GOULBURN VALLEY WATER
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Salty Soils

VELS

Science
English
Humanities—Geography
Technology
Thinking

Theme:

To determine the approximate salt content of different types of soil.

Preparation:

Collect and label four different types of soils. If you don't have a soil sample with high salinity you can 'spike' a soil sample by adding approximately 200g salt to 1kg soil.

Introduction:

Very few plants and animals can survive with soils that are high in salt. Therefore it is very important to choose the right type of crop to plant on a farm especially if the soil has a high salinity.

Long term use of land for cropping and producing animals with salty soils can cause loss of farm productivity.

MATERIALS

4 different soil types: loam, clay, sand and a 'spiked' sample loam

Table salt

Plastic cups with 50ml marks on them

Tablespoon

Distilled or tap water

EC standard solution

EC meter

Procedure:

- Divide students into groups, each group will test one soil type and discuss their results with the rest of the class after completing the test.
- Each group of students collects 2 tablespoons of one of the soil samples and place it into a plastic cup with a 50ml line marked on it.
- Grind the soil in the cup using the spoon until all the lumps are gone.
- Add distilled or tap water to the cup with the soil up to the marked 50ml line.
- Mix the soil and water together using the spoon and let the sample stand for 5 minutes.
- Calibrate the EC meter using a standard solution (pg. 2)
- Rinse the EC meter with distilled or tap water before testing.
- Stir the soil/water mixture again with the spoon.
- Use the calibrated EC meter to test the salinity of the soil/water mixture and record your results (pg. 2)

LESSON PLAN

Discussion:

Discuss the results for each of the 4 soil samples.

- Which type of soil had the lowest/highest EC reading?
- Which type of soil would you prefer to farm with?
- Using the table on page 4, what type of crops or animals could you grow using each of the soil samples?

EC Meter Calibration

These instructions are for use with the TD Scan 20 Conductivity Meter.

1. Remove cap from the meter.
2. Press the ON/OFF switch to turn the meter on.
3. Immerse the probes into the Standard Soloution (1413 EC's).
4. Allow the meter to stabilise.
5. Press CAL CON to move the meter into calibration mode. Adjust the reading to 141 by pressing the top switch to move the reading up to 1413 and CAL CON to move the reading down to 1413. Do not return calibration solutions to the stock bottle.
6. Thoroughly rinse the cell with distilled water in preparation for sample testing.

Method EC Meter

These instructions are for use with the TD Scan 20 Conductivity Meter.

1. Remove cap from the meter.
2. Press the ON/OFF switch to turn the meter on.
3. Immerse the probes into the sample (2cm is sufficient).
4. Allow the meter to stabilise.
5. Note the units on the screen. Could be uS or mS/cm.
6. Record the reading direct if units are uS/cm. Multiply the reading by 1000 if the units are mS/cm to convert to EC.
7. Record the EC reading.