



OCP Policy Center Conference series

Catalyzing, Distilling and Disseminating Agro-Ecological Knowledge at the Water-Energy-Food Nexus in the Global Drylands

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Common Challenges



Poor water management, infrastructure and policies



Inefficient irrigation systems



Salinization and soil depletion



Weak land tenure and agricultural policies



Desertification, overgrazing and erosion



Low quality inputs, breeds and low yields

Common Challenges



Limited access to credit, markets and processing



Weak institutional capacity and extension systems



Decreasing groundwater levels and river flows



Farmers lack knowledge of improved practices



Role of women in agriculture



Rural migration due to lack of employment

Three predominant agro-ecosystems in MENA

Irrigated



Sustainable irrigation
Cropping systems
Cropping patterns
Salt-affected soils
Treated wastewater
Protected agriculture
Use of drainage water
Water productivity
Fertilizer efficiency

Rainfed



Supplemental irrigation
Deficit irrigation
Conservation agriculture
Management of ground
& surface water
Alternative crops/ higher
income
Watershed management
(upstream/downstream)

Rangeland



Rehabilitation of
degraded rangelands
Alternative grazing
systems
Water harvesting
Livestock productivity

Gender mainstreaming, extension services,
institutional capacity development and training

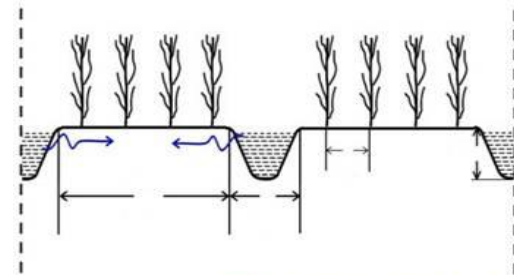
Criteria for Similarity

Benchmark	Criteria	
Rainfed		
	Rainfall	250 – 500
	Water resources	Available for supplemental irrigation
	Land is cultivated	Crop lands
	Crops	Winter crops based system
	Slope	Up to 5%
Irrigated		
	Rainfall	< 250 mm
	Water resources	Available for supplemental irrigation
	Cultivation	Land is cultivated
	Soil texture	Not sandy (90% sand or more)
Rangeland		
	Rainfall	100 – 250 mm
	Soil depth	<60 cm
	Land is cultivated	< 30% vegetation cover
	Slope	Up to 20%
	Soil Texture	Not sandy (90% sand or more)

Raised bed combination machine

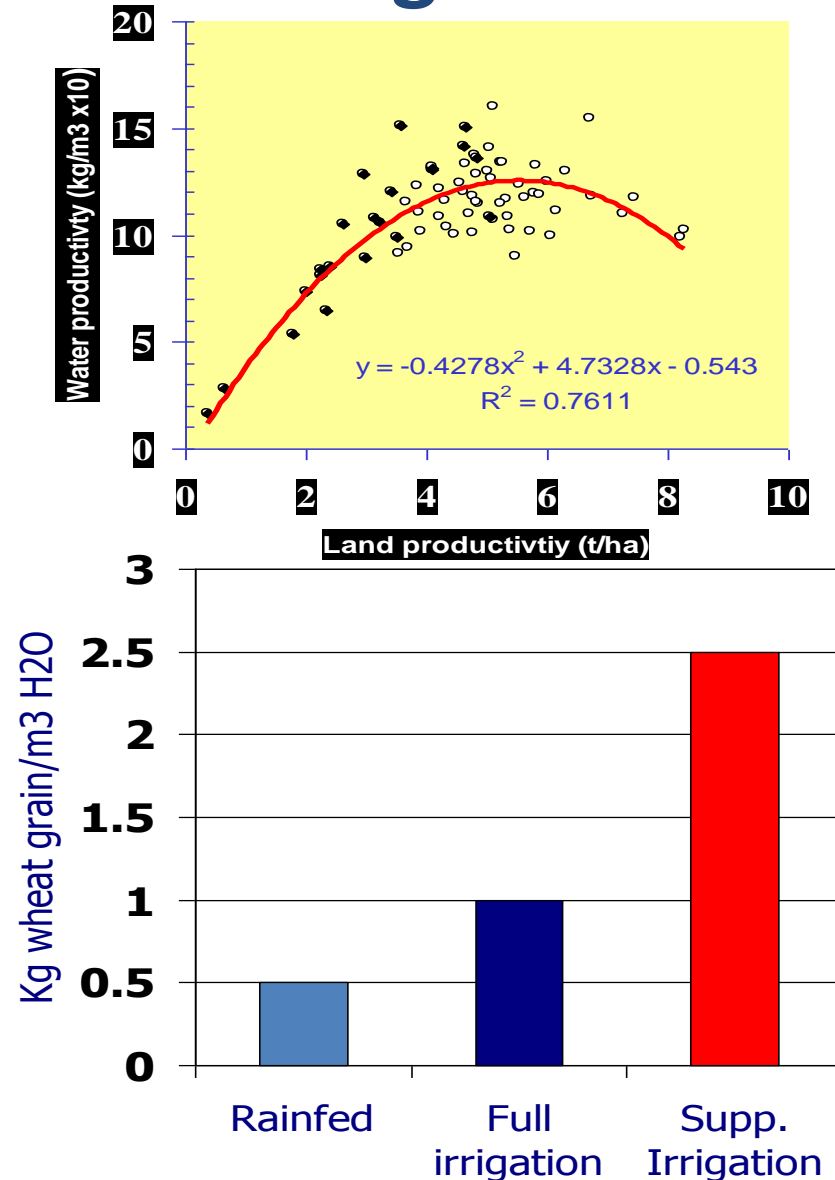


- Reduce applied water by 30%
- Increase yields by 25%
- Reduce seed rate by 50%
- Increase WUE by 72%
- 70,000 feddan adoption in Egypt (2yrs)



Savings with Supplemental Irrigation

- Tradeoffs between water and Land Productivity
- Applying limited water to rain fed crops to improve and stabilize production
- Over 50% water saving



The Vallerani for Rangelands (badia) rehabilitation

- WH technologies integrated
- Mechanization, laser guided contouring, direct seedling planting
- Water stored in soils and aquifer
- Grazing management
- Rainfall runoff saving and improved productivity
- Combating desertification



Regional Similarity Maps

- Using benchmark criteria similar attributes are accounted for regionally.
- Areas similar to irrigated benchmark, rangeland benchmark and rainfed benchmark sites.
- There are additional challenges!
 - Social, political, data.

