



1ST EUROPEAN SORGHUM CONGRESS

WORKSHOP

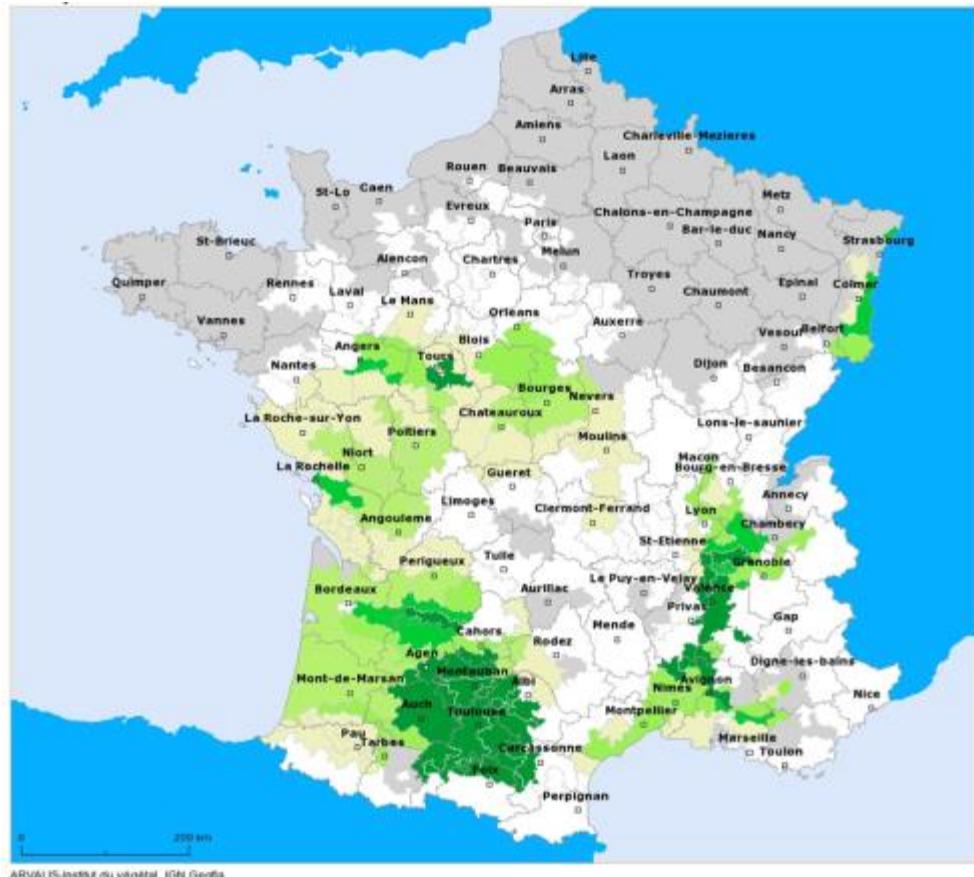
CROP MANAGEMENT TECHNIQUES FOR A BETTER PERFORMANCE

THE PLACE OF SORGHUM IN CROP ROTATION IN FRANCE

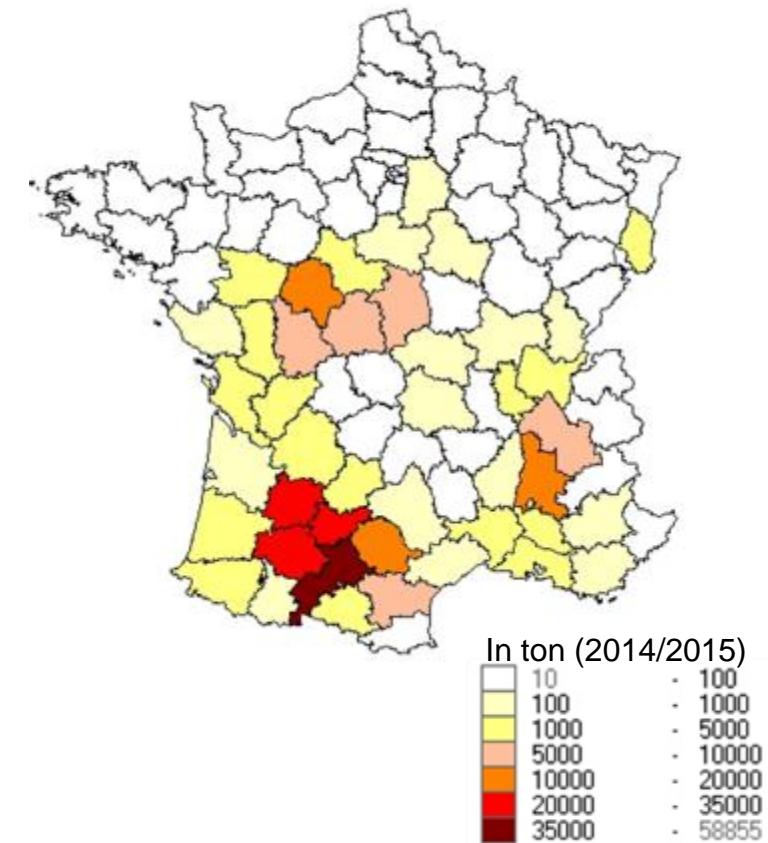


SORGHUM IN FRANCE

Production areas



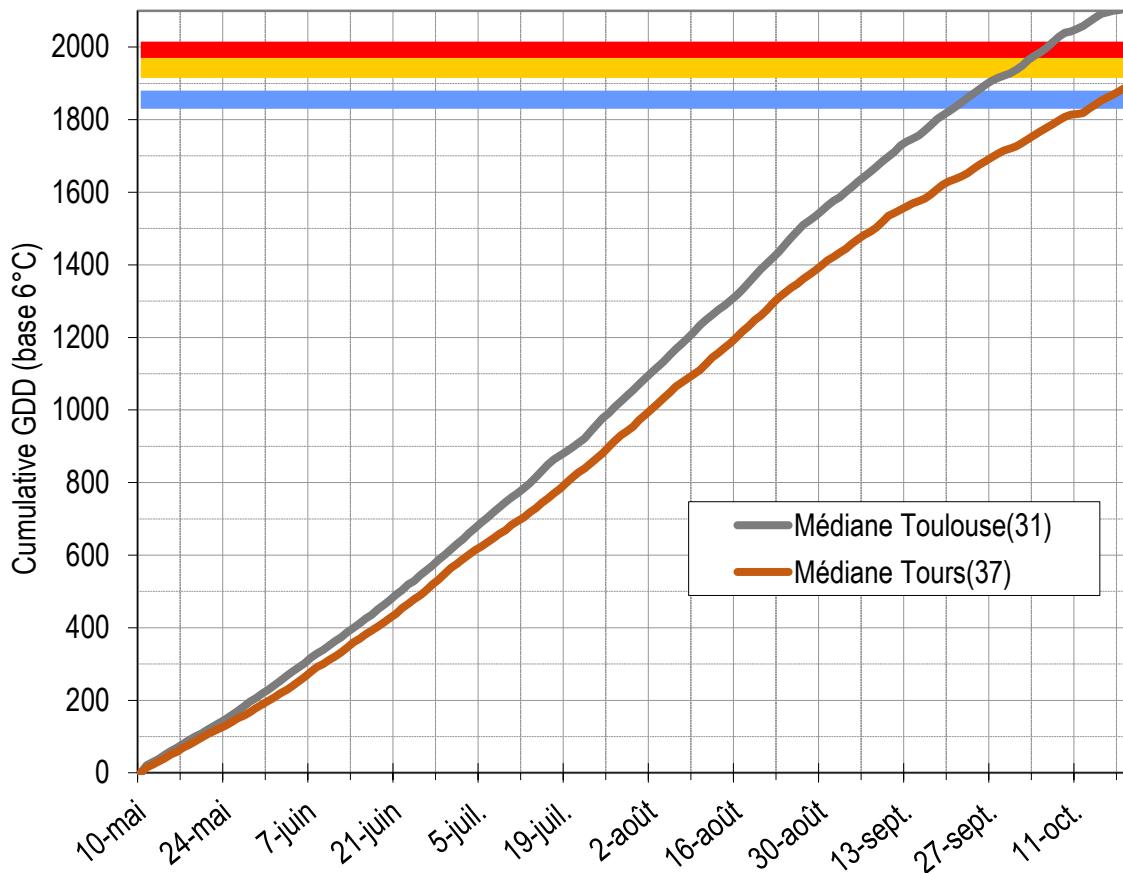
Grain collect by department



SORGHUM IN FRANCE

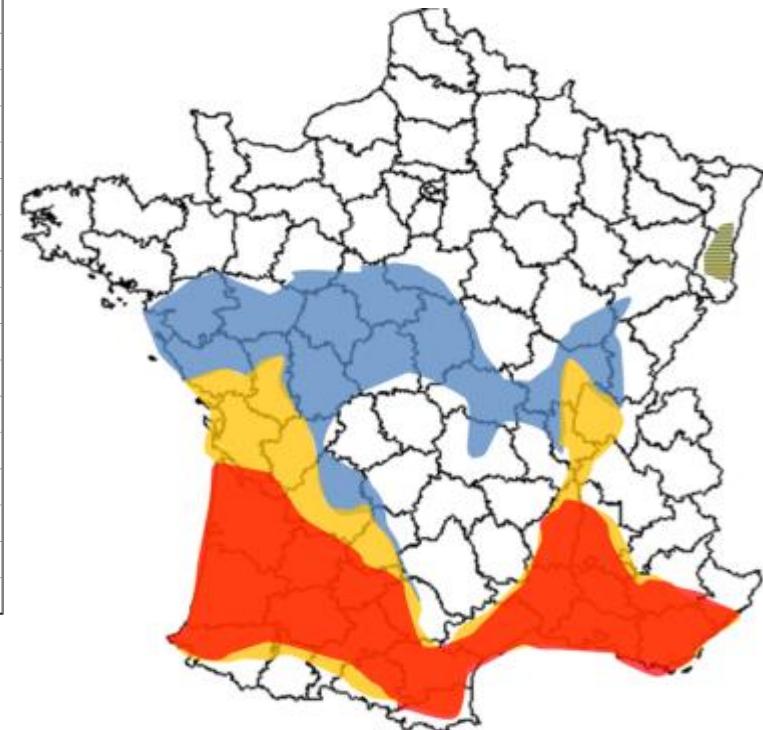
PRODUCTION AREA AND LENGTH OF VARIETY MATURITY

- 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

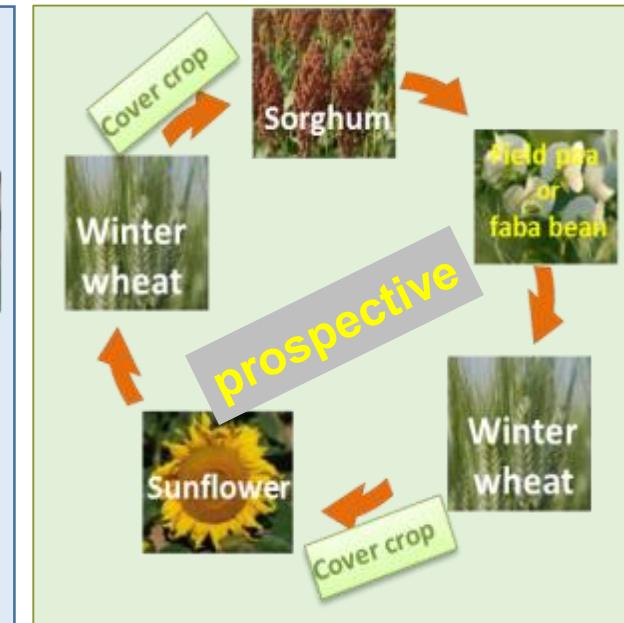
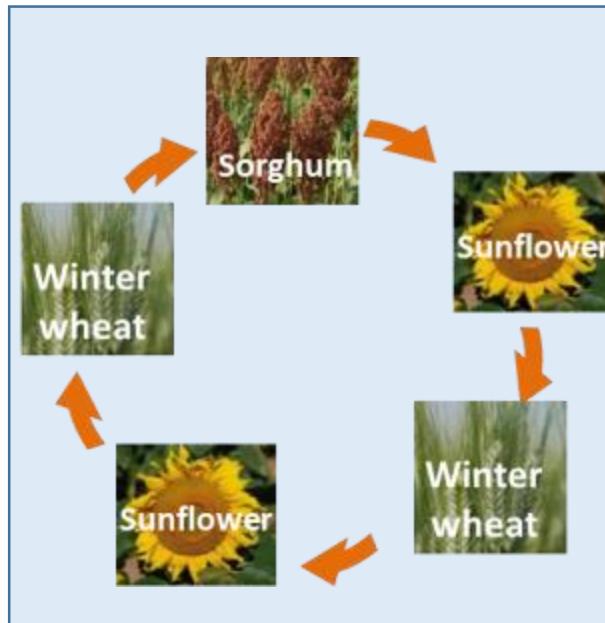
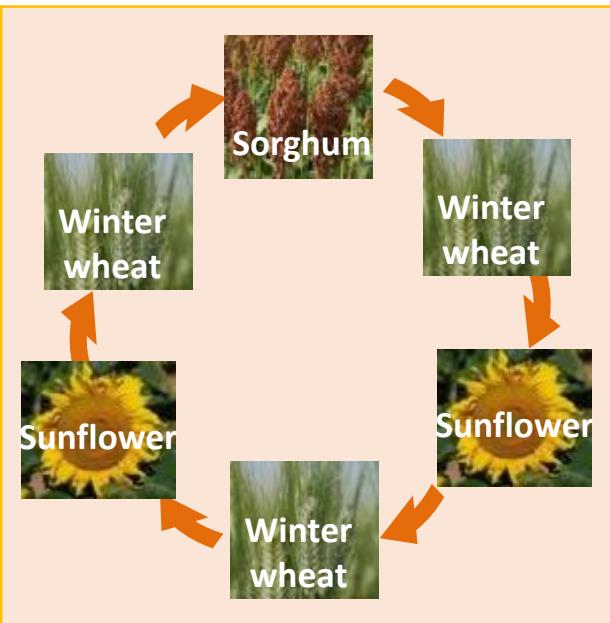
(*) : Growing Degree Day (base 6°C)



PLACE IN CROP ROTATION

Most of the French sorghum crops are grown without irrigation

Examples of sorghum place in crop rotation



Extension and diversification of rotation :

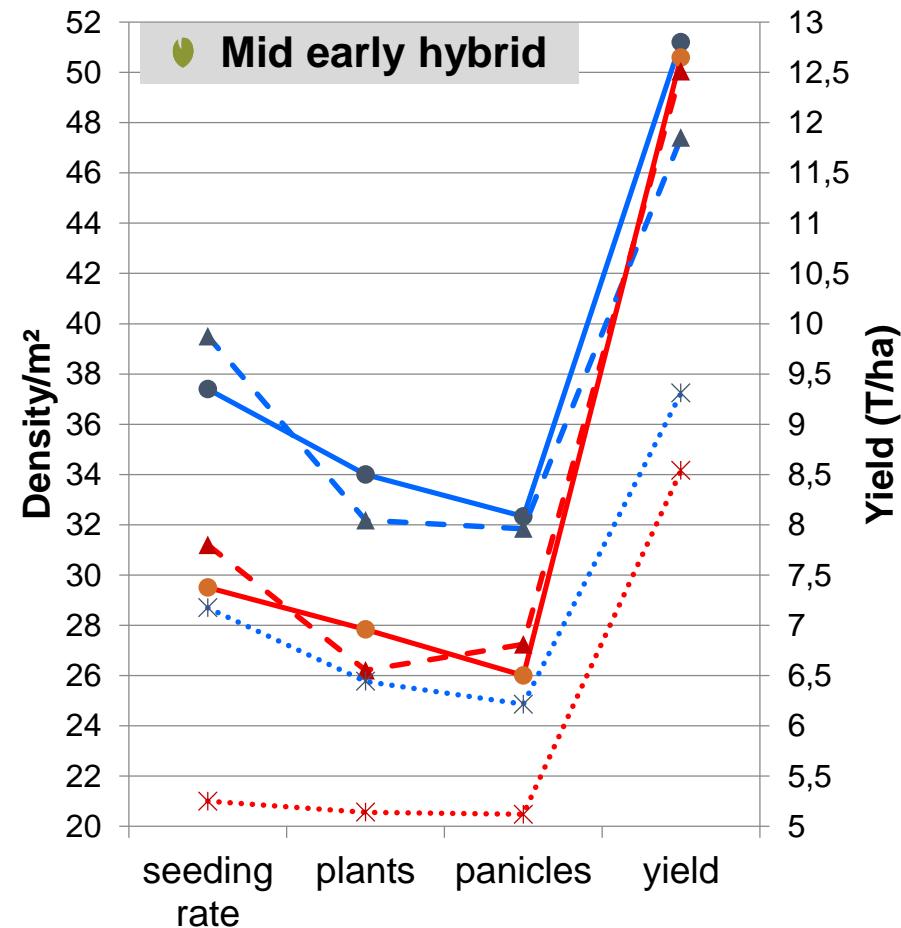
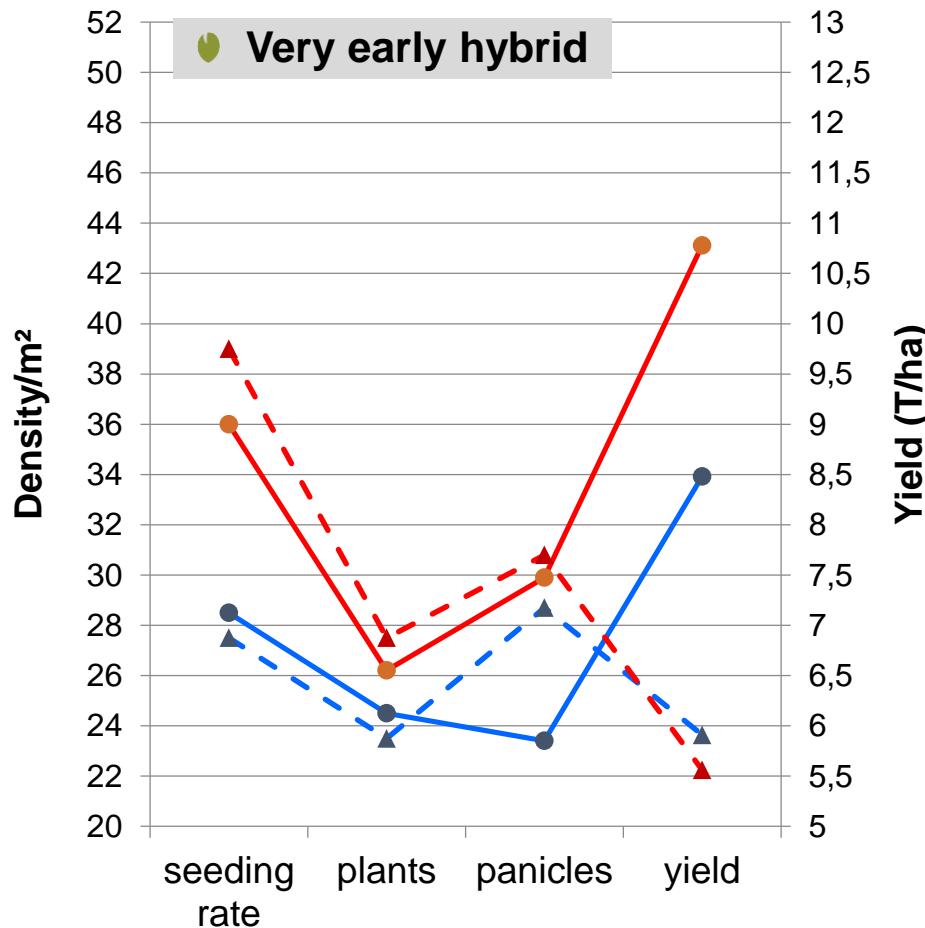
- Best management of pest (disease, insect, weed)
- Improving system performances (economic, environmental, ...)

Idem +

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

SEEDING RATE

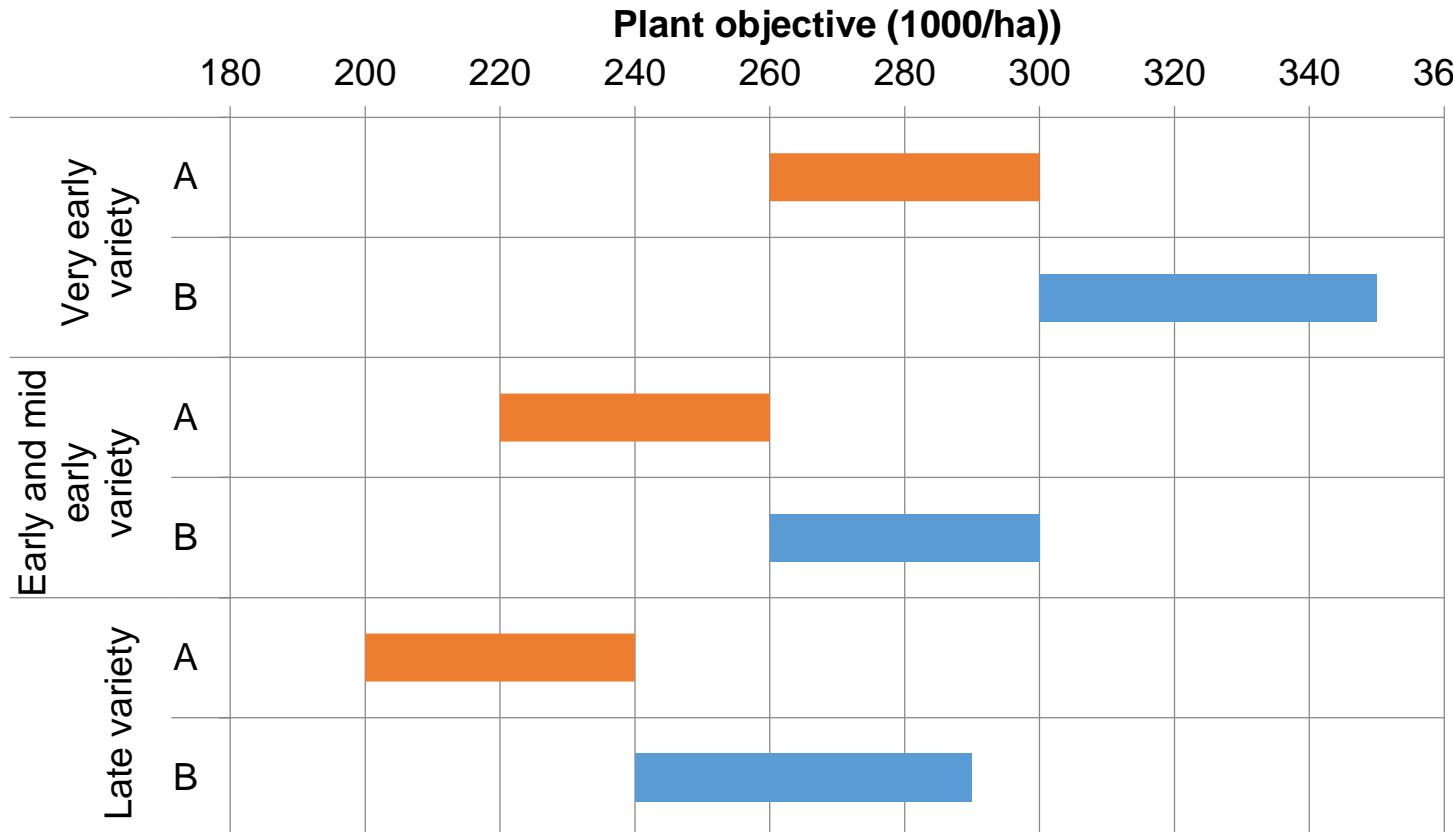
PLANT DENSITY IS THE FIRST YIELD COMPONENT MANAGEABLE BY THE PRODUCER



SEEDING RATE

SEEDING RATE MUST BE ADAPTED TO THE CONTEXT

Seeding rate in good conditions (1000/ha)
325 to 370
370 to 430
270 to 320
320 to 380
250 to 300
300 to 360

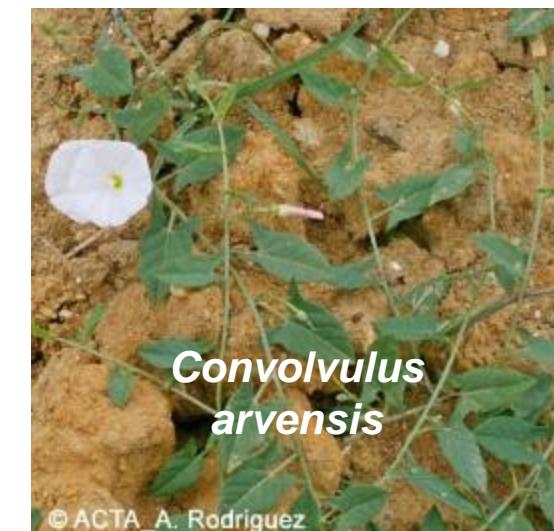


- A : Medium soil and without irrigation
- B : Deep soil or irrigation

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

WEED MANAGEMENT

Sorghum benefits in crop rotation :

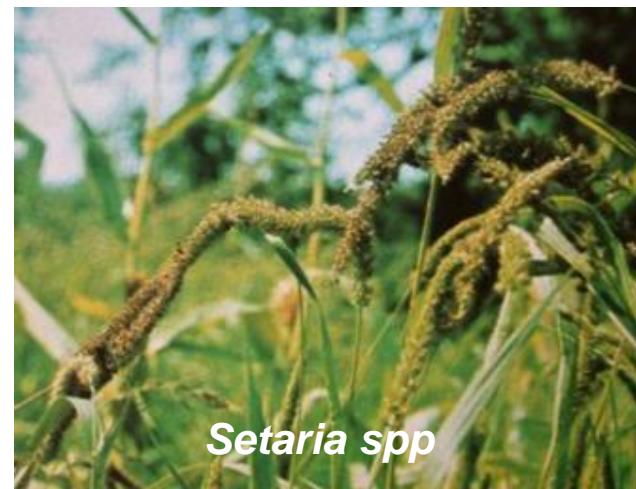
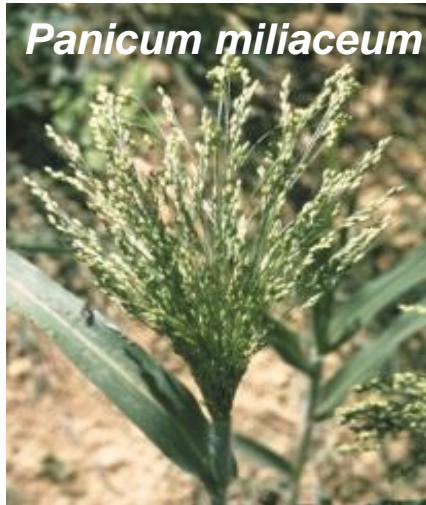


● In case of big problems in winter grain (herbicide résistance, heavy infestations). Insertion of summer crop like sorghum allow to decrease weed density.

● Effectives herbicides available in sorghum is beneficial solutions for the management of these weeds in crop rotation

WEED MANAGEMENT

Difficult weeds in sorghum :





NON CHEMICAL WEED CONTROL

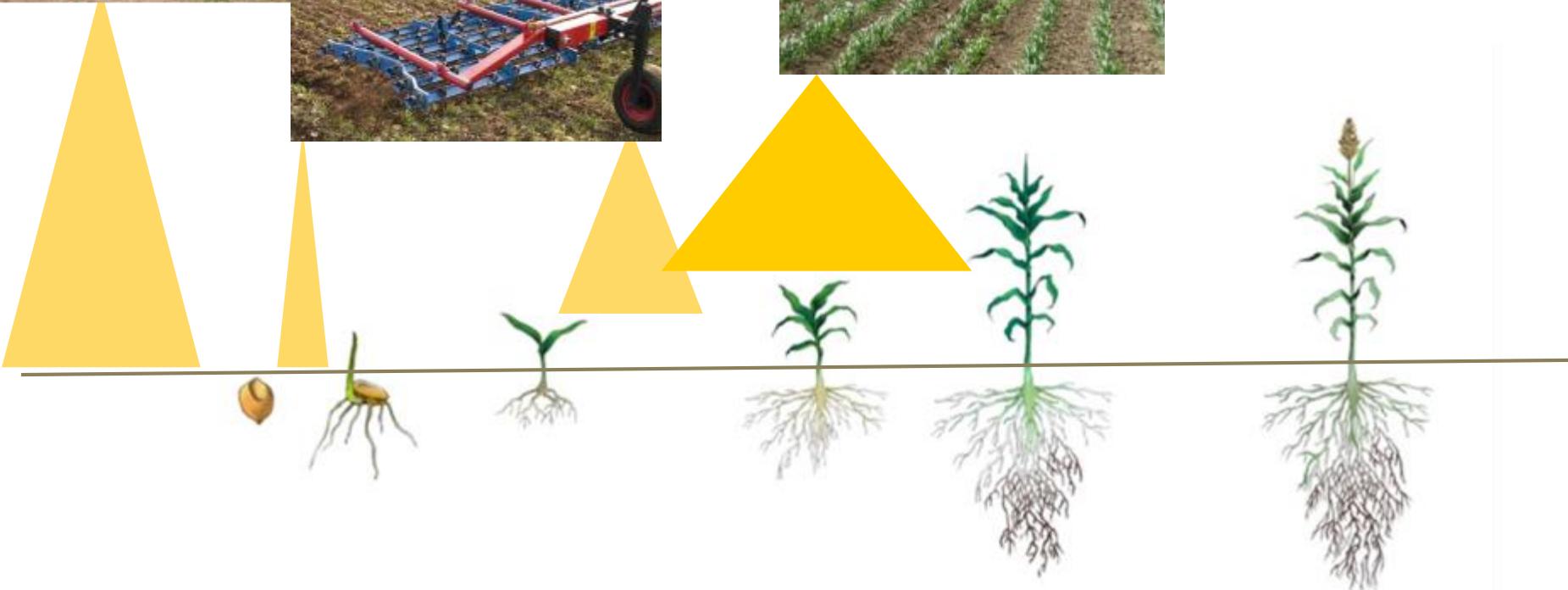
False seed bed



Weed harrow or rotary hoe



Inter-row cultivator



CHEMICAL WEED CONTROL

Annual grass weeds :

Residual herbicides

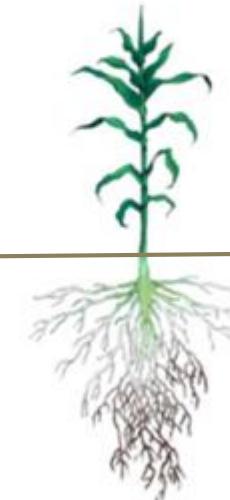
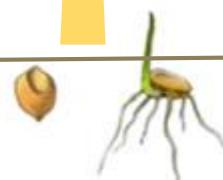
S-metolachlor

Only if
seed
safener

Residual and foliar
herbicides

S-metolachlor
Dimethenamid-P
Pendimethalin

Sulcotrione
Penoxsulam



CHEMICAL WEED CONTROL

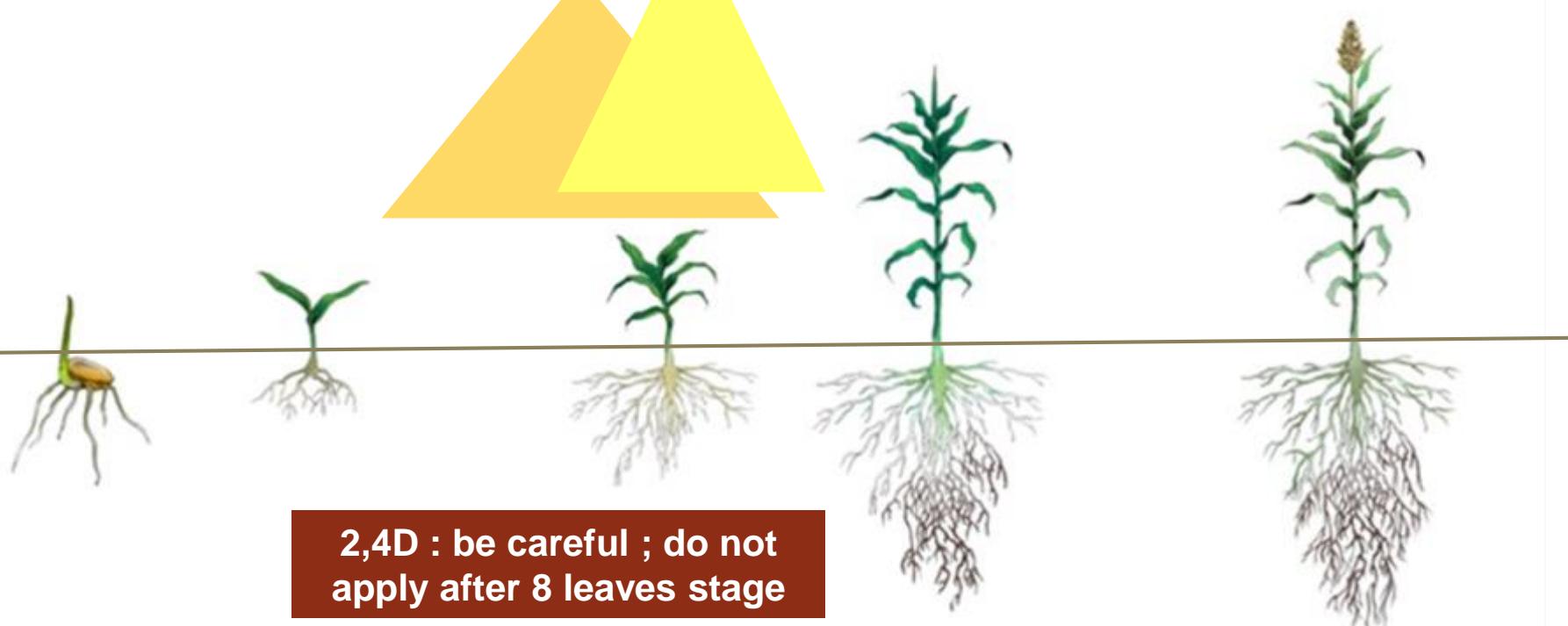
Broadleaf weeds:

Contact foliar herbicides

Bentazone
Bromoxynil

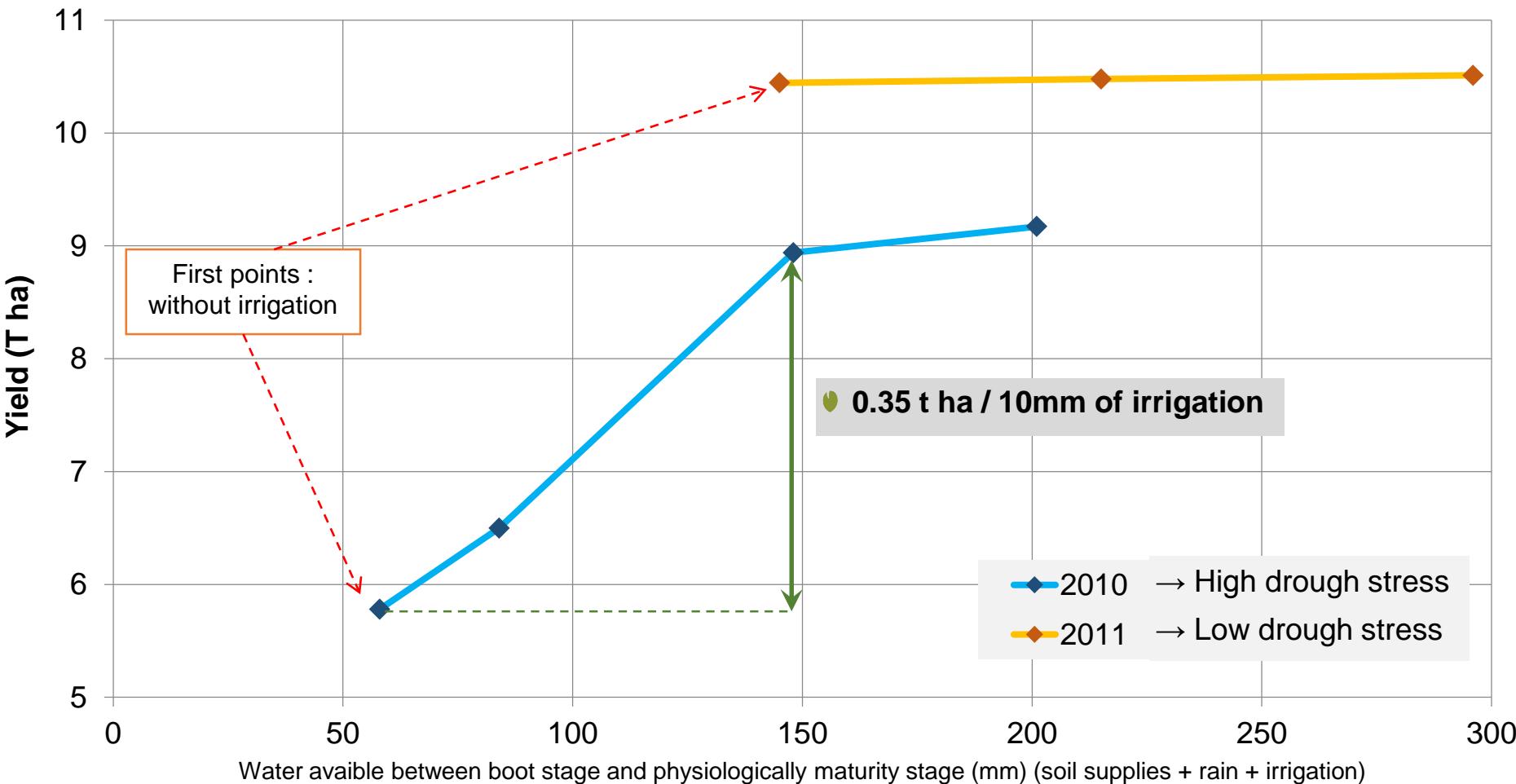
Systemic foliar herbicides

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



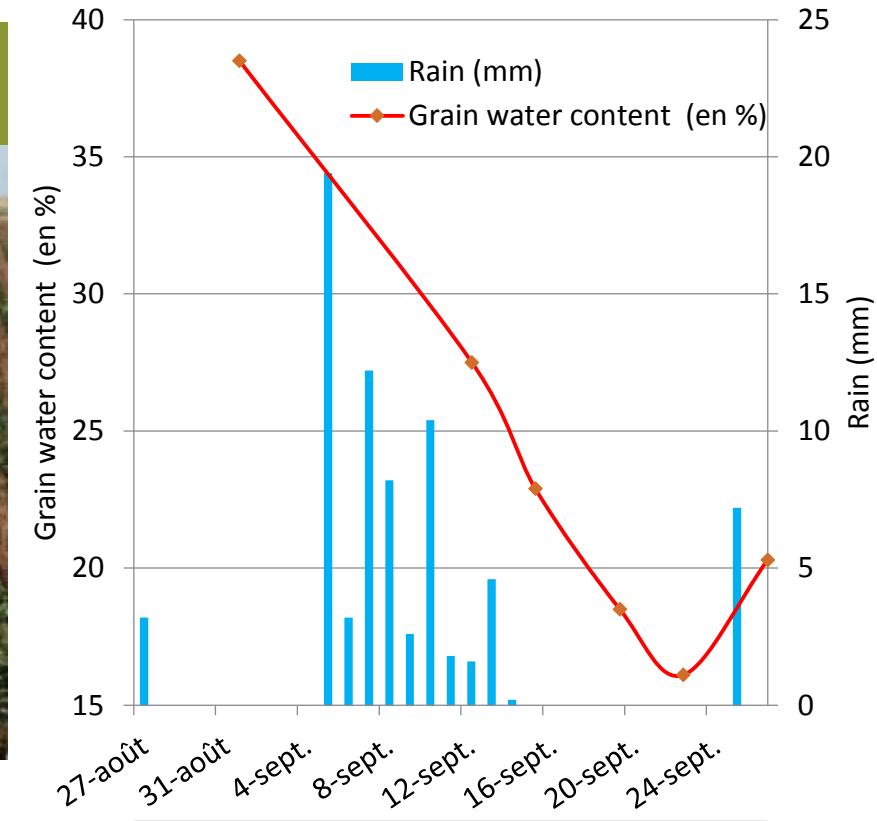
WATER EFFICIENCY

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

BUCHAREST
3-4 NOVEMBER 2016