

# Influence of rapeseeds dehulling on a screw press operation

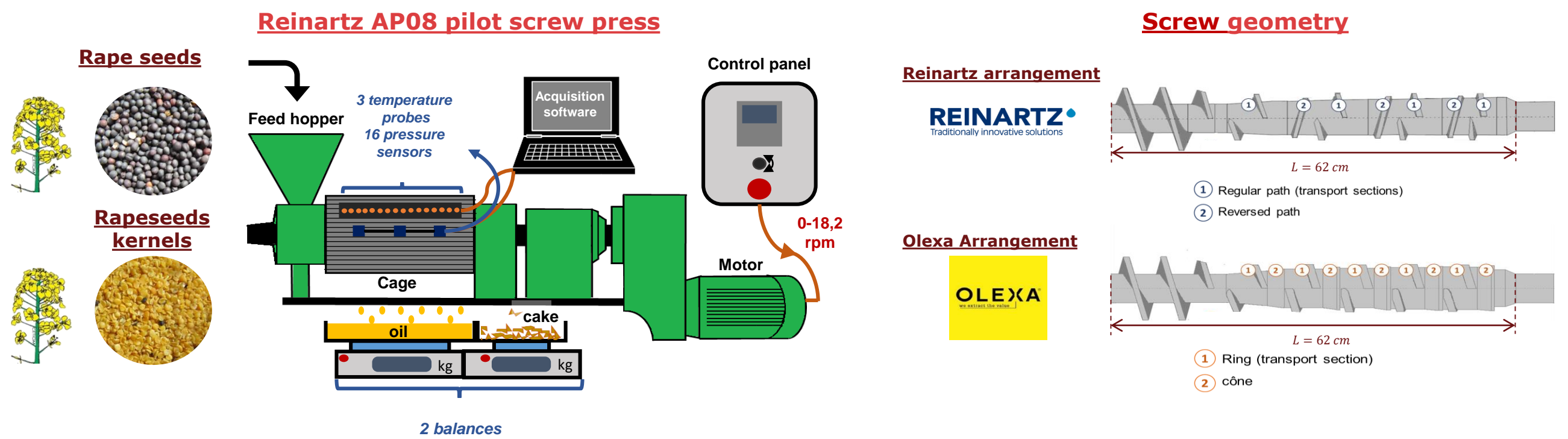
Laurine Bogaert<sup>1,2</sup> ; Houcine Mhemdi<sup>2</sup> ; Patrick Carré<sup>1</sup>,  
Alain Quinsac<sup>3</sup> & Eugène Vorobiev<sup>2</sup>

<sup>1</sup>OLEAD ; <sup>2</sup>UTC/ESCOM ; <sup>3</sup>Terres Inovia  
@ : a.quinsac@terresinovia.fr

## Objectives

Due to the growing demand for protein, the crushing industry is now focusing on the production of press cakes with highest protein content and quality. This work was devoted to the study of the influence of rapeseeds dehulling on cold pressing performances. Two screw arrangements were studied for extraction yield, capacity and energy consumption.

## Experimental setup



## Operating performances

Better results were obtained with Olexa arrangement, for both material.

### Legend:

- Olexa arrangement - kernels
- Olexa arrangement - whole seeds
- Reinartz arrangement - kernels
- Reinartz arrangement - whole seeds

### Dehulling results in:

❖ Lower extraction yield

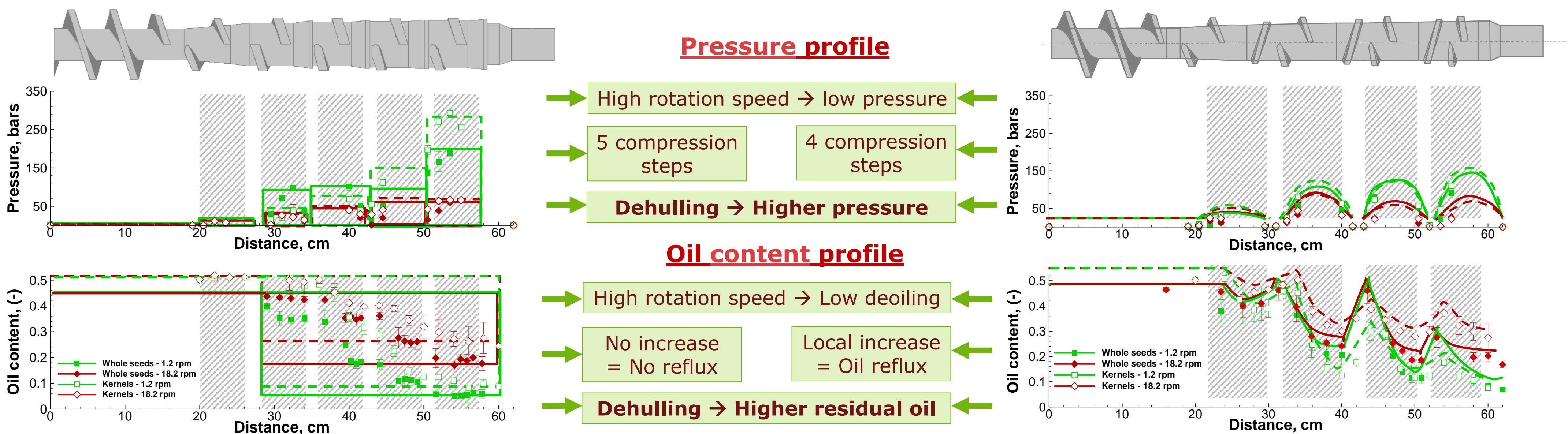
❖ Higher capacity

❖ Lower specific energy consumption

Kernels are softer than whole seeds  
(higher deformation → lower oil expression)

Oil acts like a lubricant : Greasy press cake leads to lower frictions and facilitates the transport from the entry to the exit of the press

## Characterization study



## Conclusion

The two screw arrangements studied gave similar results : dehulling resulted in an increase of the press throughput and a decrease of the specific energy consumption but also a decrease of the oil extraction yield.

The characterization study provided information on the pressure and oil content evolution along the screw. For all rotation speeds, kernels processing led to equivalent (Reinartz screw) or higher (Olexa screw) pressures and higher residual oil contents.

These observations can be attributed to the mechanical properties of the kernels, in particular their deformability, which facilitates the flow inside the press but decreases the press cake permeability and therefore, the oil extractability.