

## CURCOL Curcumin based sustainable Colours for bioplastics & Packaging





Centre of Expertise Biobased Economy Han van Kasteren, 20 April 2021





## Avans University of AppliedSciences

- Located in three city campuses: Breda, 's-Hertogenbosch, and Tilburg
- 10 locations
- Circa 30,000 students studying 54 degrees in 20 faculties
- 2,800 employees
- The last 5 years consequently elected as the best large Dutch UAS
- Research groups: Biobased Economy, Sustainable Business, Technical Innovation, Art & Design, Caring Society, Safety







## Research group Biobased Building Blocks & Products

### **Biobased**































# North-West Europe CURCOL Mission



Demonstrate techno-economic potential for the colorant production chain from **regionally** produced plants to colourants in packaging.







- The valorisation of biobased dyes in biodegradable packaging
- Introduction of a valuable crop in the greenhouse industry
- Identification of new supply chains
- Signaling growth in jobs and economic activity









• Optimization of regional turmeric production (Proefcentrum Groenteteelt PCG, Belgium)



<u>Goal</u>: solution to the increasing number of **empty greenhouses** in the region

Goal: initiate growth of novel crops

<u>Goal</u>: guide farmers towards the new technique of aeroponics & hydroponics

New technique: aeroponics / hydroponics

COE BBE

# Interreg Average CURCOL- Research Themes

• Extraction and production of curcumin based colourants (Avans UAS, Rubia Natural colors and Rodenburg biopolymers, The Netherlands)



<u>Goal</u>: create the primary colors from curcumin (blue, red, yellow)

<u>Goal</u>: **transition** of the chemical industry from fossil based to bio-based

Goal: finetune biodegradability

# Interreg North-West Europe CURCOL- Research Themes

- Coe BBE
- Testing use of the curcumin-based colors in bioplastics (AIT, Ireland and Rodenburg biopolymers, The Netherlands) and Paper packaging (Network partner Schut papier)
- An end of Life Assessment (University of Münster & Aachen-Maastricht Institute for Biobased Materials (AMIBM)

#### Biodegradable colorant for packaging

Key players: bioplastics industry





<u>Goal</u>: replacement of synthetic colourant that are problematic in recyling

<u>Goal</u>: biodegradable colourant for fully biodegradable packaging

<u>Goal</u>: major environmental impact due to biodegradation of leaching dyes