FARMWORKS

TOOLS FOR MAXIMUM GROWTH

Electronic Rising Plate Meter Model F150

Instruction Manual

Support

Please note that this brand of platemeter is no longer serviced or repaired by the company previously known as Farmworks Precision Farming Systems.
If you require technical support or parts/servicing please contact Jenquip.

info@jenquip.co.nz
Tel 06 3236146

Battery Type: After considerable testing we have found that a normal battery will not sustain a heavy workload of constant measuring for a period of over three hours.

Should you need to replace the battery then ***please select an alkaline battery*** particularly if your workload is going to be beyond three hours.

CONTENTS

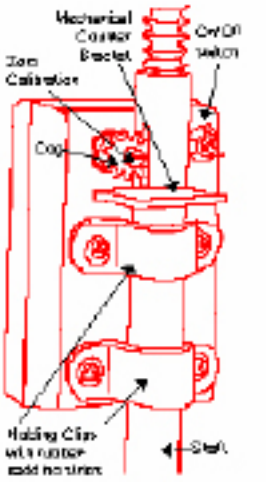
1. Assembling Your Rising Plate Meter

1. Screw on the handle to the threaded top of the graduated shaft.
2. Attach the plate to the lower end of the graduated shaft.

2. Attaching an Electronic Counter to a manual plate meter or to the plate meter following repair

1. Remove all existing mechanical counters from the Plate.
2. Take each plastic bracket and insert the

rubber- padding strip.



3. Lie the Electronic Plate Counter face down with the cog and the switch on the left. A table or workbench is ideal. Turn the cog on the Counter anti-clockwise (to the left) until it stops.

4. Hold the Plate Meter with the plate to the right and the mechanical counter bracket pointing up (if you have one). The slit in the shaft where the cog fits should face toward you.

5. Make sure the plate is fully closed to the bottom end of the shaft. If you have difficulty keeping the plate closed, bind some tape around the top of the shaft and the rack.

6. Place the shaft onto the back of the Electronic Counter, fitting the Cog into the slit of the shaft. The Cog should be situated mid-way in the slit.

7. Place the plastic brackets onto the shaft, aligning the holes in the brackets with the holes on the back of the Electronic Counter. Make sure the rubber-padding strip is wrapped completely around the plate shaft.

8. Place a screw and washer in each side of the two clips and half tighten.

9. Making sure that the cog is not too close or too far away from the rack, tighten the four screws. The rack should move easily inside the shaft. Turn it to make sure it moves easily in all positions. If it sticks then either the shaft or rack has become bent or corroded. We suggest returning it for replacement.

10. Place the Plate Meter in an upright position on a hard surface (to make sure the plate is fully closed).

11. Insert the battery (see Replacing the Battery below).

12. Follow the instructions for "Zero Calibration" under **Start up Options** (page 7)

3. Turning On and Off

The Electronic Plate Counter is turned on and off using the toggle switch at the back of the unit. Off is in the 'up' position. When the unit is off there are no numbers displayed on the LCD screen.

4. The Front Display Buttons

There are two buttons on the front of the unit labeled 'Cover' and 'Height/Count'. When the unit is first turned on the ***pasture height*** (in cm) will be displayed with one decimal place (i.e. 0.0 or 12.4).

The ***number of readings*** is displayed when the 'height/Count' button is pressed. The display will show a 'c' on the left side and the count on the right. Press the 'Height/Count' button again to return to the height display.

The ***pasture cover*** is shown by holding down the 'Cover' button. When the 'Cover' button is release the display will return to show the pasture height (or count - whatever was selected previously).

5. Start Up Options

There are four start up options:

1. **Zero Calibration.** When you have first attached the unit to the plate, the zero calibration will require checking. With the plate fully down and the unit turned off:
   a. Hold down the 'Height/Count' button while turning the unit on. The display will look like 'c000'.
   b. When correctly calibrated the last digit should flicker between 0 and 1. If it does not do that then turn the *blue* or *stainless* shaft (which supports the cog) at the back of the unit with a screw driver. As you turn you will see the numbers increasing or decreasing. Adjust the blue shaft until the last digit of the display flickers between 0 and 1.
   c. Press the 'Cover' button (or turn off and on) when you have finished.
   d. Test the zero calibration by raising the plate and replacing it several times. A beep should sound and the height displayed as the plate falls. If it does not, repeat the steps above and retest.
2. **Select Cover Equation.** There are three built-in standard plate equations. To select between these equations:
   a. Hold down the 'Cover' button while turning the unit on. The display will look like 'F 2'. Press the 'Height/Count' button to toggle between the three equations. The following equations are used:

   0 Cover (kgDM/ha) = 158 x height

   1 Cover (kgDM/ha) = 158 x height + 1000

   2 Cover (kgDM/ha) = 158 x height + 200

   3 Your own equation (see 3. below on entering one)

   b. Press the 'Cover' button (or turn off and on) when you have finished.

3. **Enter your Cover Equation.** To enter your own cover equation:

   a. Hold down both buttons while turning the unit on. When the display looks like 'F- -E' press the 'Cover' button. The display will then show you the first of two numbers you will enter. The first number is the equation 'add' number and the second the 'multiply' number. For example in equation 1 above, the first number (158) is the 'multiply' number and the second (1000) is the 'add' number.

   b. The 'add' number is 4 digits long and can range from 0 to 9999. The first digit will be blinking. Press the 'Height/Count' button to change this digit to a value between 0 and 9. When it is correct press the 'Cover' button. The next digit will blink. Repeat this process until the display changes to the 'multiply' number.

   c. The 'multiply' number has 3 digits and can range from 0 to 255. The first digit will be blinking. Press the 'Height/Count' button to change this digit to a value between 0 and 2. Press the 'Cover' button when it is correct and the next digit will blink. The last two digits can be entered from 0 to 9. Repeat this process until all digits are entered and the display returns to its normal state.

4. **Select Memory Bank.** The unit uses write-once memory to temporarily store readings for calculation of averages, and so that you can turn off the unit part way through a reading without losing any data.

   The unit contains 20 memory banks with at least 500,000 readings (100 paddocks x 40 readings/ paddock x 125 walks i.e. 2-5 years of data) able to be

stored in each memory bank. You will know to change the memory bank because the unit will start giving very incorrect readings.

To change the memory bank:

a. Hold down both buttons while turning the unit on. When the display looks like 'F- -E' press the 'Height/Count button. The display will change to look like 'E 1'. Press the 'Height/Count' button to toggle between memory banks 1 to 20.

b. Press the 'Cover' button (or turn off and on) when you have finished.

6. Taking Paddock Readings

1. Turn the unit on using the toggle switch at the back.
2. Reset by pressing the 'Cover' button and then immediately pressing the 'Height/Count' button. (Note You must press the 'Height/Count' button within 1.5 seconds of pressing the 'Cover' button).
3. Walk across the paddock taking readings every few paces. You will here a beep every time a reading is stored. The average height is immediately recalculated and displayed.
4. If you need to negotiate an obstacle (e.g. fence or creek) turn the unit off so that no readings are taken if the plate moves. On the other side turn the unit back on and continue where you left off.
5. When you have completed the paddock, press the 'Cover' button to show the average pasture cover.
6. Write down the average height and/or the average cover.
7. Repeat instructions 2 to 5 until you have completed every paddock.
8. Turn the unit off using the toggle switch at the back.

7. Replacing the Battery.

The Electronic Counter is powered by a single 9v battery. The use of an Alkaline battery is recommended though a standard heavy duty battery (costing much less) will still work well. An Alkaline battery used should give 40-50 hours continuous use. A NiCad rechargeable battery may also be used.

Before you replace the battery make sure the unit is turned off. Remove the counter from the black tube and loosen the screw in the middle of the back of the counter. Remove the battery retainer clip from the bottom of the counter. Remove the battery and take off the leads. Press the leads firmly onto the new battery and insert back into the battery case.Replace the battery case Tighten the central screw on the back and refit to the black tube. Make sure the counter is re-calibrated before you commence your walk again.

8. Using the Correct Measuring Technique

Differences in Rising Plate Meter measuring technique can alter pasture covers by as much as 600 kgDM/ha. This can be the difference between thinking there is adequate or even surplus pasture available and all is well, or pasture deficit and urgent action is required.

All pasture measurement techniques require calibration to convert the actual reading to dry matter. The technique that is used when walking around the farm taking the measurements needs to be the same as that used to calibrate the Rising Plate Meter. This technique is to place the plate on top of the pasture with no downward force, then push the shaft to ground level - making sure the plate is vertical when the shaft hits the ground.

Taking measurements by holding the Plate Meter 10cm or more above the top of the pasture and plunging the plate onto the

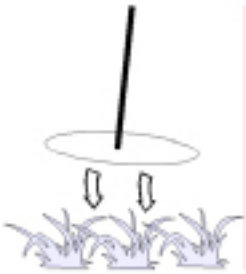
pasture will give lower, incorrect readings. This is because the downward force of the plate compresses the pasture more than occurred when the calibrations were down, giving a lower average height and cover readings.

These two techniques are illustrated below.

1. **Incorrect Technique**

   The Plate Meter is held above the pasture and plunged in one movement onto the pasture.

   The higher the plate is held and the greater the force applied, the lower the reading will be.

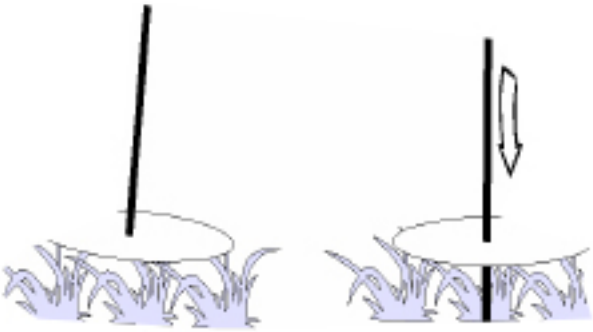


2. **Correct Technique**

   a. Place the plate on top of the pasture with as little pressure as possible

   b. Push the shaft down to ground level with the shaft vertical.

Using the correct technique we have found no differences in the readings between the FarmTracker Electronic Plate Meter and any of the mechanical Plate Meters. However, operators using the incorrect technique will get lower readings with any Plate Meter than those using the correct technique.



9. Caring For Your Plate Meter

1. **Avoid getting the counter wet.** The counter is in a robust case which is fairly water tight, however, as it is an electronic device, try to avoid getting the counter saturated.

2. **Keep the shaft clean.** The shaft can get a build up of dirt which affects the accuracy of the plate meter as the shaft will not run smoothly, and more force is required to take a reading. Clean the shaft with a poly pad or similar. Do not use lubricant as this will build up inside the black outer shaft.

3. **Remember to check the counter is switched off between cover walks.** The switch is easily left on which will waste the battery.

10. Trouble Shooting

1. *The counter doesn't beep when I take a reading*

   a. **Check the counter is zero calibrated** (see page 7)

      The counter can become uncalibrated if it receives a knock and the cog jumps a notch on the shaft. Also ensure the cog is not slipping on the blue/stainless pin. If this is the case, contact FarmWorks and we will replace the cog.

   b. **Check the cog is running smoothly on the shaft**

      If the counter is mounted too close to the shaft there will be quite a lot of friction when taking a reading. If the counter is mounted too far away from the shaft, the cog is liable to jump a notch easily.

   c. **Check the shaft is coming right back up at the end of a reading.**

      Ensure there is no grass or dirt preventing it from doing so.

      Also check the washer at the bottom of the shaft is not catching on the bottom of the plate.

2. *The readings do not seem accurate*

   a. **Check your cover equation**(see page 7)

      It is important to ensure you are using the correct equation to calculate the kgDM/ha value, given the pasture height the plate meter reads.

      Traditionally the equation F2 (158 x height + 200) was is used throughout New Zealand. The main exception being Taranaki where F3 (158 x height + 1000) was preferred. A more accurate calibration can be achieved by taking cuttings, or your consultant may be able to advise you on the most appropriate equation for you.

Today DEXCEL are promoting a new range of equations to more accurately reflect the changes in the growth stages of the pasture. There may be some modifications to these equations depending on the season and the influences of management practices.eg irrigation.

Check with your DEXCEL or other consultant consultant for the latest equations. At the time of printing the current equations are reported on the back cover of this booklet

b. **Ensure you are using the correct technique** (see page 10)

3. *The height reading does not equal the distance the shaft drops down*

That is correct. The height the meter reads for the pasture has been calibrated given the weight of the meter, and the size of the plate. That is, it is meant to squash the pasture down by around half.

4. *The counter beeps continuously, or has suddenly started taking very inconsistent readings.*

a. **Change the battery** (see page 10)

b. **Change the memory bank** (see page 9)

c. **If the problems persist, ring FarmWorks**

11. Warranty

Your Electronic Counter has a six month warranty from date of purchase.

In the unlikely event your counter fails to operate as it should, please return it to FarmWorks with an accompanying note explaining what is wrong with it and quoting the details below.

Name: _____

Date of purchase: _____

Counter serial number: _____

Warranty expiry date: _____

Repair for counters outside the warrenty period attract a minimum charge of **$67.50 including' GST** for the majority of repairs. Severe damage or abuse may prove to be uneconomic.

All requests for counter repairs must be accompanied by either a cheque or credit card advice before it is returned. (Jan 05)

Prices may change without notice

Equations for Rising Plate Meter

For your convenience the following are the current equations promoted by Dexcel since May 2001

Please refer to Page 8 of this booklet on how to alter and select the appropriate equation.

Months	Rising Plate Meter Equations
Winter (April-Sept)	Plate meter Reading X 140 + 500
October	Plate meter Reading X 115 + 850
November	Plate meter Reading X 120 + 1000
December	Plate meter Reading X 140 + 1200
January	Plate meter Reading X 165 + 1250
February	Plate meter Reading X 185 + 1200
March	Plate meter Reading X 170 + 1100

Equations may change without notice and are influenced by seasonal differences. If you are unsure of the current equation contact Dexcel. There are also different equations suited to summer wet and irrigated pasture which are not recorded here.

FARMWORKS Precision Farming Systems
Technical Support

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