USER GUIDE
EC-20, EC-20-400 Platemeters

Tru-Test™
DATAMARS

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Contents

Introduction

This guide takes you through the assembly and operation of your **Tru-Test EC-20 Platemeter**.

What is a platemeter?

A platemeter is a tool to help you make strategic farm management, feed budgeting and livestock decisions by identifying how much pasture is available to feed livestock. It compliments good on-farm management and industry standard advice around livestock feeding practices.

Your **Tru-Test EC-20 Platemeter** is a high precision engineered device for measuring the average height of pasture relative to density of the pasture. This is directly relative to the quantity of dry matter present (kilograms of dry matter – **kg DM/ha**).

The platemeter (equipped with *Bluetooth®*) is accurate and robust for measuring pasture cover in grass paddocks. It is straightforward to use and simple to understand and comes complete with an Android* or iOS* app for easy use and data management. The app displays pasture covers and can download paddock information and upload covers to your PC, the *Jenquip Pasture Management Desktop* software or third party platforms.

Your platemeter will become an invaluable tool in your farming operation for day-to-day feeding decisions and long term feed budgeting.

Key features

- Electronic Platemeter – Automatically records readings and calculates pasture cover.
- Accurate Measurement – Second only to cutting, drying and weighing pasture samples.
- Suited for medium to large operations (up to 200 paddocks)
- Collect and store pasture data across multiple paddocks and multiple farms.
- *Jenquip Pasture Management Desktop* software – Makes feed budgeting quick, easy and accurate, supplied on a USB stick, for use for a single farm.
- Download data to PC, *Jenquip Pasture Management Desktop* software or third party platforms.
- Supplied with *Jenquip EC-20 Pasture* app for use on your mobile device (tablet or smartphone, Android* or iOS*) for easy use and data management. Can operate with unlimited farms and paddocks.
- *Bluetooth*® capable with the app – to synchronise to your mobile device.
- Reliable – High quality materials and accurate manufacturing ensure reliability and long service life.
- Repairable – Without changing reading accuracy, allowing new results to be compared to old.
- Integrated counter case – protects the potentiometer, less to go wrong, less maintenance required.
- Tracking data - GPS location data is stored and can be exported as KML files for geographic tracking of where you have been in the paddocks (e.g. on Google Earth*).
- Ability to change kg DM/ha formula on the app.
- Measurement Range – 0 - 250 mm of compressed pasture height (0 - 400 mm with option extended shaft).
- Hand-calibrated – Ensures readings taken by all platemeters are comparable.
- 12 month warranty.

Safety notice

Your platemeter is designed only for measuring pastures. Do not use it for other purposes (e.g. it is not a walking stick).

Read and understand all the instructions before using the platemeter.

A copy of this user guide can be downloaded from livestock.tru-test.com

- Be careful around electric fences. Parts of the platemeter will conduct electricity.
- Store the plate correctly.
- Be careful that the wind does not blow the plate away - it could be dangerous.
- It is not to be thrown!

Compliance

UK declaration of conformity

Hereby, Datamars declares that the radio equipment type EC-20-1 is in compliance with the relevant statutory requirements.

The full text of the declaration of conformity is available at the following internet address: https://datamars.com/compliance

UK Importer:
Datamars UK,
Pheasant Mill,
Dunsdale Rd,
Selkirk TD7 5DZ,
United Kingdom

EU declaration of conformity

Datamars Limited hereby declares that the EC-20 and EC-20-400 platemeters are in compliance with the essential requirements and other relevant provisions of directives 2014/31/EU, 2014/53/EU and 2011/65/EU. The declaration of conformity may be consulted at livestock.tru-test.com/en/compliance

EU Importer:
Datamars Slovakia s.r.o.
Dolné Hony 6, 949 01
Nitra, Slovak Republic

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EC-20 models available

The **Tru-Test EC-20 Platemeter** is available in two models, for different markets:

Model	**EC-20**	**880 0001-620** (832844)

This connects to the mobile device (tablet or smartphone) via the *Jenquip EC-20 Pasture* app.

The EC-20 displays all the data on the app and does not have a display on the platemeters counter – the app uses GPS on the mobile device to record where you have taken each reading.

You can export the reports and KML data (geographic format) to an email so that it can be shared to a third party platform or opened on the PC.

You are able to work with data from unlimited farms and paddocks within the *Jenquip EC-20 Pasture* app.

Model	**EC-20-400**	**880 0002-661** (835155)

EC-20 model, with a 400 mm grooved rod extension for use in tropical climates with longer grass to measure. Only available in regions suited to its use (e.g. Australia).

Hardware requirements

PC requirements

- Windows* 10 and above (recommended), operable with Windows* 7 and above.

Bluetooth® operation

The *Bluetooth* module is set to its lowest power level so that battery life is conserved. The mobile device (tablet or smartphone) should be kept within four metres of the EC-20 platemeter to ensure that the wireless link is preserved.

Mobile device requirements

Your EC-20 platemeter operates in conjunction with your mobile device (tablet or smartphone), using the *Jenquip EC-20 Pasture app*.

Your mobile device will need the following features:

- Android* software v 4.3 or higher, or Apple iOS* v9 or higher
- *Jenquip EC-20 Pasture app* installed
- *Bluetooth*® to connect the mobile device to the platemeter
- A cellular or Wi-Fi connection, if you want to send files from the app to a PC

Supported devices

Apple iOS* (iPhone/iPad) devices supporting the minimum operating system version. To see a full list of compatible device models, visit the Apple App Store*.

Android* devices supporting the minimum operating system version. To see a full list of compatible device models, visit Google Play*.

Unpacking the box

Check that you have all of these items. If anything is missing, contact your supplier.

1 *EC-20 Platemeter User Guide*
(A5 booklet in plastic bag).

2 USB stick (in plastic bag).

3 Counter and shaft (or rod and shaft with meter).

> Supplied with a standard non-rechargeable 9 V battery.

4 Platemeter handle.

5 Heavy duty plastic plate.

Why use a platemeter?

Knowing how much **kg DM/ha** (dry matter once water is removed) is available in each paddock, helps answer important feed planning decisions:

Feed budgeting

- How much pasture is available to feed livestock?
- How long is the pasture available for?
- How much feed should be purchased, if needed?
  (farm advisers or nutritionists help you with feed budgets)
- Measuring feed is essential to producing healthy livestock, and running a successful farming business.

Rotational grazing

- Which mobs should be moved into which paddocks?

Strip grazing

- Which area within a paddock can feed animals the correct amount of kg DM/ha?

Feed forecasting

- How will current available pasture impact future available feed and budget forecasts?

Using the platemeter

A platemeter counts the number of times that the plate is moved up, as compressed grasses raise the plate when the platemeters' rod is 'plonked' into the ground.

This count or 'click' is remembered, and an equation is applied to the count to give an average measurement of **kg DM/ha**.

This is a measure of the kilograms of dry matter present per hectare.

It gives you an average reading of available pasture to help with feed planning for your livestock.

How does a platemeter work?

Default equation

The default equation applied:

> **Available pasture = total pasture needed, less the residual (grass left after grazing)**

Each click is counted, and an industry standard formula applied to produce an average **kg DM/ha**.

The equation can be adapted to suit the geographical location and farming practices of individual farmers. Farmers will take advice from farm advisors, or nutritionists to fine-tune their platemeter equation.

The calculation is done on the *Jenquip EC-20 Pasture* app on your mobile device (tablet or smartphone).

Rising Platemeter equation

The RPM Equation
Changing "clicks" to kg DM/ha

Average compressed pasture height $\times$ 140 + 500 = kg DM/ha

Readings from RPM $\times$ *the multiplier* + *the adder* = Kg DM/ha

*The equation of "average compressed height x 140 + 500" is the best fit for most situations and makes the data produced the easiest to understand (winter formula). Multiplier range is from 115 (when grass is growing the fastest) to 185 (used in very dry conditions of slow growth.)

ⓘ For details on this and how to change the formula, visit: jenquipEC20app.co.nz

🗎 If you have downloaded data to the *Jenquip Pasture Management Desktop* software the equation can be amended there via **Configuration** (customised for a single farm). However, it should be set there to exactly match the formula used in the counter and configured via the *Jenquip EC-20 Pasture* app.

Assembling the platemeter

💡 **Prefer to watch a video?**
Search **How to assemble and calibrate a Tru-Test Platemeter** in our Tru-Test channel on YouTube*.

The EC-20 platemeter is supplied in parts:

1 - The plate

The heavy-duty plastic plate sits on top of the pasture to establish average height and density. The area of the circle and weight of the plate have been carefully calibrated.

2 - The rod and shaft with meter

The grooved rod allows pasture to be measured in 0.5 cm intervals (clicks). The yellow shaft includes the electronic meter (or counter).

3 - The handle

The black handle can be adjusted to suit the height of the user.

To assemble the platemeter:

1   With one hand, hold the yellow shaft vertically with the counter towards the ground.

The grooved rod will slide down through the shaft.

2   With your other hand, screw on the plate, making
     sure that the smooth side of the plate is
     uppermost (ribbed side closest to the meter).

3   Turn the platemeter the correct way up (plate
     down) and place it on the ground.

     The grooved rod will protrude out of the shaft. With
     one hand hold the grooved rod and with the other
     hand, screw on the black plastic handle.

4   Use the buttons on the handle to adjust the handle so that it is a comfortable
     height.

4 - Assembling the grooved rod extension (EC-20-400 only)

These steps are only relevant to the **EC-20-400 platemeter**, intended for climates with longer tropical grasses.

Prefer to watch a video?
Search **How to assemble and calibrate a Tru-Test Platemeter** in our Tru-Test channel on YouTube*.

1   Screw the top handle (black in some models) into the grooved rod.

2   Turn the grooved rod upside down and slip off the O-ring.

3   Put four drops of thread locker into the female end.

4   Screw the threaded rod extension into the grooved rod and tighten firmly by hand.

Do not use tools as it may damage the grooved rod.

Wipe off any excess thread locker with a dry cloth.

If you are using the extension, ensure that you 'zero calibrate' the platemeter before use!

For details refer to section *Testing to see if 'zero calibration' is required*, see page 35.

Operating the platemeter

Switching the unit on and off

The platemeter is switched on and off using the black rocker switch at the back of the platemeter.

To turn the platemeter on:

- press the rocker switch up to the ON position (and you hear an *On* signal)

  The platemeter will switch off automatically after 15 minutes, if it is not in use.

The **Battery Status** LED shows green, orange or red to indicate the platemeter is switched on.

To turn the platemeter off:

- press the rocker switch down to the OFF position

The **Battery Status** LED is not illuminated when the platemeter is switched off.

The platemeter will turn off automatically after 15 minutes of no activity.

Checking the 'zero calibration' level

Platemeters usually do not need to be calibrated straight out of the box.

The platemeter should beep as the platemeter is lifted off the pasture, registering the plonk. If this is *not* happening, refer to information on testing to see if a 'zero calibration' is required, for details refer to *Testing to see if 'zero calibration' is required*, see page 35.

Using your platemeter

Take the platemeter on your farm walk, and every few steps "plonk" the platemeters rod into the ground. A registering 'click' can be heard.

The compressed grass raises the plate up a number of times, depending on the amount of dry matter beneath it. This is recorded as the number of 'clicks'.

Technique: Practice the technique of an uninterrupted slow walking pace, taking care not to "roll" the platemeter (this is where the plate is not square to the ground, and it will provide a false HIGH reading).
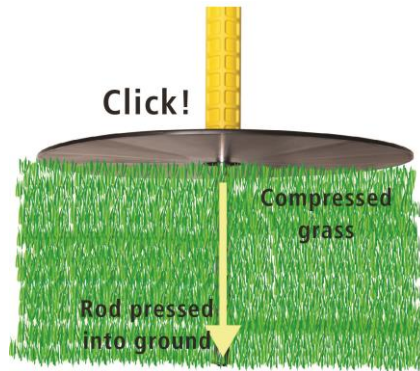
The meter should also be lowered consistently - not gently, but not forced into the ground either. Lowering the platemeter consistently rather than rolling it, will provide a more accurate reading.

Farm Walk: The more regularly you take readings the better. The more samples taken per paddock, the less margin of error. We recommend 30 or more samples per paddock, but if you have bad conditions (e.g. pugged paddocks) then more samples should be taken.

It is recommended that you walk each paddock in a rough **W-shape** in order to cover the best cross section of the pasture available.

Most paddocks will have areas of good growth and areas of poor growth. If recently grazed, the pasture may be clumpy. Ensure that your walk includes representative samples of both areas. Avoid tracks, stock camp sites and other uncharacteristic areas.

Take samples every three paces or so, rather than choosing the spot to sample by eye. This removes operator preference for long or short patches.

Be consistent. Plan the same walk every time (although it can be done in reverse). This allows for each walk to be compared with another.

When should a platemeter be used?

Depending on the region and time of year, a farmer typically does a farm walk every 10-18 days. This is to determine, among other things, how much pasture is available in that paddock. Astute farmers will take readings weekly, sometimes more often during critical times of the year and less frequently during times of static conditions

You can use this information to produce a feed wedge (and thus rank your paddocks from highest to lowest), and to create a grazing plan for different mobs.

Regular farm walks with a platemeter is essential in measuring, tracking and determining how much pasture is available to feed livestock.

Where should a platemeter be used?

- In a paddock, as part of a regular farm walk.
- Paddocks should be walked in a diagonal to "W" pattern.
- Randomly place each "plonk" consistently into the ground.
- In areas with dry conditions.
- Away from gates or fences where livestock have worn the pasture down.
- Avoid rain, snow or ground frost conditions as the grass won't compress properly for a good reading.

Hardware/software requirements

There are two software applications that can be used to work with data from your EC-20 platemeter.

- *Jenquip EC-20 Pasture* app for installation on your Android* or iOS* mobile device (tablet or smartphone).
- *Jenquip Pasture Management Desktop* software for installation on your Windows PC.

The desktop software is included with all platemeter models but it is not required for EC-20 users if you are using the pasture app as it performs the same functions (except it doesn't provide the reports).

Use of the Jenquip EC-20 Pasture app

A pasture management app specific for use with the EC-20 and EC-20-400 platemeters is available to download and install onto your Android* or iOS* mobile device (tablet or smartphone). This is for use in conjunction with your EC-20 platemeter for downloading and working with the data gathered from the platemeter. You can download and export the data for analysis in Microsoft Excel* or other pasture management software (e.g. the *Jenquip Pasture Management Desktop* software).

(i) For details, refer to section *Jenquip EC-20 Pasture app*, see page 23.

Use of the *Jenquip Pasture Management Desktop* software

EC-20 platemeter users can also make use of the *Jenquip Pasture Management Desktop* software. This is a simple to use computer program supplied with your platemeter on a USB stick. From there you can install it onto your Windows PC.

This software can be used to upload farm walk data from the platemeter (via a CSV file). It takes the information from your farm walk and produces ready-to-use reports. You also have the option to export the data for use in other pasture systems, further analyse in Microsoft Excel* or run any of the suite of reports.

Some users may find this more convenient to use than the *Jenquip EC-20 Pasture* app, in addition to providing access to the reports.

For details, refer to section *Jenquip Pasture Management Desktop software*, see page 26.

Support, warranty and servicing

For warranty and servicing information, please visit:

livestock.tru-test.com/product-warranty

For all support, phone:

Country	Phone Support
New Zealand	0800 AGDATA (0800 243282)
Australia	1800 248 774

Do not force or over-tighten the potentiometer. This may damage the platemeter and void the warranty.

Water blasting or submerging the unit will void the warranty.

When replacing the battery do not pull on the battery snap wires as these will become dislodged from the electronics, and will need to be repaired. This will void the warranty.

Service repair agent

All units to be returned for repair should be sent to:

| New Zealand	Jenquip	sales@nzagriworks.com
	8, Weld Street	
	Feilding 4702	
	New Zealand	
Australia	Industrial Technik Pty.Ltd.	admin@teknik.com.au
	Warehouse 32, Blue Ribbon Industrial Park	
	23 Killafaddy Road, St.Leonards	
	Tasmania 7250	
	Australia	

To reduce bulk and cost of shipping it is recommended you remove the plate and retain and send the rest of the unit to your service agent.

Jenquip EC-20 Pasture app

You can use the *EC-20 Pasture app* to communicate with your mobile device (tablet or smartphone, both Apple iOS* and Android*).

You can store paddock walk data, and export reports data for viewing or further manipulation in other pasture management systems.
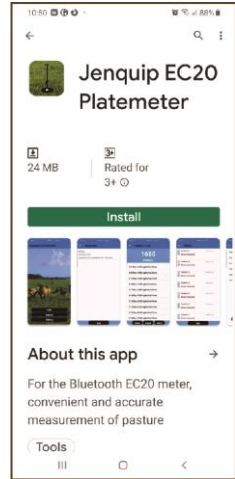
Using the app website

A website is available to provide up-to-date information on the use and support of the app. This includes videos to watch on adding of farms, checks before a farm walk, doing a farm walk, taking readings with the platemeter and *Bluetooth*® connection as you go to download to the app, adding paddocks, renaming and deleting, taking measurements, changing equations to be used in calculations, changing language to work with, along with general flow of how to use the app.

(*i*)   For use and support of the app, please visit: **jenquipEC20app.co.nz**

Downloading the app to your mobile device

Download the *EC-20 Pasture app* from the App Store* or Google Play*:

[Download on the App Store] [GET IT ON Google Play]

You can also access it via the stores from the website **jenquipec20app.co.nz**

Jenquip Pasture Management Desktop software

This software application can run on a Windows PC and is designed for pasture management.

Straightforward to understand and use, *Jenquip Pasture Management Desktop* software is a stand-alone package that can be used with all forms of pasture measurement, including pasture probes or sward sticks. It automatically calculates total pasture cover and total pasture dry matter values from entered pasture measurement readings; and compares these to user-defined target residual values to calculate available pasture cover and available pasture dry matter.

Different equations and formulas can be selected or entered for calculating pasture cover (kg DM/ha), and changed collectively or for individual paddocks.

An endless calendar keeps track of all pasture measurement farm walks entered, making it easy to find previous walks, enter additional data or compare results. Results can be viewed and printed off in four different reports, all available with a single mouse click.

All reports are permanently stored against the appropriate calendar date for later review.

In summary:

- Easy-to-use - a basic software package that avoids unnecessary complication and confusion.
- Automatic calculation - of pasture cover and pasture dry matter from pasture measurement readings.
- Allocate equations - to the entire farm or paddock-by-paddock, and enter your own equations at any time.
- Target residuals - user-defined residual pasture cover can be set separately for each paddock.
- Endless calendar - keeps a record of all measurements, calculations and reports.
- Ready-made reports - make printing off results quick and straightforward.
- Supplied on a USB stick.

Installing the *Jenquip Pasture Management Desktop* software

The *Jenquip Pasture Management Desktop* software is provided on a USB stick when you purchase your platemeter. Locate and run the **Installation** program on the USB stick to install it on your Windows PC.

Starting the *Jenquip Pasture Management Desktop* software

- select the desktop icon or **Start** menu option to start the application

Desktop icon and home screen:
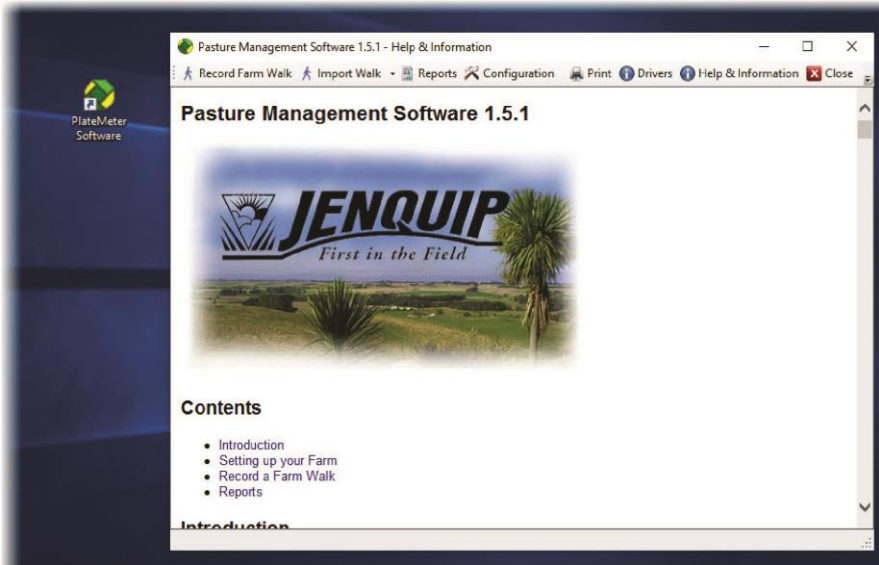
Uploading data from your EC-20 platemeter

To upload recorded farm walk data from your EC-20 platemeter:

1   Using the *EC-20 Pasture app* export your farm walk data to a CSV file.

    After completing your farm walk, to generate your CSV file of recorded farm walk data:

    - start the *Jenquip EC-20 Pasture* app on your mobile device (tablet or smartphone)
    - select **Reports**
    - tick the **CSV** checkbox
    - select the **Share** icon ( )

    The farm walk data is generated to a CSV file in local storage on your mobile device.

    You can also tick the **KML** checkbox and export the geographic details of your farm walk for use with mapping and 3D earth browser applications.
    Using the **Share** icon allows you to share the data electronically via any number of internet enabled methods (e.g. email, WhatsApp, Messenger etc.).

    For further details on generating farm data to a CSV file, please visit: jenquipEC20app.co.nz

    Ensure that your paddock numbers and names match exactly with those you specified in the *Jenquip EC-20 Pasture* app, and those you defined in the *Jenquip Pasture Management Desktop* software. The data will not be able to be imported into the *Jenquip Pasture Management Desktop* software unless they match exactly.

2   Email or transfer your CSV file to your PC (where you are running the *Jenquip Pasture Management Desktop* software), and ensure it is located in a folder you can navigate to.
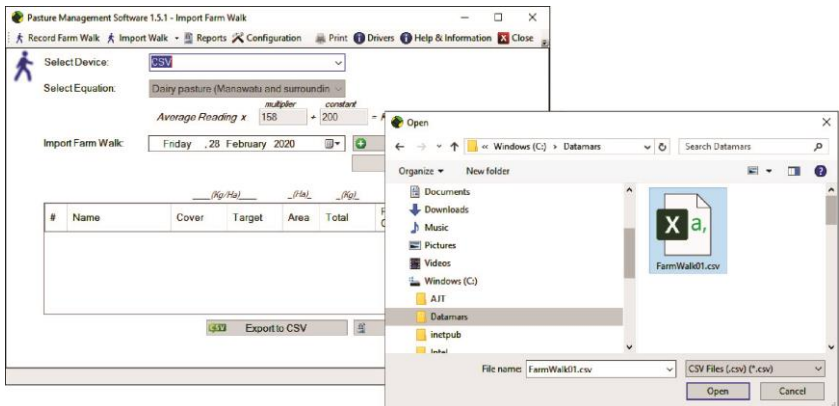
3   To import a CSV file of farm walk data:

- select **Import Walk** to present the main import and data display screen
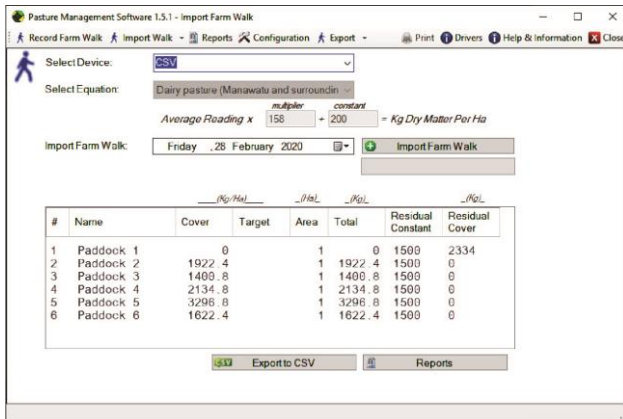- select **Import Farm Walk**
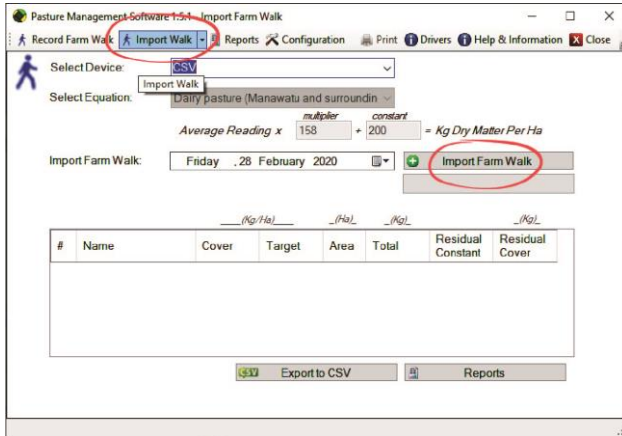
4   Navigate on your PC to select your CSV file of farm walk data:

- select the CSV file of farm walk data
- select **Open** to load and import the file into the J*enquip Pasture Management Desktop* software

5   Your imported farm walk data appears in the table on the screen.

Use the software with your farm walk data to generate reports or export it for other purposes.

Generating reports

 Prior to accessing and running any of the reports in the *Jenquip Pasture Management Desktop* software you need to download data from the platemeter (via CSV file) and import it into the desktop software. For details refer to *Uploading data from your EC-20 platemeter*, see page 29.

To report on your imported farm walk data:

1   Select **Reports** on the main toolbar to present the Reports selections screen
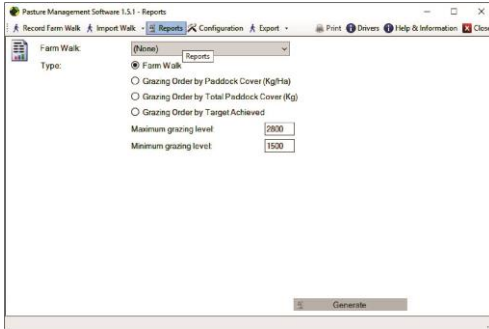
Alternatively, if you have just imported the data, select **Reports** (on the Import Farm Walk screen)
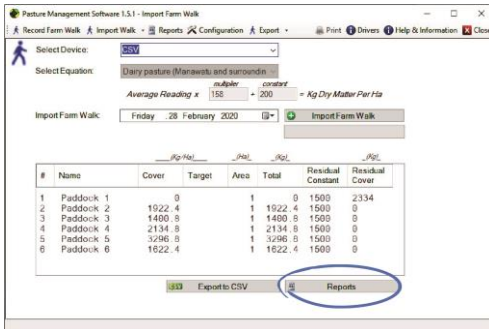
 For detailed help on the available reports select **Help & Information** on the main toolbar.

Maintenance after operation of your platemeter

Your platemeter has been developed over a number of years to be simple, effective and reliable. However, a little maintenance will ensure many years of trouble-free use from this platemeter.

Before use:	After assembling the plate onto the counter, move the plate up and down a few times to ensure no binding occurs. If its movement is restricted the reason must be found and rectified before the meter is used.
After use:	• Remove the plate and wash it clean.
	• Wash / wipe and dry the area around the bottom of the meter.
	• Move the counter so that all dirt and accumulated grass can be washed away.
	• Store the platemeter in its folded position.

> ⚠ **Do not use CRC or other lubricant/cleaner as this may bind the rod of the shaft to the slide tube and prevent use.**

✋ This is a precision instrument - look after it.

Water blasting or submerging the unit will void the wa

Use of the platemeter battery

The **Battery Status** LED shows green for the first half of the battery life. As the battery becomes weaker, the LED will gradually change to orange; and then red when it reaches 6 V.

From 6 V to 5 V, the LED will slowly flash red indicating there is approximately one hour of life left. Below 5 V, the unit will play a tune and turn off.

Changing the platemeter battery

Supplied with a standard non-rechargeable 9 V battery.

You have the option of using a standard non-rechargeable 9 V battery or a rechargeable one.

To change the battery:

- Unscrew the battery panel on the underside of the counter and remove the panel.

For non-rechargeable batteries:

- Detach the existing battery and dispose of responsibly.
- Attach a new non rechargeable 9 V battery into the battery compartment.

For rechargeable batteries:

- Detach the existing battery (lever the battery snap wire connections using a screwdriver) and recharge it using a separate battery charger.
- Attach a full recharged rechargeable battery into the battery compartment.

- Rescrew the battery panel on the underside of the counter and secure the panel.

⚠ Do not pull on the battery snap wires as these will become dislodged from the electronics and will need to be repaired. This will void the warranty.

Run-time of the platemeter battery

If you are trying to estimate run time when using a rechargeable NiMh battery pack, the platemeter typically consumes about 10-20 mA per hour when switched on.

A good quality alkaline battery should last approximately 28 hours or longer.

Testing to see if 'zero calibration' is required

To ensure that the platemeter accurately measures the compressed height of pasture, the platemeter must be calibrated. This requires setting a base level of zero so measurements can be benchmarked against this.

If the counter does not return to zero after each reading (or "plonk"), it will not record the measurement - hence the counter will not beep!

If the counter is removed from the grooved rod or receives a severe knock it may jump to a groove on the steel shaft which will put the counter out of calibration. It will need to be recalibrated.

To recalibrate your EC-20 platemeter:

1   Ensure the plate is fully down (place on a firm flat surface) and the unit is switched off. Proceed as follows:

2   Remove the protective rubber bung by levering it out gently using a flat-bladed screwdriver.

3   Using the flat bladed screwdriver, turn the steel shaft within the cog, anticlockwise until it stops.
     The platemeter has now been calibrated successfully.

The cog and steel shaft must remain stationary.

Do not turn the shaft beyond this point or you may damage the platemeter and void the warranty.

4   Switch off when you have finished.

5   Test the zero calibration by raising and lowering the plate all the way to the bottom several times. A beep should sound, and the kg DM/ha displayed as the plate falls. If it does not, repeat the steps above and retest.

6   When you have finished calibrating the platemeter, replace the rubber bung over the zero adjustment screw.

If the calibration fails to hold, then the potentiometer, which the cog drives, is probably faulty and will need replacing. This can occur with excessive wear often compounded by dust and dirt entering the dry bearing of the potentiometer.

Platemeters usually do not need to be calibrated straight out of the box.

Make sure that the potentiometer (Pot) Zero Calibration reading on the platemeter is correct. To do this you can perform a sample reading. The platemeter should beep as you lift it off the pasture, registering the reading.

The Bluetooth® link does not need to be active to do this test. If the *Jenquip EC-20 Pasture* app is connected (via your mobile device (tablet or smartphone)), the "Wireless/Error" LED should be showing in blue and will flicker briefly as data is being sent to the app.

If there is no beep and you continue to perform three sample readings in a row, the platemeter will likely play a warning alarm sound. This means that the potentiometer has not returned to "Zero" between each reading. No data is sent to the platemeter in this condition.

During operation of the platemeter (when you are taking readings by plonking) it will issue a warning alarm every 20 seconds until the platemeter is turned off, or a screwdriver is used to 'zero out' the potentiometer.

Instructions for disposal of product

This symbol on the product or its packaging indicates that this product (and its battery) must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

This product is supplied with a standard non-rechargeable 9 V battery.

For instructions on how to dismantle this product for recycling, email service.dept@datamars.com

Troubleshooting

Most problems are due to the platemeter being out of calibration (see following points as to why).

If in doubt it is worth performing a 'zero calibration' procedure, just to make sure it is correct (refer to *Testing to see if 'zero calibration' is required* , see page 35).

The platemeter does not 'beep' when taking a reading:

This means that the platemeter does not know where the bottom is and therefore does not record the reading.

Check	Resolution
The cog (or gear) has wound off.	Replace - Request a spare cog from your service agent.
Not connecting from EC-20 Platemeter to the *Jenquip EC-20 Pasture* app via *Bluetooth*®, or Bluetooth requesting a password.	Do not connect via *Bluetooth* settings on your mobile device (tablet or smartphone). Always connect via the *Jenquip EC-20 Pasture* app. ⓘ For use and support of the app, please visit: jenquipEC20app.co.nz
When plonking, and nothing is displaying in your mobile device (tablet or smartphone) app.	Check that your mobile device's Location setting is set On (this is not a setting within the app).

Potentiometer is damaged. The potentiometer is the shaft part that drives the cog. ✋ Under no circumstances should you apply CRC or a light oil to the potentiometer. It is a dry bearing, and any lubricant will render the potentiometer useless.	Send the platemeter to your service agent for repair.
Check that the metal shaft is coming right back into the base of the tube. Ensure that there is no grass or soil build-up preventing it from doing so. Also check the washer at the bottom of the shaft is not catching on the bottom of the plate.	Clean the platemeter.
Metal shaft is bent.	Straighten or request a replacement part from your service agent.
Grass or soil build-up inside case.	Clean the platemeter.
Flutes on steel shaft have become filled with grass or soil.	Clean the platemeter.

Notes: