



Adaptation to **C**limate Change of the **M**editerranean Agricultural **S**ystems

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*SWIM (Sustainable Water Integrated Management) -
Demonstration Project – Water and Climate Change
"European Neighborhood and Partnership (ENP) financial co-operation
with Mediterranean countries"*

Funded by



Mladen Todorović, CIHEAM-IAMB

Implemented by



CIHEAM
IAM BARI

*4th SWIM-SM Steering Committee and SWIM Demos Coordination Meeting,
Barcelona - Spain, 15-16 December 2014*

OVERALL OBJECTIVE: to bring a durable improvement in the agricultural water management and a broader socio-economic development in target areas in the context of adaptation to climate change, increasing water scarcity, and desertification risk.

TARGET AREAS AND CROPS

Khmeze Melanah
(Wilaya of Ain Defla),
Algeria
(wheat, barley)

Chaouia Ourdigha ,
Morocco
(wheat, barley,
chickpea, lentil,
forage legume)

Northern Tunisia,
Tunisia
(wheat, barley,
chickpea,
faba bean)

Bekaa Valley,
Lebanon
(wheat,
barley)

Aleppo
Plateau,
Syria
(wheat,
barley)

Irbid,
Jordan
(wheat,
barley,
legumes)

West Nubaria,
Egypt
(chick pea,
faba bean)

Country	Region	Name of the target areas
Morocco	Chaouia Ourdigha	Oulad Said, Sidi El Aidi, Tamadrout, Berrechid, Ain Nzagh, Sidi Mohamed Ben Rahal
Tunisia	North-Eastern Tunisia, South-Eastern Tunisia	Capbon, Manouba, Saïda, Mhamedia, Grombalia, Médenine Governorate
Egypt	Western Nubaria	Entelak, Tiba
Jordan	Irbid Governorate	Bani Kananeh, Bani Obaid, Quasbat Irbid, Al-Ramtha
Lebanon	Bekaa Valley	El Hermel, Baalbeck, Zahle, West Bekaa
Algeria	Wilaya of Ain Defla	Khmeze Melanah

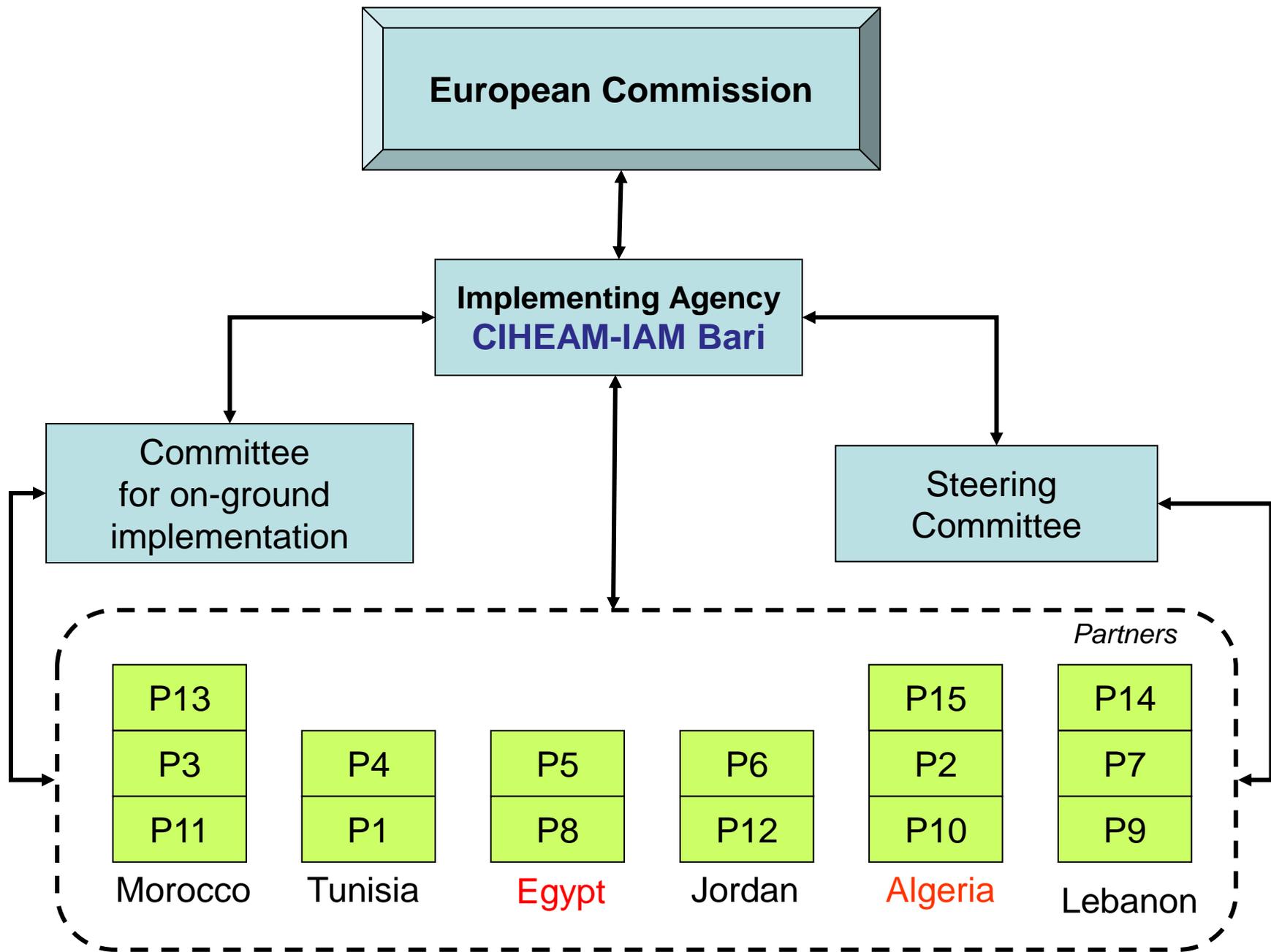
Specific Objectives

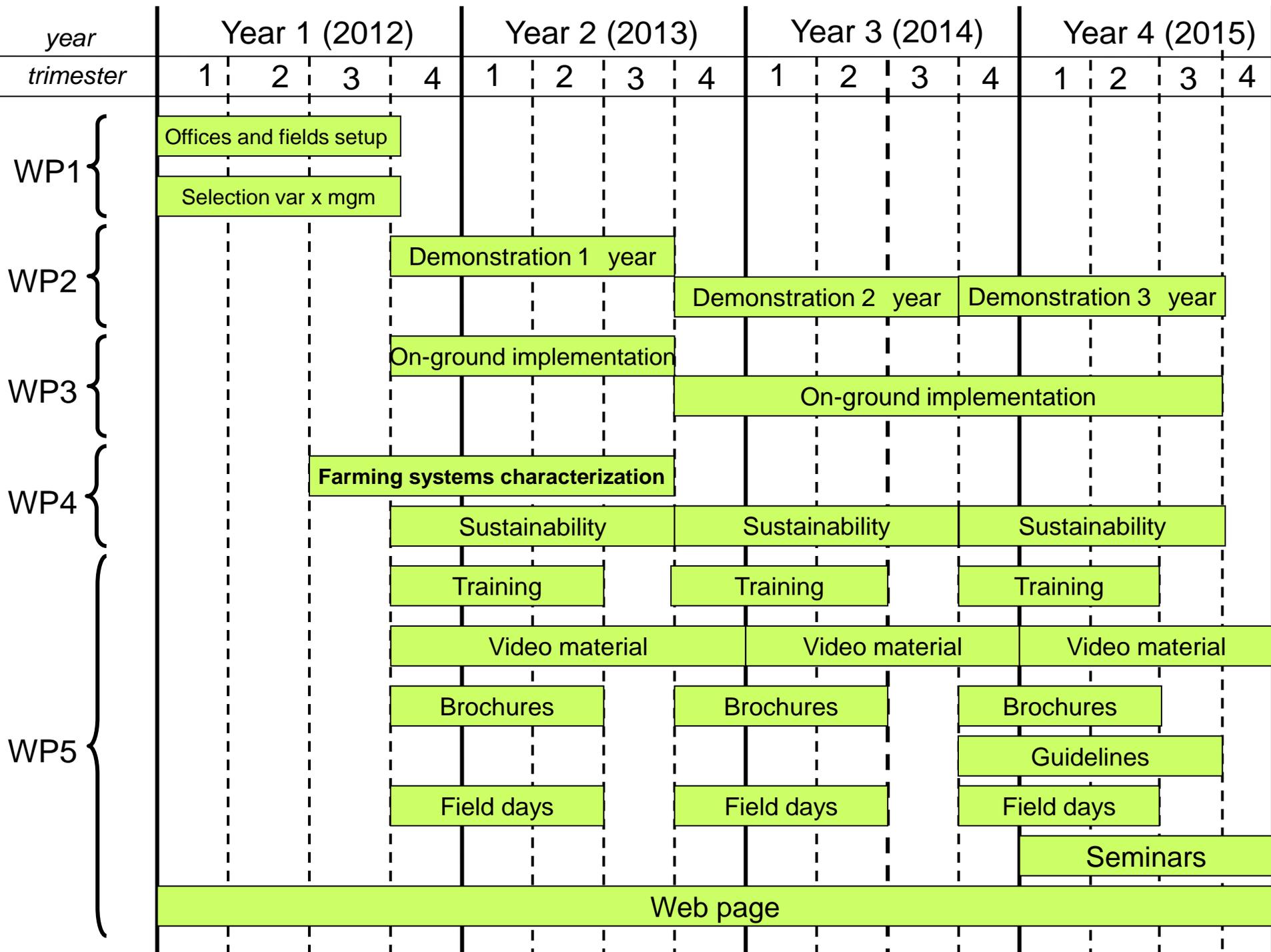
- To **improve** the **initial conditions** (local offices, stations, and demonstration fields) **for lasting promotion of sustainable agricultural practices** in target areas.
- To **demonstrate the applicability** for the selected combinations of **genotypes and water management practices** (including water harvesting and conservation tillage) at demonstration fields;
- To **adapt/stabilize agricultural production** through large scale **on-ground implementation** of the best performing genotypes and water harvesting/management practices;
- To **evaluate** the on-ground **sustainability** of the proposed adaptation measures considering the economic, social and environmental dimensions at farm level;
- To **train** local **farmers and growers** on the application and implementation of proposed management practices;
- To **disseminate** the **results** of the action through the thematic guidelines, brochures, field days, seminars, video material and a dedicated web page.

- **Target groups:**
 - Farmers, growers, breeders, policy makers, water/irrigation managers, local seed companies, agricultural advisers.
- **Final beneficiaries:**
 - All rural society, local farmers communities and associations, water user's associations, governments, environment
- **Estimated results:**
 - Improved water productivity in agriculture and more stable agricultural production
- **Main activities:**
 - Demonstration, replication, on-ground implementation, dissemination, training, sustainability evaluation.

Partnership

- P1 International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM-IAMB)
- P2 International Centre for Agricultural Research in the Dry Areas (ICARDA)
- P3 Institut National de la Recherche Agronomique (INRA), Morocco
- P4 Institut National Agronomique de Tunisie (INAT), Tunisia
- P5 West Nubaria Rural Development Project (WNRDP), Egypt
- P6 National Center for Agricultural Research and Extension (NCARE), Jordan
- P7 Lebanese Agricultural Research Institute (LARI), Lebanon
- P8 Centro Euro-Mediterraneo per i Cambiamenti Climatici (CMCC), Italy
- P9 Consiglio Nazionale delle Ricerche - Istituto per i Sistemi Agricoli e Forestali del Mediterraneo (CNR-ISAFOM), Italy
- P10 Universitat de Barcelona (UdB), Spain
- P11 Universitat de Lleida (UdL), Spain
- P12 University of Nottingham (UNOTT), United Kingdom
- P13 Agriculture Environement et Developpement, pour l'Avenir (AGENDA), NGO, Morocco
- P14 Association of the Friends of Ibrahim AbdEl Al (AFIAL), NGO, Lebanon
- P15 Technical Institute of Field Crops (ITGC). Algeria





Demonstration fields, crops and management

- Morocco – Sidi El Aydi Experimental Station of Institut National de la Recherche Agronomique of Settat (wheat, chickpea, faba bean); crop rotation, tillage practices, and nitrogen input
- Tunisia – Mornag station of the Institut National Agronomique de Tunisie (durum wheat – supplemental irrigation and precision sowing, barley – supplemental irrigation with saline water, chickpea – winter-spring sowing and faba bean – planting density)
- **Egypt** – Al-Esraa wa Al-Meraag Training and Extension Station of the Ministry of Agriculture, located in Entlak area in Nubaria (chickpea and faba bean); water (salinity) input and timely sowing
- Jordan – Maru Agricultural Research Station (wheat, barley) water harvesting, conservation tillage, timely sowing
- Lebanon – Lebanese Agricultural Research Institute (LARI), in Tal Amara (wheat and barley); supplemental irrigation, conservation tillage and timely sowing
- **Algeria** – Bassami Aljelali (governmental) pilot farm managed by **ITGC** (bread and durum wheat, barley); supplemental irrigation, fertilizers application, tillage practices

The expected direct outputs

- 6 demonstration fields with agro-meteorological stations, other equipment and Excel-based irrigation scheduling tool;
- 2 years of testing (at least 48 combinations of genotypes and water management practices);
- 24 training courses and 600 farmers, technicians and water managers trained;
- 60 field days with the participation of 1200 local stakeholders;
- 2 years on-ground implementation of the best performing varieties and water harvesting and management practices in a surface area of at least 240 ha with the involvement of at least 120 farmers;
- 6 guidelines, 24 brochures, 6 seminars, 180 minutes of video material, etc.
- Social and economic impact:
 - support of the local communities to market a quality durum wheat (in Lebanon and Morocco) and chick pea (in Morocco) products and
 - promotion of the women cooperatives for durum wheat transformation to several types of couscous on downstream value chain (in Morocco)

State of progress of ACLIMAS by December 15th 2014

Indicators	M12	M22	M36	Plan
• n° of demo fields and equipped offices	4	5	+1 (TN)	6/6 (100%)
• n° of meteo stations acquired and installed	1	3	0	3/5 (60%)
• n° of cars acquired	0	1 (JO)	+2 (MO, LB)	3/6 (50%)
• n°, type and purpose of other facilities acquired	1	3	+2	5/6 (83%)
• n° of combinations of genotypes and management practices tested	30		+48	78/48 (162%)
• n° of farmers implemented selected genotypes and mgm practices	36		+58	94/120 (78%)
• surface where selected genotypes and mgm practices are implemented [ha]	108.9		+120	228.9/240 (95%)
• Improved yield per hectare compared to the traditional cultivation	20-30% (26%)		20-30-300%	
• Improved water productivity compared to the traditional cultivation	30-50% (49%)		30-50-300%	
• n° of farming systems described (WP4)	2	4		4/6 (67%)
• n° of farms and implementation scenarios considered (WP4)	4	8		8/12 (67%)
• n° of courses organized	0	7	+9	16/24 (67%)
• n° of farmers and other stakeholders trained	0	156	+243	429/600 (71.5%)
• n° of field days organized	0	12	+22	44/60 (73%)
• n° of stakeholders participated at field days	0	424	+1140	1564/1200 (130%)
• n° of videos prepared	3	27	+22	49/36 (136%)
• duration of videos [minutes]	6	105	+74	179/180 (99%)
• n° of brochures prepared, printed and distributed (>1500)	1	3	+9	12/24 (50%)
• n° of guidelines prepared distributed	0	0	0	6
• n° of seminars organized	0	0	0	6
• n° of participants of seminars	0	0	0	180
• n° of visitors of web page	971	3174	>5600	

Facts:
Implementation work, season 2013-2014



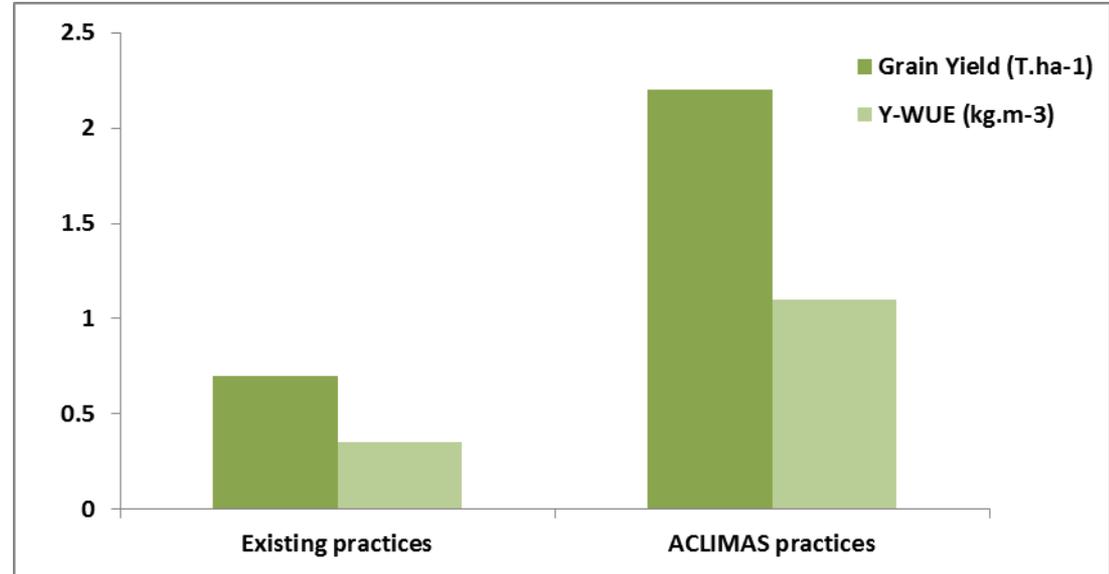
Facts: Implementation work, season 2013-2014



Farmer: Ali Zalfo Harb

Wheat: Icarasha versus Stork

Yield: 0.7 versus 2.2 t/ha
Y-WUE: 0.35 versus 1.1 kg/m³



Facts: Implementation work, season 2013-2014



Farmer: Ali Mustafa Haj Hassan

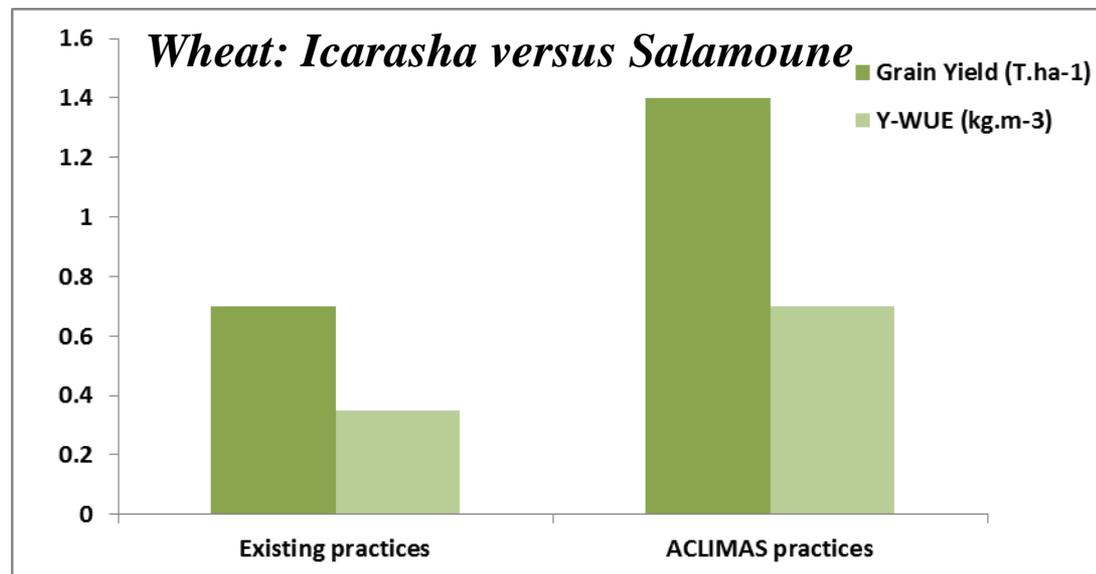
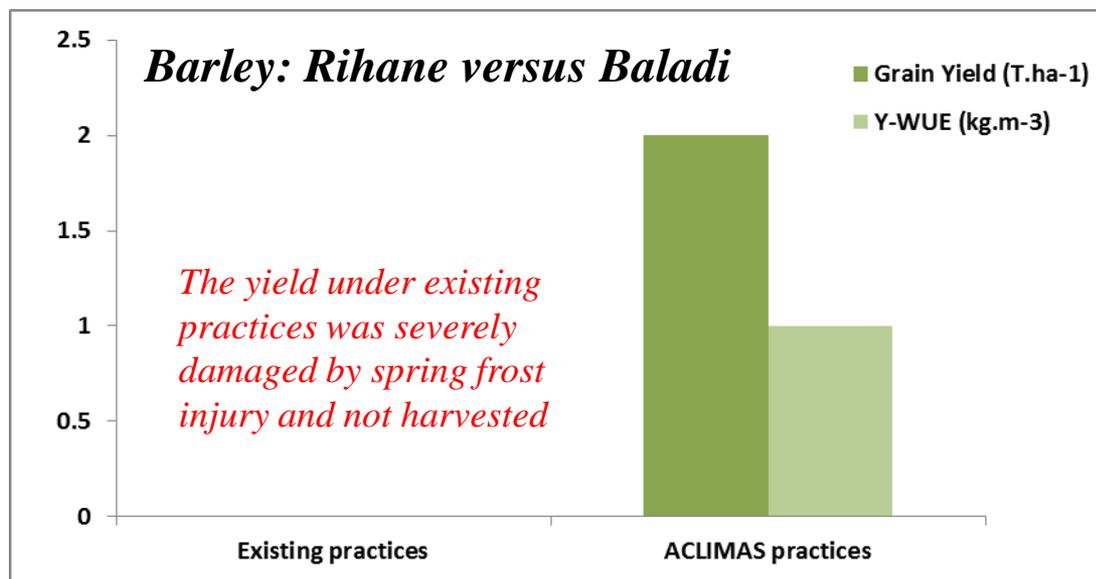
Yield: 0 versus 2 t/ha

Y-WUE: 0 versus 1.00 kg/m³



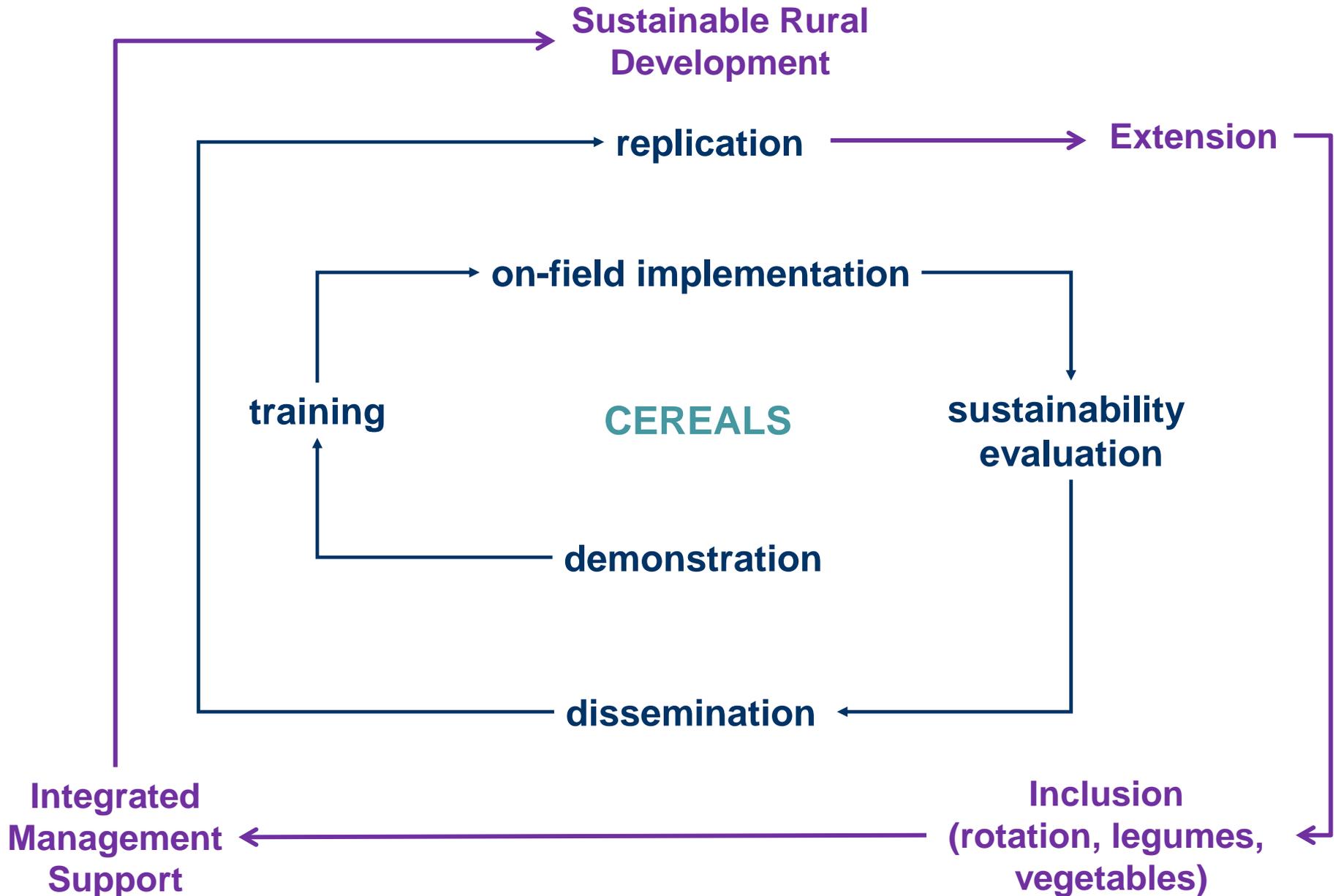
Yield: 0.7 versus 1.4 t/ha

Y-WUE: 0.35 versus 0.7 kg/m³





ACLIMAS follow up ...



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the management of marginal rural areas at the lowest ecological cost

- ❑ the implementation of the **best management practices** – sustainable land and water management
- ❑ **prevention** of land degradation and desertification, and **capability to adapt** to extreme events
- ❑ **social stability** in terms of number of jobs and regional balance (maintaining agriculture – a major activity in rural areas)
- ❑ **limiting urbanization** (focuses on rural areas where a large part of the population still lives)

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THANK YOU

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