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BIODIVERSA SOILMAN MEETING

Paimpont, 26-29 September 2017

Community Level Physiological Profiling

MicroResp™ technique

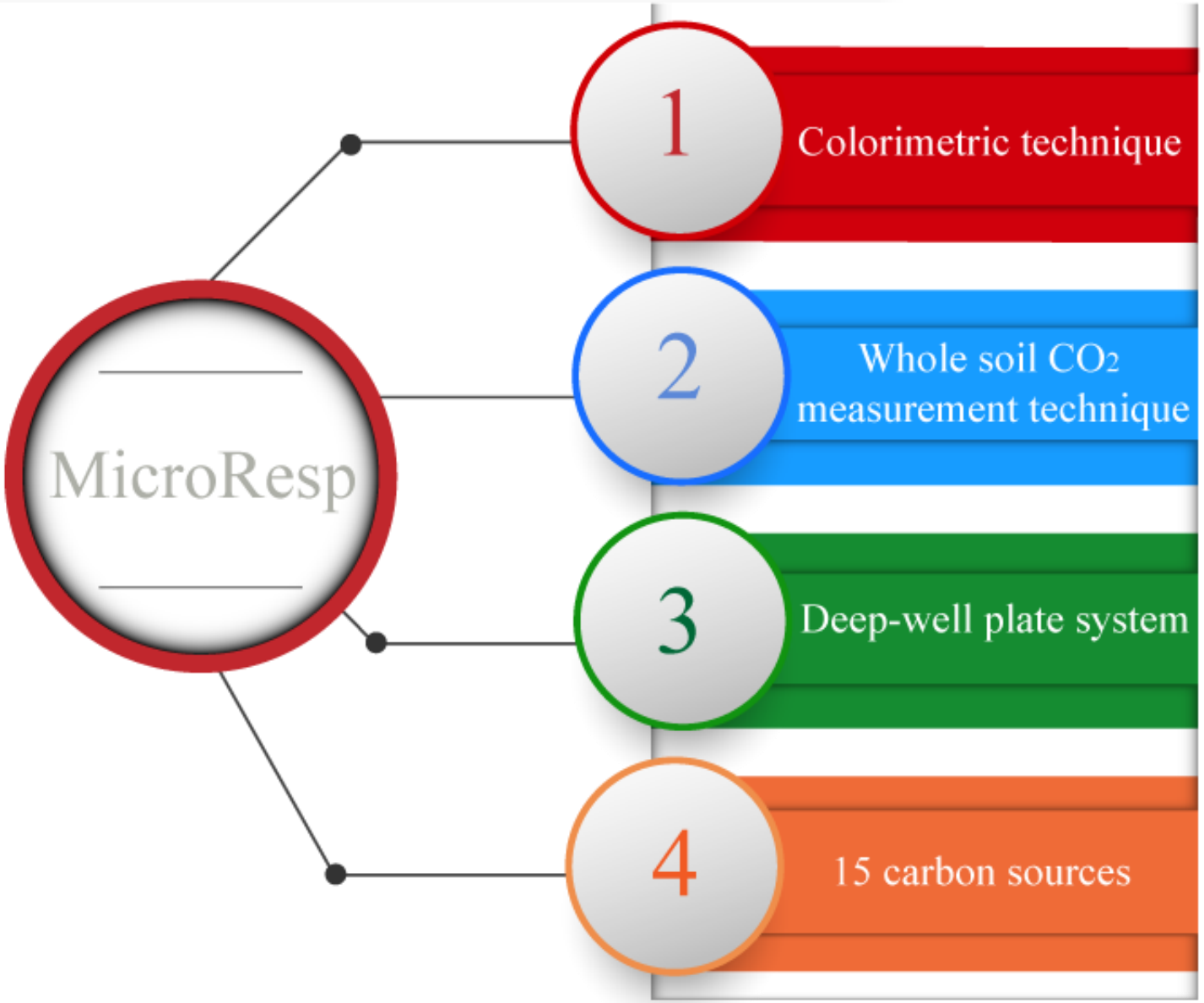
-CLPP – metabolic abilities of the soil microbial community
-patterns of sole source of carbon utilizations can indicate differences in community compositions.

-MicroResp – a common tool used to evaluate variability in soil microbial catabolic activity based on SIR method

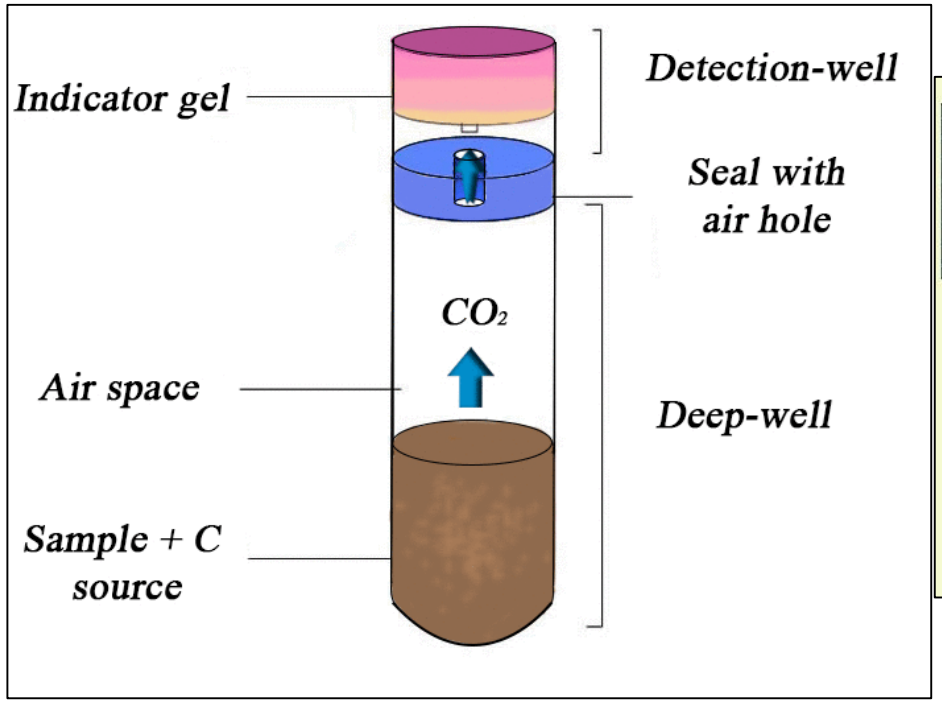
-Functional diversity – groups that are able to use energy provided by different organic substrates

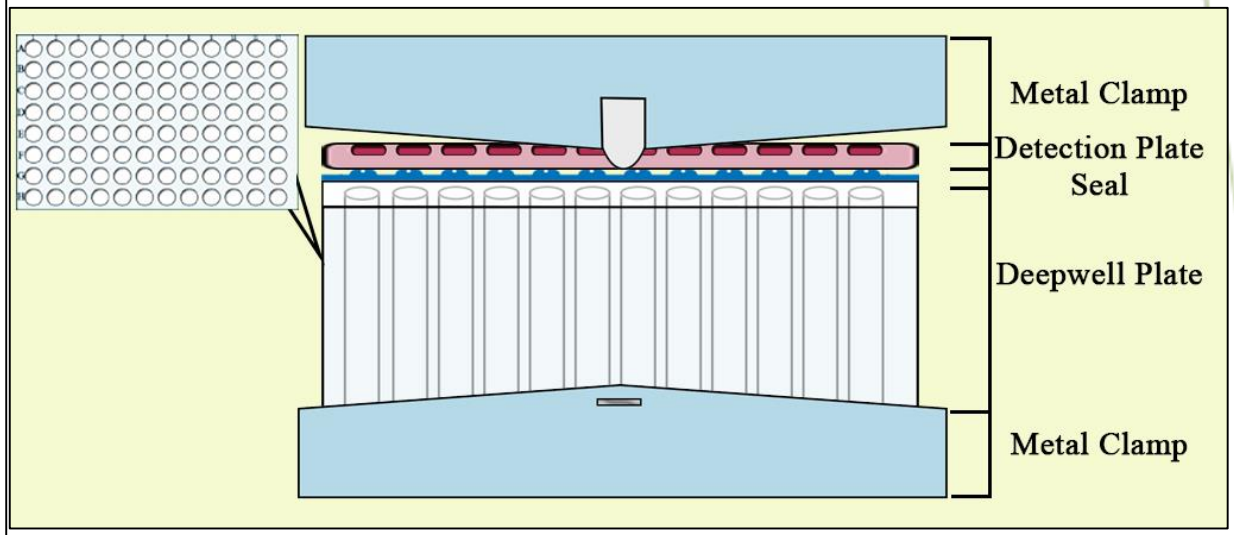
- assess differences between habitats, soil parameters, agricultural practices

MicroResp™


MicroResp
1
Colorimetric technique
2
Whole soil CO_2 measurement technique
3
Deep-well plate system
4
15 carbon sources

MicroResp™


Indicator gel
Detection-well
Seal with air hole
CO_2
Air space
Deep-well
Sample + C source


Metal Clamp
Detection Plate
Seal
Deepwell Plate
Metal Clamp

MicroResp™

The carbon sources used in MicroResp method are 15 and were selected to be **ecologically relevant** to soil and to be able to dissolve in water.

Tab. 1. Carbon substrates used in MicroResp

Carbon substrates			
Carbohydrates		**Amino acids**	
D-trehalose	$C_{12}H_{22}O_{11}$	L-arginine	$C_6H_{14}N_4O_2$
D-galactose	$C_6H_{12}O_6$	γ-aminobutyric acid	$C_4H_9NO_2$
L-arabinose	$C_5H_{10}O_5$	L-lysine	$C_6H_{14}N_2O_2$
D-glucose	$C_6H_{12}O_6$	L-alanine	$C_3H_7NO_2$
D-fructose	$C_6H_{12}O_6$	L-cysteine	$C_3H_7NO_2S$
Carboxylic acids		**Amino sugar**	
Oxalic Acid	$C_2H_2O_4$	N-acetylglucosamine	$C_8H_{15}NO_6$
α- ketoglutaric acid	$C_5H_6O_5$		
Citric Acid	$C_6H_8O_7$		
L-malic acid	$C_4H_6O_5$		

Source: (Campbell *et al*, 2003)

RESULTS FRANCE

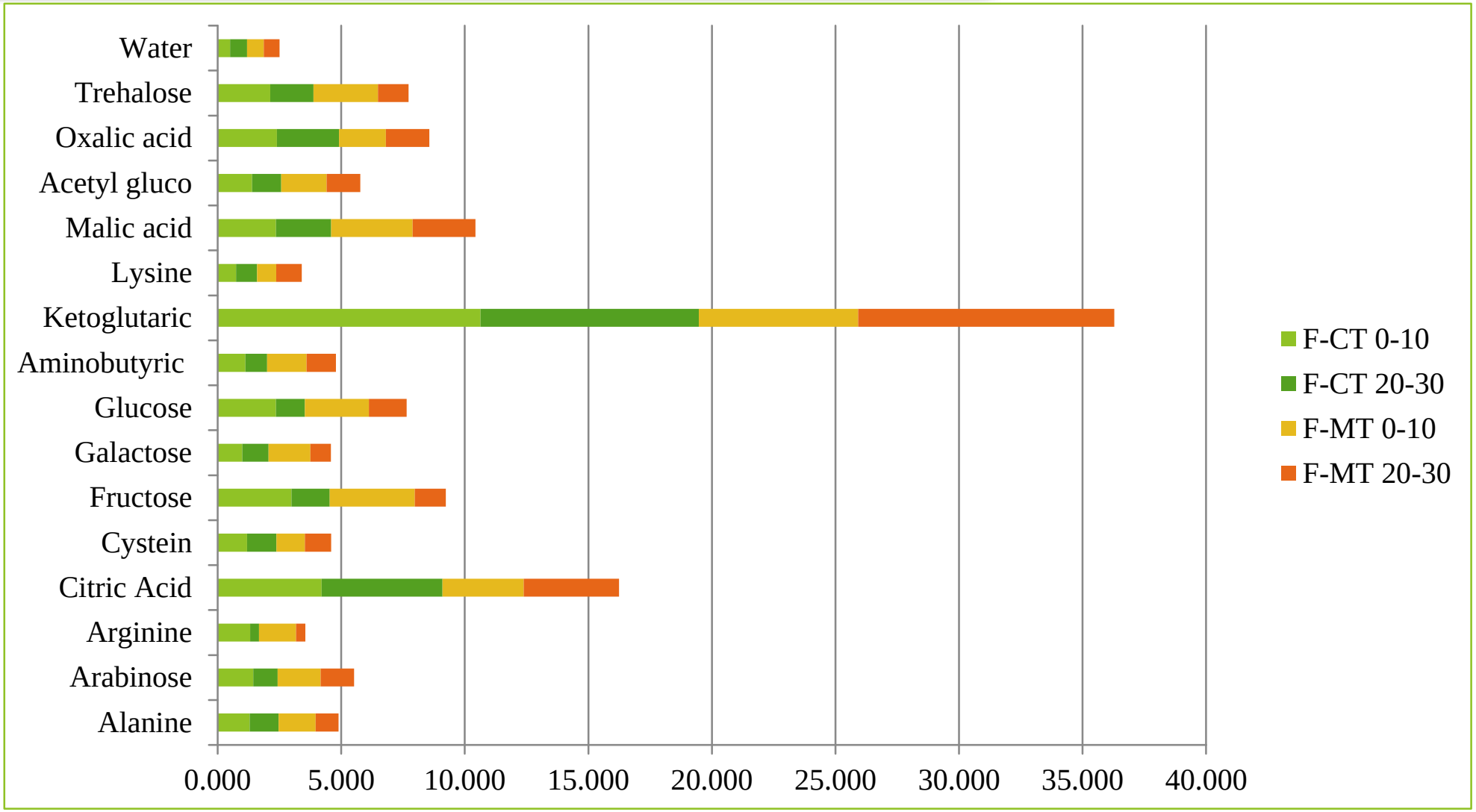


Fig. France MicroResp resuts

RESULTS FRANCE

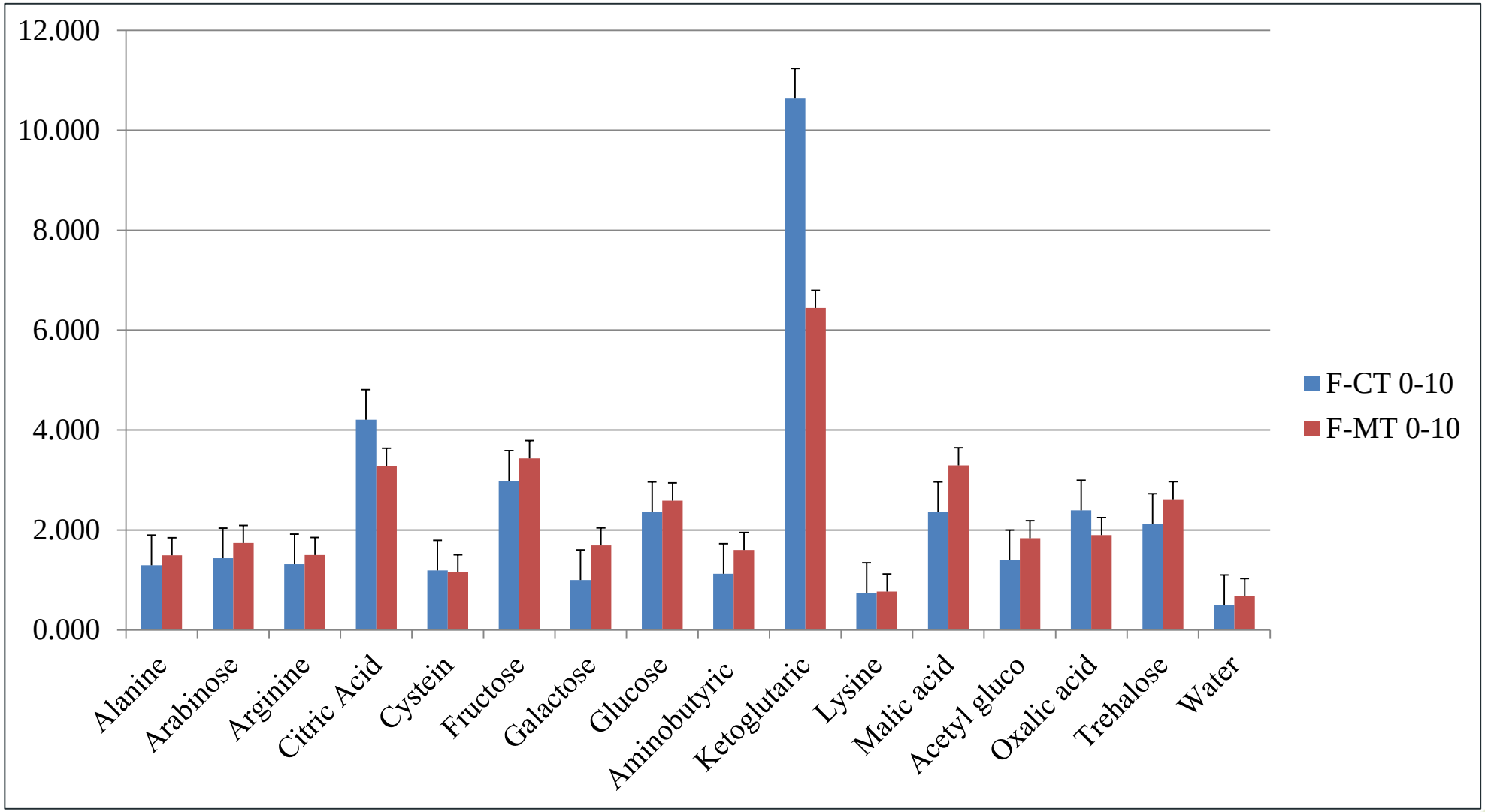


Fig. Conventional tillage vs minimum tillage France

RESULTS GERMANY

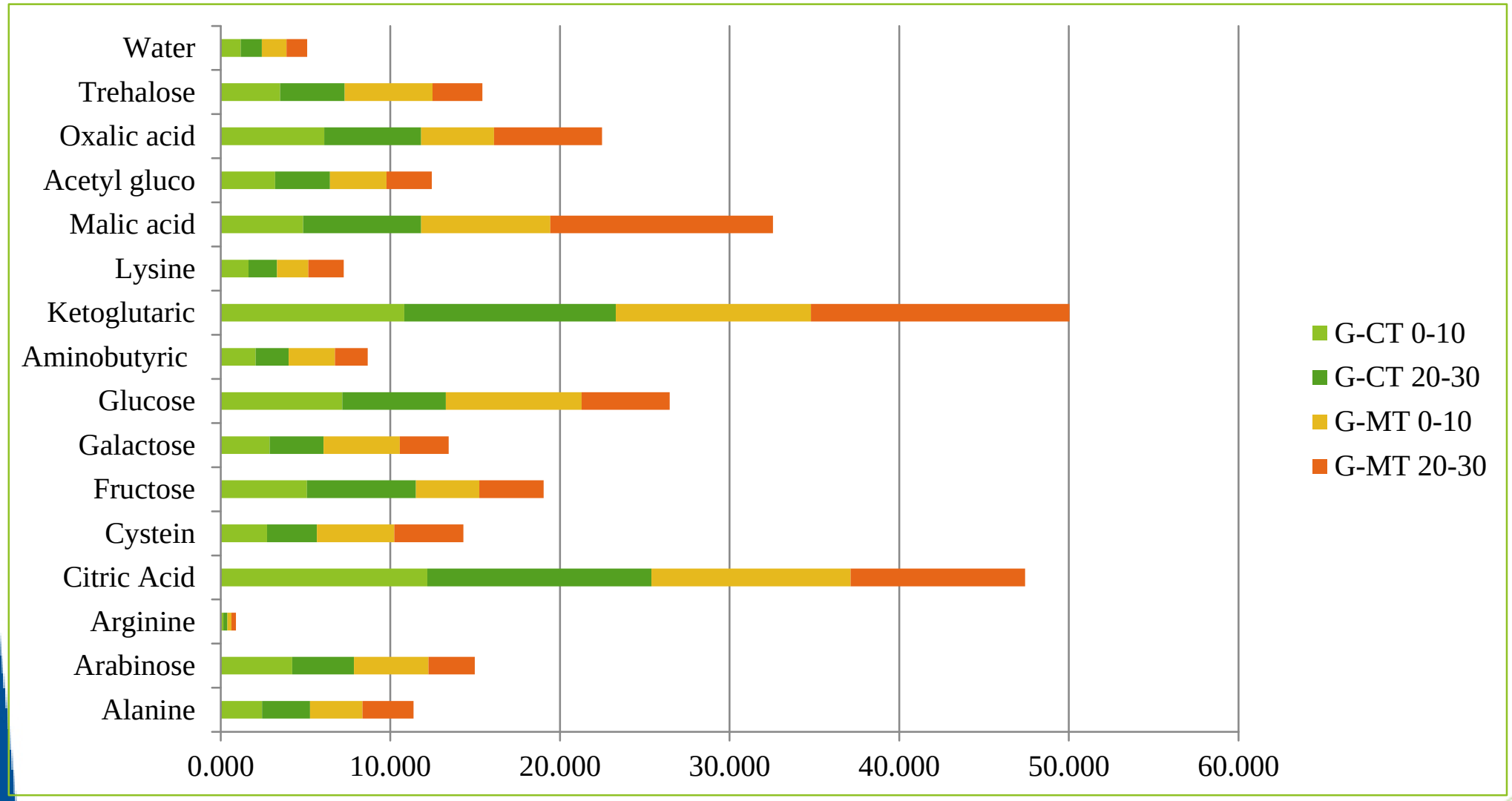


Fig. Germany MicroResp results

RESULTS GERMANY

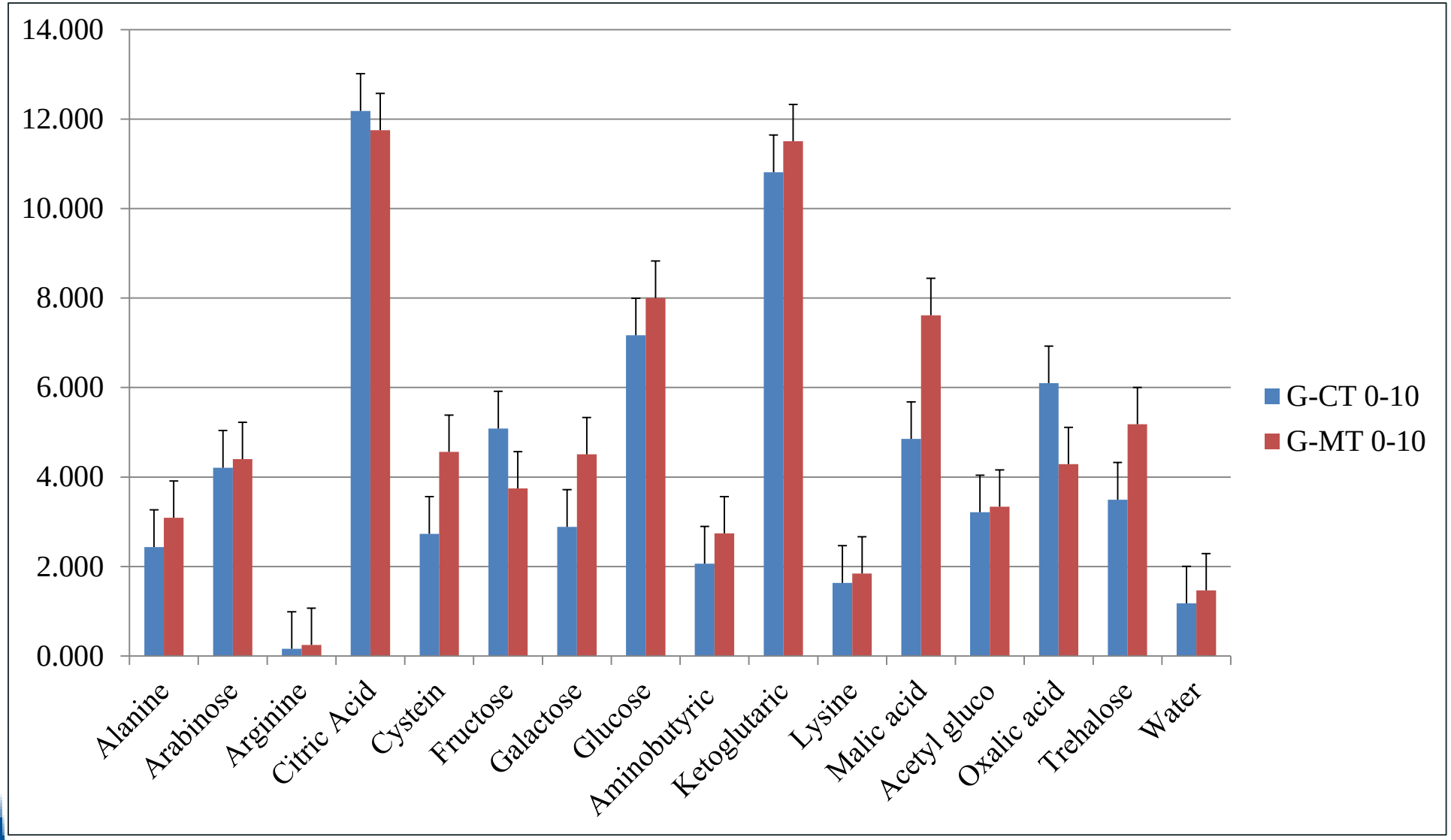


Fig. Conventional tillage vs minimum tillage Germany