BASTA

BIOCHAR'S ADDED VALUE FOR MANURE AND BIOMASS PROCESSING VS. MANURE AND BIOMASS AS FEEDSTOCK FOR BIOCHAR

B. Vandecasteele[1*], F. Amery[1], J. Viaene[1], A. Lataf[2], D. Vandamme[2], M. Jozefczak[2], A. Cuypers[2]

[1]Research Institute for Agriculture, Fisheries and Food (ILVO), Merelbeke, Belgium, bart.vandecasteele@ilvo.vlaanderen.be
[2]Hasselt University, Centre for Environmental Sciences (CMK), Agoralaan Building D, Diepenbeek, Belgium

Aim of BASTA (2019-2022): **Produce biochar from** organic residues resulting **in an economically valuable and sustainable end product for** applications in manure and biomass processing, growing media and open field cultivation. **A policy and business support tool will be created with intelligent matches between input material(s), production parameters and biochar application** (Fig. 1 & 2).
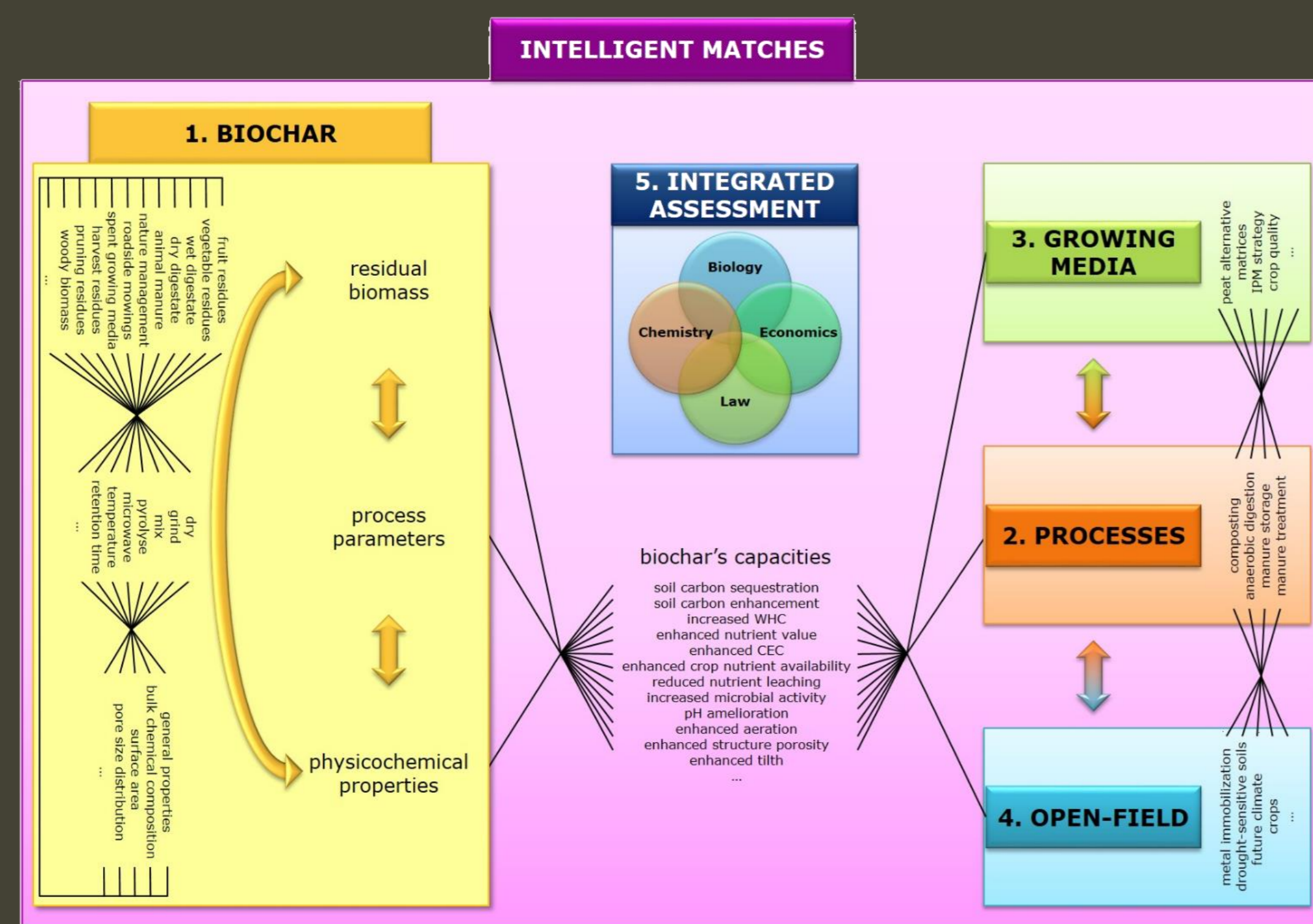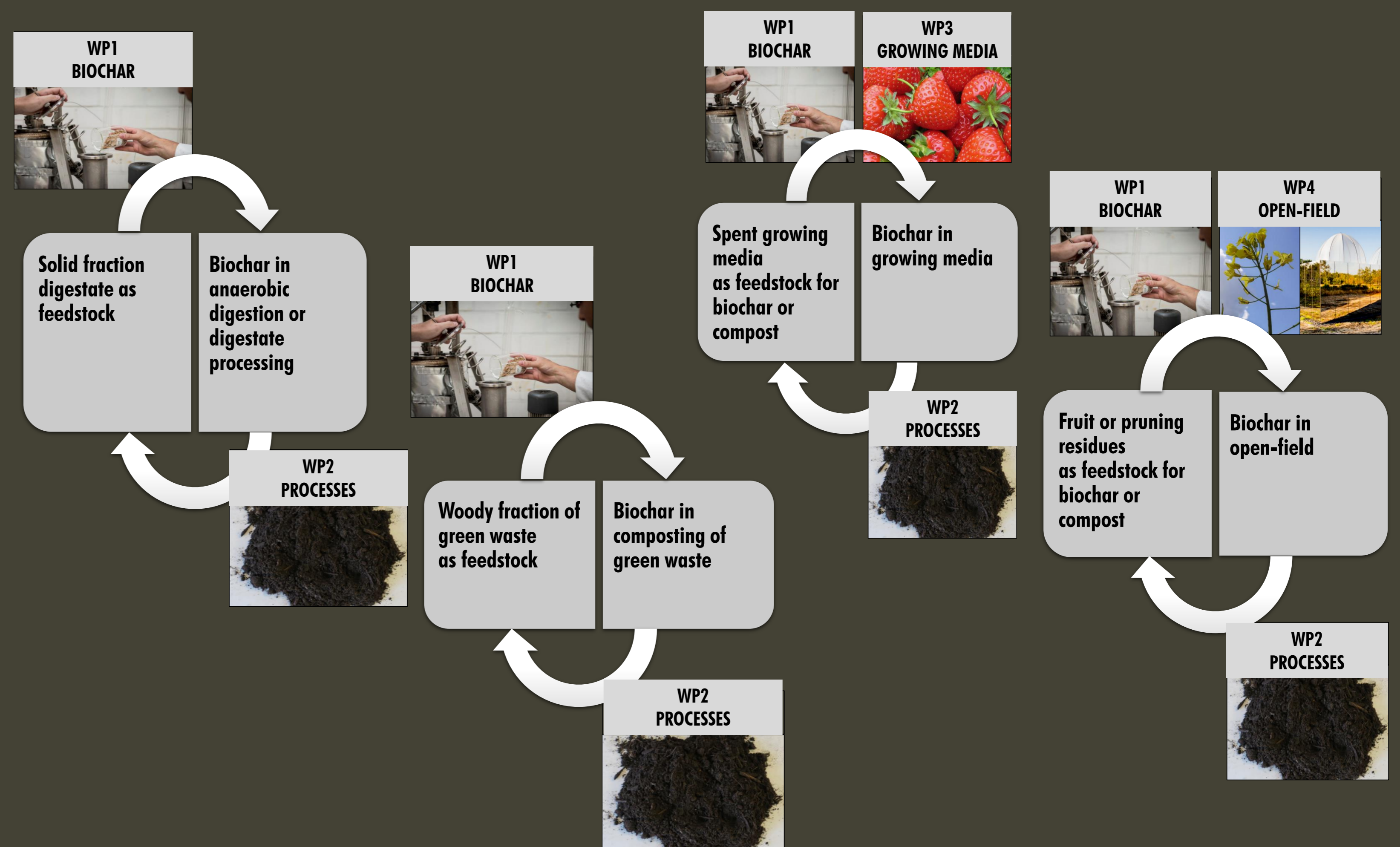

Fig. 1: Aim of the BASTA project

Fig. 2: Biochar can be used to optimize manure processing while manure is also a feedstock for biochar production

Selection process to investigate biochar's mode of action in processes (lab → pilot scale)

Biochars are selected based on a fast screening of their effect on H_2S, NH_4^+-N and NH_3-N adsorption. A feedback loop is also included, where knowledge on important biochar characteristics is used for optimising biochar production.

### WP1: BIOCHAR PRODUCTION

FOCUS ON
- INPUT MATERIALS
- PROCESS PARAMETERS

INPUT MATERIALS
DIGESTATE MANURE
FRUIT WASTE NATURE RESIDUES
...

PYROLYSIS
CONVENTIONAL MICROWAVE PROCESS PARAMETERS

BIOCHAR

CHARACTERIZATION
SINGLE & MULTIPLE INPUTS

SELECTION

INTEGRATED ROADMAP
RELATIONSHIP BETWEEN:
- FEEDSTOCK
- BIOCHAR
- PROCESS PARAMETERS
- PHYSICOCHEMICAL PROPERTIES
- TARGETED APPLICATIONS
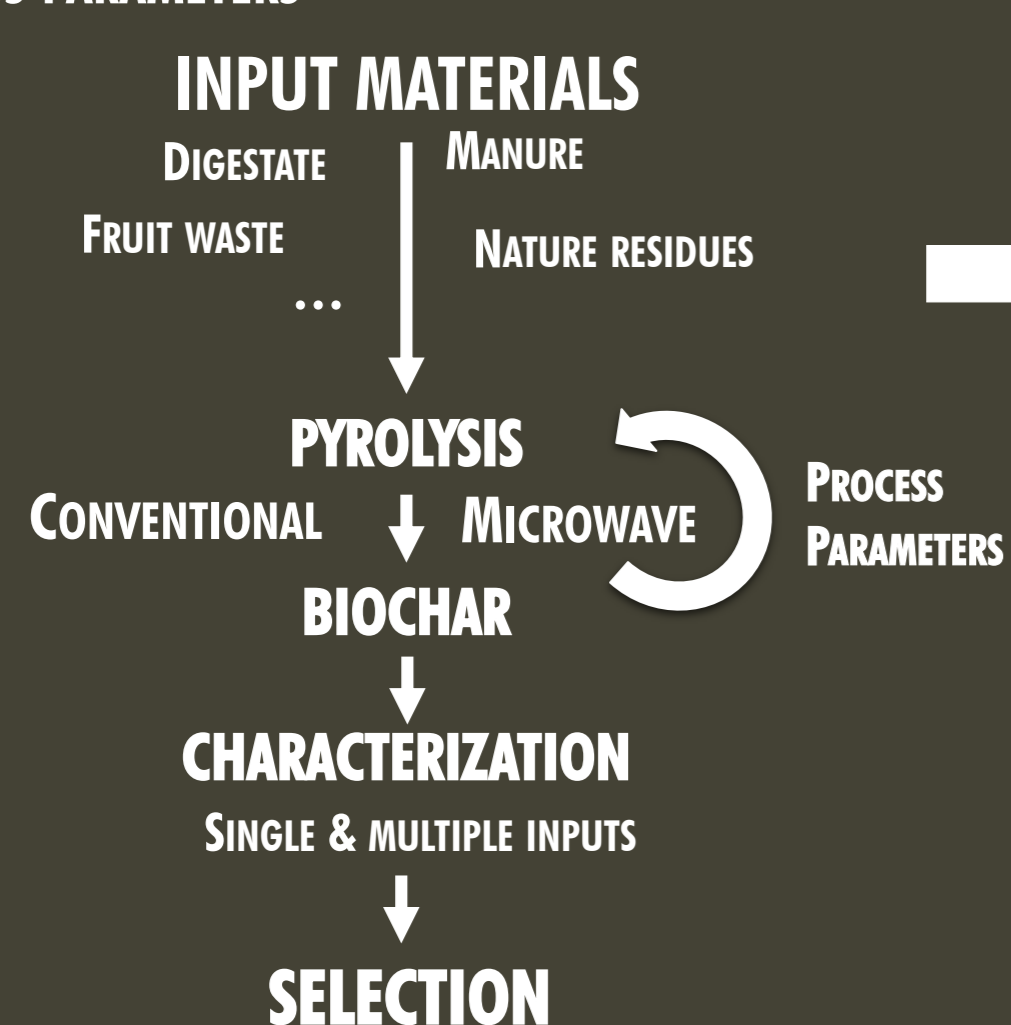
WP2: EVALUATION OF FAST SCREENING TECHNIQUES FOR (Fig. 3):
- CO_2 sorption
- NH_4^+ and NH_3 sorption
- NH_3, H_2S and greenhouse gas emissions
- Cation exchange capacity (CEC) determination
- Buffering capacity
- Stability, maturity, biochemical composition
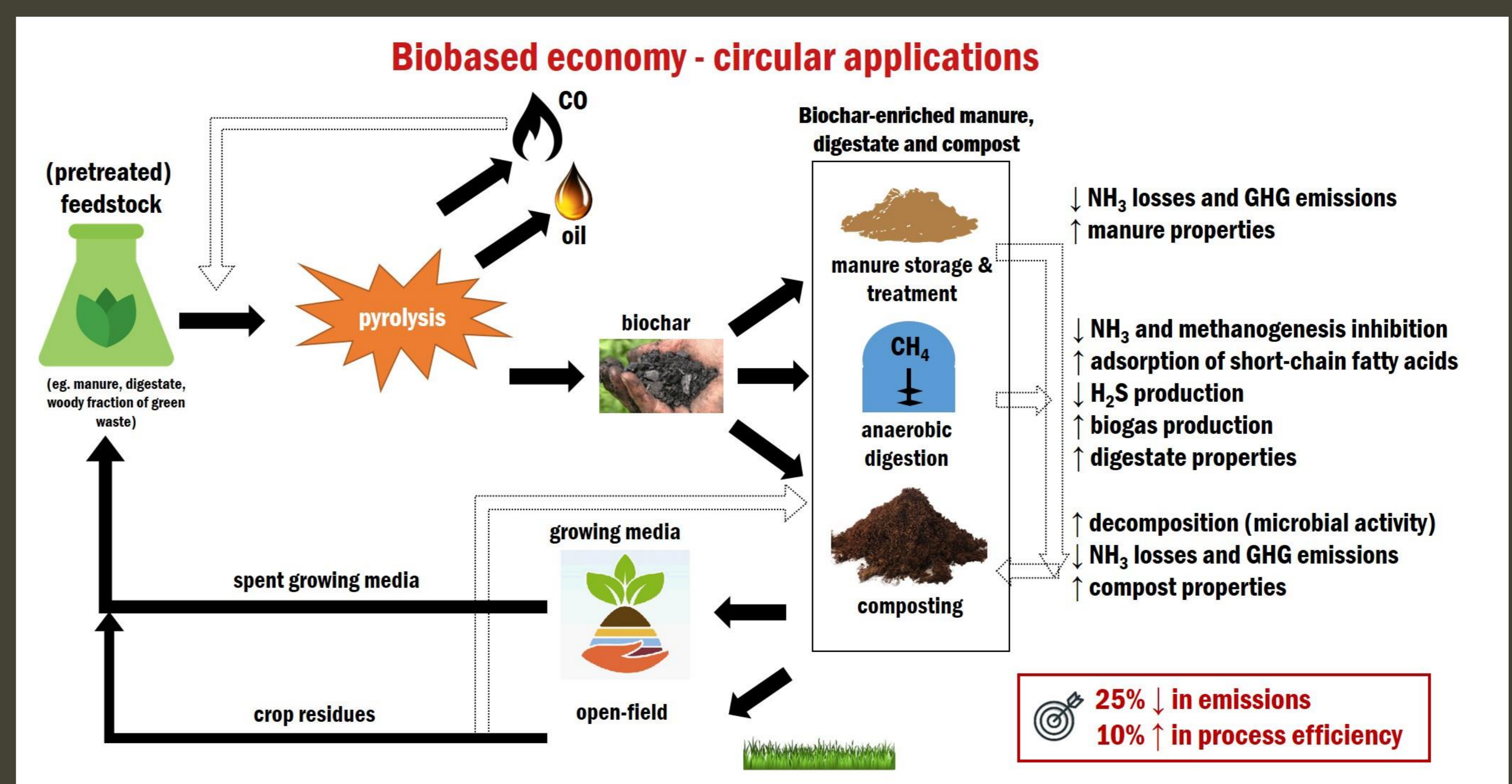- Change in biochar properties during processing (litter bags)

Fig. 3: Aim of WP2 – Investigate biochar's mode of action in processes and end products' added agricultural value