



Cultural practices of sunflower in France

Analysis and rooms for progress

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V. Lecomte, Terres Inovia, France,
v.lecomte@terresinovia.fr

Plan

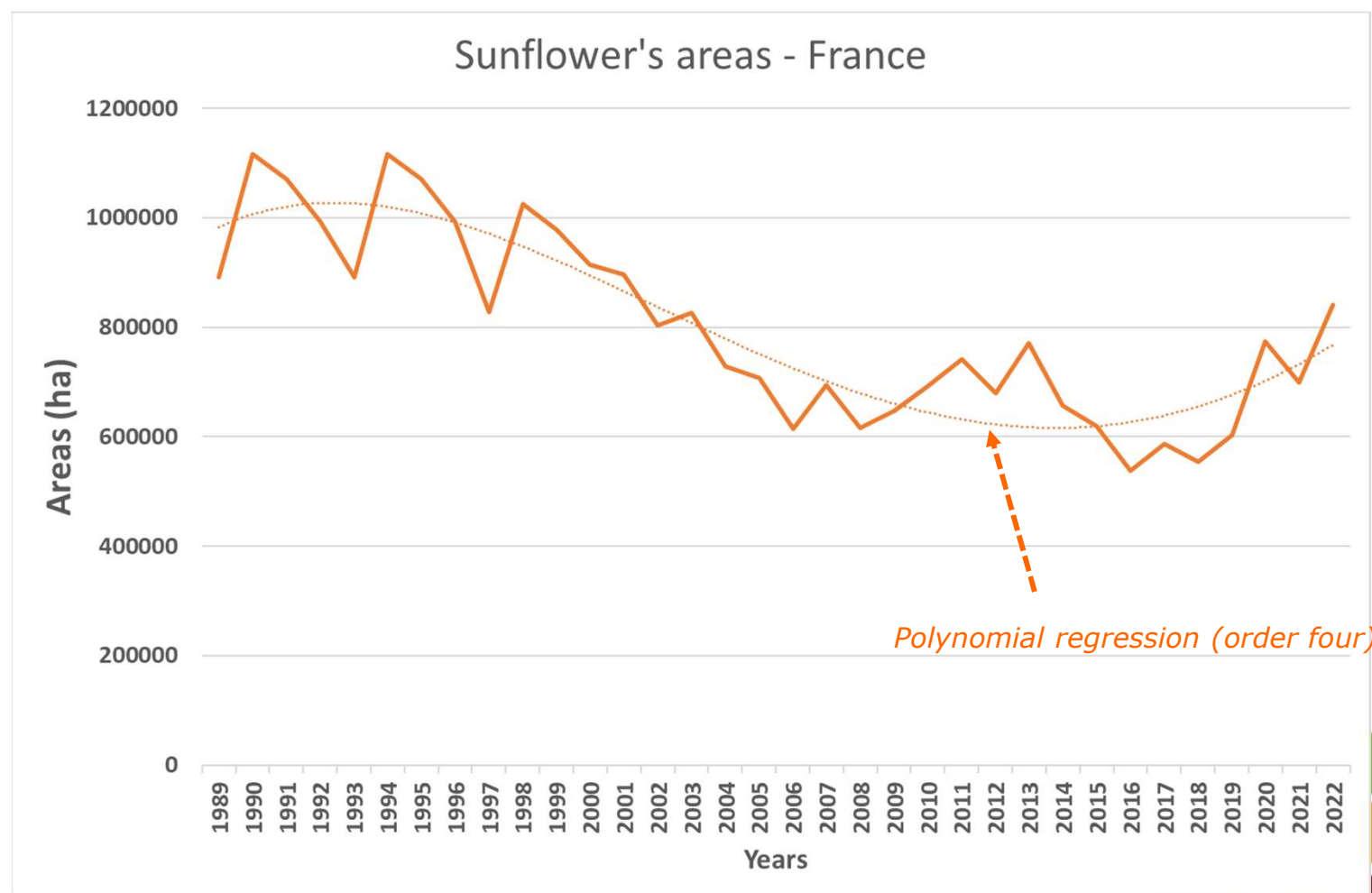
- ❑ **Context** : evolution of sunflower's areas and yields
- ❑ **Surveys on cultural practices** carried out by Terres Inovia
- ❑ **Examples of results**
 - ❑ Relationship between sowing date and yield
 - ❑ Practice of intermediate crops before sunflower
 - ❑ Weeding practices and main poorly controlled flora
 - ❑ Evolution of densities of sowing
 - ❑ Evolution of cropped hybrid's diversity
- ❑ **Conclusion**

Evolution of sunflower's areas

From 1989 to 2022



- ❑ **Decrease from 1995 to 2005** in favor of rapeseed
- ❑ **Rebound from 2018 to 2022**, mainly instead of rapeseed and corn (only 2022)

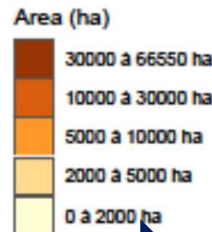
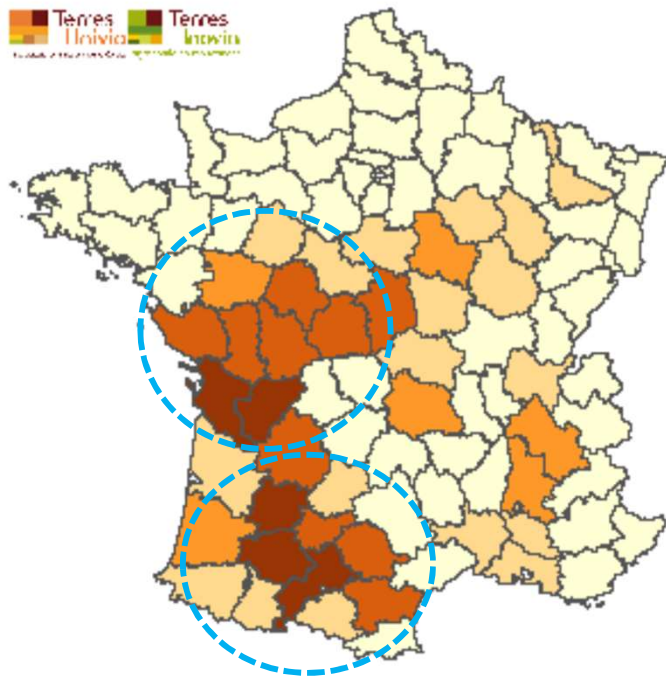


Evolution of production areas 2022 Vs 2016



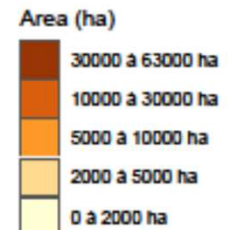
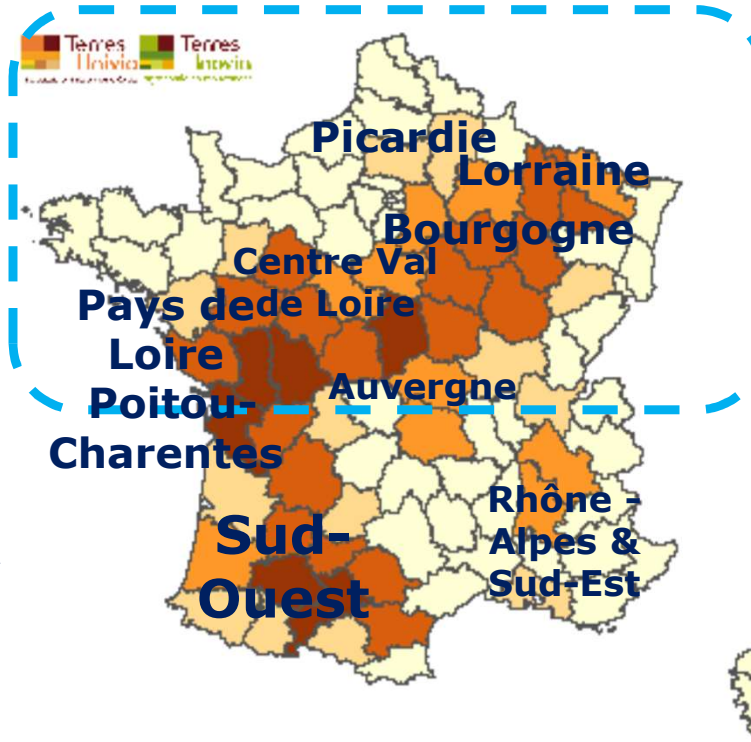
- Increase of sunflower's areas mainly in the North half part of France

Areas Sunflower France – 2016



Terres Inovia et Terres Univia d'après les données d'Agreste*
(*Ministère de l'Agriculture et de l'Alimentation)

Areas Sunflower France – 2022
temporary datas



Terres Inovia et Terres Univia d'après les données d'Agreste*
(*Ministère de l'Agriculture et de l'Alimentation)

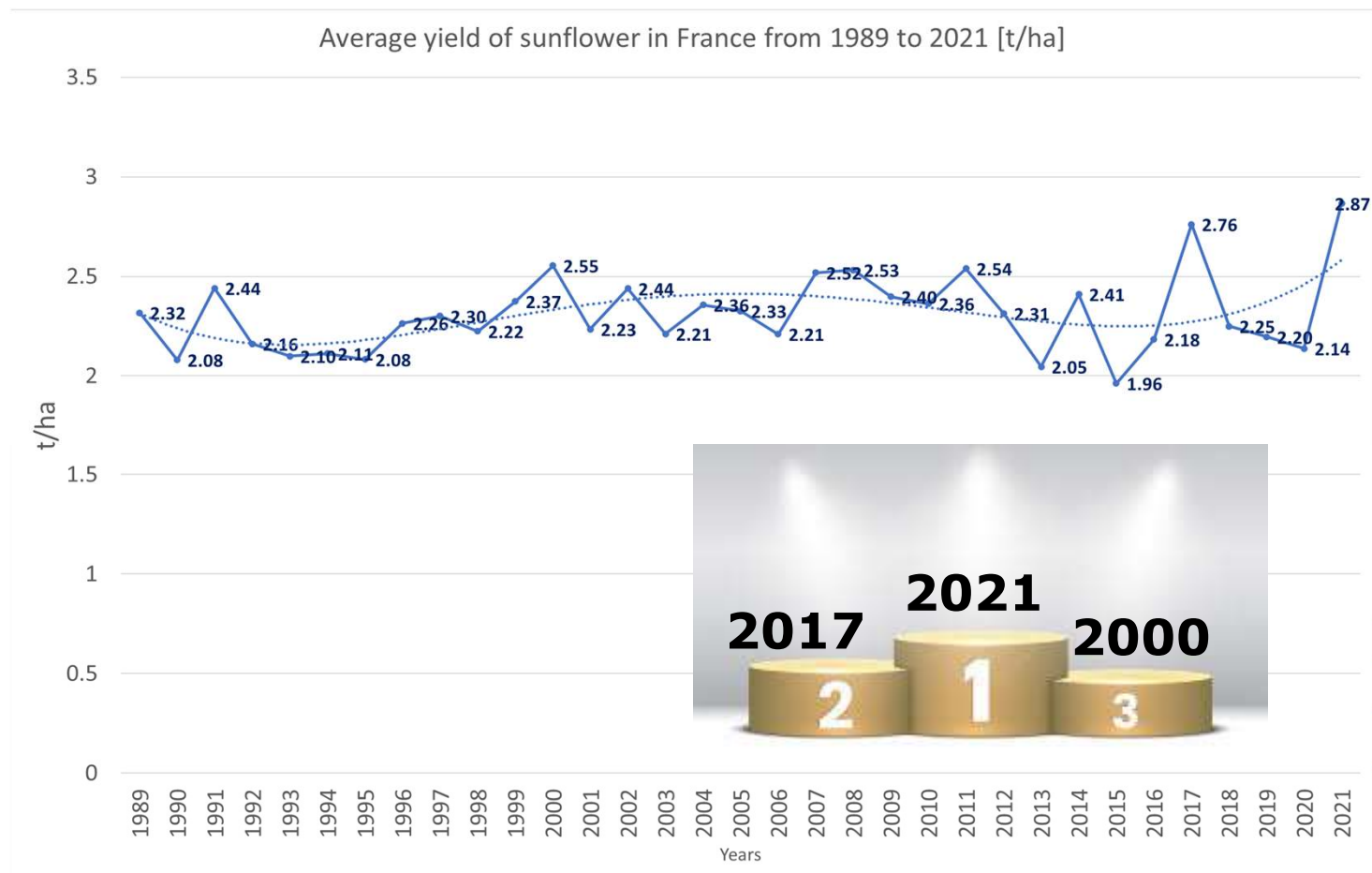
+ 56%

Evolution of sunflower's yields

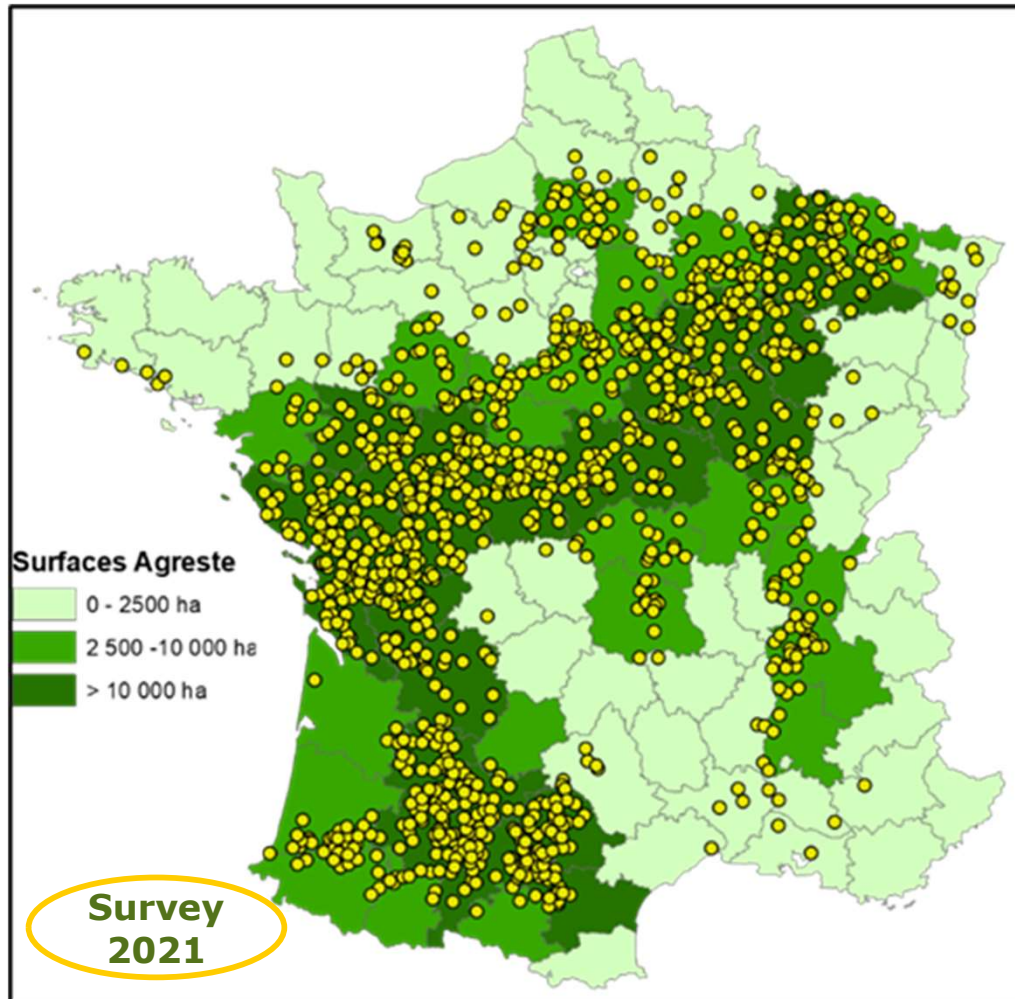
From 1989 to 2021



- ❑ Interannual variability increasing for ten years (climate changing)
- ❑ Highest yields during this period in 2017 and 2021 (recent years) : potential of sunflower



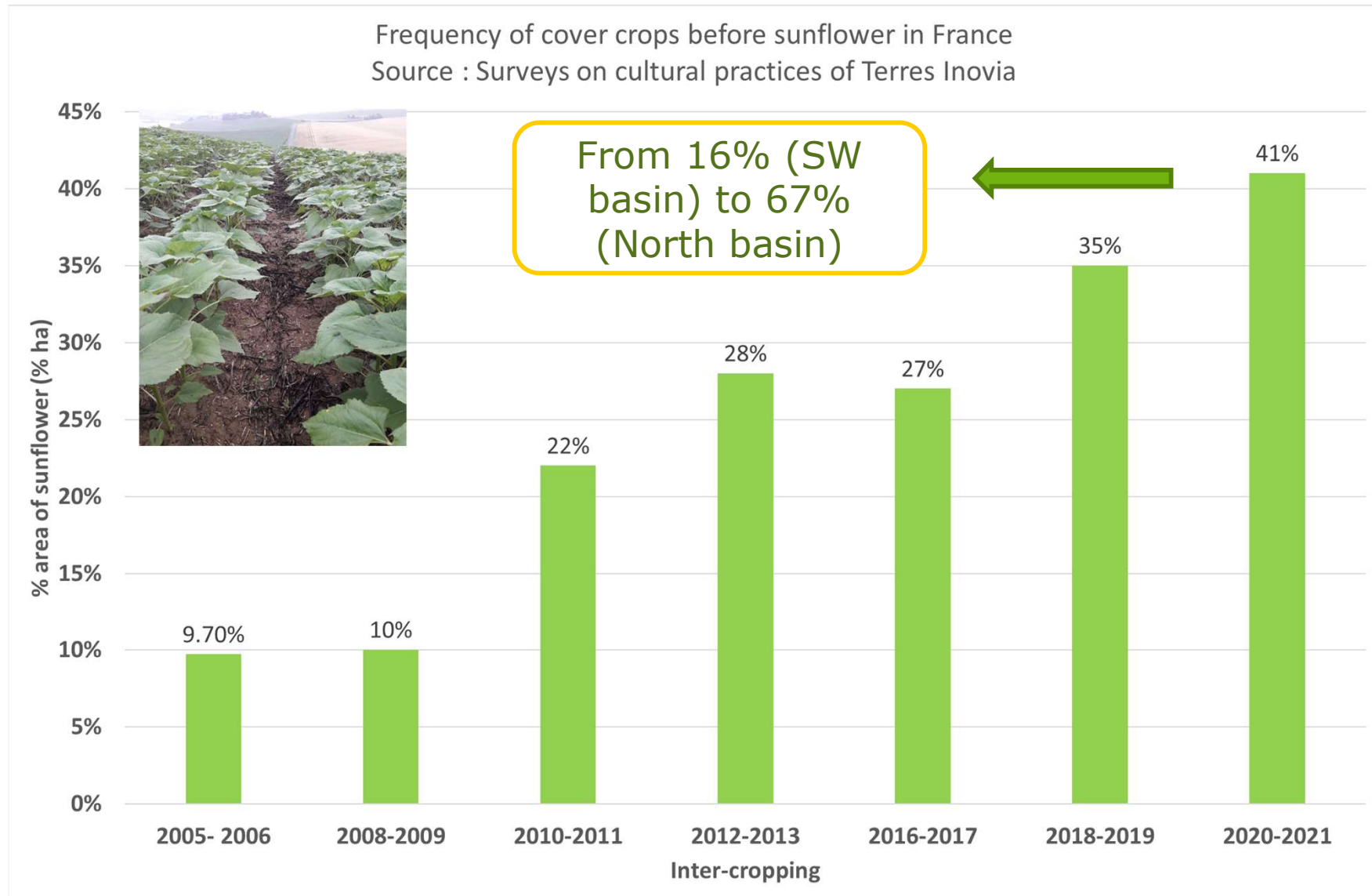
Surveys of Terres Inovia on cultural practices of sunflower in France



- ❑ Carried out since the 1990's
- ❑ One survey each two years
- ❑ Voluntary answers by farmers (thank yo to them !)
- ❑ One plot = the largest land plot of each surveyed farm
- ❑ To identify changes in the management of sunflower and rooms for progress

	Survey 2019	Survey 2021
Number of plots	542	1317

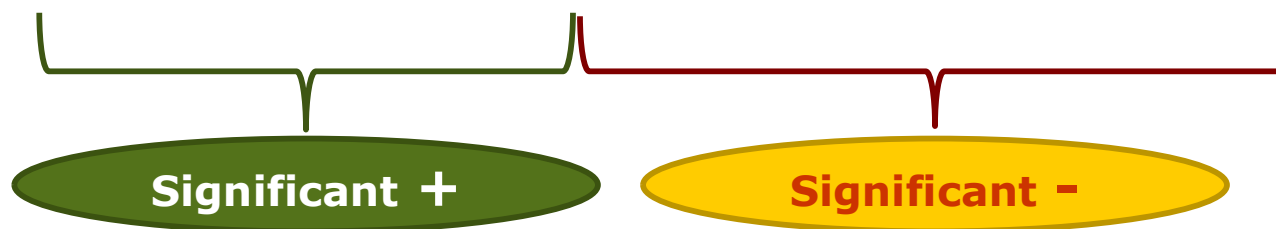
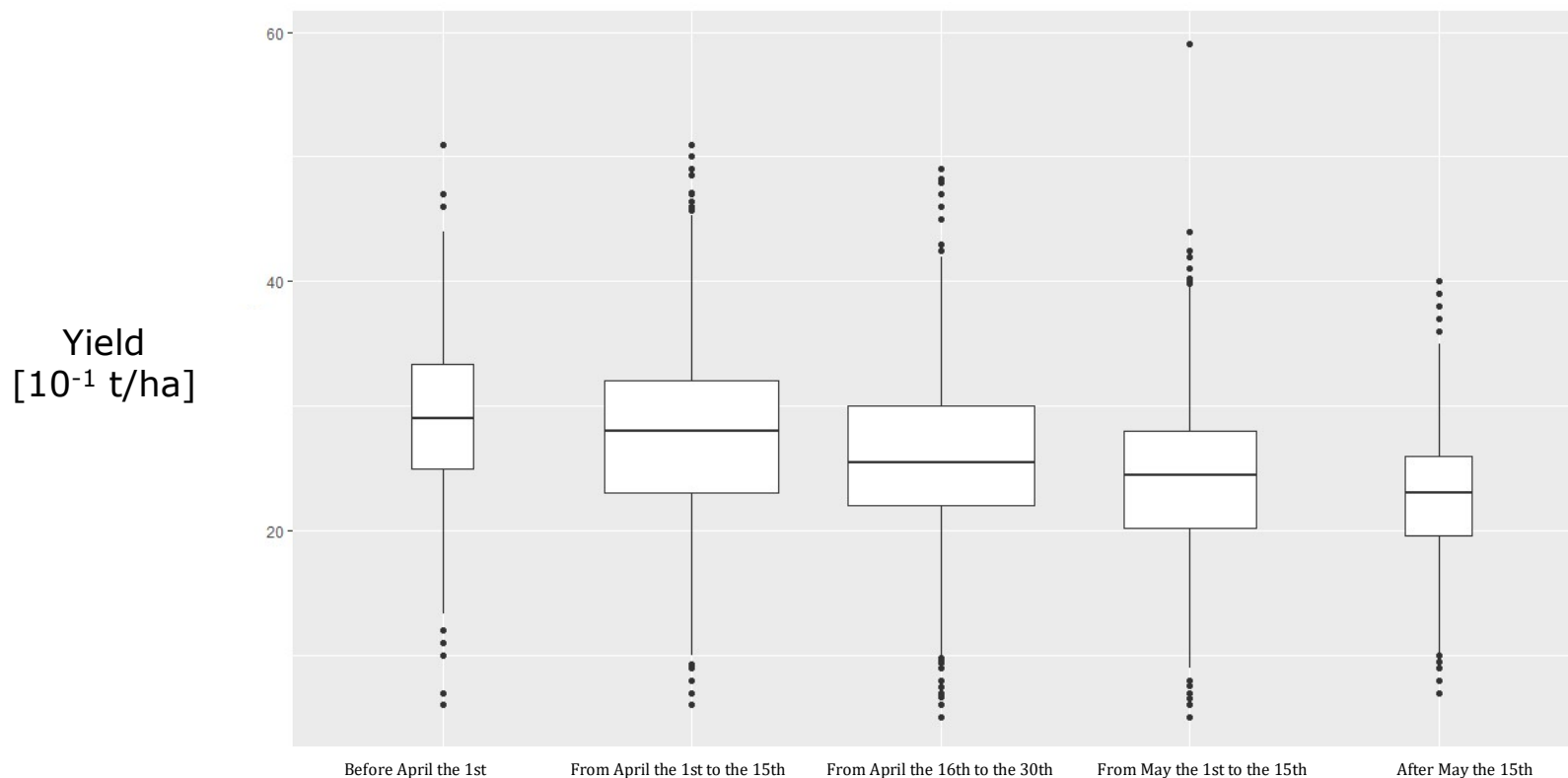
Increasingly frequent intermediate crop before sunflower (and after wheat on 90% ha)





Yields and sowing dates

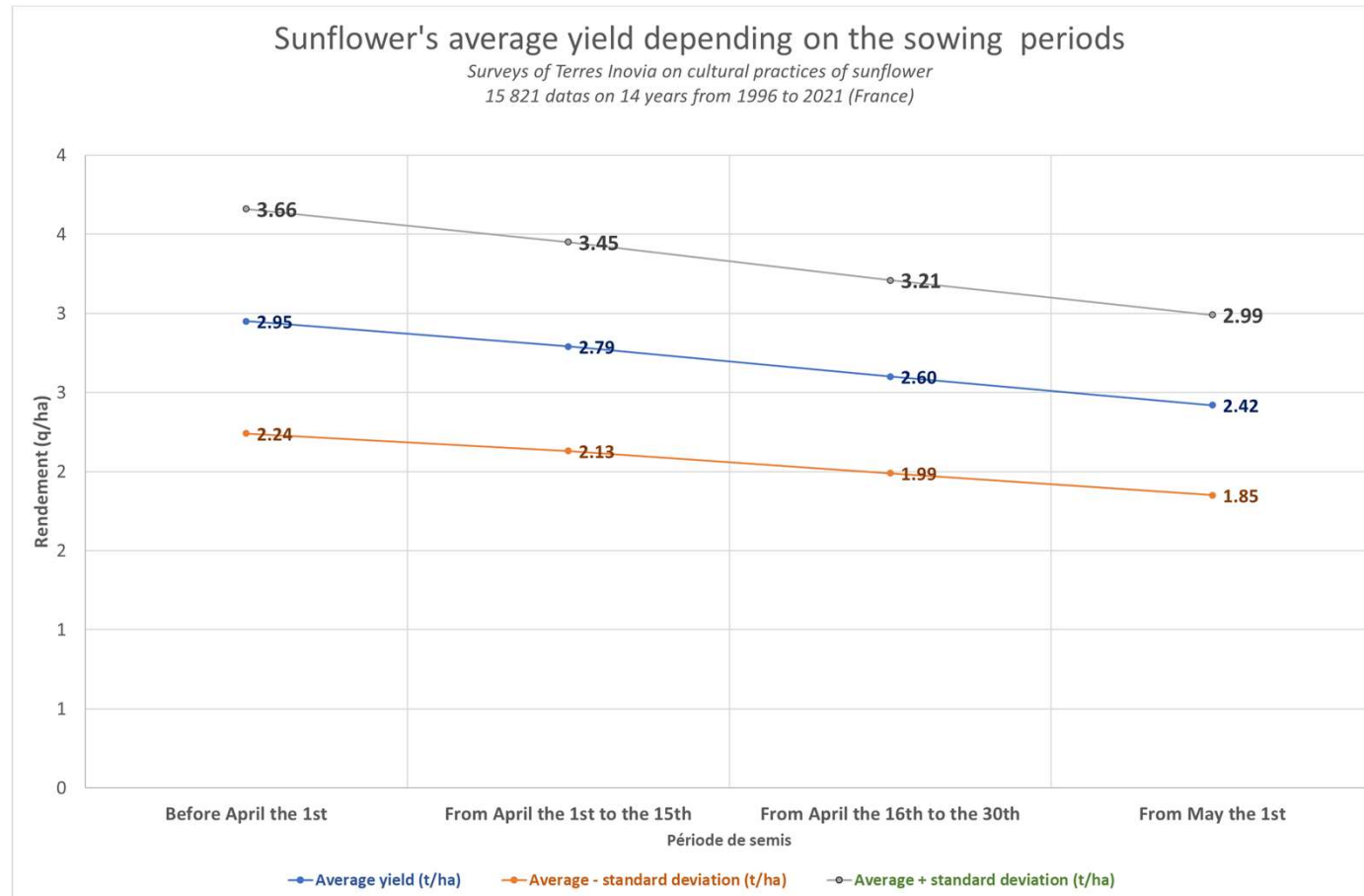
***Significant positive effect
of early sowing dates on yield***





Yields and sowing dates

Significant positive effect of early sowing dates on yield



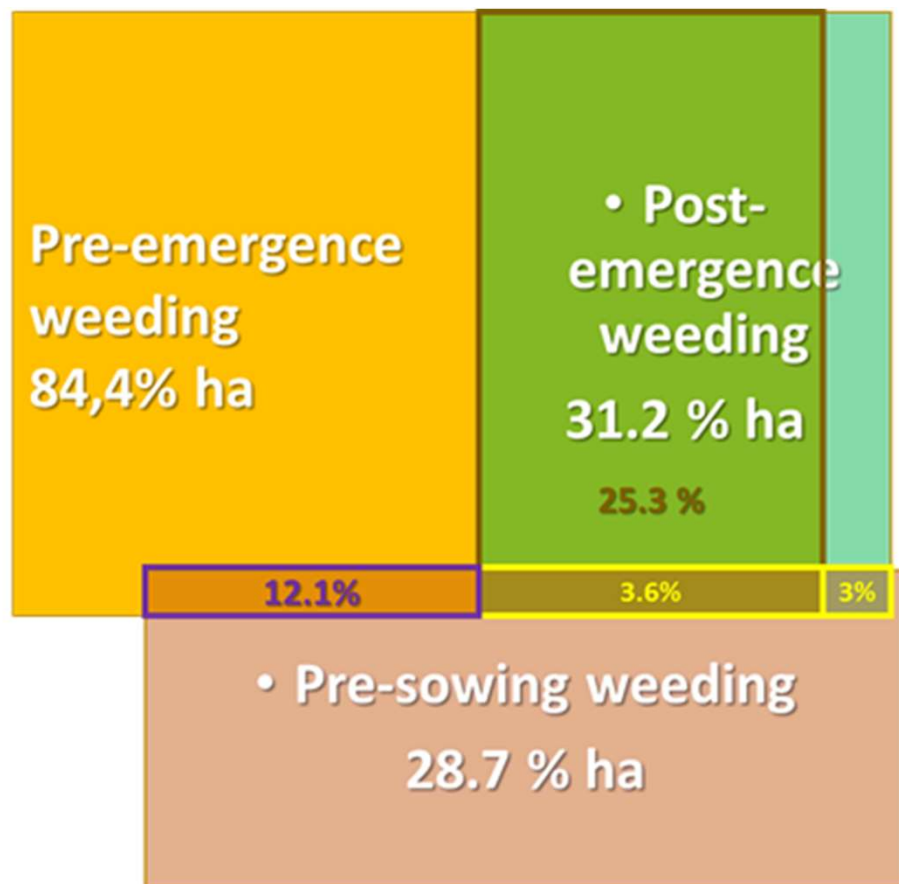
Significant +

Significant -

Source : Surveys of Terres Inovia on cultural practices of sunflower
15 821 datas on 14 years from 1996 to 2021 (France)

Identified with MFA (Mixed Factorial Analysis by linear regression with R statistic program)

Weeding : evolution of practices and poorly controlled flora



Rate of hoing \approx 25 to 45% depending on years

❑ **Poorly controlled weeds** mentioned by answering farmers in 2021 (Vs 2011) :

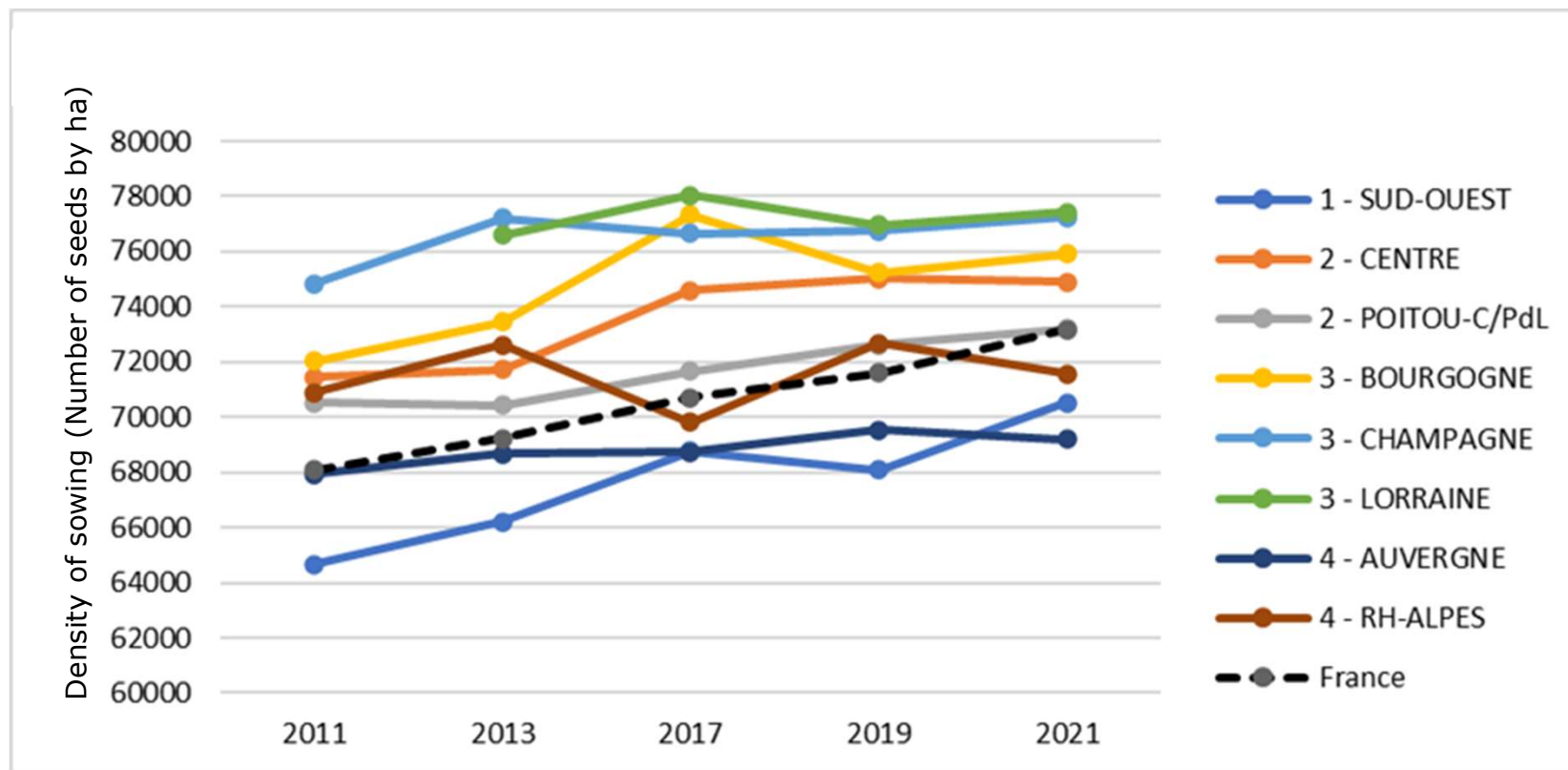
- ❑ ***Cirsium sp. (arsense)*** and *Silybum marianum* (27% of quotes) →
- ❑ ***Convolvulus arvensis*** and ***Calystegia sepium*** (15%) →
- ❑ ***Lolium perene*** (12%) →
- ❑ ***Chenopodium*** (10%) →
- ❑ ***Fallopia convolvulus**** (10%) →
- ❑ ***Ambrosia artemisiifolia*** (9%) →
- ❑ ***Alopecurus**** (8%) →

* mainly in half North of France

→ *Solanum nigrum* ; *Mercurialis*

Density of sowing

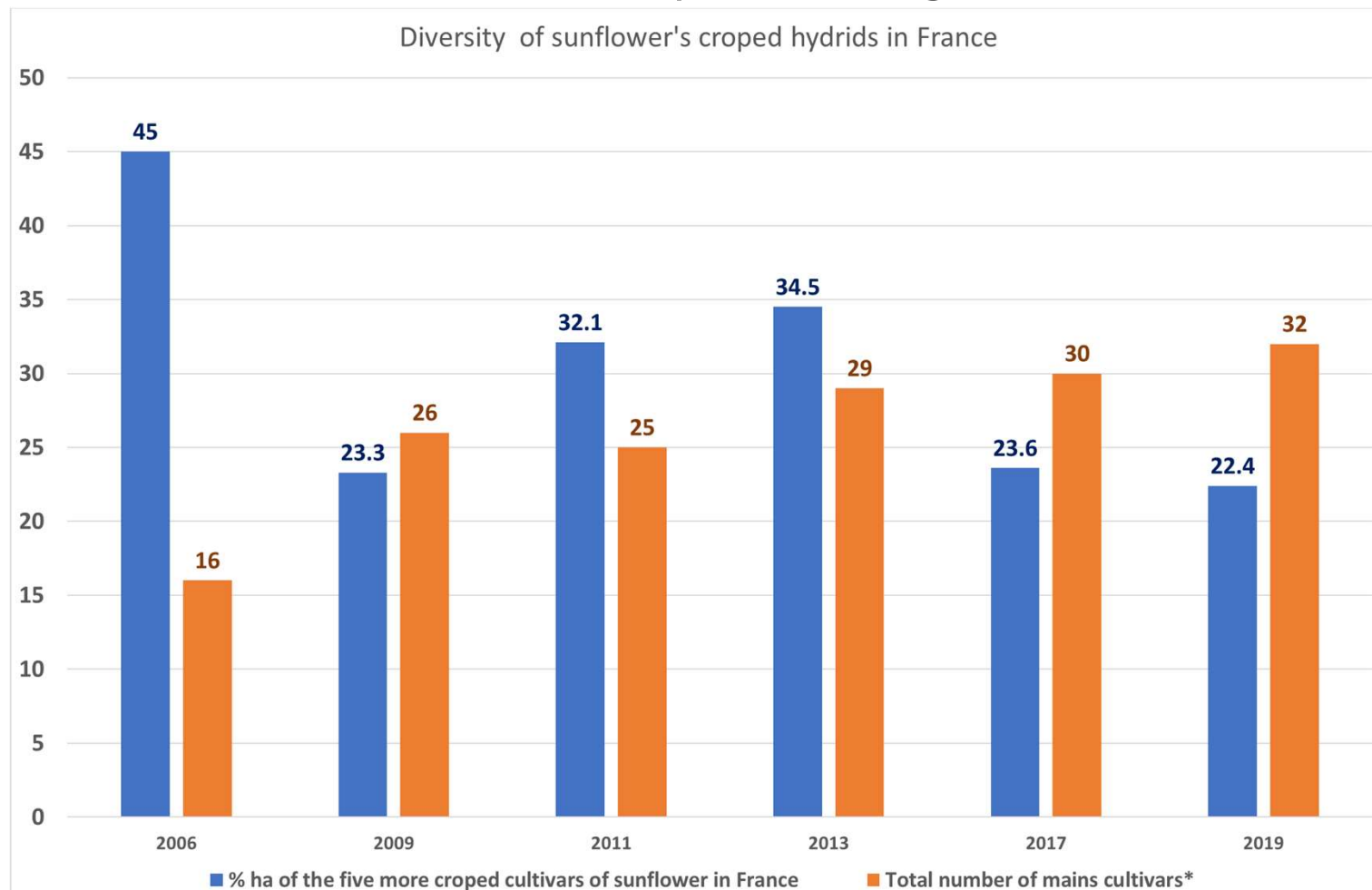
- ❑ Increasing trend during the last decade
- ❑ Mains reasons for this trend :
 - ❑ Growing of bird damage over this period
 - ❑ Advices of Terres Inovia : interest of emerged density from 5 to 6 plants/m² in relation to rising yield and rate of oil in the seed



Increasing diversity of cropped hybrids



- ❑ Development of the oleic outlet
- ❑ Development or evolution of diseases or parasitic plant having genetic control as the main lever,
- ❑ Development of tolerant varieties to post-emergence herbicides



*each one representing more than 1% total areas of sunflower

Source : surveys of Terres Inovia on cultural practices

Conclusion

- ❑ These surveys carried out by Terres Inovia enable to identify **main evolutions of sunflower's cultural practices**
- ❑ Some examples presented today : **more results in the paper**
- ❑ Some **rooms for progress** can be identified :
 - ❑ Interest of earlier sowing dates
 - ❑ Interest of incrising or reducing the fensity of sowing depending on the situation of the plot and of the spacing of the seed drill
 - ❑ Weed control