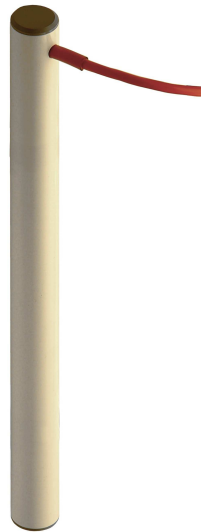




Soil Moisture Monitoring for Dryland Farming

Dryland farming depends on rainfall for its success. You can't make it rain, but you can find out if the rain you've had will provide enough moisture to bring your crop to harvest. You can find out not just how much rain you have had, but where it is being held in the soil and how it will impact crop growth. Soil moisture monitoring can improve your estimates of grain yield, quality and pricing. It can also help you make informed decisions about whether or not to apply fertiliser.



SOIL MOISTURE SENSORS

The dry-land monitoring station utilises a buriable, maintenance free soil moisture probe, the EnviroPro. The probe measures soil moisture using the well proven "Capacitance" effect. It is 80cm long and has sensors every 10cm (40cm 4 sensor and 120cm 12 sensor units are also available).

In addition to soil moisture, the EnviroPro measures soil temperature and soil conductivity at each level. Monitoring soil temperature allows you to pick when the soil is warm enough for germination to occur and for the plants to absorb nutrients. Soil conductivity (EC) monitoring helps you track whether nutrients are being leached through the soil profile and to monitor for rising water tables.

The EnviroPro can be buried just below the soil surface, or if you wish to work over the site, can be buried 15 or 20cm below the surface. Should you then wish to monitor happenings in the top 10cm, we can supply you with an insertion sensor (either GroPoint Lite or Steven's HydraProbe) which can be pushed into the soil at the surface. Prior to working the site, you would remove the sensor, coil up its cable and store it safely away.

Technical Data

Product	Dryland Soil Moisture Station
Transfer Method	GPRS over the GSM or NextG mobile phone network
Power Supply	Internal NiMH battery with 4.8W solar panel
Transmission range	Up to 35km(as limited by GSM standards)
Frequency	GSM: 850, 900, 1800, 1900 Mhz NextG: 850MHz
Connectors (all connectors IP67)	1 x Binder M9 7-pin to sensors 1 x Binder M9 5-pin to solar cell 1 x TNC Antenna connector
Sensor Options	EnviroPro: 40cm 4 sensor, 80cm 8 sensor or 120cm 12 sensor. Soil moisture, soil temperature and soil conductivity at 10cm increments along probe HydraProbe: Single level soil moisture / temperature / conductivity GROPoint Lite: single level soil moisture sensor for surface moisture readings Rainfall: tipping bucket rain gauge

COLLECTING THE READINGS

The dryland soil moisture station transmits data via the mobile telephone network to a central computer which posts the data to a web site. A radio data logger - the A755 addWAVE SDI - manages the process of reading the probe and transmitting the data back via the NextG mobile phone network to our server. The A755 does this economically using the "GPRS" data transfer system, keeping costs to a few dollars per month.

To view the readings you log in to the web server with your unique user name and password. If you want to keep your own, local copy of the data, you can purchase your own copy of the addVANTAGE Pro software and install it on your own computer.

ROOM FOR EXPANSION

An automatic rain gauge can be connected to the A755 to allow you to track rainfall at the site. Should you wish to track more climate information, we can add a combination weather instrument which monitors air temperature, relative humidity, wind speed, wind direction and barometric pressure. Where several growers in an area wish to access climate data, they can share the cost of the additional sensors. Each can then be given access to the weather data.