



1ST EUROPEAN SORGHUM CONGRESS

WORKSHOP

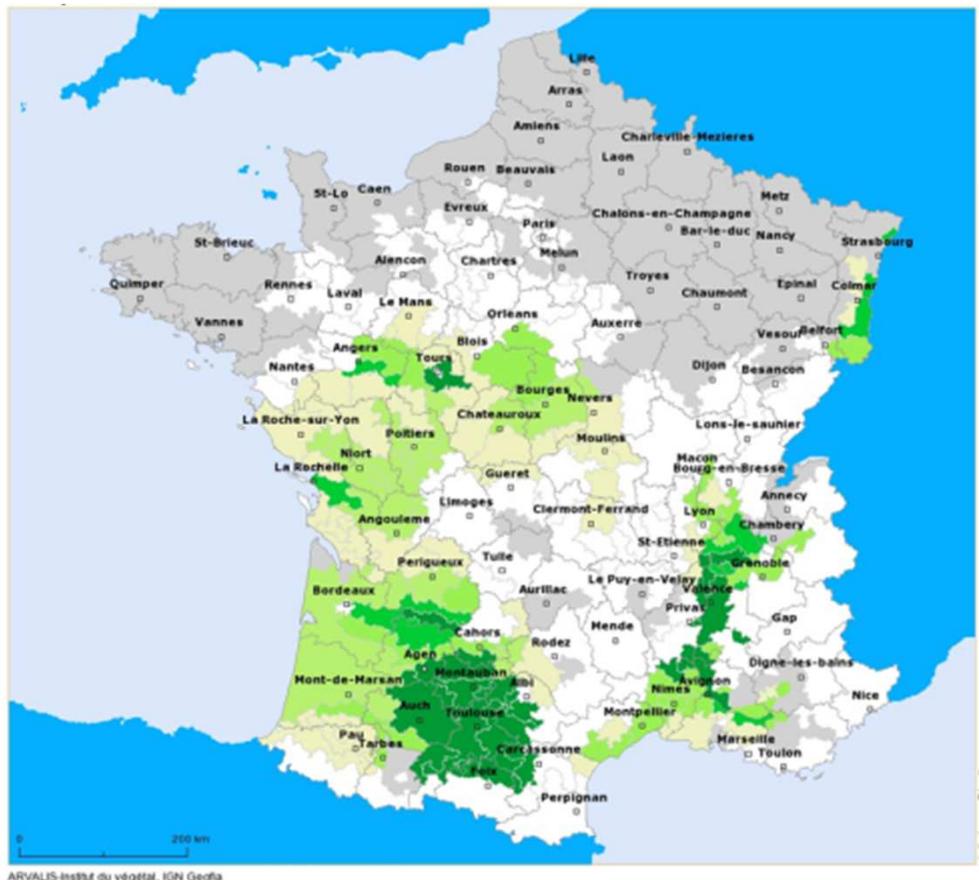
CROP MANAGEMENT TECHNIQUES FOR A BETTER PERFORMANCE

THE PLACE OF SORGHUM IN CROP ROTATION IN FRANCE

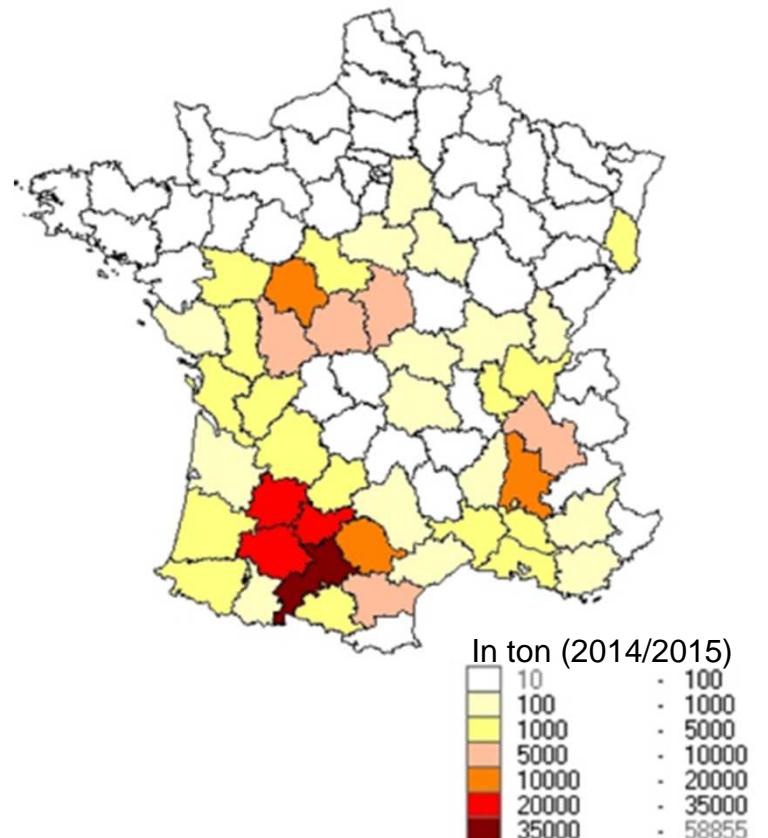


SORGHUM IN FRANCE

Production areas



Grain collect by department

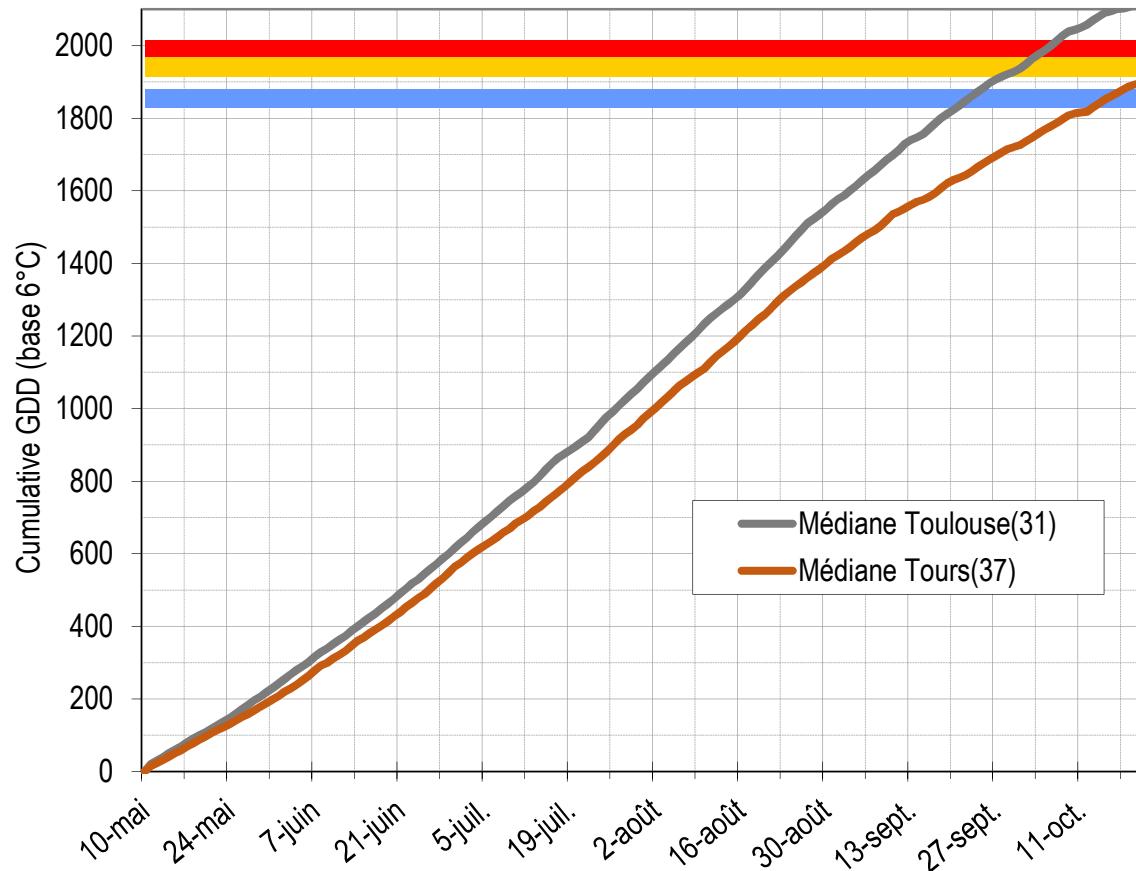




SORGHUM IN FRANCE

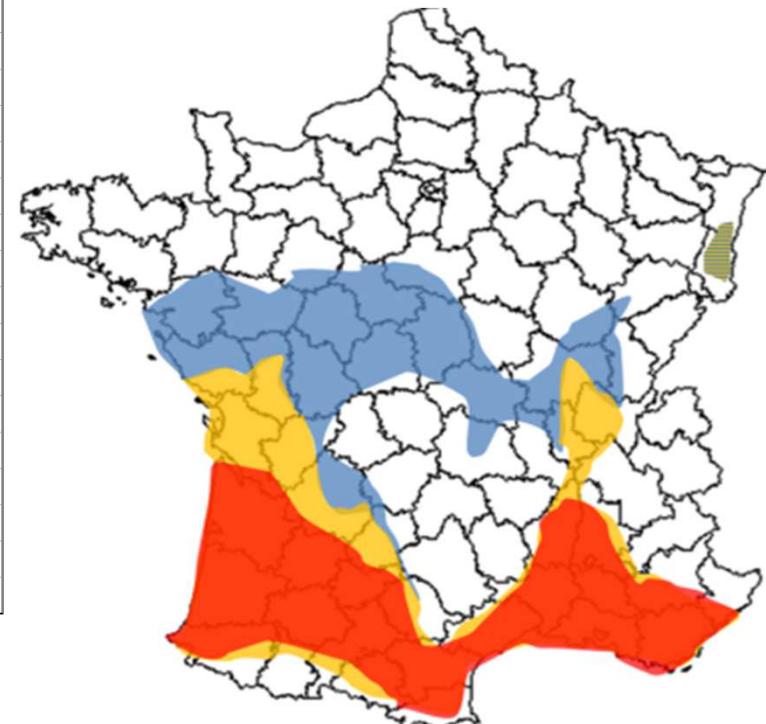
PRODUCTION AREA AND LENGTH OF VARIETY MATURITY

- Variety choice must take into account precocity group suitable for its production area and the cumulative GDD available



	Precocity group and area	Cumulative GDD (*) from planting to maturity
Very early variety	1830 - 1890	
Early and mid early variety	1900 - 1970	
Late variety	1970 - 2020	

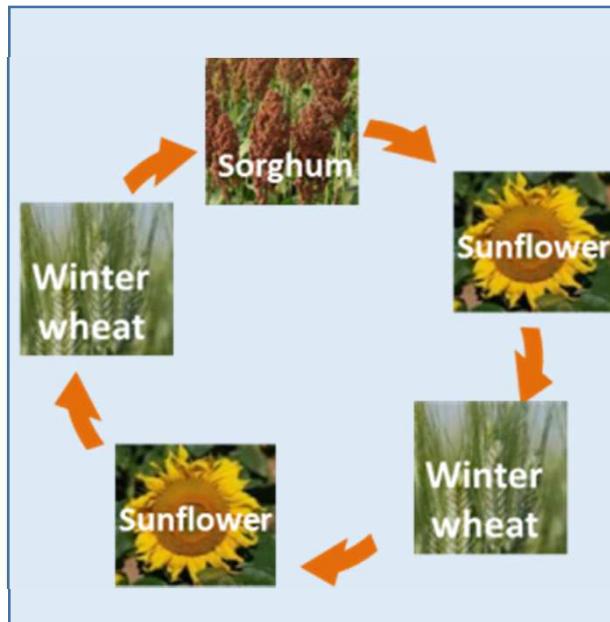
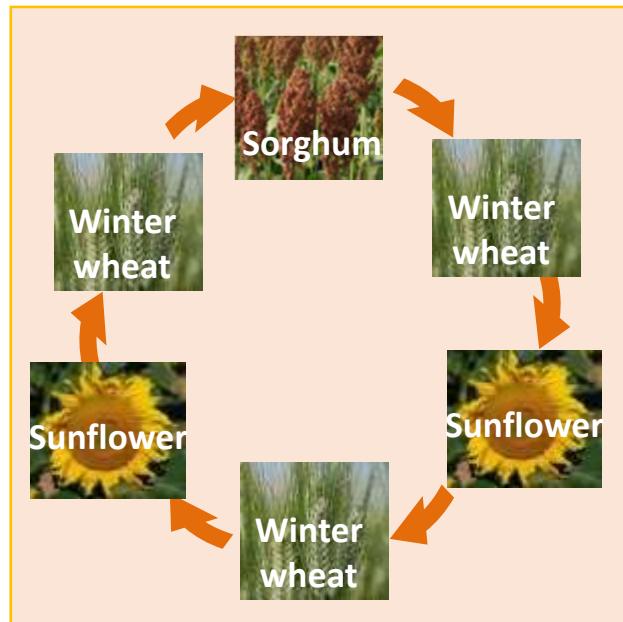
(*) : Growing Degree Day (base 6°C)



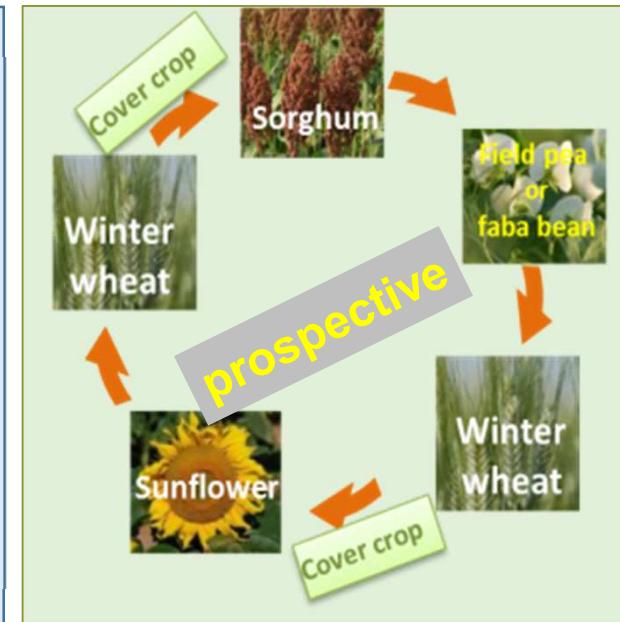
PLACE IN CROP ROTATION

Most of the French sorghum crops are grown without irrigation

- Examples of sorghum place in crop rotation



**Sorghum in Innovative system
(conservation tillage, agroecology)**



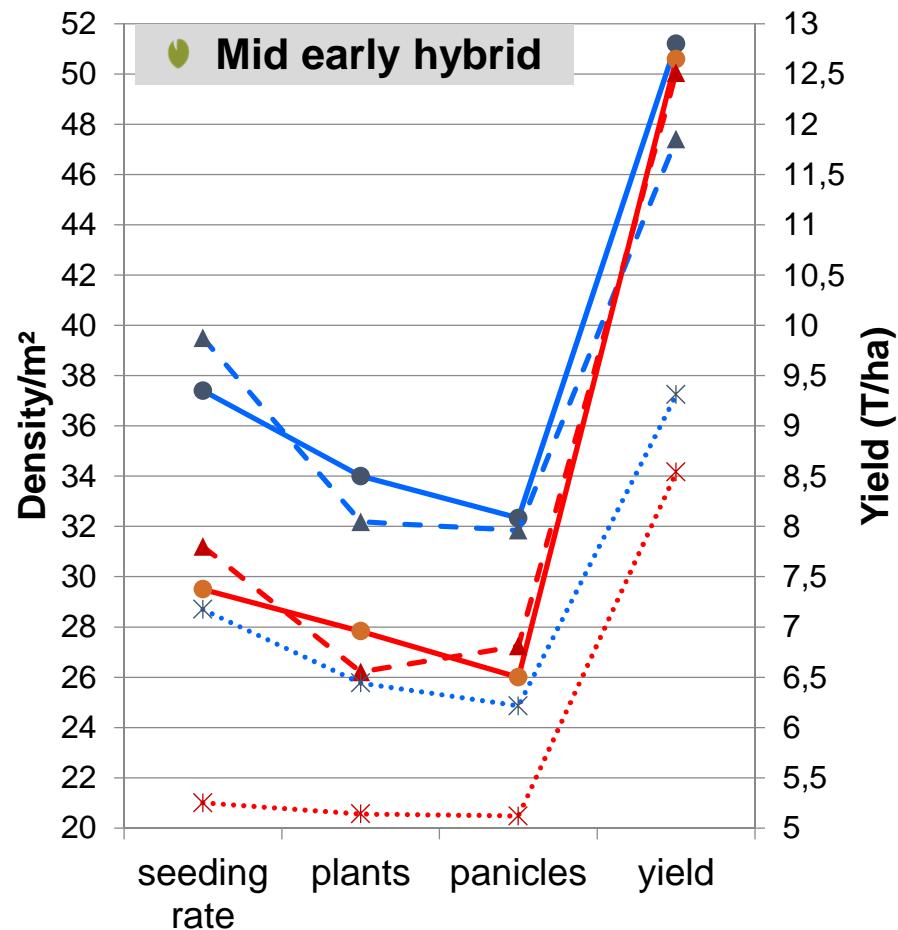
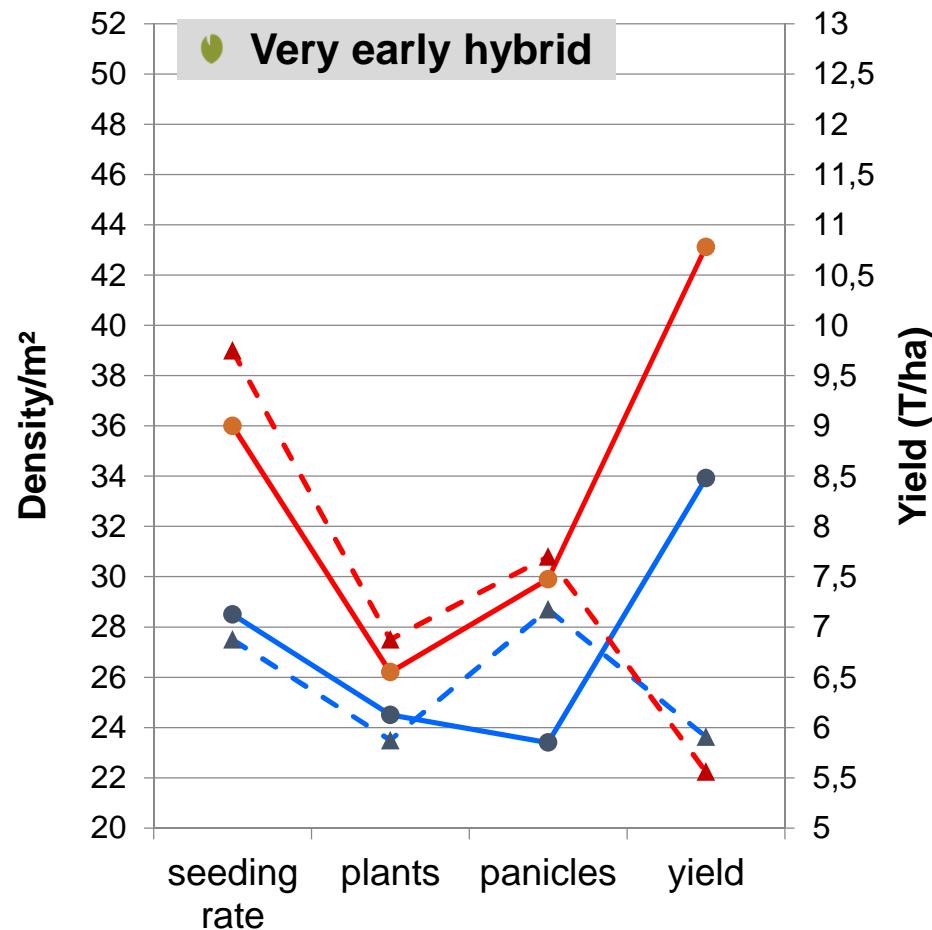
- Extension and diversification of rotation :
 - Best management of pest (disease, insect, weed)
 - Improving system performances (economic, environmental, ...)

- Idem +
 - Best nitrogen management, soil protection and fertility, ...



SEEDING RATE

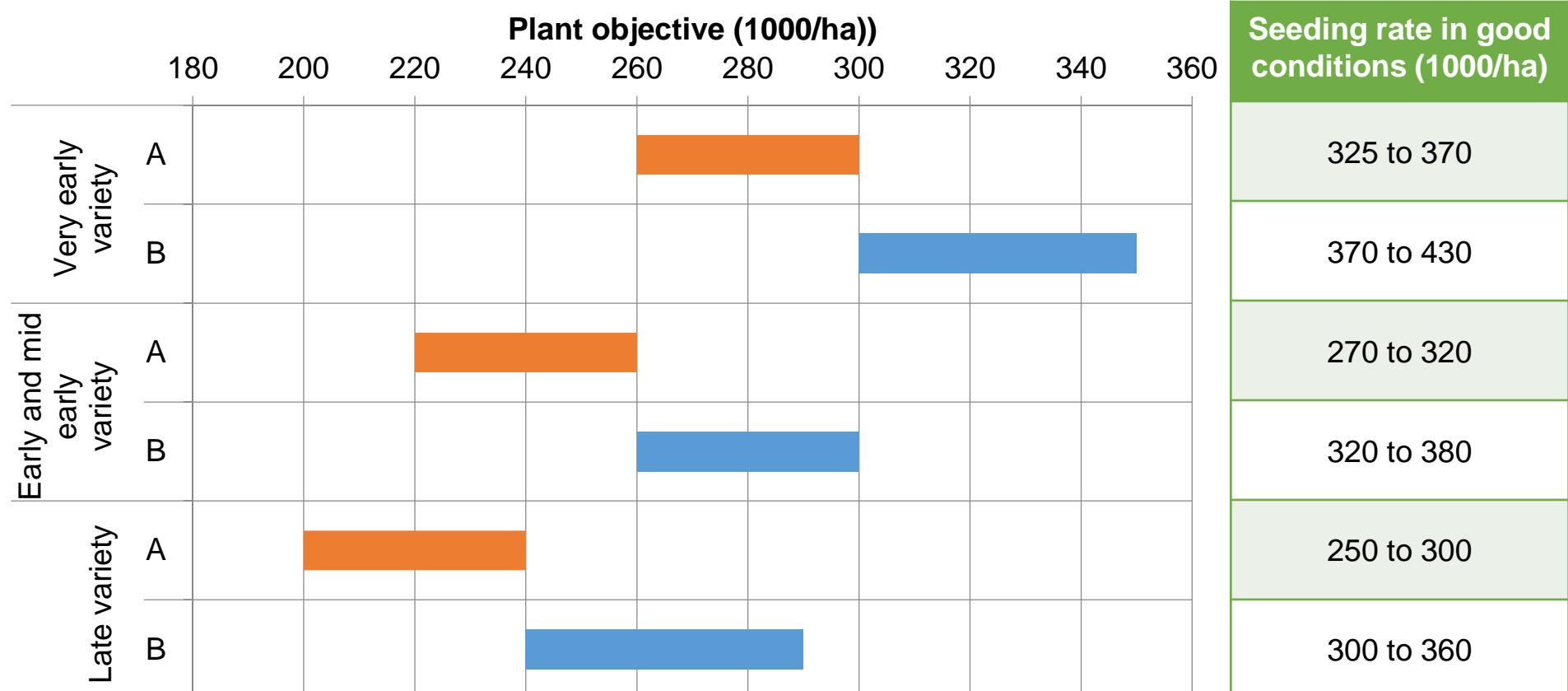
PLANT DENSITY IS THE FIRST YIELD COMPONENT MANAGEABLE BY THE PRODUCER





SEEDING RATE

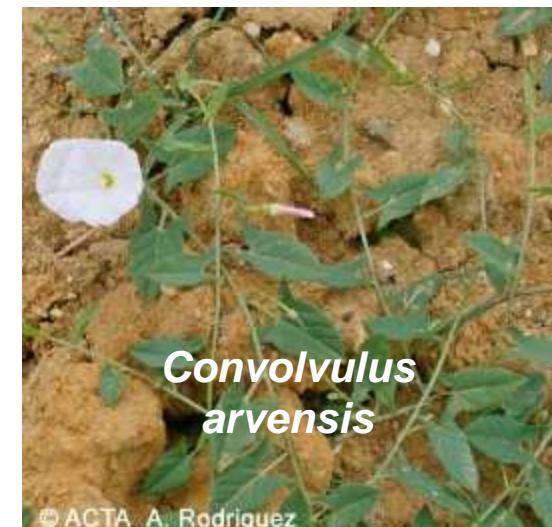
SEEDING RATE MUST BE ADAPTED TO THE CONTEXT



- A : Medium soil and without irrigation
- B : Deep soil or irrigation

- In good conditions, seeding rate must take into account 20% loss

Sorghum benefits in crop rotation :



- In case of big problems in winter grain (herbicide resistance, heavy infestations). Insertion of summer crop like sorghum allow to decrease weed density.
- Effectives herbicides solutions avaible in sorghum is beneficial for the management of these weeds in crop rotation



WEED MANAGEMENT

Difficult weeds in sorghum :





NON CHEMICAL WEED CONTROL

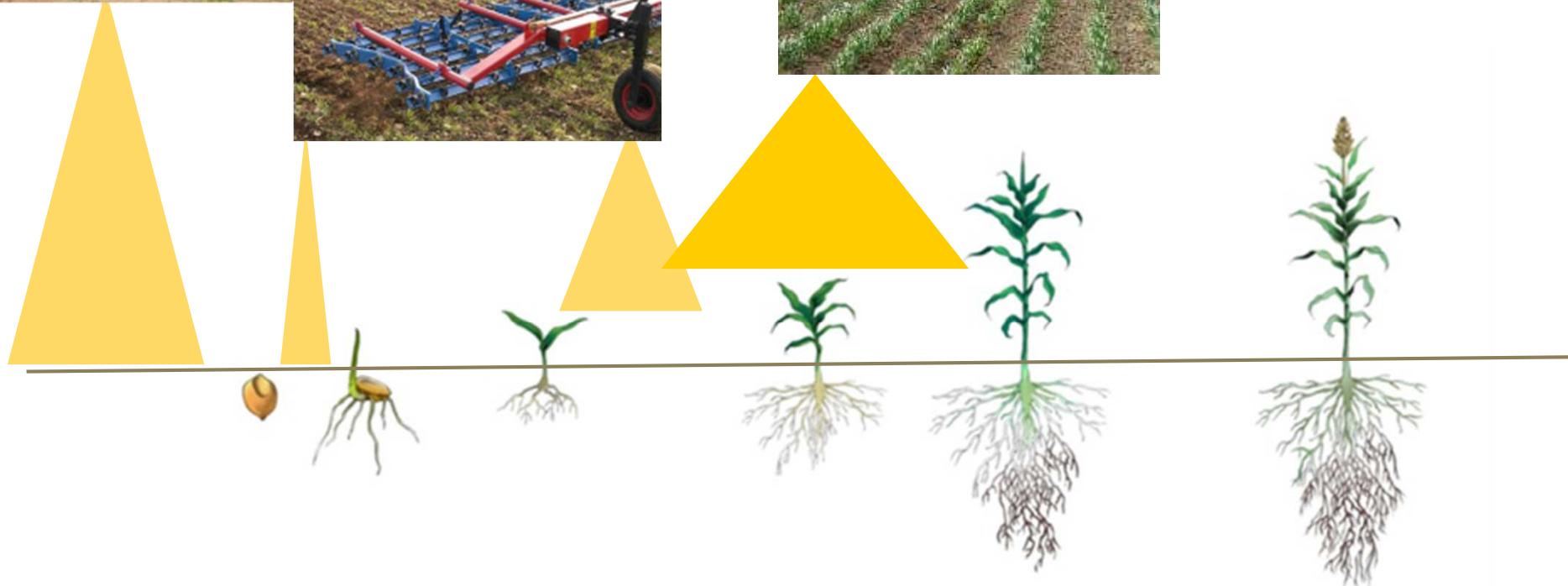
False seed bed



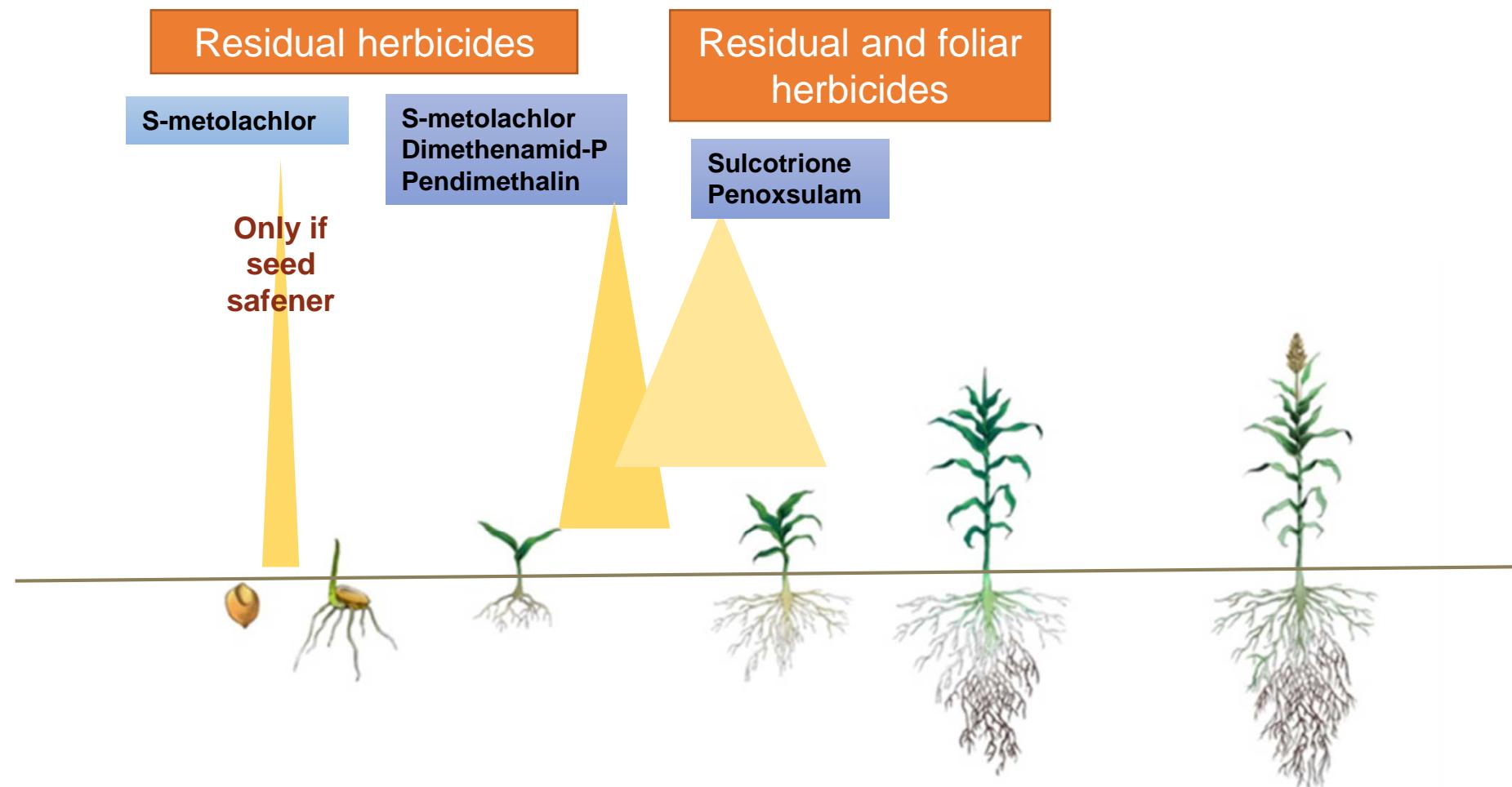
Weed harrow or rotary hoe



Inter-row cultivator



Annual grass weeds :



CHEMICAL WEED CONTROL

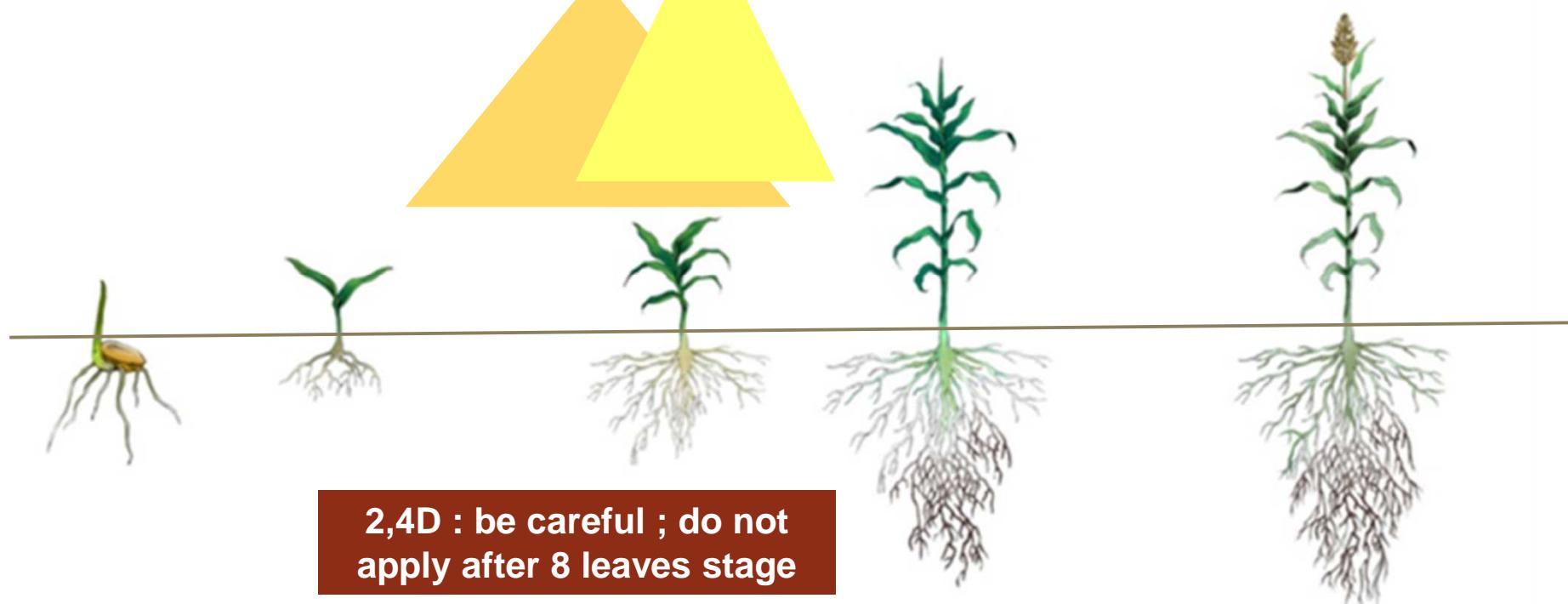
Broadleaf weeds:

Contact foliar herbicides

Systemic foliar herbicides

2,4D; clopyralid; fluroxypyr;
prosulfuron; dicamba

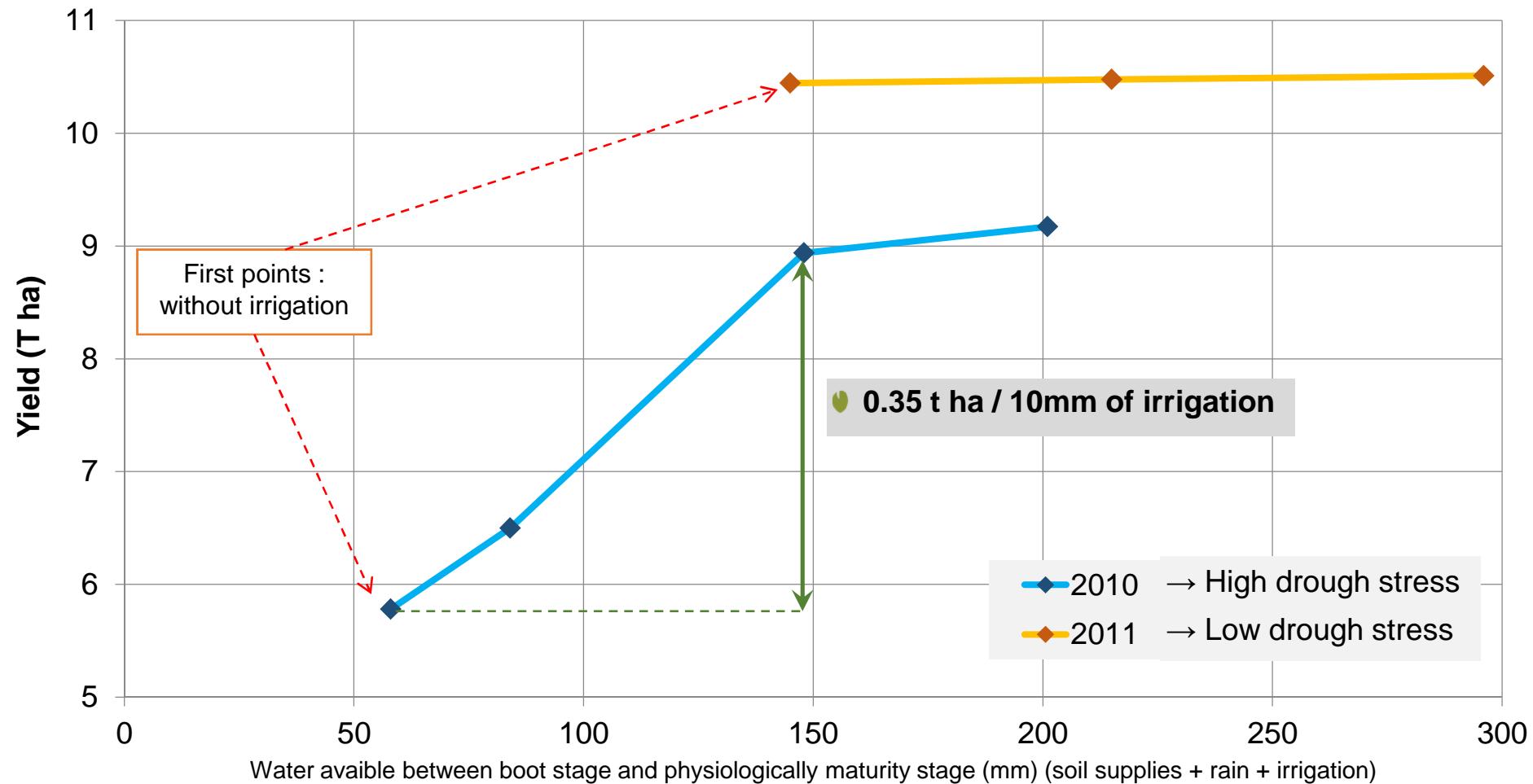
Bentazone
Bromoxynil





WATER EFFICIENCY

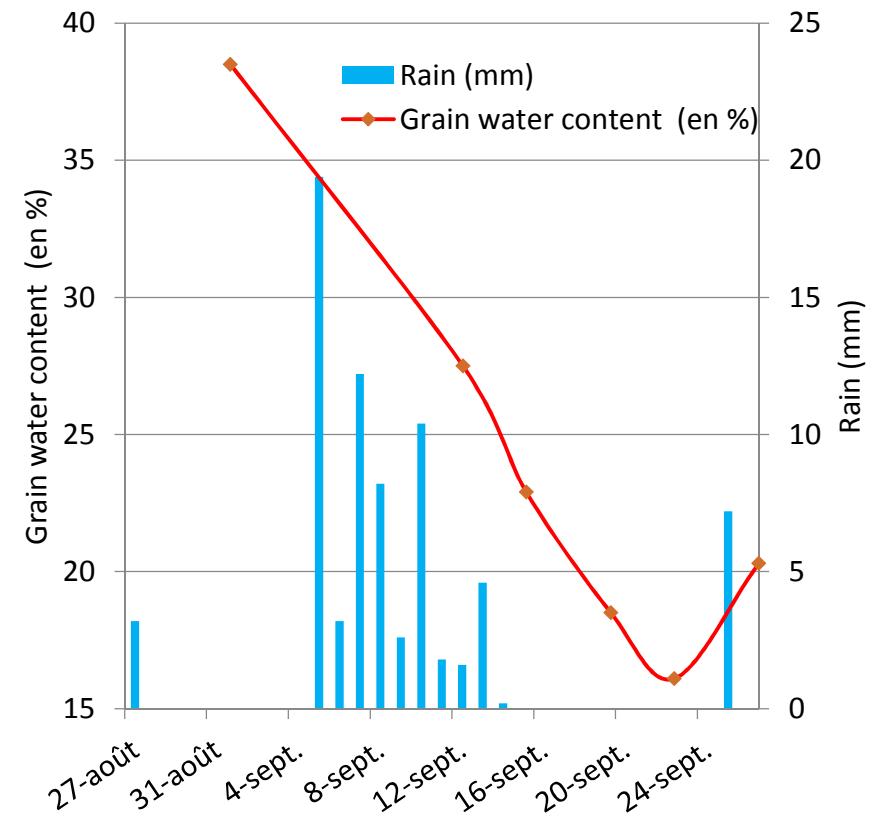
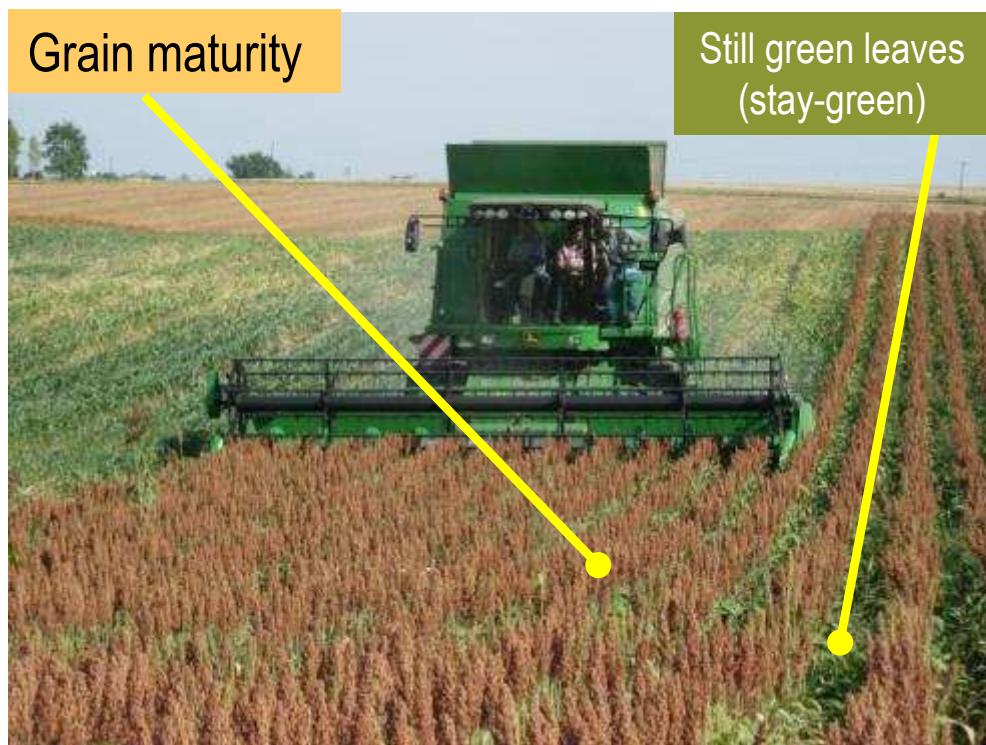
Grain sorghum water response is strongly linked to soil depth and water reserve





SORGHUM HARVEST

Grain desiccation



↓ 1% H₂O seed ≈ 15°C cumul degree day base 6



THANK YOU



Jean-Luc VERDIER, The place of sorghum in crop rotation in France

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BUCHAREST
3-4 NOVEMBER 2016