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MAJOR SOIL TYPES
OF
JAMAICA
(Agricultural Chemistry Division)
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FORWARD

In November 1940 the Department of Agriculture published an Extension Circular No. 14 describing the main soils in the Islands.

Since that time a detailed soil survey, parish by parish, has been carried out by soil surveyors attached to the B.W.I. Soil Research Scheme operated by the Regional Research Centre with headquarters at the Faculty of Agriculture in Trinidad and detailed reports on nearly all the parishes of the Island are now available.

Over one hundred soil types have been recognized and described in the field by the soil surveyors from 1951 to the present time and instead of speaking in general terms about Alluvial soils or Richmond Shale soils, the Land Use and Extension Officers of the Ministry of Agriculture and Lands are now able to determine the exact soil type of any place of land for farmers all over the Island. Each soil type has been given a number for easy reference, and also carries the name of the district where it was first described. The name given to each soil type also bears some relation to the textural class in which the top-soil falls, e.g. sand, sandy loam, loam, clay, etc. For example in the Richmond Beds area described in Circular No. 14, at least four major soils with different properties have now been found. These are:-

- No. 41 - Belfield Clay Loam
- No. 43 - Highgate Clay
- No. 46 - Halls Delight Channery Clay
- No. 47 - Llandewey Clay Loam

For some time the need has been felt for a simple guide to the new system of soil classification with a simple description of each soil type to enable farmers to recognize the soils on their farms and the Agricultural Chemistry Division of the Ministry of Agriculture and Lands has prepared this revised circular which should be regarded as presenting additional and more precise information to Circular No. 14 and not as a substitute for it. The classification of the soil types into groups is exactly the same as that which was made in the original circular.

As all general fertilizer recommendations for crops are based on a knowledge of the soil types listed on this circular it is suggested that Extension Officers, Branch Organizers and farmers should study this Circular and make a serious attempt to learn how to recognize the soils which occur in their districts and on individual farms.

MAJOR SOIL TYPES OF JAMAICA

Only soils with a total extent of 1,000 acres or greater are described.

For easy reference, the soils have been grouped into Soil Series. To find your soil in these tables:-

- (a) determine the soil series by field observation;
- (b) study the various soils under the appropriate series (as given in Table I - VIII);
- (c) match the soil descriptions with the appearance of your soil in the field;
- (d) select the description which fits your soil then read "Soil No." and "Soil Type" from Table.

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V	Richmond Shale soils.
VI	Purple Conglomerate soils (Wag Water Conglomerate Soils).
VII	Soils derived from other shales conglo- merates, tuffs and sandstones.
VIII	Soils derived from Granite and Porphyry.

TABLE I

RECENT ALLUVIAL SOILS

These soils occur on the flood plains, along the banks and at the mouths of the main river system in Jamaica, mainly the Rio Cobre, Rio Minho, Wag Water, Rio Grande, Swift River, Plantain Garden River, Johnson and Yallahs Rivers and Milk River. These rivers transport pieces of shale, sandstone, limestone and other materials which are present in the topography from which they originate and flow to the sea.

These soils vary in texture from sands and loam to clay loam and are in general, the most fertile soils in the Island. They usually occur on A and B slopes and are generally regarded as Class I lands. Crops grown on these soils respond very well in fertilizer, particularly of Ammonia.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
15	Cave Valley Clay Loam	<u>Topsoil</u> - black loam <u>Subsoil</u> - dark brown loam (Upper Clarendon)	A deep soil, slightly acidic, high fertility, good internal drainage, poor surface runoff.
21	Water Valley Silty Clay	<u>Topsoil</u> - dark grey brown "mealy" clay <u>Subsoil</u> - paler coloured than topsoil; a "mealy" clay (St. Mary flat lands and Hanover).	A deep soil, free lime, high fertility, fair internal drainage, poor surface runoff.
24	Agualta Sandy Loam	<u>Topsoil</u> - dark reddish brown sandy loam <u>Subsoil</u> - Paler colour than topsoil and more sandy. (All over the Island).	A deep soil neutral, medium fertility, rapid internal drainage, a droughty soil.

Table I contd.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
25	Fontabelle Clay	<u>Topsoil</u> - dark grey brown clay <u>Subsoil</u> - much paler colour than top-soil, clay. (St. Mary, St. James, Hanover).	A deep soil, free lime, high fertility, medium internal drainage, poor surface runoff.
103	Agualta Loam	<u>Topsoil</u> - dark reddish brown clay loam to loam. <u>Subsoil</u> - dark brown clay loam. (Rio Minho plains, Clarendon).	A deep soil, neutral, High fertility, good internal drainage, poor surface runoff.
104	Agualto Clay	<u>Topsoil</u> - dark reddish brown clay. (Rio Minho and Wag Water river plains).	A deep soil, neutral, high fertility, fair internal drainage, poor surface runoff.
124	Whim Sandy Loam	<u>Topsoil</u> - dark brown sandy loam. <u>Subsoil</u> - paler coloured than topsoil and heavier. (Plains of the Bowers Gully in St. Catherine).	A deep soil, free lime, high fertility, rapid internal drainage, poor surface runoff.
127	Caymanas Clay loam	<u>Topsoil</u> - dark grey brown Clay loam. <u>Subsoil</u> - brown to yellow brown silty clay, becomes coarse with depth. (Rio Cobre plains in St. Catherine).	A deep soil, free lime, high fertility, good internal drainage, poor surface runoff.
128	Caymanas Sandy Loam	<u>Topsoil</u> - dark grey brown sandy loam. <u>Subsoil</u> - Yellow brown sandy, loam, becomes coarser with depth. (Rio Cobre plains in St. Catherine).	A deep soil, free lime, high fertility, rapid internal drainage, poor surface runoff.

TABLE II

OLD ALLUVIAL SOILS

These soils are generally heavier in texture, acid or highly acid and in many areas are saline. These soils occur mainly in the plains of St. Catherine and Clarendon. Where high salt concentrations are not present, the soil is fertile and responds well to fertilizer, particularly applications of nitrogen.

This group also includes the "inland basin soils" which are highly acidic. These soils are found mainly in St. Thomas Ye Vale and Queen of Spain's Valley.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
106	Lluidas Gravelly Sandy Loam	<p><u>Topsoil</u> - dark reddish brown gravelly loam to clay loam.</p> <p><u>Subsoil</u> - dark reddish brown gravelly sandy loam becomes more gravelly with depth.</p> <p>(Lludias Vale in St. Catherine).</p>	<p>Moderately deep soil, very small amount of free lime, medium fertility, <u>rapid internal drainage</u>, a droughty soil.</p> <p><i>Recent alluvial</i></p>
122	Fellowship Clay	<p><u>Topsoil</u> - dark brown clay</p> <p><u>Subsoil</u> - light grey clay to clay loam with reddish yellow mottles.</p> <p>(in the vicinity of Fellowship in Portland).</p>	<p>A deep soil, small amount of free lime, medium fertility very slow internal drainage, poor surface runoff. High Watertable.</p>
202	Rhymesbury Clay	<p><u>Topsoil</u> - dark brown clay</p> <p><u>Subsoil</u> - yellow brown clay with fine shot and slight mottle when wet.</p> <p>(Rhymesbury and Clarendon Plains).</p>	<p>A deep soil, acid medium fertility, very slow internal drainage, poor surface runoff, may be saline.</p>

Soil No.	Soil Type	Description and Main Location	Important Characteristics
203	Four Paths Clay	<p><u>Topsoil</u> - dark brown clay with soft shot.</p> <p><u>Subsoil</u> - yellow brown clay which grades into a red mottled grey clay.</p> <p>(Clarendon, St. James, St. Elizabeth).</p>	A deep soil, very acid, low fertility, very slow internal drainage, poor surface runoff.
204	Four Paths Loam	<p><u>Topsoil</u> - very dark grey brown loam to sandy loam with shot.</p> <p><u>Subsoil</u> - yellow brown clay which grades into a red and grey mottled clay, shot increases with depth.</p> <p>(Clarendon).</p>	A deep soil, very acid, low fertility very slow internal drainage, poor surface runoff.
207	Brysons Clay Loam	<p><u>Topsoil</u> - dark brown clay loam.</p> <p><u>Subsoil</u> - brownish yellow clay with grey and red mottles with abundant iron concretions.</p> <p>(Clarendon and St. Elizabeth)</p>	A deep soil, very acid, low fertility, slow internal drainage, poor surface runoff.
210	Churchpen Clay	<p><u>Topsoil</u> - brown to dark brown silty clay with small black shot.</p> <p><u>Subsoil</u> - brown to dark brown clay, slightly mottled when wet.</p> <p>(in vicinity of Church Pen, St. Catherine).</p>	A deep soil, slightly acid, low fertility, slow internal drainage, poor surface runoff.

Table II contd.....

Soil No.	Soil Type	Description and Main Location	Important Characteristics
212	Lodge Clay Loam (low salinity phase).	<p><u>Topsoil</u> - dark reddish brown clay loam.</p> <p><u>Subsoil</u> - slightly paler in colour and stiffer clay than topsoil.</p> <p>(Vicinity of Lodge in St. Catherine).</p>	A deep soil, neutral medium fertility, moderate internal drainage, poor surface runoff.
217	Bodles Clay Loam	<p><u>Topsoil</u>-- dark brown to dark gray brown clay loam to clay with some black shot.</p> <p><u>Subsoil</u> - pale red brown or grey brown clay with some yellow brown mottles.</p> <p>(Vicinity of Bodles in St. Catherine).</p>	A deep soil, slightly acid, low fertility slow internal drainage poor surface runoff, maybe saline in subsoil.
220	Sydenham Clay	<p><u>Topsoil</u> - very dark grey brown to black clay with some white specks.</p> <p><u>Subsoil</u> - pale brown to pale brownish grey clay with abundant small white specks; becomes sandy with depth and yellow brown loose sand may be encountered.</p>	A deep soil, acidic, medium fertility, slow internal drainage, poor surface runoff, maybe saline.
61	Linstead Clay Loam	<p><u>Topsoil</u> - dark reddish brown clay loam with shot or small concretions corrosion.</p> <p><u>Subsoil</u> - red clay which becomes red and yellow brown mottled clay below.</p> <p>(Uplands of St. Catherine and St. James.</p>	A deep soil, acidic, low fertility, slow internal drainage, surface runoff generally poor, erodes readily.

Table III

TABLE III
RED, BROWN AND YELLOW COLOURED SOILS
DERIVED FROM HARD WHITE LIMESTONE

This group includes both types of bauxite soils and the soils associated with them and covered a large area in the central and western plains of the Island, occurring mostly above 700 feet. Some soils consist of iron and Aluminum Oxide in high concentrations and variable amounts of silica. In these soils, (particularly the red coloured group) the maintenance of a satisfactory level of organic matter of great importance. These soils respond to the application of nitrogen and potash. Drainage is good. This group of soils has been commonly referred to as "Terra Rosa".

Soil No.	Soil Type	Description and Main Location	Important Characteristics
73	Chudleigh Clay	<u>Topsoil</u> - strong brown clay loam. <u>Subsoil</u> - yellowish red clay (All over the Island)	A deep soil, neutral, low fertility, very rapid internal drainage, surface runoff generally good.
74	Lucky Hill Clay Loam	<u>Topsoil</u> - dark brown clay loam <u>Subsoil</u> - paler coloured compact, stiff clay, may be slightly mottled. (All over the Island)	A deep soil, acidic, medium fertility, slow internal drainage, poor surface runoff.
75	Union Hall Stony Clay	<u>Topsoil</u> - dark brown stony clay. <u>Subsoil</u> - yellow brown or orange brown stony clay, hard white limestone below. (All over the Island)	A shallow soil, neutral, medium fertility, fair, internal drainage, surface runoff generally good.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
77	Bonnygate Clay Loam	<p><u>Topsoil</u> - brown or red brown loam or clay loam, in crevices or as a thin mantle over hard white limestone.</p> <p><u>Subsoil</u> - none; hard white limestone immediately below topsoil.</p> <p>(Throughout the Island).</p>	An extremely shallow soil, neutral to slight amount of free lime, low fertility, very rapid internal drainage, surface runoff fair.
78	St. Ann Clay Loam	<p><u>Topsoil</u> - red brown clay loam.</p> <p><u>Subsoil</u> - red or dusky red clay.</p> <p>(Throughout the Island)</p>	May be very deep, acidic, low fertility, very rapid internal drainage, erodes readily.
79	Bundo Clay	<p><u>Topsoil</u> - brown or red brown clay often with some shot.</p> <p><u>Subsoil</u> - red, yellow, brown and grey mottled clay.</p> <p>(Throughout the Island).</p>	A deep soil, highly acidic, low fertility slow internal drainage, poor surface drainage.

TABLE VI
MARL SOILS AND SOILS DERIVED FROM SOFT
WHITE LIMESTONE OR YELLOW LIMESTONE

These soils occur mainly on the north coast and on the east coast in areas below 700 feet elevation mark and are characteristically dark in colour, shallow and underlaid with marl. In general, these soils are heavy in texture and contain abundant free limestone. These soils may be regarded as Rondexinas.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
91	Killancholly Clay	<p><u>Topsoil</u> - very dark grey brown clay.</p> <p><u>Subsoil</u> - brownish yellow to reddish brown clay, marly or chalky limestone below.</p> <p>(All over the Island).</p>	A shallow soil, free lime, low fertility rapid internal drainage, rapid surface runoff.
92	Nonsuch	<p><u>Topsoil</u> - very dark grey brown clay.</p> <p><u>Subsoil</u> - grey brown mottled clay, marly or rubbly limestone below</p> <p>(Clarendon, St. Mary, St. James)</p>	A deep soil, neutral to slightly acidic, low fertility, slow internal drainage, poor surface runoff.
94	Carron Hall Clay	<p><u>Topsoil</u> - dark brown or dark grey brown clay.</p> <p><u>Subsoil</u> - brownish yellow clay, soft yellow limestone below.</p> <p>(All over the Island).</p>	A moderately deep soil, slight amount of free lime, medium fertility, fair internal drainage, surface runoff generally good.

TABLE V

RICHMOND SHALE SOILS

These soils occur mainly in the parishes of St. Mary and Hanover, with some areas in Portland and St. James. Soils are formed from shales or varying composition and grades but in general they weather rapidly into slightly acid soils rich in potash which are, however, very susceptible to slow erosion mainly because of the steep slopes on which they usually occur. These soils may be regarded as relatively fertile and respond well to fertilizer.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
41	Belfield Clay	<p><u>Topsoil</u> - brown clay.</p> <p><u>Subsoil</u> - yellow brown clay or silty clay weathered shale below.</p> <p>(All over the Island).</p>	<p>A deep soil, slightly acid, neutral of alkaline, medium fertility, fair internal drainage, surface runoff generally good. Free lime may be present.</p>
43	Highgate Clay	<p><u>Topsoil</u> - very dark grey brown clay.</p> <p><u>Subsoil</u> - pale brown mottled clay, weathered shales below.</p> <p>(Throughout St. Mary).</p>	<p>A deep soil, acidic, medium fertility, slow internal drainage, poor surface runoff.</p>
46	Hall's Delight Channery Clay	<p><u>Topsoil</u> - Pale brown to grey brown clay loam containing abundant fragments of hard shale.</p> <p><u>Subsoil</u> - partly weathered shale.</p> <p>(Throughout St. Mary and St. Thomas).</p>	<p>A very shallow soil, acidic, low fertility rapid internal drainage, surface runoff generally rapid, very erodible soil.</p>
47	Llandowey Clay Loam	<p><u>Topsoil</u> - dark brown clay loam.</p> <p><u>Subsoil</u> - yellowish brown or reddish brown loam, weathered shale below.</p> <p>(Yallahs Valley and other areas in St. Thomas).</p>	<p>A moderately deep soil, slightly acidic, medium fertility, fair internal drainage, surface runoff generally good.</p>

Table VI.....

TABLE VI

PURPLE CONGLOMERATE SOILS

(WAG WATER CONGLOMERATE SOILS)

These soils usually occur on steep slopes and are very erodible. The main areas in which they are found are Junction Road and other areas in St. Andrew, Job's Hill in St. Mary, Morgan's Valley area in Upper Clarendon and parts of Portland and St. James. Because of characteristic purplish colour these soils are easily recognized.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
38	Cuffy Gully Gravelly Sandy Loam	<p><u>Topsoil</u> - dark brown or dark red brown gravelly sandy loam.</p> <p><u>Subsoil</u> - dark red brown gravelly loam, gravel increases with depth until rotten conglomerate is met.</p> <p>(St. Mary, St. Andrew, Clarendon)</p>	A shallow soil, neutral, medium fertility, rapid internal drainage, rapid runoff, very erodible.

TABLE VII

SOILS DERIVED FROM OTHER SHALES, CONGLOMERATES,

TUFFS AND SANDSTONES

These soils are mainly heavy clay, highly acid and low in fertility and usually present some problems of internal drainage. They occur mainly in areas of St. James, Hanover and Guy's Hill area and in some areas of Clarendon.

Table VII.....

Soil No.	Soil Type	Description and Main Location	Important Characteristics
30	Sunbury Clay	<p><u>Topsoil</u> - very dark brown to very dark grey brown clay.</p> <p><u>Subsoil</u> - very pale brown clay with rust coloured mottles.</p> <p>(Clarendon Uplands)</p>	A deep soil, slightly acidic, low fertility slow internal drainage, poor surface runoff.
32	Wirefence Clay Loam	<p><u>Topsoil</u> - dark reddish brown clay loam.</p> <p><u>Subsoil</u> - dark reddish brown clay over highly weathered tuffs conglomerates.</p> <p>(Throughout the Island)</p>	A deep soil highly acidic, low fertility fair internal drainage, surface runoff generally rapid, very erodible.
34	Diamonds Gravelly Clay Loam	<p><u>Topsoil</u> - dark brown to very dark brown gravelly loam to clay loam.</p> <p><u>Subsoil</u> - brown to weak red gravelly sandy loam.</p> <p>(Uplands of Clarendon, St. Catherine, St. Thomas, Port-land).</p>	A shallow soil, acidic, medium fertility, rapid internal drainage, surface runoff rapid, a very erodible soil.
36	Donnington Gravelly Clay Loam	<p><u>Topsoil</u> - purple brown, grey brown or brown gravelly loam.</p> <p><u>Subsoil</u> - same as topsoil with pebbly conglomerate and fine volcanic ash below.</p> <p>(St. Mary and uplands of St. Catherine and Clarendon).</p>	Moderately deep soil, acidic, medium fertility, rapid internal drainage, rapid surface runoff, a very erodible soil.
95	Wait-a-bit Clay	<p><u>Topsoil</u> - brown clay</p> <p><u>Subsoil</u> - yellow red to yellow brown clay, some reddish and grey mottling as depth increases, rotten shales below.</p> <p>(Throughout the Island).</p>	A deep soil, acidic, medium fertility, fair internal drainage, surface runoff fair.

Table VII.....

Soil No.	Soil Type	Description and Main Location	Important Characteristics
96	Wild Cane Sandy Loam	<p><u>Topsoil</u> - brown sandy loam.</p> <p><u>Subsoil</u> - yellow brown or brown sandy loam, rotten sandstone below.</p> <p>(St. Catherine and Clarendon)</p>	A moderately deep soil acidic, low fertility, rapid internal drainage, rapid surface runoff, very erodible.
98	Deepdene Clay	<p><u>Topsoil</u> - very dark grey brown clay.</p> <p><u>Subsoil</u> - reddish yellow clay with faint mottles, intermottled red and grey clay below.</p> <p>(Uplands of Clarendon).</p>	A deep soil, highly acidic, low fertility, slow internal drainage, surface runoff fair to poor.
99	Boghole Clay	<p><u>Topsoil</u> - dark brown clay</p> <p><u>Subsoil</u> - dark brown clay with reddish yellow and pale brown mottles. Yellow or light grey mottled clay below.</p> <p>(Uplands of Clarendon).</p>	A deep soil, highly acidic, low fertility, slow internal drainage, poor surface runoff.
140	Moretown Clay Loam	<p><u>Topsoil</u> - dark brown clay loam</p> <p><u>Subsoil</u> - yellowish red to brown clay loam, becomes gravelly with depth, rotten shales below.</p> <p>(Uplands of Portland).</p>	A deep soil acidic, high fertility, fair internal drainage, surface runoff, generally good, an erodible soil.

Table VIII.....

TABLE VIII

SOILS DERIVED FROM GRANITE PORPHYRY

Soils derived from the granodiorite in the Salisbury plains and Lawrence Tavern areas of St. Andrew and Glengoffe area in St. Catherine. In general, these soils occur on steep slopes, are acidic, of low fertility and easily eroded. Their characteristic colour is pale brown.

Soils derived from the Newcastle porphyry in St. Andrew hills and parts of St. Thomas are shallow and of low fertility. They consist mainly of physically weathered rock, the topsoil having been eroded.

Soil No.	Soil Type	Description and Main Location	Important Characteristics
50	Flint River Sandy Loam	<p><u>Topsoil</u> - grey brown to yellow brown sandy loam.</p> <p>Subsoil - same as topsoil with light yellow brown sandy or gravelly rotten granodiorite below.</p> <p>(St. Catherine, St. Andrew, Portland).</p>	A very shallow soil, neutral to slightly acidic, low fertility, rapid internal drainage, rapid surface runoff a very erodible soil.
52	Valda Gravelly Sandy Loam	<p>Topsoil - dark brown gravelly sandy loam.</p> <p>Subsoil - dark brown gravelly sandy loam, grading into Newcastle porphyry.</p> <p>(St. Andrew and uplands of St. Thomas).</p>	A shallow soil, acidic, low fertility, rapid, internal drainage, rapid surface runoff very erodible.

References.....