

# 3 ACCA

THIRD AFRICA CONGRESS ON  
CONSERVATION AGRICULTURE  
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## The wheat variety choice impact under no tillage system in semi-arid area (Morocco)

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Theme:

Building a Resilient Future in Africa  
through Conservation Agriculture and Sustainable  
Mechanization



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# The wheat variety choice impact under no tillage system in semi-arid area (Morocco)

## Context

Soft wheat criteria and adequacy soil sustainability

Soft wheat, Case of Morocco :No tillage system

- Influence of soft wheat choice depending of the middle (Zaer)
- PCA : Influence of soft wheat choice depending of the middle (Chaouia)

Conclusion and perspectives

# More than 205 millions hectares of CA in the World !

Context



**South & Central America**  
 2008/09 CA Cropland Area: **122.6 M acres**  
 2018/19 CA Cropland Area: **205.1 M acres**  
**68.7%** CA cropland area in the region as of 2018/19

**North America**  
 2008/09 CA Cropland Area: **98.8 M acres**  
 2018/19 CA Cropland Area: **162.8 M acres**  
**33.6%** CA cropland area in the region as of 2018/19

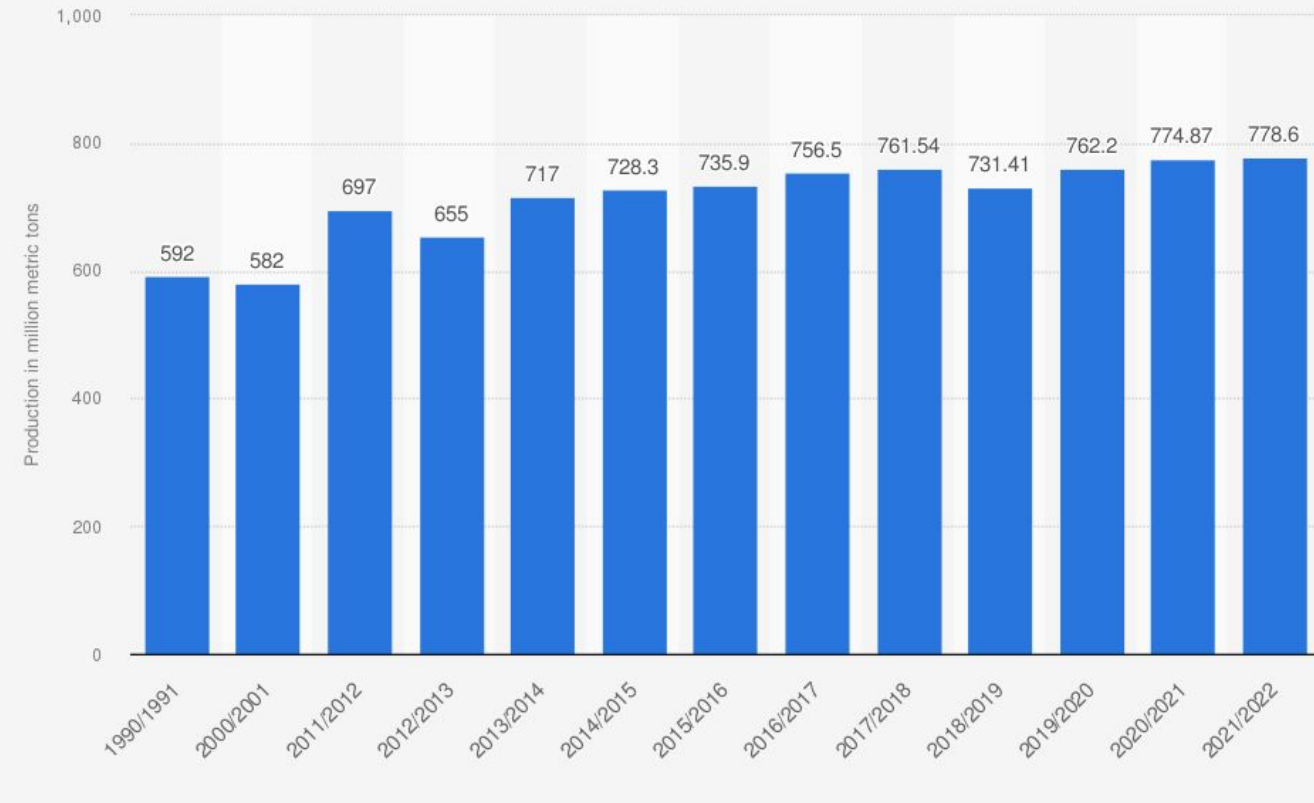
**Australia & New Zealand**  
 2008/09 CA Cropland Area: **30.1 M acres**  
 2018/19 CA Cropland Area: **57.6 M acres**  
**74%** CA cropland area in the region as of 2018/19

**Russia & Ukraine**  
 2008/09 CA Cropland Area: **.25 M acres**  
 2018/19 CA Cropland Area: **17.1 M acres**  
**4.5%** CA cropland area in the region as of 2018/19

**Europe**  
 2008/09 CA Cropland Area: **4 M acres**  
 2018/19 CA Cropland Area: **13.8 M acres**  
**5.2%** CA cropland area in the region as of 2018/19

**Asia**  
 2008/09 CA Cropland Area: **6.4 M acres**  
 2018/19 CA Cropland Area: **43.2 M acres**  
**3.6%** CA cropland area in the region as of 2018/19

**Africa**  
 2008/09 CA Cropland Area: **1.2 M acres**  
 2018/19 CA Cropland Area: **7.7 M acres**  
**1.1%** CA cropland area in the region as of 2018/19



Source  
 USDA Foreign Agricultural Service  
 © Statista 2022

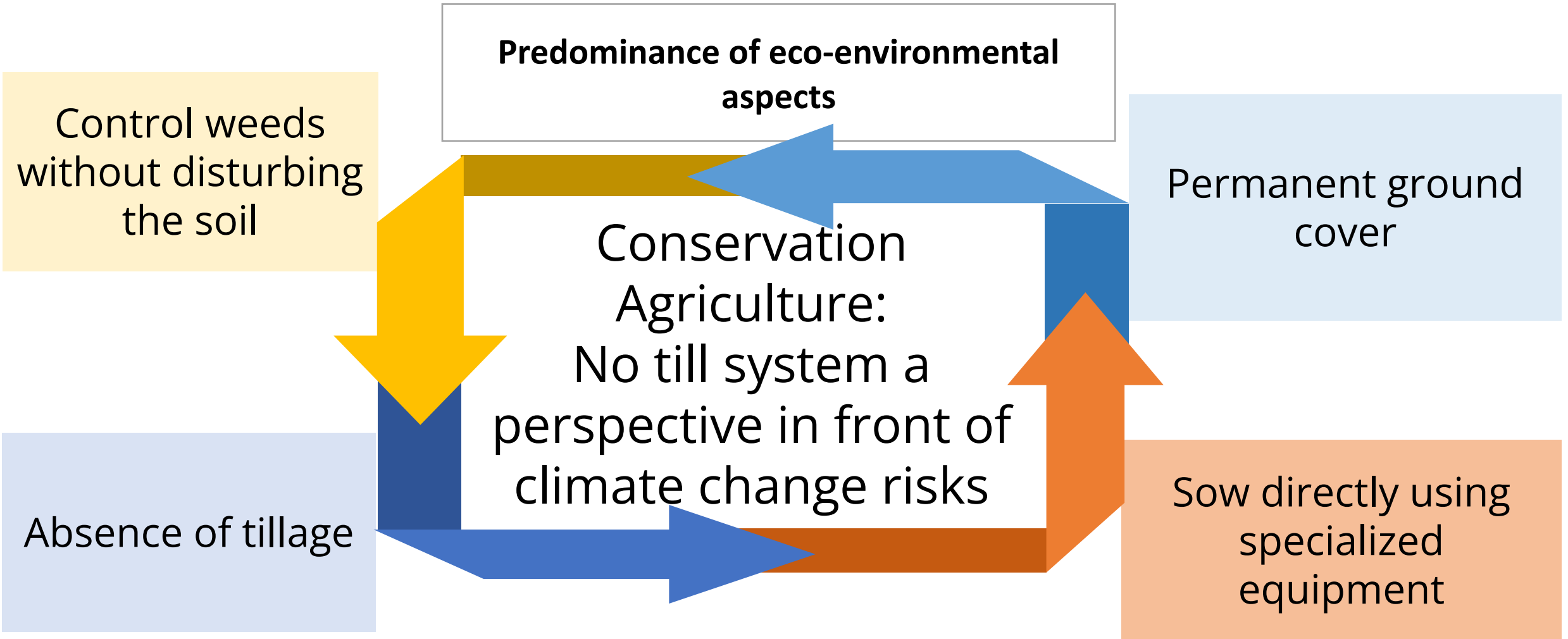
Additional Information:  
 Worldwide; USDA Foreign Agricultural Service; 2011/2012 to 2021/2022

*Worldwide Adoption of No-Till, Data from Successful Experiences and Learnings from Conservation Agriculture Worldwide by Amir Kassam, Theodor Friedrich and Rolf Derpsch, cited by Paukner (2021)*

*Global wheat production from 2011/2012 to 2021/2022 ( in million metric tons)*

# More than 205 millions hectares of CA in the World !

Context



# Parameters affected

Context

Crop rotation

Productivity and  
soil efficacy

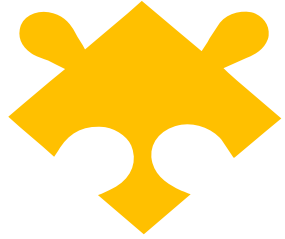
Yield and soil  
components  
evaluation

Conservation of SOC  
Organic mater soil accumulation  
Soil fertility : N, P, K, ...  
Structural stability of soil  
Increased vegetation covered  
Reduced weed rate

NT

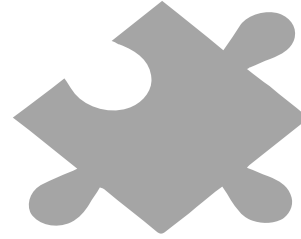
CT

# Soft Wheat criteria and adequacy soils sustainability



## Quality :

The interest of soil monitoring in the same way of soft wheat productivity



## Yield :

The rentability of soft wheat variety in a short and long term in the same soil



## Stress :

Delimitation of soft wheat varieties stress and adaptation



## Zone :

Accomodate each variety and ensure soil nutrient sustainability

# Soft wheat, Case of Morocco :

## No tillage system

In Morocco Cereals represented nearly 3.67 million hectares with a production of 55.1 million quintals for the 2022/2023 campaign, an increase of 62% compared to the 2021-2022 campaign.

The agricultural campaign is also part of a hard climatic sequence since last 5 years marked by the succession of dry years (4 out of the last 5 years) ( MAPMDREF, 2023).

The current situation shows that more than 15% soils in Morocco are threatened with degradation (INRA,2021)

**“The yield of no tillage system per hectare has increased by 17 to 20 quintals for cereals. » (OCP, 2021)**

Principal goal :  
To reach 1 Million hectares of no tillage system area until the horizon 2030  
( GG 2020 - 2030)



# Influence of soft wheat choice depending of the middle (Zaer)

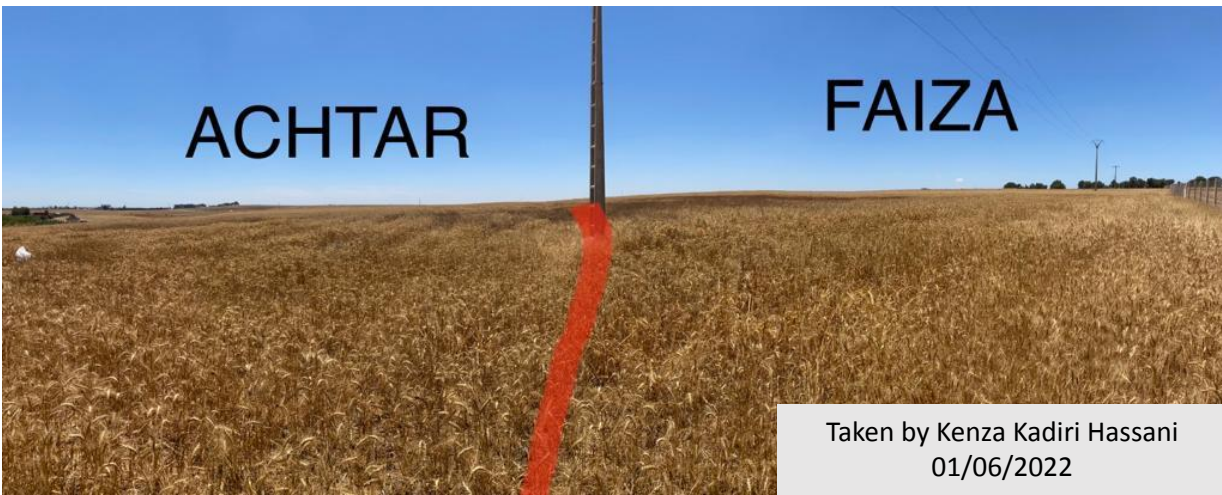
**Soft wheat, Case of Morocco :  
No tillage system**



FAIZA, Ain Sbit, , 10/05/2022



FAIZA, Tiflet, 01/06/2022



**ACHTAR**

**FAIZA**

Taken by Kenza Kadiri Hassani  
01/06/2022

STATISTICAL PARAMETERS (ACP)

Biomass

Wheat ears /m<sup>2</sup>

Grains / m<sup>2</sup>

Thousand grain weight

Yield

**PRODUCTIVITY ---->>> soil quality aspects**

Factors of stress :

Cecidomyia

Brown rust

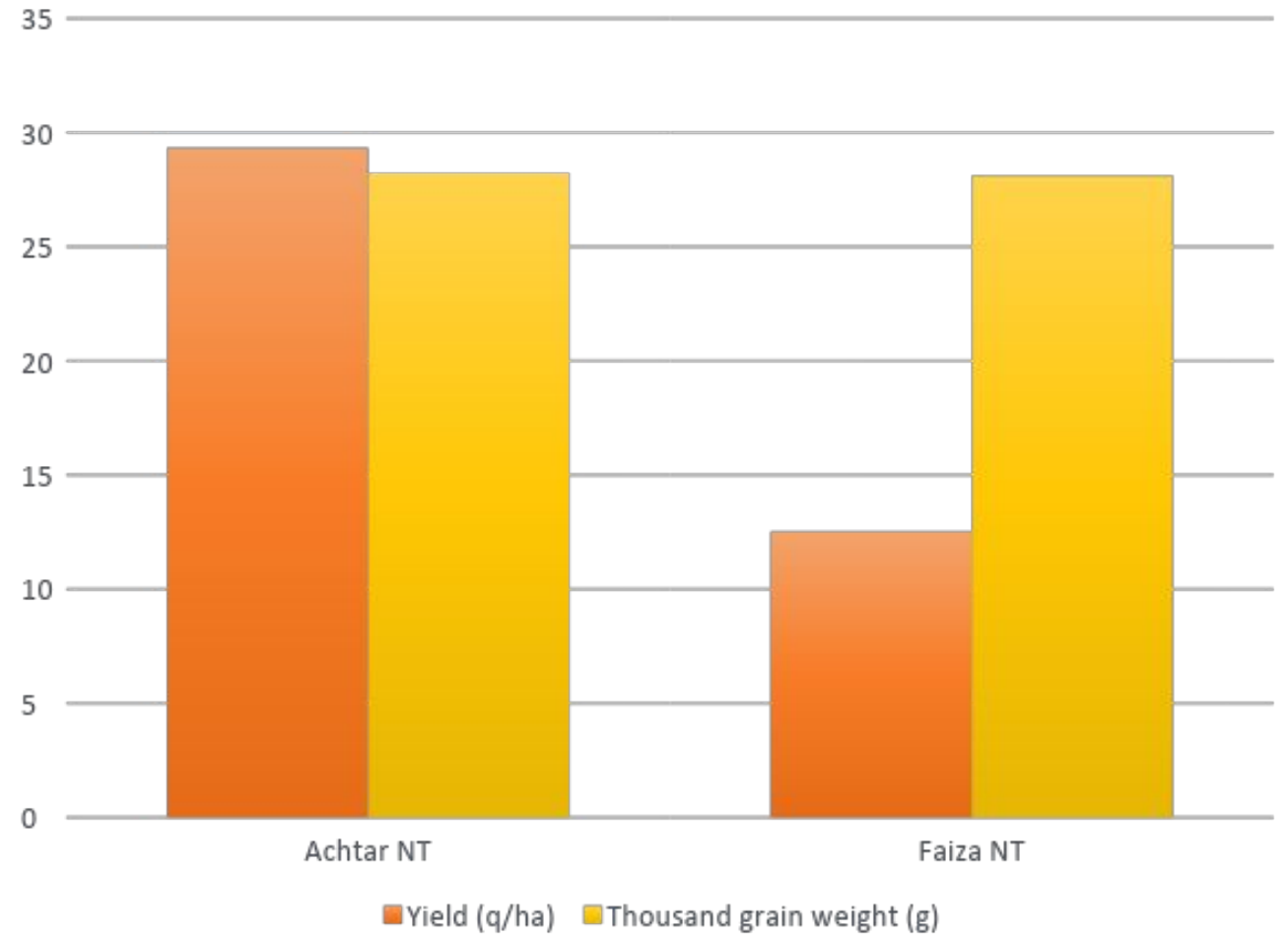
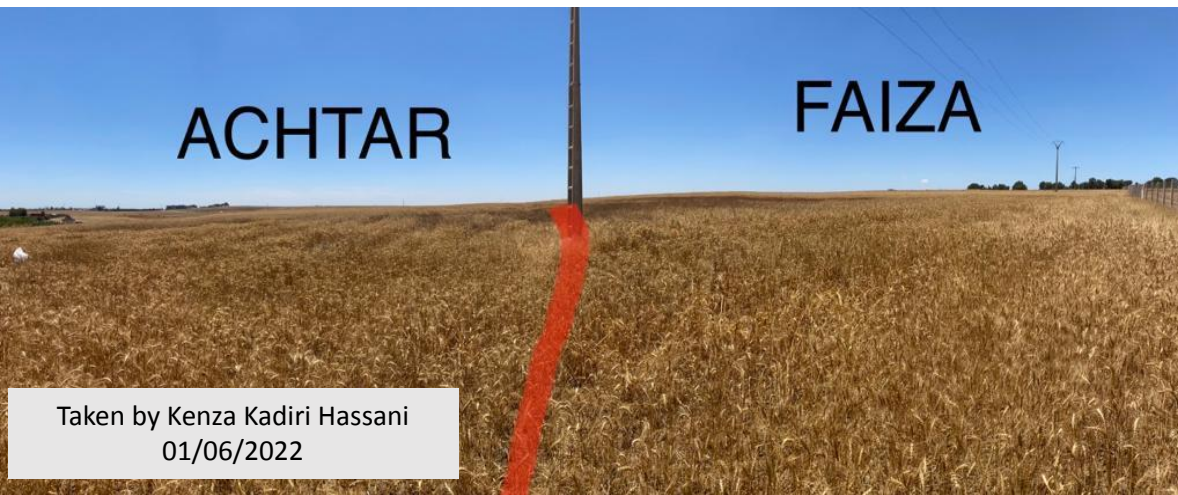
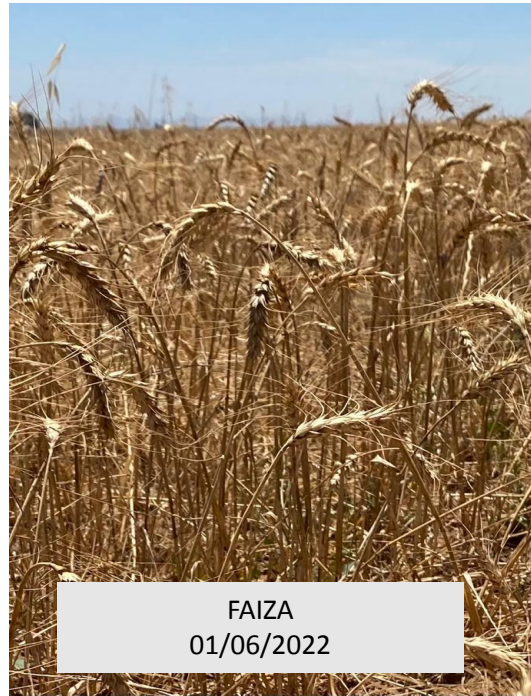
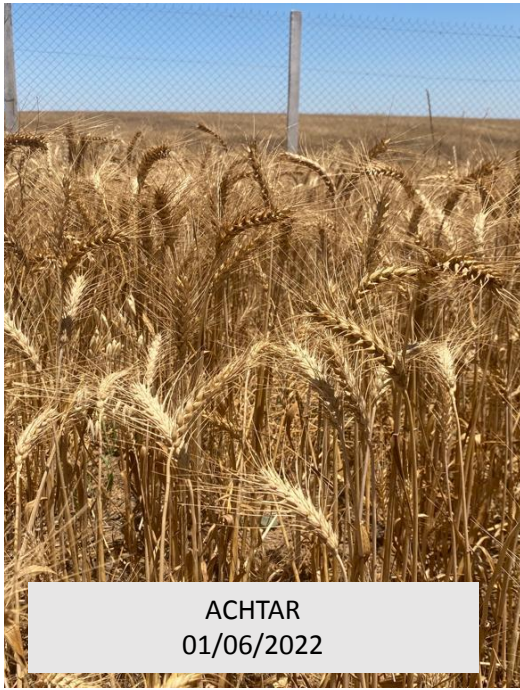
Septoria

Yellow rust

Zone localised

# Influence of soft wheat choice depending of the middle (Zaer)

Soft wheat, Case of Morocco :  
No tillage system



Soft Wheat yield relative to Achartar and Faiza varieties, Tiflet (2022)

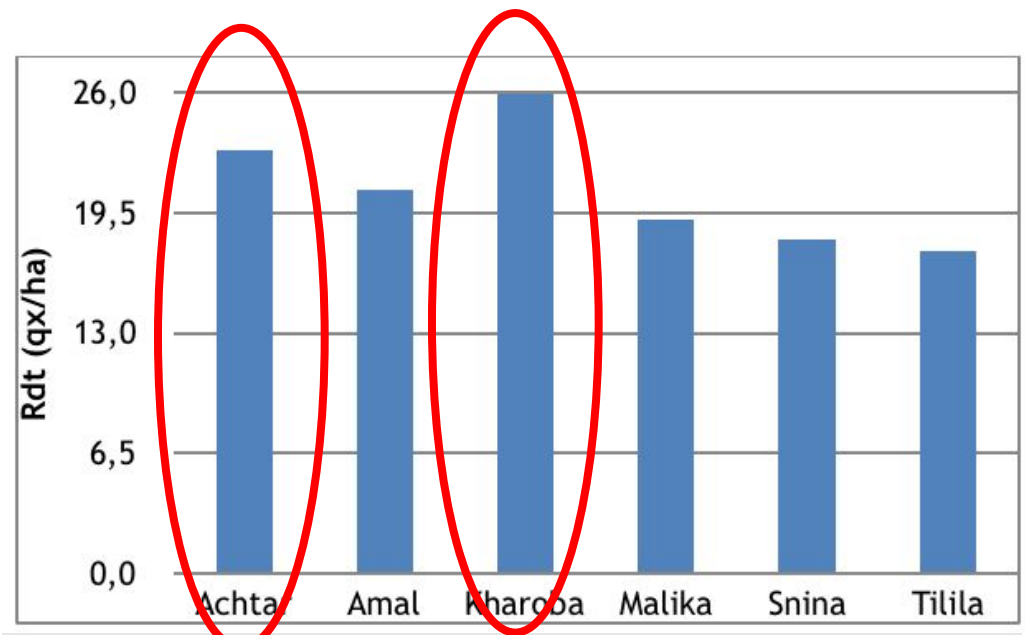
# PCA : Influence of soft wheat choice depending of the middle

Soft wheat, Case of Morocco :  
No tillage system

ACP

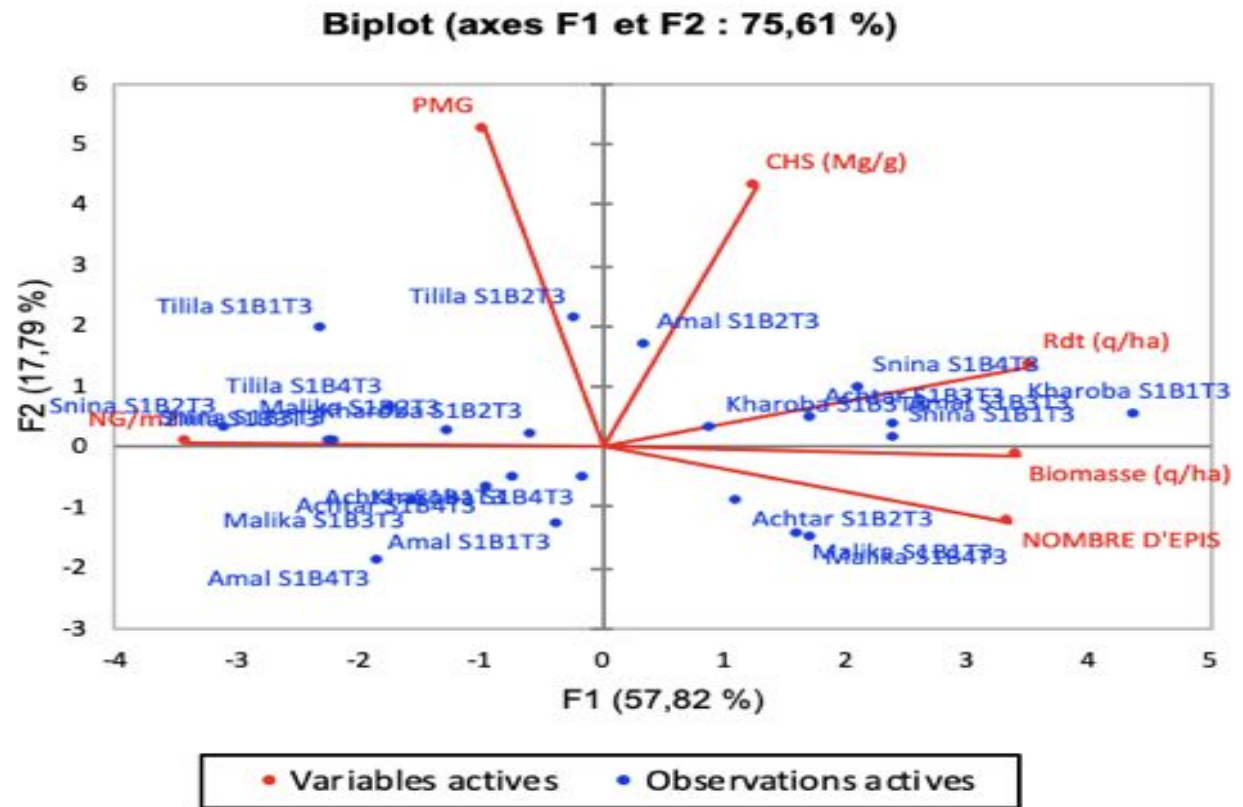
Gdana (Chaouia)

Varieties of soft wheat : Achtar / Amal/ Tilila/ Snina/Malika /Kharoba



Soft Wheat yield (q/ha)

Kadiri Hassani, 2020



Kadiri Hassani, 2020

# Conclusion and perspectives

In an atypical climatic context of Zaer and Chaouia situations (Morocco), the experimentation allowed us to highlight the importance of the agronomic conditions on the behavior of the 7 varieties of soft wheat tested. The interest that the same variety of soft wheat can have in different areas of the kingdom is quite demonstrative. The importance of varietal choice would reduce economic, ecological and environmental charges by at least 20%, which ensures long-term productivity of the soil.



Monitoring, technicity and initiation

# Conclusion and perspectives

‘Reducing vulnerabilities of drought; build capacity for sustainable land management; to converge regional and international efforts; allow the deployment of specific solutions and control water stress – **These must be the front lines of our fight against desertification; a fight of all, and of all times**’ Speech by his Majesty the king Mohammed VI at the Summit of Heads of State and Government on Drought and Sustainable Land Management (2022)

# Thank you for your attention

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