

## About SoilMapp

### What is SoilMapp?

SoilMapp for Android is a free app that provided soil information at any location in Australia.

You can use SoilMapp to:

- learn about the soil on your property
- view maps, photographs, satellite images and data about local soils
- uncover your soil's physical and chemical characteristics, including acidity (pH), soil carbon, water storage capacity, salinity and erodibility.
- help manage non-irrigated crops and develop input data for yield prediction

### Is SoilMapp for me?

SoilMapp make soil information accessible anywhere to help Australian farmers, consultants, planners, natural resource managers, researchers and soil enthusiasts.

### What data does SoilMapp use?

SoilMapp provides direct access to the best national soil data and information from the Australian Soil Resource Information System (ASRIS) ([www.asris.csiro.au](http://www.asris.csiro.au)) and APSoil, the database behind the Agricultural Production System Simulator (APSIM).

ASRIS includes the descriptions from reference sites, CSIRO National Soil Archive ([www.clw.csiro.au/aclep/archive](http://www.clw.csiro.au/aclep/archive)) sites and the Australian Soil Classification map.

APSoil (<http://www.apsim.info/Products/APSoil.aspx>) is a database of soil water characteristics to help estimate Plant Available Water Capacity for individual soils and crops. It covers many cropping regions of Australia and is regularly updated. It is designed for crop simulation modelling and agronomic practice.

### How does it work?

Simply tap on the map and select a data source to view information on Australian soils. Search for your area of interest by zooming in or using the GPS to find you current location.

Users can choose from four data sources: ASRIS Map Discovery, ASRIS Site, CSIRO Soil Archive Site and APSoil Discovery.

### How accurate is SoilMapp?

Information provided through SoilMapp represents the best available, nationally consistent data collated and delivered through ASRIS and APSoil. This data may not be current or complete but is the most accurate information available.

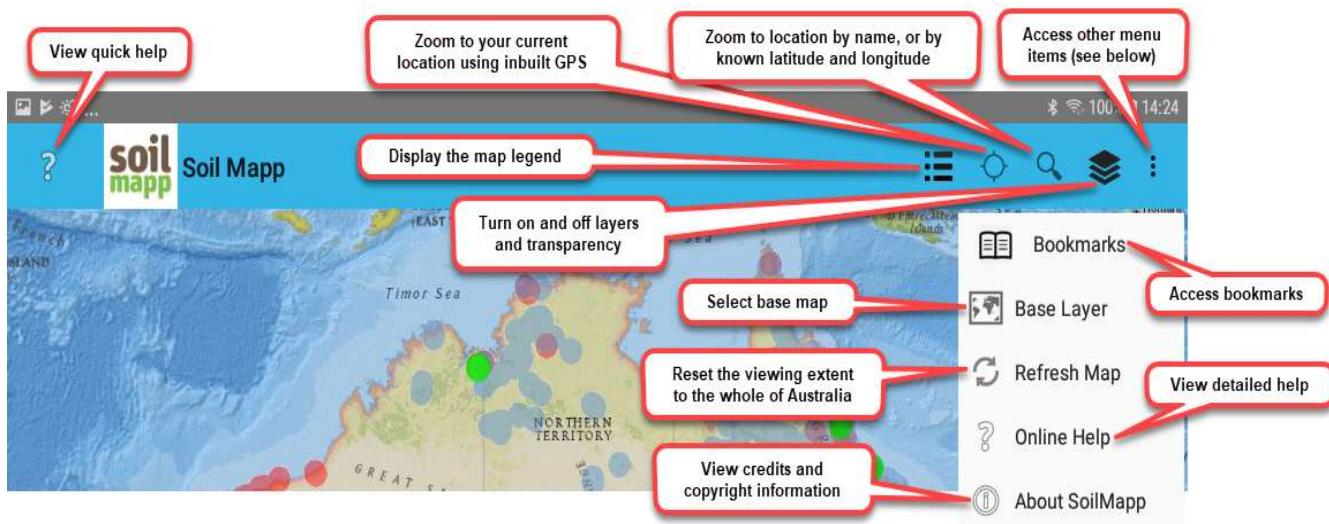
### Permissions

Any user details, data or statistics collected through use of this app can be used by CSIRO for assisting the delivery of Australian soil data and information to the community.

## Contact us

Please email [asris@csiro.au](mailto:asris@csiro.au) with all inquiries and comments.

## How to use SoilMapp



## Helpful Hints

- SoilMapp relies on a network connections (WiFi, 3G, or 4G) to obtain soil maps and information
- Some information can be saved via bookmarks and accessed off line
- SoilMapp will open to the last location you searched for, with the layers that you set turned on.

## How to view your current location:

- Ensure your GPS is switched on in your Android location settings
- Zoom to your current location with a single tap to the navigation bar
- The 'select data source' pop-up will appear and indicate the available informations sources for your current location.

## How to view a location of interest:

Navigate to a location of interest using one of the following methods:

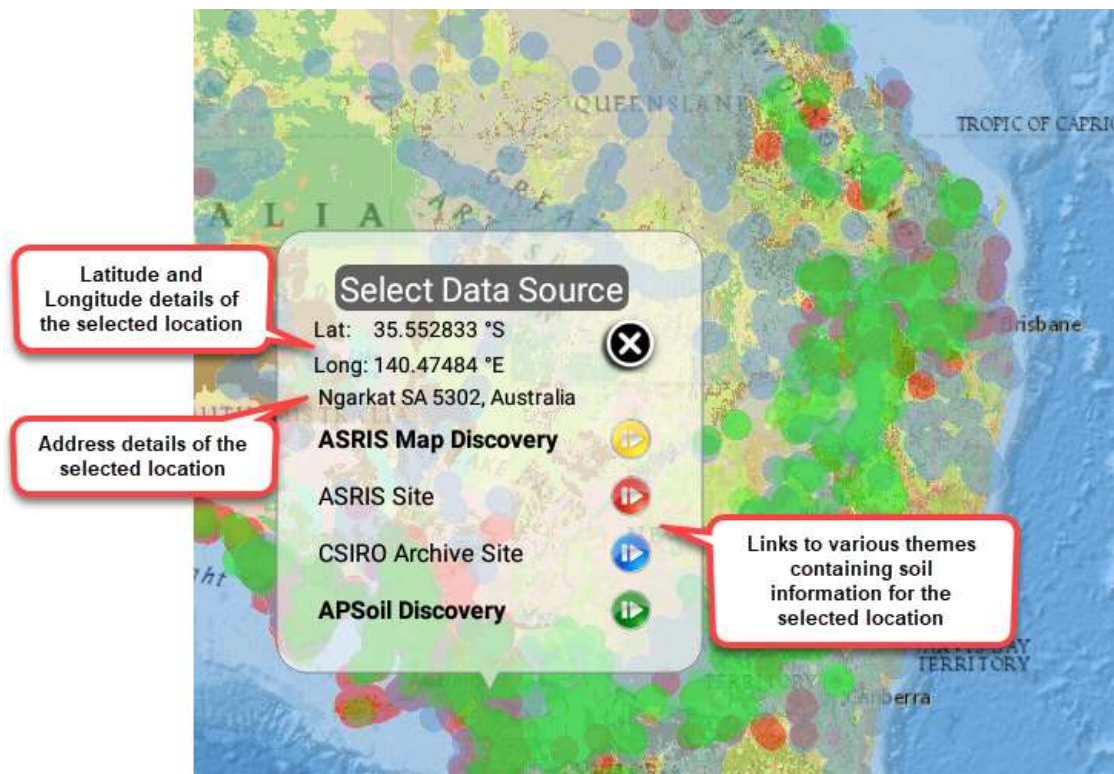
- Zoom in with a double tap or pinch open
- Zoom out with a pinch close
- Drag your finger across the display to move the map
- Single tap on and enter the latitude and longitude (GDA 94) of your location of interest in the 'find location' pop-up and tap 'find'.

## How to view soil information

- To find details about soils at a particular location, apply a single tap to the map. You will then be asked to select a data source.
- The data sources are:

1. ASRIS Map Discovery
2. ASRIS Site
3. CSIRO Archive Site
4. APSOil Discovery

- The available data sources are indicated by an illuminated arrow
- The areas of Australia that do not have intensive land uses (i.e. rangelands and dry interior) have limited soil information.



## ASRIS Map Discovery

The screenshot shows the ASRIS Map Discovery interface. At the top left is a 'Return to map' button. The main header includes the 'soil mapp' logo and 'ASRIS Map Discovery'. Below the header is a navigation bar with tabs for 'SOIL TYPE', 'REFERENCE PROFILE', and 'SUMMARY DATA'. On the right side, there are icons for 'Bookmark details' and a confirmation prompt: 'Confirm that the selected soil (or close variant) occurs at the pinned location'. The main content area is divided into three sections: a map on the left showing a 'Selected location' and a 'Selected ASRIS candidate' (Bleached-Orthic Tenosol Dune); a central text area titled 'TENOSOLS: Weakly developed soils' with a list of characteristics and a small map of Australia; and a bottom section showing 'Detailed soil data for selected candidate' with four soil profile photographs. A callout points to the 'Bleached-Orthic Tenosol Dune' entry in the soil list, stating it is a 'Medium likelihood soil candidate based on the ASRIS information'. A 'Likelihood indicator' callout points to the color-coded circles next to the soil names.

The Australian Soil Resource Information System (ASRIS) Map Discovery is available for all locations in Australia.

The most detailed data is only available in intensively used agricultural areas (ASRIS level 5, ~1:100 000 scale). Intermediate data is available for most of Australia, with complete coverage for South Australia, Western Australia, Queensland and Victoria (ASRIS level 4, ~1:250 000 scale). The Atlas of Australian Soils is used when no other data is available (1:2 000 000 scale).

The ASRIS map discovery screen contains:

- A list of likely soils at the location of interest (bottom left)
- A location map pinned with the location of interest (top left)
- A set of information tabs (right).

The **soil list** reflects the soils that are associated with the soil map unit identified by the locations of interest. The soil list is not exhaustive. It represents the dominant soil types identified at the time of the survey. The likelihood of the soil occurring at the locations of interest is colour coded (high, medium and low).

The **information tabs** provide general information on the Australian Soil Classification at the level of Soil Order (soil type tab), a description of the reference profile (from the originating survey), and summary data of the idealized soil.

You can bookmark the current ASRIS Map Discovery screen (saving all soils and all tabs), by tapping and following the prompts. Bookmarks can be accessed via the main map screen even when offline.

***You can help SoilMapp*** for Android by confirming that the selected soil (or close variant) occurs at the pinned location. Tap the plus icon on the navigation bar and follow the prompts. The information will be returned to ASRIS and will assist with map validation.

Return to map



### SANDY LOAM OVER POORLY STRUCTURED RED CLAY

**General Description:** *Hard setting sandy loam to clay loam abruptly overlying a coarsely structured and dispersive red clay, calcareous with depth*

**Landform:** Lower slopes, outwash fans and valley floors.

**Substrate:** Clayey alluvium or (at this site) highly weathered basement rock

**Vegetation:**



<b>Type Site:</b>	Site No.:	CM911	1:50,000 mapsheet:	6630-1 (Burra)
	Hundred:	Ayres	Easting:	298600
	Section:	496	Northing:	6278350
	Sampling date:	21/03/2000	Annual rainfall:	480 mm average

Lower slope of low rise, 2% slope. Hard setting surface with no stones.

**Soil Description:**

The locations of ASRIS sites are indicated by red dots on the map. These sites are sourced from the State and Territory agencies and are often the reference profiles for the soil survey in which they were collected. The soil description that accompanies these sites usually includes soil morphology and chemistry, and may include soil and landscape photographs.

To view ASRIS site descriptions:

1. Turn on the layer with a single tap and drag the ASRIS Site layer slider to on
2. Zoom in to an area of interest where an ASRIS site is present
3. Tap on the screen to see the 'select data source' pop-up
4. Tap the illuminated red ASRIS site arrow. If the red arrow is dull you will need to repeat the process and more accurately tap on the desired ASRIS site. Zooming in close to the locations of interest will help SoilMapp for Android's accuracy.

## CSIRO Soil Archive Site

The CSIRO Soil Archive Sites are indicated by blue dots on the map. These sites represent the soil profile data and soil samples holdings for the CSIRO National Soil Archive. To find out more about the Soil Archive visit -[www.clw.csiro.au/aclep/archive](http://www.clw.csiro.au/aclep/archive)

**Return to map**

**Soil profile data and soil sample holdings of the CSIRO National Soil Archive**

**Project Name:** Rhynie Soil Survey  
**Project Code:** Rhynie **Site ID:** A1235 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (SA)

**Site Information**  
**Desc. By:** N.J. McKenzie  
**Date Desc.:** 30/10/88  
**Map Ref.:** Sheet No. : 6629-18 1:10000  
**Northing/Long.:** 6216130 AMG zone: 54  
**Easting/Lat.:** 289530 Datum: AGD66  
**Locality:**  
**Elevation:** 287 metres  
**Rainfall:** No Data  
**Runoff:** No Data  
**Drainage:** No Data

**Geology**  
**Exposure Type:** Undisturbed soil core  
**Geol. Ref.:** No Data  
**Conf. Sub. is Parent. Mat.:** No Data  
**Substrate Material:** Slightly porous, Shale

**Land Form**  
**Rel/Slope Class:** No Data  
**Morph. Type:** Mid-slope  
**Elem. Type:** No Data  
**Slope:** 4 %  
**Pattern Type:** No Data  
**Relief:** No Data  
**Slope Category:** No Data  
**Aspect:** 40 degrees

**Surface Soil Condition (dry):** Hardsetting

**Erosion:**

**Soil Classification**  
**Australian Soil Classification:** N/A  
**ASC Confidence:** Confidence level not specified  
**Mapping Unit:** N/A  
**Principal Profile Form:** N/A  
**Great Soil Group:** N/A

**Site Disturbance:** Cultivation, Rainfed

**Vegetation:**

**Surface Coarse Fragments:** No surface coarse fragments

**Profile Morphology**  
A1 0 - 0.05 m Dark reddish brown (5YR3/3-Moist); ; Sandy clay; Massive grade of structure; Earthy fabric; Dry; Strong consistence; Field pH 7.5 (Raupach); Abrupt, Smooth change to -  
B21 0.05 - 0.1 m Reddish brown (5YR4/3-Moist); ; 5YR33. 20-50% , 15-30mm, Faint; Medium heavy clay; Strong grade of structure, 2-5 mm, Angular blocky; Smooth-ped fabric; Dry; Strong consistence; Common cutans. 10-50% of ped faces or walls coated. distinct: Few (2 - 10 %). Calcareous.

To view CSIRO Soil Archive site descriptions:

1. Turn on the layer with a single tap and drag the CSIRO Archive Site layer slider to on
2. Zoom to an area of interest where a CSIRO archive site is present
3. Tap on the locations of interest to see the 'select data source' pop-up
4. Tap the illuminated blue CSIRO Archive Site arrow. If the blue arrow is dull you will need to repeat the process and more accurately tap on the desired CSIRO archive site. Zooming in close to the location of interest will help SoilMapp for Android's accuracy.

## APSoil Discovery

The screenshot shows the APSoil Discovery interface. At the top, there's a navigation bar with a back arrow, the 'soil mapp' logo, and the title 'APSoil Discovery'. Below this, a map shows a location in 'Sally Earth (Kellerberrin 0410)'. A table displays soil analysis data for various depths (0-10 cm to 180-210 cm). The table columns include Depth (cm), Bulk density (g/cc), Air dry (mm/mm), LL15 (mm/mm), DUL (mm/mm), SAT (mm/mm), wheat LL (mm/mm), and wheat PAWC (mm). The 'wheat LL' and 'wheat PAWC' columns are highlighted in yellow. A 'Total: 122.2' is shown at the bottom right of the table. Below the table is a chart titled 'Volumetric water (mm/mm)' showing water holding capacity vs. Depth (mm) from 0 to 2000 mm. A dropdown menu for 'Crop: wheat' is visible. Callout boxes point to various features: 'Return to map', 'Soil and crop attributes of the selected soil candidate', 'Physical and chemical attributes of the selected soil candidate', 'Bookmark APSoil', 'Export updated datasheet', 'Reload information', 'Selected APSOil candidate', 'Selected location', 'Likely soil candidates based the the APSOil information', 'Editable properties displayed in blue', 'Selected APSOil candidate', 'Crop selection tool', and 'Chart of soil water holding capacity'.

Depth (cm)	Bulk density (g/cc)	Air dry (mm/mm)	LL15 (mm/mm)	DUL (mm/mm)	SAT (mm/mm)	wheat LL (mm/mm)	wheat PAWC (mm)
0 - 10	1.6	0.02	0.05	0.13	0.37	0.05	8
10 - 20	1.6	0.05	0.06	0.14	0.37	0.06	7.2
20 - 30	1.6	0.06	0.06	0.13	0.37	0.06	6.8
30 - 60	1.6	0.07	0.07	0.13	0.37	0.07	18.3
60 - 90	1.6	0.07	0.07	0.13	0.37	0.07	
90 - 120	1.6	0.07	0.07	0.14	0.37	0.08	19.2
120 - 150	1.6	0.07	0.07	0.13	0.37	0.08	15.9
150 - 180	1.6	0.07	0.07	0.13	0.37	0.08	15
180 - 210	1.6	0.07	0.07	0.13	0.37	0.09	13.2
Total:							122.2

APSoil ([www.apsim.info/Products/APSoil.aspx](http://www.apsim.info/Products/APSoil.aspx)) Discovery provides information on a particular soils's Plant Available Water Capacity (PAWC) and on the soil physical and chemical attributes, which may impact on a plant's capacity to extract moisture from the soil.

These data are used by crop and farming systems modellers, and consultants and farmers requiring information on the capacity of a particular soil to hold water for crop use.

All of the data in APSoil Discovery has been collecte at individual points in the landscape and should not necessarily be used to infer soil type or PAWC in surrounding areas. Local expert knowledge and the information provided in ASRIS Map Discovery can provide additional information on landscape and the soils likely to be present in the district.

Whilst there is information on over 900 soils from across the broad acre agricultural areas of Australia in APSoil Discovery, the numbers in particular districts will vary, with additional soils being



included as they become available. Additional information is available by downloading the APSOil database, which is linked to Google Earth ([www.apsim.info](http://www.apsim.info)).

### Viewing APSOil Discovery

To view the APSOil map discovery, tap the green arrow on the 'select data' pop-up after navigating to the location you wish to investigate.

The APSOil discovery screen displays:

1. A small map with the selected geographic position indicated by the blue pin
2. The green dots on the map are sites characterised for PAWC within a 30 kilometre radius of the location
3. The soil selected (highlighted) from the list is displayed on the map as a purple dot. This dot changes location as different soils are selected from the list, allowing the user to gain an understanding of the distance of particular sites from the present location
4. Soils that have been described in terms of the Australian Soil Classification are listed in bold with textural information provided in the second line. Where Australian Soil Classification information is not available, only textural information is provided.
5. Data relating to the selected soil are displayed on the screen as two sheets, Water and Analysis

#### Water sheet

This sheet provides tables and graphs of soil and crop attributes that are relevant for the soil selected.

Information on individual crop types (when available) may be selected using the crop selection tool. The soil information can be saved for future reference by electing the bookmark from the toolbar.

Columns with blue writing can be edited by tapping on the particular cell. Tapping the 'Update Graph PAWC' button once you've finished editing will update data in both the table and graph. The edited version of the soil may be bookmarked or exported to the APSOil database for use by the Yield Prophet simulator ([www.yieldprophet.com.au](http://www.yieldprophet.com.au)). Editing does not impact on the integrity of the soils within the main APSOil database.

To ensure that the edited soil is appropriately identified within the APSOil database, it is important that the following file naming structure is used: Yield Prophet Login Name\_personal identifier for the particular soil e.g. JoeBloggs\_Darribee-Grey Sand (The login name is the critical component, the remainder of the name is at the discretion of the user).

#### Analysis sheet

This sheet provides information on the soil's physical and chemical characteristics. General comments about the provenance of the data, the methodology used in sampling, or issues related to particular measurements are provided in the 'Comments' section below the table. The editing option is currently not available on this page.