

# Agricultural Water Management & ICT

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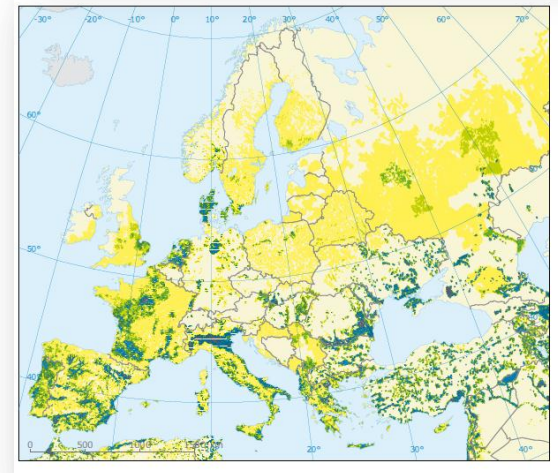


# Objective

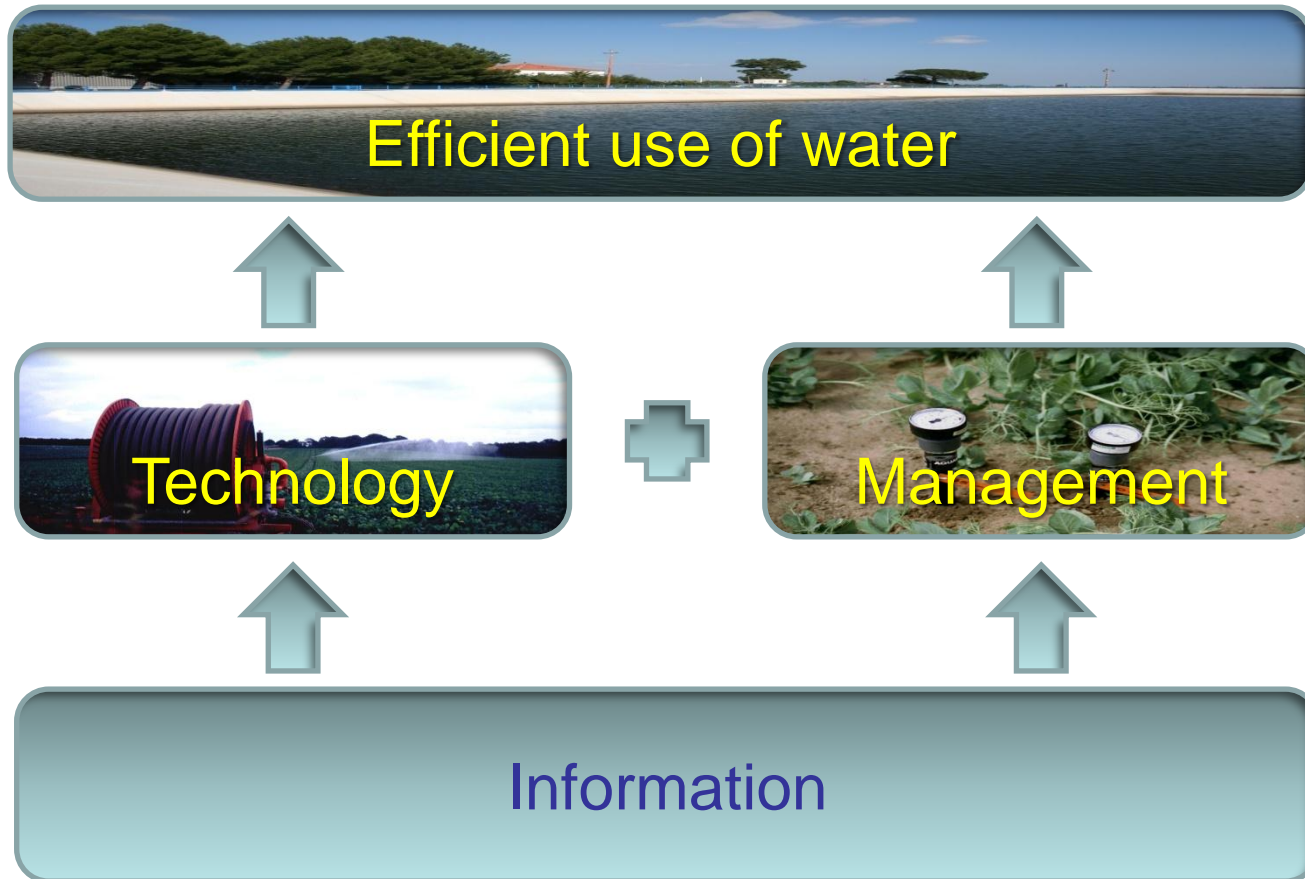
- How can ICT support water management and consequently energy efficiency in the context of rural development?

# Agricultural water use in Europe

- Accounts for 24% of total water use
  - Used when water resources are most scarce
  - Used in driest parts of Europe
  - Consumptive use
- Up to 90% of abstraction in some MS
- Climate change may increase demand for irrigation
- Competition for water from other land uses



# Role of information



# Role of ICT

Water resources	Monitoring
Water allocation	Decision making
Water application	Control
Irrigation scheduling	Decision making
Water management	Business operations
Knowledge transfer	Education

# Water resources: Hydrological information

- Hydrometric sensors to monitor status
- GSM telemetry to relay real-time information
- Improved control of abstraction



# Water resources: Pump management



- Remote control of pumps
  - Water & energy saving
- Performance monitoring
  - Reliability
  - Energy saving

# Real-time weather data

**Provincia:** Córdoba  
**Código de Estación:** 6  
**Zona Regable:** --

**Coordenadas UTM**

**X:** 341642.0  
**Y:** 4192085.0  
**Latitud:** 37° 51' 42" N  
**Longitud:** 04° 48' 00" W  
**Altitud:** 117.0

**Más Información**

- ➔ Últimos Datos Registrados
- ➔ Datos Históricos



Instituto de Investigación y Formación Agraria y Pesquera  
**CONSEJERÍA DE AGRICULTURA Y PESCA**

**Estaciones Agroclimáticas**

Introducción

Almería

Cádiz

Córdoba

Granada

Huelva

Jaén

Málaga

Sevilla

**ÚLTIMOS DATOS REGISTRADOS**

**Estación Meteorológica de Córdoba**

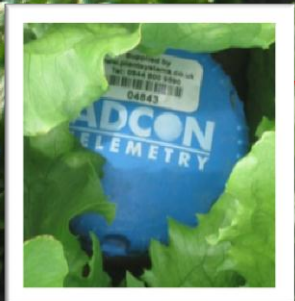
Provincia	Córdoba	Fecha de Medida	07-02-2011
Estación	Córdoba	Día Juliano	38
Temp. Máxima (°C)	17.4	Velocidad Viento Media (m/s)	0.9
Hora Temp. Máxima	15:12	Dirección Viento Media (°)	297.6
Temp. Mínima (°C)	1.4	Radiación (MJ/m <sup>2</sup> )	13.4
Hora Temp. Mínima	6:44	Precipitación (mm)	0.2
Temp. Media (°C)	8.4	ETo (mm/día)	1.54
Humedad Relativa Máxima (%)	100.0		
Humedad Relativa Mínima (%)	46.9	Precipitación Acumulada (mm)	595.8
Humedad Relativa Media (%)	82.5	ETo Acumulada (mm)	336.99

➔ Datos acumulados y Gráficas



# Irrigation scheduling

- Soil water sensors
- Weather data
- Telemetry
- Real-time scheduling



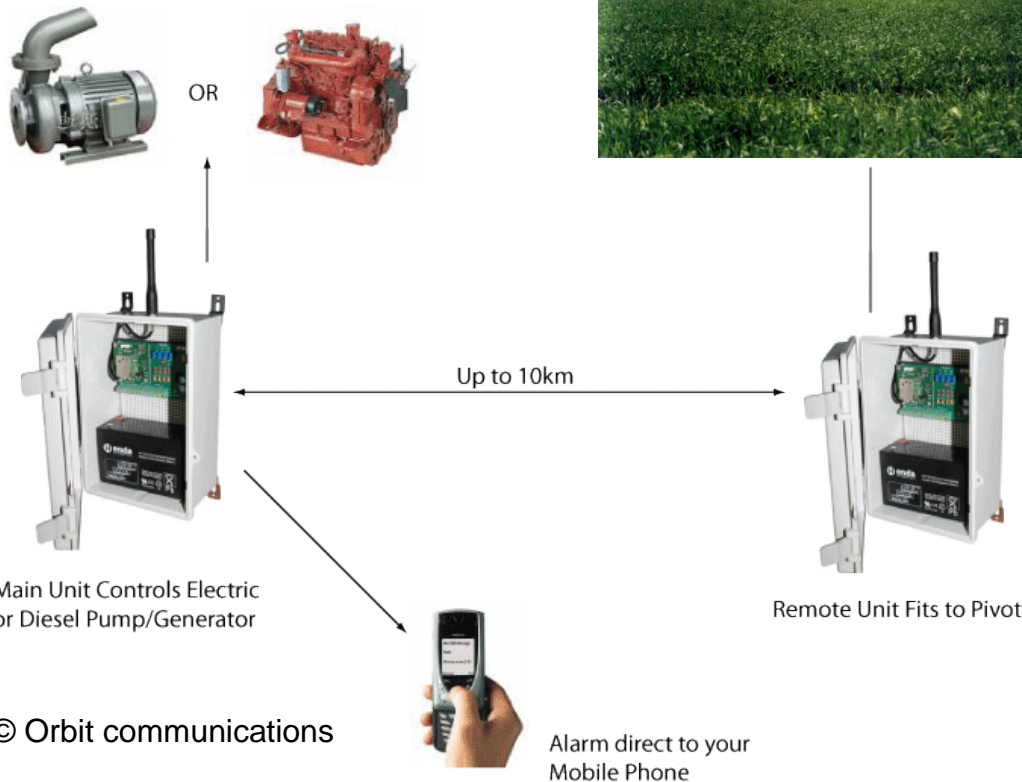
# Water management

- Water requests (e.g. Aquacard)
- Water metering, monitoring, charging
- Water trading
  - Water market information
  - Access to water markets

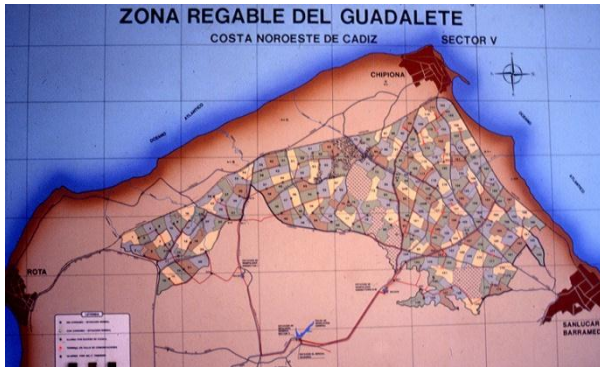


# Irrigation application

- Remote controllers
- Breakdown alert
- Mobile phone control



# Distribution system management



- Monitoring water demand
- Optimising water allocation
  - Water saving
  - Energy saving
  - Timely water delivery



FENACORE (Spain)

500,000 farmers connected to a regional & national irrigation network.

Estimated 20% water saving.

# Water Trading

Live Water Market

**Waterfind**  
WATER MARKET SPECIALISTS

Certified System  
Quality ISO 9001

Water Industry Alliance  
2010 AWARD

Water Industry Alliance  
2008 AWARD

Water Industry Alliance  
2006 AWARD

**LIVE WATER MARKET**  
FREE Access with an Approved Water Licence

Home About Us Water trading Our commitment Register now Free email newsletter Water market information centre Contact us Feedback

Freecall 1800 890 285

Client login :

[Forgotten your Password?](#) |  Remember me

Freecall 1800 890 285

Buy or sell water now

Register now

Free email newsletter

**Why Waterfind?**

1. Water trading made easy - the Waterfind system handles regulations, trading rules, contracts and government fees for all trading regions.

**1A CENTRAL GOULBURN IRRIGATION AREA - HIGH R - TEMPORARY TRANSFER** [Change Market]

**Bids to buy**

ML	Notes	Split	\$/ML	Action
100.00	R	no	\$ ?	<a href="#">Sell to / View</a>
1250.00	R	yes ?	\$ ?	<a href="#">Sell to / View</a>

**Offers to sell**

ML	Notes	Split	\$/ML	Action
1000.00	* R	no	\$ ?	<a href="#">Buy / View</a>
260.00	* R	no	\$ ?	<a href="#">Buy / View</a>
212.80	* R	no	\$ ?	<a href="#">Buy / View</a>
60.00	* R	no	\$ ?	<a href="#">Buy / View</a>
86.50	* R	no	\$ ?	<a href="#">Buy / View</a>
73.00	* R	no	\$ ?	<a href="#">Buy / View</a>
95.00	* R	no	\$ ?	<a href="#">Buy / View</a>

Done Internet 100%

# Knowledge transfer

- Online information
  - Extension advice
  - Water users groups
  - Scheduling advice



<http://www.rowett.ac.uk>



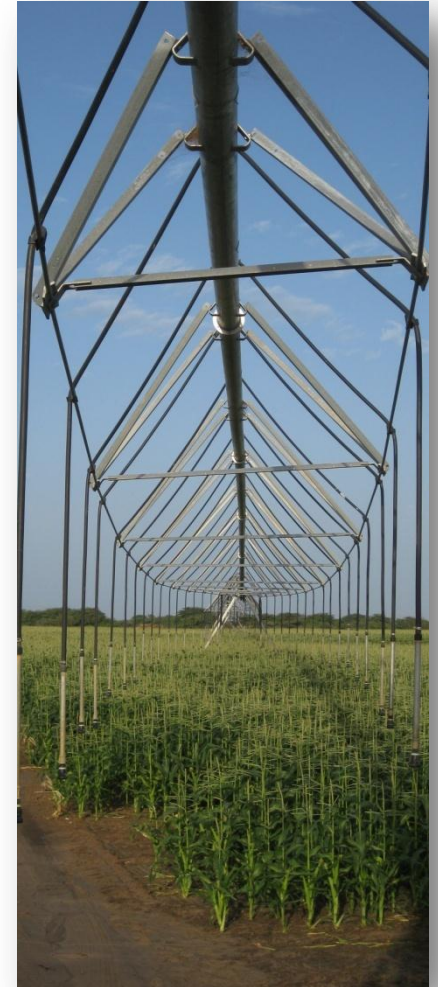
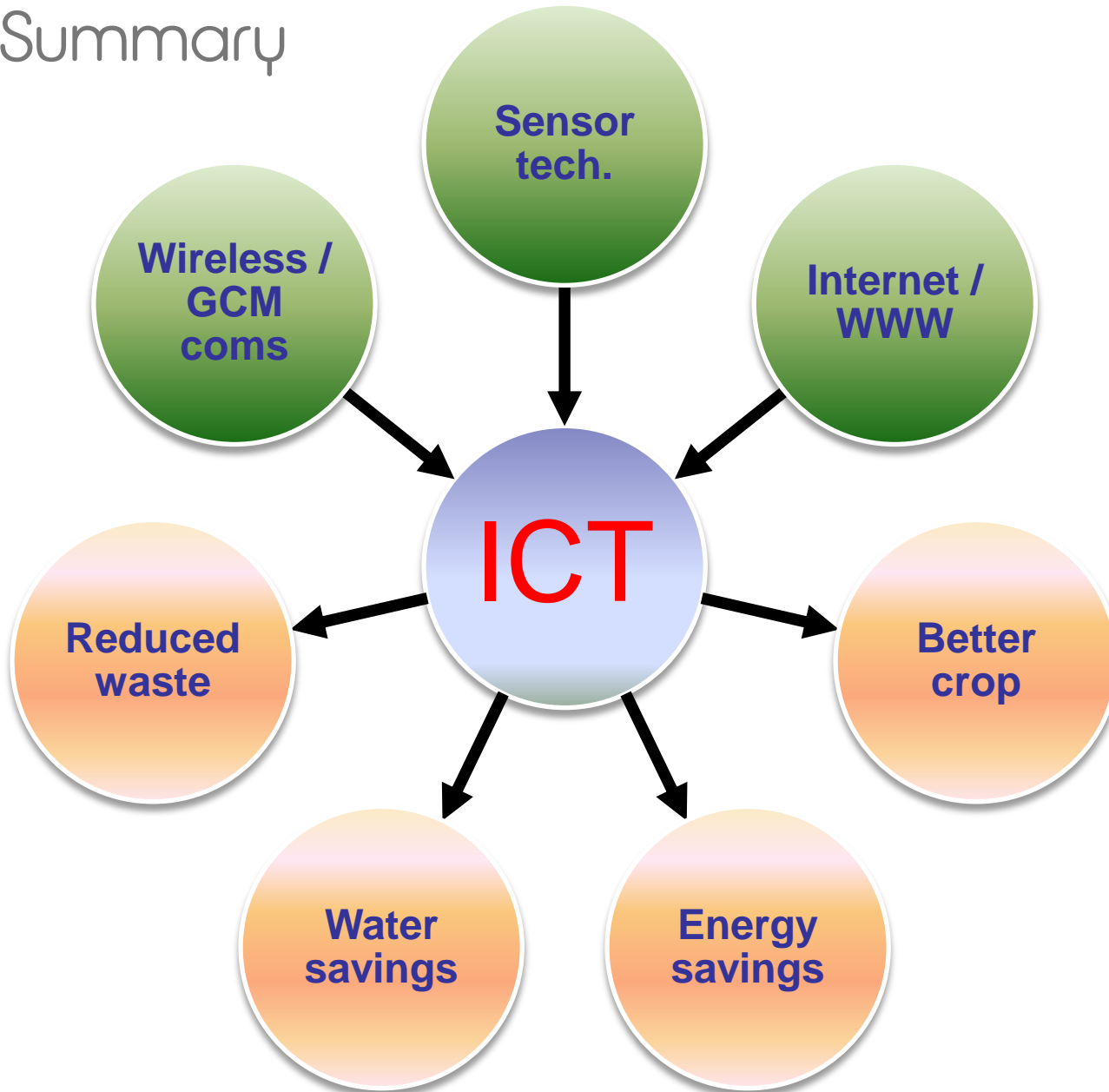
<http://www.albertafarmsales.com>

# Energy use

- Most irrigation systems are pumped at point
- Energy consumption depends on;
  - Volume pumped
  - Pressure
- Reduced water use = reduced energy use



# Summary





# Acknowledgements

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