SPECIAL EVENT- COP12 -

Development and Adaptation days

IMPACT OF CLIMATE CHANGE ON THE PLUVIAL WINTER WHEAT IN ALGERIA

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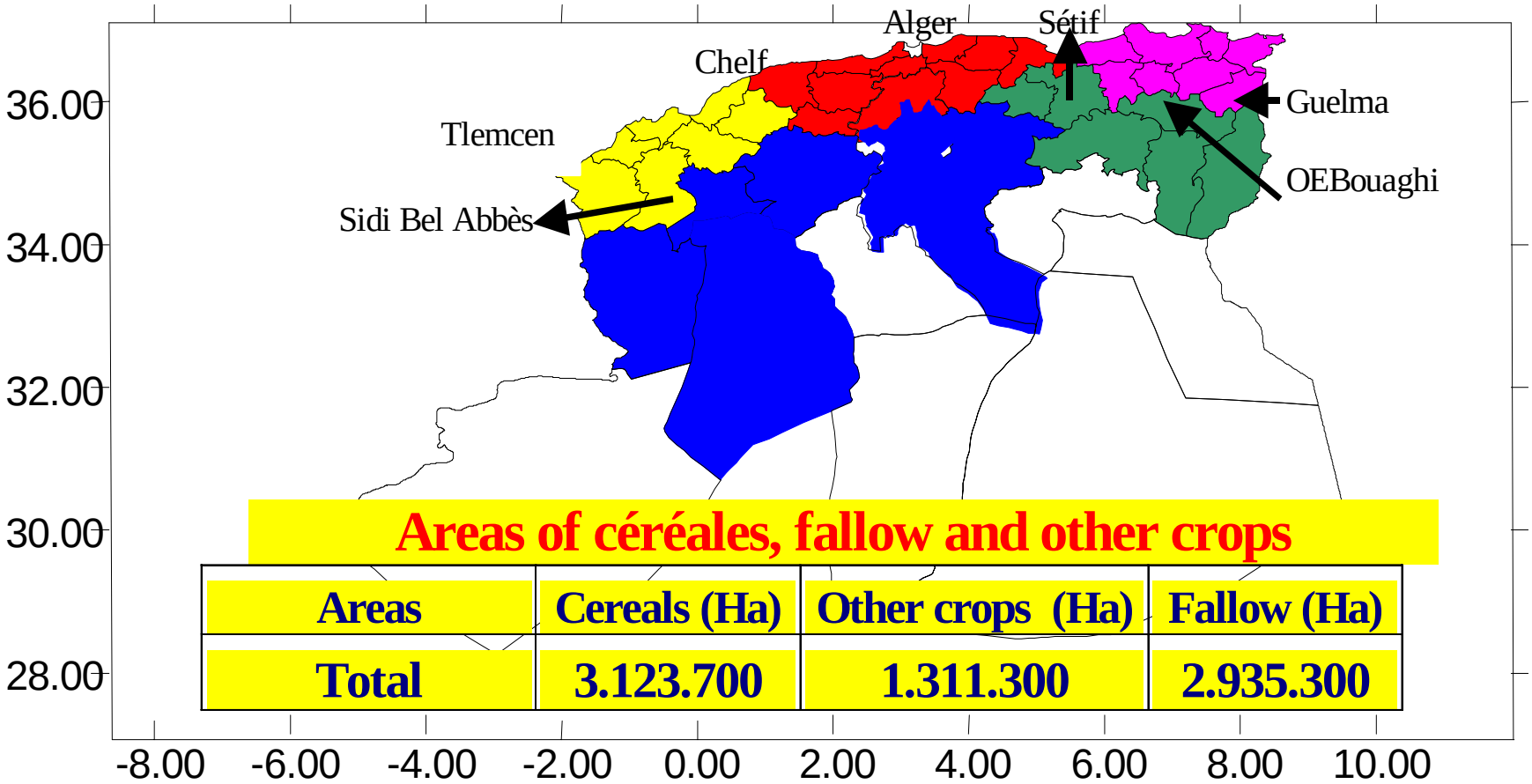
CEREALS AREAS IN ALGERIA



Areas of céréales, fallow and other crops

Areas	Cereals (Ha)	Other crops (Ha)	Fallow (Ha)
Total	3.123.700	1.311.300	2.935.300

OBJECTIVES of the study

Assessment of the CC-impact on cereals and elaboration of an adaptation strategy and measures

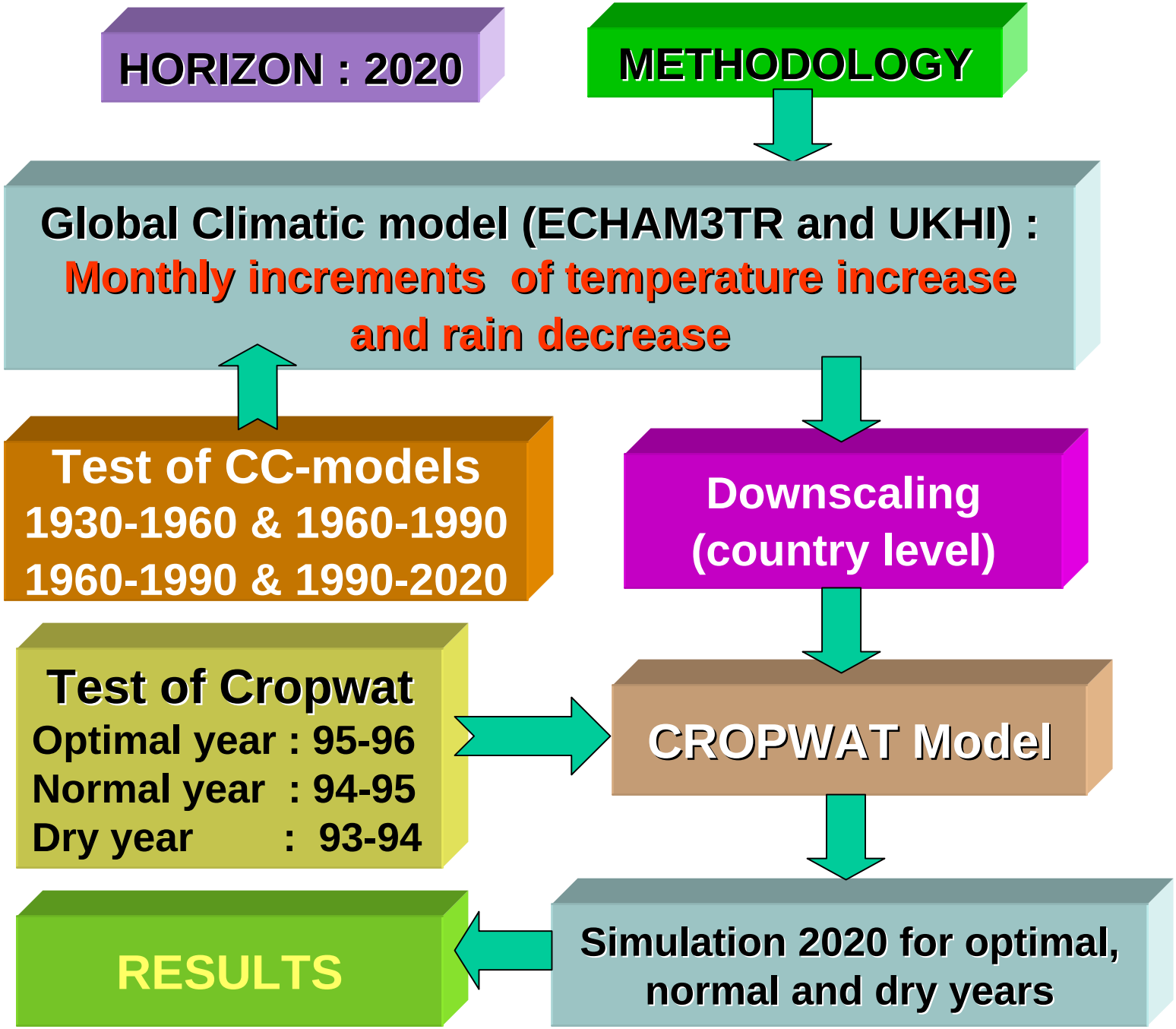
CONTEXTE

- The cereals are the staple food for population. The national production is depending on the pluvial regime and can shift from 1 to 4.000.000 tons/year
- The country need is more than 5.000.000 tons/year of cereals. The imports can reach 4.000.000 tons a year and Algeria is one of the great importer in the world
- 3/4 of rain occur between October and May
- The water resources are scarce & limited for irrigation

Since 1975 :

- High variability of rain and recurrent droughts
- extreme events : recurrent floods and heat waves
- Increase of soil salinity and erosion (sloping land)

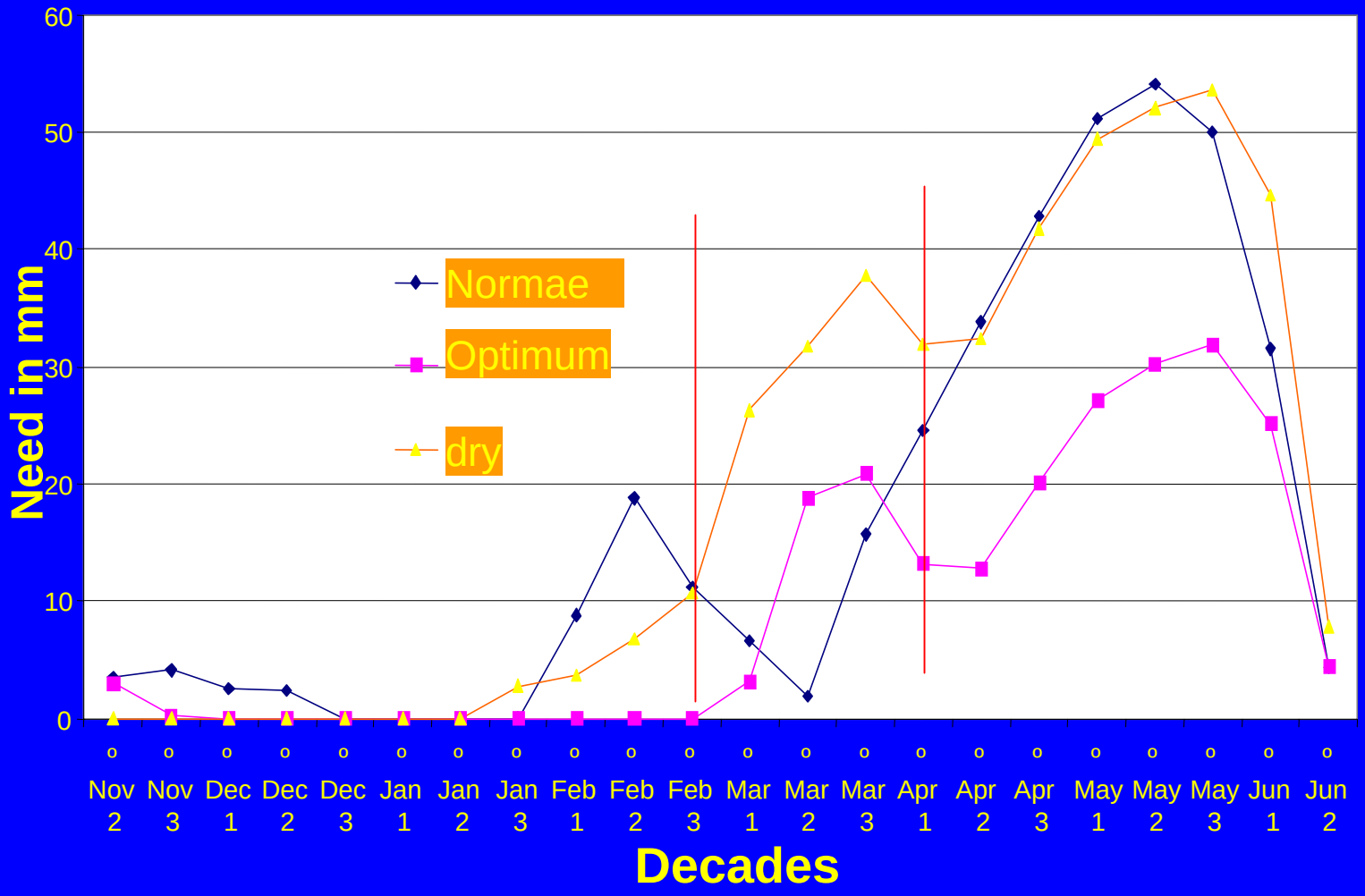
- Autonomous adaptation (National program to help farmers to shift from cereals to arboriculture)
- Use of three years cycle : Fallow, Leguminous, cereals


HORIZON : 2020
METHODOLOGY
Global Climatic model (ECHAM3TR and UKHI) :
Monthly increments of temperature increase
and rain decrease
Test of CC-models
1930-1960 & 1960-1990
1960-1990 & 1990-2020
Downscaling
(country level)
Test of Cropwat
Optimal year : 95-96
Normal year : 94-95
Dry year : 93-94
CROPWAT Model
RESULTS
Simulation 2020 for optimal,
normal and dry years

Climate Change Impact on Agriculture Given by CROPWAT Model for Time Horizon (2020) using two models UKHI and ECHAM3TR for three years (optimum, normal and dry)

Zone	Yield Reduction (Model UKHI)			Yield Reduction (Model ECHAM3TR)		
	Optimum	*Normal*	*Dry*	*Optimum*	*Normal*	*Dry*
I (NW)	3,5	6,2	8,4	3,5	5,5	7,7
II (NC)	1,4	4,4	0,1	2,2	10,8	3,9
III (NE)	4,7	4,6	3,1	13,9	11,8	10,8
IV (HPWC)	4,9	7,3	5,5	7,5	9,1	7,3
V (HPE)	10,4	5,0	7,5	6,0	5,2	4,9

Complementary irrigation at Tiaret and comparison between dry, normal and optimum years



AVAILABILITY OF APPRORIATE SOILS

- THE APPROPRATE SOILS ARE LOCATED IN THE AREA WERE THE WATER IS SCARCE

Complementary irrigation needs for dry year

ZONE	I	II	III	IV	V
IRRIGATION FOR DRY YEAR (mm)	93,8	133,1	77,9	106,6	91,8

PROPOSALS FOR THE CEREALS STRATEGY

THE CEREALS NEED WILL BE OF 10 MILLIONS TONS IN COMPARISON WITH 5 MILLIONS TONS CTUALLY. This follows the population growth

- **to afford 50% (5.000.000 tons) of cereals needs each year at the national level (The world production become stagnant)**
- **TO ALLOW A HALF OF THE SUPERFICIES OF IRRIGATED CROPS (ONE MILLION HECTARES) for CEREALS.Considering a yield of 40q/ha, the annual production will be 2.000.000 tons**
- **2 MILLIONS HECTARES WILL BE DEVOTED TO PLUVIAL CEREALS WITH THE INTRODUCTION OF COMPLEMENTARY IRRIGATION IN THE AREA WHERE THE UNDERGROUND WATER IS AVAILABLE TO LIMIT INVESTMENTS. Considerin a yield of 15q/ha, the annual production will be of 3.000.000 tons**

WATER SCARCITY

- THE VOLUME OF WATER USED FOR AGRICULTURE IS ACTUALLY OF 2,5 BILLIONS CUBIC METERS REPRESENTING 60% OF THE TOTAL AVAILABLE.

- THE WATER VOLUME FOR AGRICULTURE MUST BE OF 5 BILLIONS CUBIC METERS AT THE 2020 HORIZON

ADAPTATION MEASURES

- TO PROMOTE POLITICAL MEASURES AND INVESTMENT REGULATIONS FOR THE AREAS DEVOTED TO CEREALS CONSIDERING COSTS AND EFFICIENCY
- TO SELECT THE AREAS FOR PLUVIAL CEREALS ON THEIR QUALITY AND CAPACITY TO ALLOW COMPLEMENTARY IRRIGATION.
- TO INTEGRATE THE WATER AVAILABILITY WITH SOILS USE
- TO DEVELOP SCIENTIFIC SUPPORT FOR CEREALS SECTOR
- TO IMPLY THE PRIVATE SECTOR
- TO ALLOW TECHNOLOGY TRANSFERT IN THE CEREALS FIELD AND SOILS EXPLOITATION.
- TO SHARE FINANCIAL CHARGE OF INVESTMENT REQUIRED FOR SOILS CONVERSION AND WATER EQUIPMENT.
- TO REINFORCE THE RESEARCH AND SCIENTIFIC COOPERATION SPECIALLY IN THE GENETIC FIELD