## APPLIED RESEARCH & DEVELOPMENT FOR FRENCH SUNFLOWER – PRIORITIES TO CONTRIBUTE TO FRANCE'S NATIONAL PROTEIN STRATEGY

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#### The political & strategic case for sunflower



#### But a field reality that was much less positive



<sup>(</sup>Ministère de l'Agriculture et de l'Alimentation)



# Our analysis 4 years ago → strategy to reconquer sunflower areas

Sunflower specialization in SW France



#### Source : Terres Inovia et Terres Univia d'après les données d'Agreste (Ministère de l'Agriculture et de l'Alimentation



Sunflower in short (2 year rotations)

- 25 % of national sunflower area in 2013 & 2017
- 42 % of sunflower area of SW France in 2013
- → Strong disease pressures

Sunflower specialization in low yield potential soils (shallow, erosion prone)

 SW France : 10% area in shallow soils 2013 → 18% 2017 → 21% 2019 Increase in verticilium identification in SW sunflower field survey (222 fields)



#### A massive 3 year communication effort to « remember the basics »

- Per year : 25 events, 10 webinars, 10-15 videos, 200 agricultural press articles
- Reminding existing knowledge : irrigation, fertilization, weed management
  25 février
- New simple decision support tools
  - Sowing date
  - Margin calculator
- **TOURNESOL** densité de semis
- Making the most of genetics & observation to limit disease pressure : recommended list + observation aid tool













### **Building new knowledge on key limiting factors**

• New protocols for variety screening & caracterisation of pathogen populations : verticilium, broomrape, downy mildew





Re-evaluation of boron deficiency management : ongoing



#### Adaptation to new cropping systems

Proportion of sunflower crop with preceding cover crop

2005-	2008-	2010-	2012-	2016-	2018-	2020-
2006	2009	2011	2013	2017	2019	2021
9.7 %	10%	22%	28%	27%	35%	41%

#### 33 growers from SW $\rightarrow$ dashboard for succesful sunflower in conservation agriculture





#### **Regaining sunflower hectares**

Surface (Total) Tournesol - 2017

l'agronomie en mouve

Surface (Total) Tournesol - 2021



- Multiactor interviews to identify positive factors for developing sunflower
- Demonstrating agronomical interest of sunflower in winter crop rotations
- Demonstrating economic interest of sunflower in these regions
- Evaluating earlier maturing varieties

#### **Regaining sunflower hectares in N France**

 Increasing spring crops → reduction in herbicides on winter crops



PXHY (Zp) = X spring crops & Y witer crops preceding the studied winter crop (Z fields)

Terres

l'agronomie en mouvement

Source : Terres Inovia : Fanny Vuillemin, Franck Duroueix, Vincent Lecomte & Arvalis : Valérie Bibard, Ludovic Bonin, Adélaïde Wissocq Analysis of national agricultural survey data *Agreste : Enquêtes du SSP sur les pratiques culturales en grandes cultures en 2017* 



### **Regaining sunflower hectares**

Economic performance



Terres

l'agronomie en mouvement



Source : Lecomte, Terres Inovia (data from CN CER France)



#### **Conclusions & perspective**

- Context  $\rightarrow$  sunflower regained strong momentum
- Anticipation prepared us for this context
- What's next ?
  - Climate change :
    - Despite years of scientific progress, no operationnal advisory scheme for varieties / drought
    - Phenology to harness opportunities
  - Agroecology :
    - Conservation agriculture / cover crop systems
    - Weed management especially difficult weeds
    - Converge with organic systems / cover crop & weed management
    - Pathogen/parasite évolutions & reduction of chemical solutions
    - Bird damage !
  - Value creation : super HiPro sunflower cake via improved dehulling
    - Hull kernel adhesion  $\rightarrow$  improving varieties
    - New approach to mecanical extraction of dehulled kernels (Phd ongoing)
    - Indirect analytical approaches (NIRS, RMN) to create quality payment schemes between growers and grain collectors



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