0.1 | 9.2 | 5.5 | 1.2 | 0.4 | 0.1 | 78 |
| D | 867 | 6.96 | 6.65 | 0.0* | 4.5 | 0.0 | 8.7 | 4.9 | 1.0 | 1.1 | 0.0 | 80 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 864 | 9.3 | 19.5 | 11.9 | 20.5 | 12.6 | 9.2 | 7.1 | 9.9 | 92 | HYD | cm |
| B | 865 | 6.2 | 19.0 | 11.5 | 21.9 | 13.6 | 12.6 | 6.1 | 9.1 | 90 | HYD | cm |
| C | 866 | 10.8 | 15.0 | 14.1 | 27.3 | 12.0 | 8.0 | 3.9 | 8.9 | 99 | HYD | cm |
| D | 867 | 8.9 | 16.4 | 14.1 | 26.6 | 12.6 | 8.9 | 4.0 | 8.6 | 101 | HYD | cm |

**Profile: SP0134**

| Sample | Labno | pHH2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 873 | 8.44 | 7.55 | 1.9 | 2.7 | 0.8 | 7.5 | 14.9 | 0.7 | 0.3 | 0.3 | 216 |
| B | 874 | 7.93 | 6.48 | 3.1 | 1.5 | 0.7 | 8.7 | 6.0 | 1.2 | 1.0 | 0.0 | 94 |
| C | 875 | 7.25 | 7.01 | 12.5 | 1.3 | 0.3 | 12.7 | 10.3 | 1.8 | 0.8 | 0.2 | 103 |
| D | 876 | 8.60 | 7.78 | 5.2 | 6.3 | 0.4 | 9.1 | 13.0 | 0.9 | 0.4 | 0.3 | 160 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 873 | 2.5 | 7.9 | 16.9 | 39.4 | 14.7 | 4.8 | 2.4 | 12.2 | 35 | HYD | |
| B | 874 | 1.2 | 3.5 | 7.2 | 41.4 | 23.2 | 9.1 | 3.6 | 12.6 | 47 | HYD | |
| C | 875 | 1.9 | 4.7 | 6.7 | 36.0 | 20.3 | 6.3 | 2.2 | 24.0 | 48 | HYD | |
| D | 876 | 0.3 | 0.6 | 2.1 | 51.6 | 25.9 | 3.2 | 1.0 | 16.3 | 46 | HYD | |

**Profile: SP0137**

| Sample | Labno | pHH2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 887 | 6.28 | 5.91 | 0.0* | 34.4 | 0.5 | 12.7 | 7.7 | 2.4 | 1.3 | 0.0 | 90 |
| B | 888 | 6.72 | 6.26 | 0.0* | 12.1 | 0.2 | 18.1 | 11.5 | 3.5 | 0.6 | 0.3 | 88 |
| C | 889 | 7.12 | 6.57 | 0.0* | 6.5 | 0.2 | 14.1 | 8.9 | 2.7 | 0.5 | 0.2 | 87 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 887 | 0.6 | 1.8 | 6.9 | 38.3 | 18.9 | 9.8 | 7.6 | 17.9 | 60 | HYD | |
| B | 888 | 0.6 | 2.0 | 7.6 | 45.1 | 2.7 | 5.4 | 3.9 | 33.4 | 52 | HYD | |
| C | 889 | 0.5 | 1.5 | 8.8 | 40.6 | 15.1 | 7.1 | 5.2 | 22.1 | 60 | HYD | |

**Profile: SP0141**

| Sample | Labno | pHH2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 903 | 0.00 | 0.00 | 0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| B | 904 | 0.00 | 0.00 | 0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| C | 905 | 0.00 | 0.00 | 0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| D | 906 | 0.00 | 0.00 | 0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| E | 907 | 0.00 | 0.00 | 0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| A | 933 | 6.36 | 5.38 | 0.1* | 31.5 | 0.5 | 6.2 | 2.7 | 0.8 | 0.8 | 0.3 | 74 |
| B | 934 | 7.14 | 5.93 | 0.1* | 7.1 | 0.3 | 12.8 | 6.5 | 1.8 | 0.7 | 0.8 | 77 |
| C | 935 | 9.21 | 7.69 | 0.6 | 7.7 | 0.4 | 15.1 | 14.5 | 2.5 | 0.7 | 3.0 | 137 |
| D | 936 | 9.44 | 8.37 | 2.9 | 5.8 | 0.1 | 15.8 | 6.1 | 2.1 | 0.7 | 12.4 | 135 |
| E | 937 | 9.36 | 8.48 | 5.0 | 6.4 | 0.1 | 14.7 | 16.9 | 2.1 | 0.8 | 13.7 | 228 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 903 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| B | 904 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| C | 905 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| D | 906 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| E | 907 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| A | 933 | 0.1 | 10.9 | 11.3 | 22.4 | 18.3 | 14.7 | 10.2 | 14.3 | 29 | HYD | om |
| B | 934 | 4.0 | 10.6 | 9.5 | 34.0 | 0.0 | 12.0 | 2.0 | 29.5 | 39 | HYD | |
| C | 935 | 5.2 | 9.4 | 8.4 | 15.8 | 13.6 | 10.1 | 8.3 | 31.1 | 43 | HYD | |
| D | 936 | 4.6 | 8.5 | 8.8 | 25.3 | 0.0 | 9.6 | 1.2 | 43.0 | 36 | HYD | |
| E | 937 | 0.0 | 7.0 | 10.5 | 26.6 | 0.0 | 10.9 | 8.4 | 38.0 | 38 | HYD | |

**Profile: SP0142**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 908 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| B | 909 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| C | 910 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| D | 911 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| A | 938 | 6.11 | 4.47 | 0.0% | 5.8 | 0.2 | 4.9 | 1.0 | 0.6 | 0.3 | 0.0 | 39 |
| B | 939 | 6.28 | 4.93 | 0.0% | 3.0 | 0.2 | 4.2 | 1.0 | 0.6 | 0.5 | 0.0 | 50 |
| C | 940 | 6.31 | 4.98 | 0.0% | 2.5 | 0.1 | 6.8 | 1.6 | 1.2 | 0.3 | 0.0 | 46 |
| D | 941 | 6.77 | 5.30 | 0.0% | 2.8 | 0.1 | 8.0 | 2.1 | 1.2 | 0.2 | 0.1 | 45 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 908 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| B | 909 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| C | 910 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| D | 911 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| A | 938 | 3.9 | 16.1 | 22.2 | 37.3 | 0.0 | 10.3 | 1.4 | 10.1 | 41 | HYD | |
| B | 939 | 4.2 | 18.3 | 26.2 | 22.4 | 9.1 | 4.3 | 3.4 | 12.5 | 27 | HYD | |
| C | 940 | 5.6 | 21.5 | 24.8 | 27.1 | 0.0 | 2.5 | 3.3 | 15.4 | 42 | HYD | |
| D | 941 | 0.1 | 16.9 | 26.2 | 30.5 | 0.0 | 3.4 | 4.3 | 19.2 | 40 | HYD | |

**Profile: SP0143**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 912 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| B | 913 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| C | 914 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| D | 915 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| E | 916 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| A | 942 | 9.10 | 7.29 | 0.3% | 21.1 | 0.2 | 7.3 | 3.0 | 0.7 | 0.7 | 2.5 | 95 |
| B | 943 | 10.50 | 9.68 | 3.2 | 16.2 | 0.1 | 18.7 | 13.4 | 0.9 | 1.1 | 22.1 | 201 |
| C | 944 | 10.64 | 10.30 | 10.9 | 31.9 | 0.1 | 37.9 | 2.4 | 0.7 | 1.8 | 59.2 | 169 |
| D | 945 | 10.69 | 10.33 | 10.5 | 28.0 | 0.0 | 35.0 | 3.0 | 0.3 | 1.2 | 64.4 | 197 |
| E | 946 | 10.60 | 10.16 | 8.6 | 19.9 | 0.1 | 34.6 | 1.7 | 0.6 | 0.9 | 43.6 | 135 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 912 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| B | 913 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| C | 914 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| D | 915 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| E | 916 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| A | 942 | 4.4 | 10.0 | 9.7 | 25.2 | 27.0 | 11.3 | 5.6 | 8.3 | 78 | HYD | |
| B | 943 | 0.0 | 7.2 | 9.7 | 21.7 | 18.3 | 9.2 | 7.4 | 27.4 | 67 | HYD | |
| C | 944 | 0.9 | 3.1 | 5.0 | 10.0 | 8.8 | 11.6 | 17.4 | 43.5 | 86 | HYD | |
| D | 945 | 1.0 | 4.1 | 5.3 | 6.6 | 5.5 | 11.4 | 19.6 | 46.7 | 75 | HYD | |
| E | 946 | 4.2 | 6.4 | 5.9 | 7.5 | 7.5 | 8.9 | 22.2 | 37.6 | 91 | HYD | |

**Profile: SP0144**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 917 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| B | 918 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| C | 919 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| D | 920 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| A | 947 | 6.48 | 5.80 | 0.1% | 30.9 | 0.4 | 6.1 | 11.9 | 2.3 | 0.1 | 0.0 | 234 |
| B | 948 | 6.66 | 5.59 | 0.0% | 24.0 | 0.1 | 4.3 | 7.9 | 2.0 | 0.1 | 0.0 | 233 |
| C | 949 | 6.69 | 5.31 | 0.0% | 22.6 | 0.1 | 4.5 | 7.5 | 2.7 | 0.1 | 0.0 | 229 |
| D | 950 | 6.80 | 5.53 | 0.0% | 20.9 | 0.1 | 3.8 | 7.5 | 2.3 | 0.0 | 0.0 | 258 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 917 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| B | 918 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| C | 919 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| D | 920 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| A | 947 | 5.0 | 20.6 | 30.8 | 22.4 | 7.0 | 1.8 | 1.7 | 10.8 | 42 | HYD | cm |
| B | 948 | 0.0 | 20.3 | 32.8 | 34.6 | 0.0 | 3.7 | 1.9 | 7.4 | 53 | HYD | |
| C | 949 | 0.0 | 16.1 | 35.4 | 29.1 | 7.4 | 3.1 | 0.2 | 9.1 | 45 | HYD | |
| D | 950 | 0.1 | 21.1 | 37.8 | 23.1 | 6.3 | 4.1 | 0.4 | 7.5 | 45 | HYD | |

**Profile: SP0145**

| Sample | Labno | pHh2o | pHcacl2 | EC | P | orgC | CEC | Ca | Mg | K | Na | PBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 921 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| B | 922 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| C | 923 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| D | 924 | 0.00 | 0.00 | 0.0% | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| A | 951 | 6.98 | 5.96 | 0.1% | 12.1 | 0.3 | 5.8 | 2.6 | 0.8 | 0.5 | 0.1 | 69 |
| B | 952 | 7.23 | 6.07 | 0.0% | 5.0 | 0.2 | 7.1 | 2.9 | 0.7 | 0.6 | 0.1 | 61 |
| C | 953 | 7.41 | 6.27 | 0.0% | 4.4 | 0.2 | 6.9 | 2.9 | 0.8 | 0.5 | 0.1 | 62 |
| D | 954 | 7.63 | 6.53 | 0.1% | 3.6 | 0.1 | 7.2 | 4.5 | 1.1 | 0.4 | 0.1 | 85 |

| Sample | Labno | vcS | cS | mS | fS | vfS | cSi | fSi | Clay | CECcl | Meth | Pret |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 921 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| B | 922 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| C | 923 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| D | 924 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | | |
| A | 951 | 0.0 | 6.1 | 7.4 | 65.2 | 0.0 | 6.8 | 3.6 | 12.3 | 37 | HYD | |
| B | 952 | 0.3 | 7.1 | 4.3 | 34.5 | 31.1 | 9.3 | 1.0 | 14.4 | 44 | HYD | |
| C | 953 | 6.0 | 6.1 | 7.2 | 32.3 | 28.0 | 7.5 | 2.1 | 12.5 | 49 | HYD | |
| D | 954 | 6.8 | 6.5 | 8.1 | 31.5 | 26.0 | 8.0 | 1.0 | 13.5 | 50 | HYD | |

## APPENDIX 4

### Soil Physical Characteristics

Tabel 1: Bulkdensities

| Observation | depth cm | Bulkdensity $g/cm^3$ (average of five samples) |
|---|---|---|
| SP141 | 6 - 45 | 1.53 |
| | 45 - 75 | 1.58 |
| | 75 - 110 | 1.63 |
| SP142 | 0 - 20 | 1.52 |
| | 20 - 50 | 1.51 |
| | 50 - 85 | 1.58 |
| SP143 | 10 - 25 | 1.55 |
| | 30 - 50 | 1.35 |
| | 65 - 85 | 1.33 |
| SP144 | 25 - 45 | 1.51 |
| | 55 - 75 | 1.52 |
| | 90 - 110 | 1.53 |

Tabel 2: Infiltration rates and Available waterholding capacity

| Observation | | Basic infilt rate cm/h | Time to reach basic infilt. (h) | AWHC mm/m | remarks |
|---|---|---|---|---|---|
| SP141 | 1 | 13.63 | 2.5 | 154 | |
| | 2 | 10.11 | 2.9 | | |
| | 3 | 13.48 | 2.1 | | |
| SP142 | 1 | 10.68 | 0 | | |
| | 2 | 46.81 | 1.3 | | Same as 1 but 23 cm topsoil removed |
| | 3 | 12.93 | 0.86 | | |
| | 4 | 19.45 | 1.5 | | Same as 3 but 20 cm topsoil removed |
| | 5 | 12.81 | 0.84 | | |
| SP143 | 1 | 0.06? (saline) | 8.32 | 119 | surface sealing |
| | 2 | 0.42? (saline) | 6.48 | | bare soil, slight sealing |
| | 3 | 2.64? (saline) | 3.0 | | slight grass cover |
| SP144 | 1 | 54.26 | 0.1 | 30 | |
| | 2 | 46.09 | 0.1 | | |
| | 3 | 40.48 | 0.2 | | |

## APPENDIX 5

### Information on Dolichos lablab

Dolichos lablab can be used for supplementary feed during the dry season, after mixing with crop residues. The ratio in which it should be fed to the animals is 1:2 or 1:3 (Dolichos:Crop residues + whatever is available from grazing and browsing).
It is a high quality food and contains 15-20% crude protein of the total dry matter (sorghum stubble has 5-6% of crude protein) and the whole plant is palatible.
Dolichos is an annual leguminose and as such it has the ability of fixating nitrates. Thereore it is very suitable to be included in a farming system, since it will at least maintain the N-level of the soil.
Dolichos is drought resistant. During the dry spells in the growing season, it will stop growing but will stay green and keep its nutritive value.
It has to be harvest before the first frost.
Under the present climatological circumstances in Botswana, Dolichos can give yields of 2-3 tons/ha., under reasonable management.
8 oxen need for the last 3 months of the dry season roughly 3 tons of dry matter. This means that 1 ha. planted under Dolichos can supply the required ratio. (Huesken J. 1988)

### Information on Maize

Maize is one of the most important cereals both for human and animal consumption and is grown for grain and forage.
When mean daily temperature during the growing season exceeds 20$^{o}$ C, as is the case in Botswana, early grain varieties take 80 to 110 days and medium varieties 110 to 140 days to mature.
The crop is very sensitive to frost, particulary in the seedling stage, but it tolerates hot and dry atmospheric conditions so long as sufficient water is available to the plant and temperatures are below 45$^{o}$ C.
The plant does well on most soils but less so on very heavy and compact clay as well as on very sandy soils. The soil should preferably be well aereted and well drained as the crop is susceptible to waterlogging. In general the crop can be grown continiously as long as soil fertility is maintained.
Maize is moderately sensitive to salinity. It appears relatively tolerant to water deficits during the vegetative and ripenning periods. Severe water deficits during the flowering period, particularly at the time of silking and pollination, may result in little or no grain yield due to silk drying. Water deficits during the yield formation period may lead to reduced yield due to a reduction in grain size.
The effect of limited water availability on maize grain yields is considerable and careful control of frequency and depth of irrigation is required to optimize yields under conditions of water shortage.
Under irrigation a good commercial grain yield is 6 to 9 tons/ha. (10 to 13% moisture).