






Examples of Readily Available Soil Moisture Monitoring Instruments

Note that there are many other brands of soil monitoring systems. Those listed here are some that are well-recognised and readily available.

These tables summarise information in the handout for MGI Field Days April 2014. Available at www.mgiirrigation.co.nz

		Instrument	Cost (approximate)	Advantages	Disadvantages
Permanently installed systems		Aquaflex Buried sensors	\$1700 (single)- \$2900 (double) using MGI telemetry system	<ul style="list-style-type: none"> ➤ Moisture averaged through a soil depth ➤ Soil temperature measurement ➤ Good accuracy ➤ Data can be remotely down-loaded to an office computer. ➤ Season long record of data 	<ul style="list-style-type: none"> ➤ No regular farm visits by an expert ➤ Instrument is not portable
		Decagon Buried sensors	\$1 -\$2,000 (two sensors) using MGI telemetry system	<ul style="list-style-type: none"> ➤ Moisture measured at discrete soil depths ➤ Soil temperature measurement ➤ Good accuracy ➤ Data can be remotely down-loaded to an office computer. ➤ Season long record of data 	<ul style="list-style-type: none"> ➤ Not good in stony soils ➤ No regular farm visits by an expert ➤ Instruments are not portable
		HydroServices Irrigation scheduling services	\$1000-\$1200 /site/season	<ul style="list-style-type: none"> ➤ Regular on-farm expert advice. ➤ Very good accuracy ➤ Moisture measured throughout the soil profile ➤ Season long record of data ➤ Good in all soils 	<ul style="list-style-type: none"> ➤ On-going seasonal costs ➤ Does not produce continuous readings
Portable Systems		HydroSense II Campbell Scientific Portable	Two models, one with a stand. Both have datalogging. Approx. \$2,000	<ul style="list-style-type: none"> ➤ Can measure any number of locations ➤ Only need one unit for a farm ➤ No on-going seasonal costs ➤ Good accuracy ➤ Data from newer models can be remotely down-loaded to an office computer. ➤ Must choose probe length when purchasing 	<ul style="list-style-type: none"> ➤ Not suitable for very stony soils ➤ No regular farm visits by an expert ➤ Takes time to go out and take readings ➤ Difficult to push into drier or compacted soil ➤ Care needed for instrument
		Field Scout Spectrum Technologies (USA) Portable	Model: TDR300 Approx. \$1,800 TDR100 is similar, but no stand or datalogging.	<ul style="list-style-type: none"> ➤ Can measure any number of locations ➤ Only need one unit for a farm ➤ No on-going seasonal costs ➤ Good accuracy ➤ Data from some models can be down-loaded to a computer ➤ Can use different probe lengths 	<ul style="list-style-type: none"> ➤ Not suitable for very stony soils ➤ No regular farm visits by an expert ➤ Takes time to go and take readings ➤ Difficult to push into drier or compacted soil ➤ Care needed for instrument
Life Style		Electric fence standard or pocket knife	<\$10	<ul style="list-style-type: none"> ➤ Inexpensive 	<ul style="list-style-type: none"> ➤ Accuracy is questionable

	Instrument	To Purchase Contact:
Permanent systems	Aquaflex NZ designed and made; sold worldwide	<ul style="list-style-type: none"> ➤ Aquaflex 03 384 8900 (Christchurch) ➤ Watermetrics 0800 493 7626 (Lincoln) watermetrics.co.nz ➤ Aqualinc 03 964 6521 http://www.myirrigation.info For more information: www.streatahead.com – click on Aquaflex
	Decagon USA	<ul style="list-style-type: none"> ➤ Kirk Irrigation (Waimate) 03 689 8474 www.kirkirrigation.co.nz ➤ Aqualinc 03 964 6521 www.myirrigation.info
	HydroServices Irrigation scheduling services Irrigation management advice	Tel: 03 341 0970 Tony Davoren or Phil Neill 0274 579 863 www.hydroservices.co.nz
Portable Systems	Field Scout	Sold locally by:
	Spectrum Technologies (USA)	<ul style="list-style-type: none"> ➤ NZ Sports Turf Institute – www.nzsti.org.nz/soil-water/ can shop on-line or call 06 356 8090 ➤ ENVCO Tel: 0800 623 336 – phone for prices or send query from web site - www.envco.co.nz – look under ‘Soil’ For information and manuals: www.specmeters.com
	HydroSense II Campbell Scientific (USA)	Sold locally by: <ul style="list-style-type: none"> ➤ Kirk Irrigation (Waimate) 03 689 8474 www.kirkirrigation.co.nz ➤ Scottech (Christchurch) 03 374 2101 www.scottech.net For more information: www.campbellsci.com/hs2 or www.campbellsci.com/hs2p

FARM PLAN AND AUDIT REQUIREMENTS FOR SOIL MOISTURE MONITORING

While there is no absolute requirement for a farm to have a particular soil moisture monitoring system, the systems shown below will usually be expected.

Irrigation Type	Minimum system generally expected
Pivot or lateral move with permanent pasture on flat	Permanently installed system
Pivot or lateral move with cropping	Permanently installed system or portable system
K-line with pasture or crop	Portable system (stone-free soils only)
On hills / mixed slopes	Portable system or permanently installed system plus portable system

WATER AND CLIMATE DATA

You can now access your water use data recorded through the MGI telemetry system. To get your username and password, contact Richard de Joux, Environmental Consultancy Services, tel: 03 688 5522

Climate station data from MGI stations at Ikawai and Bells Pond can be accessed at www.mgiirrigation.co.nz – click on ‘Climate’

MGI has a Field Scout TDR300 portable meter that may be borrowed to try out. Contact Judith Neilson 0275 22 33 54 to arrange.

Kirk Irrigation (Waimate) can demonstrate the Hydro Sense II portable meter.