



A pilot project for the production of bioactive molecules on brownfields (2016-2022)

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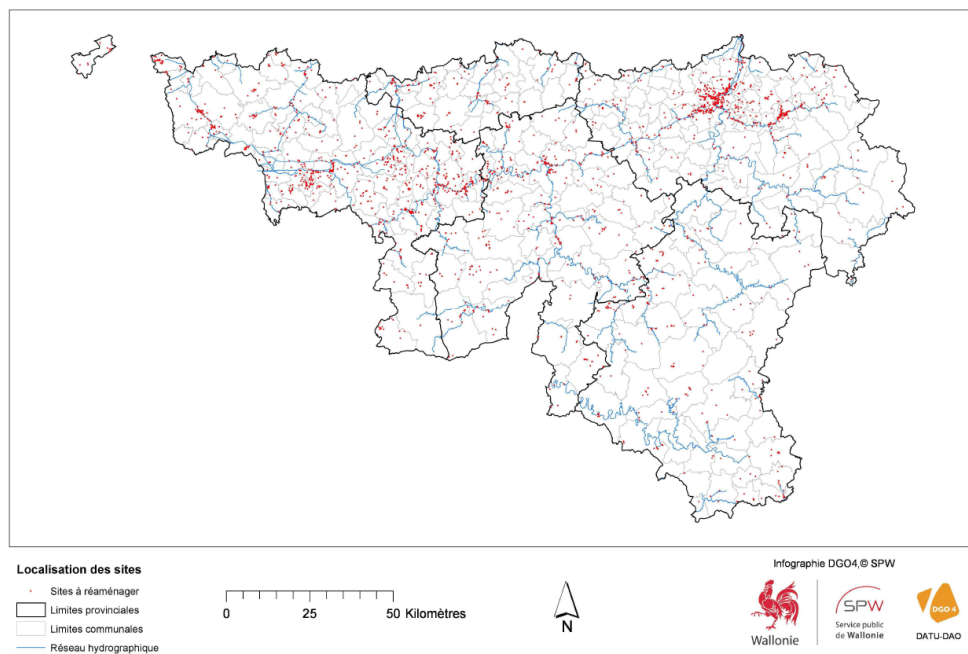
LE FONDS EUROPÉEN DE DÉVELOPPEMENT RÉGIONAL
ET LA WALLONIE INVESTISSENT DANS VOTRE AVENIR



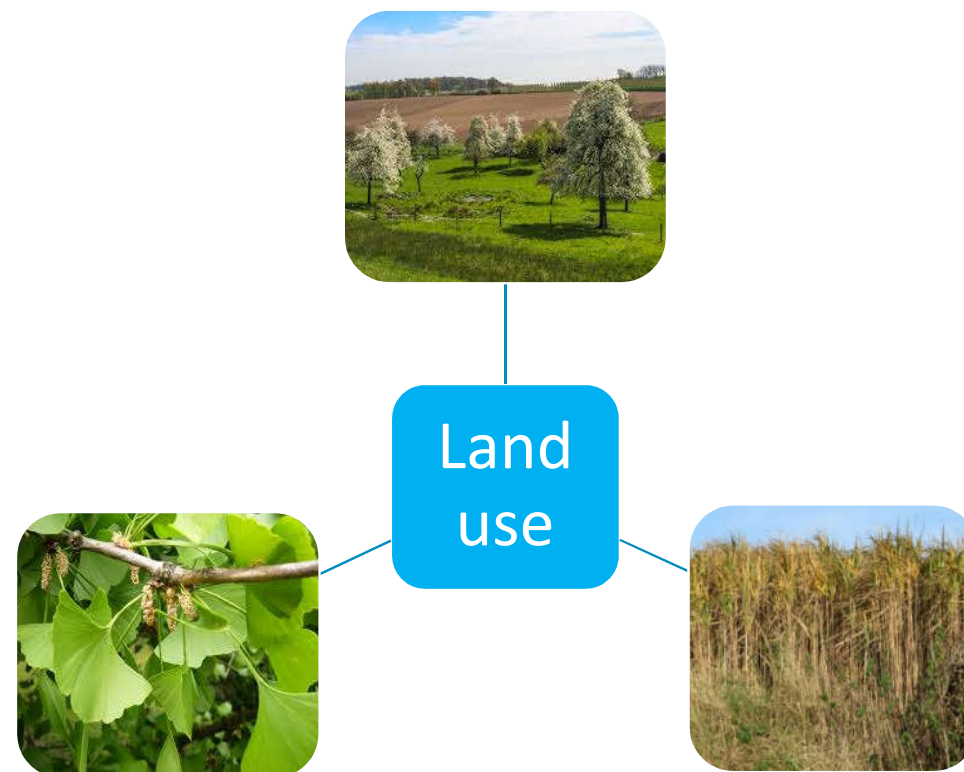
Context

1

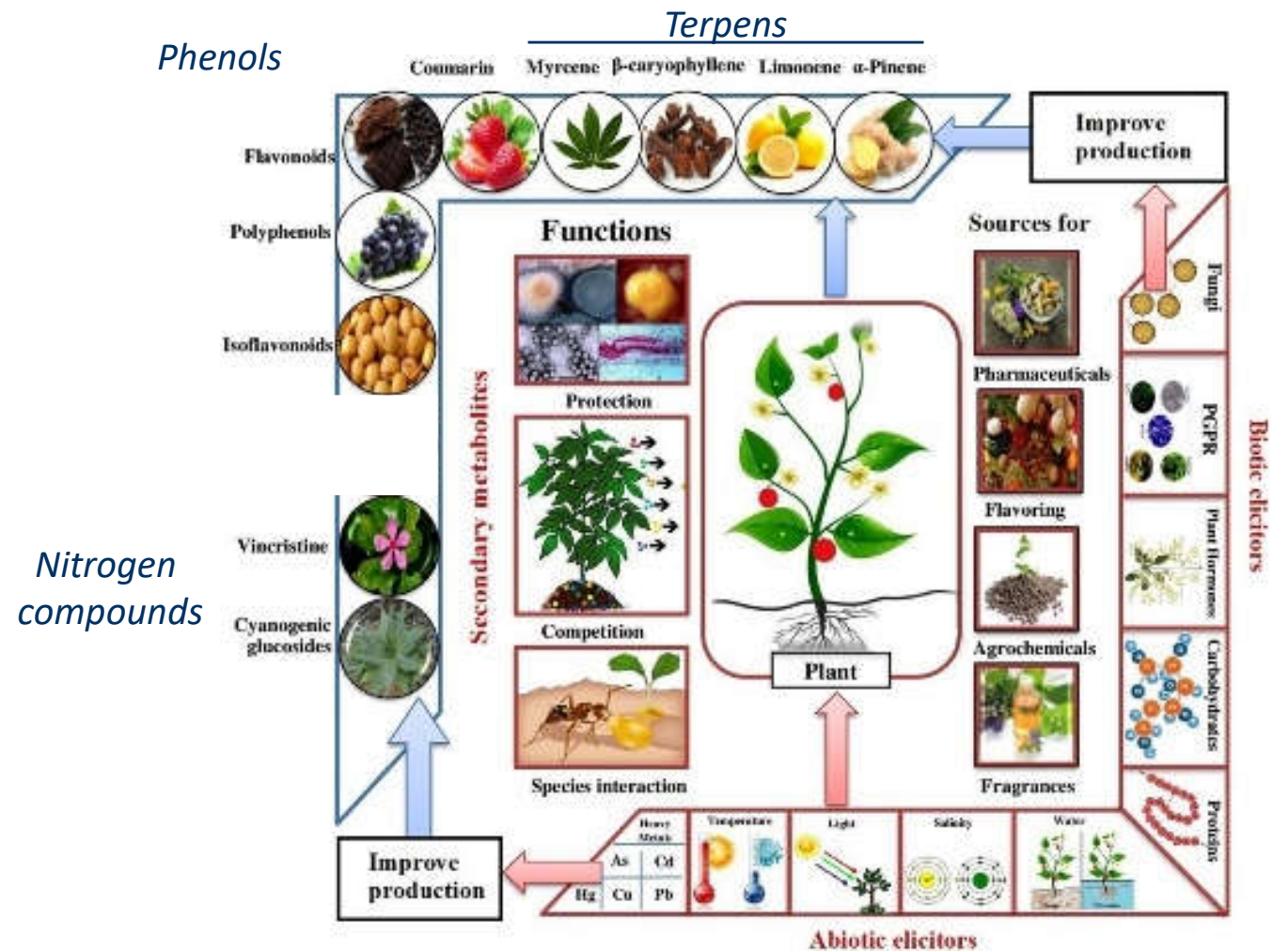
Distribution of sites to be redeveloped in Wallonia



2



Plants as source of bioactive compounds



Adapted from Thakur et. al. 2019

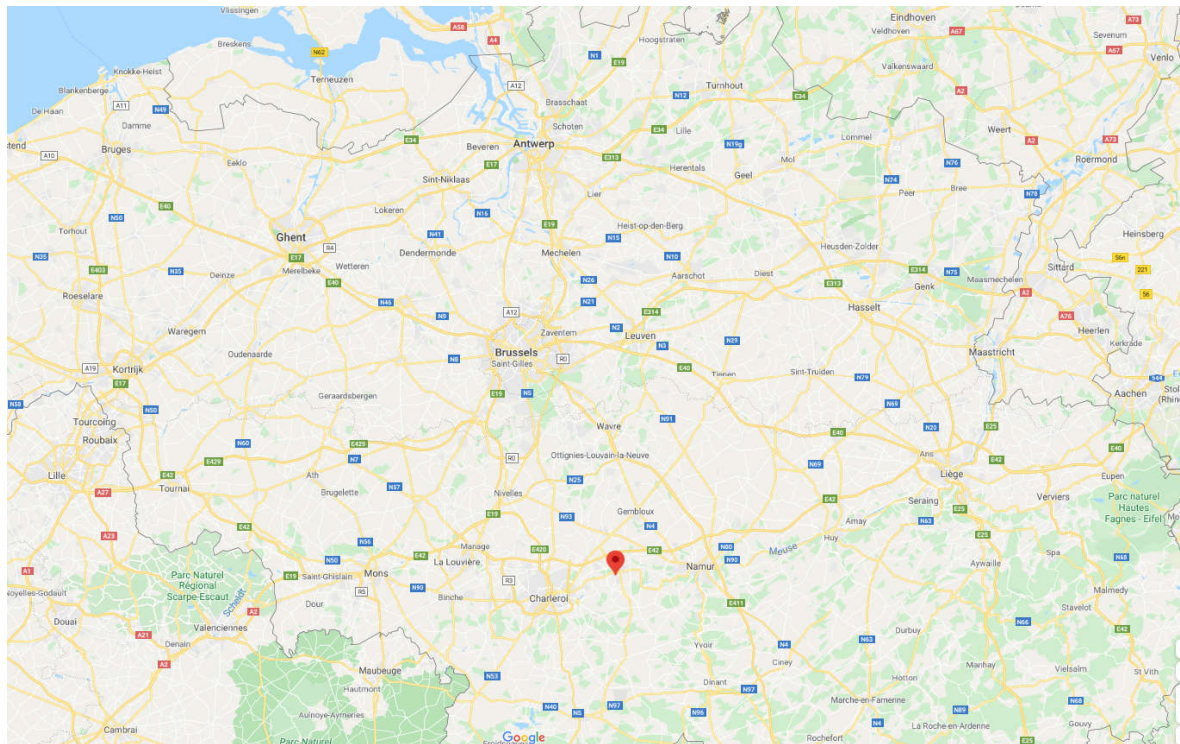
***Brassica napus* (rapeseed) as model plant**



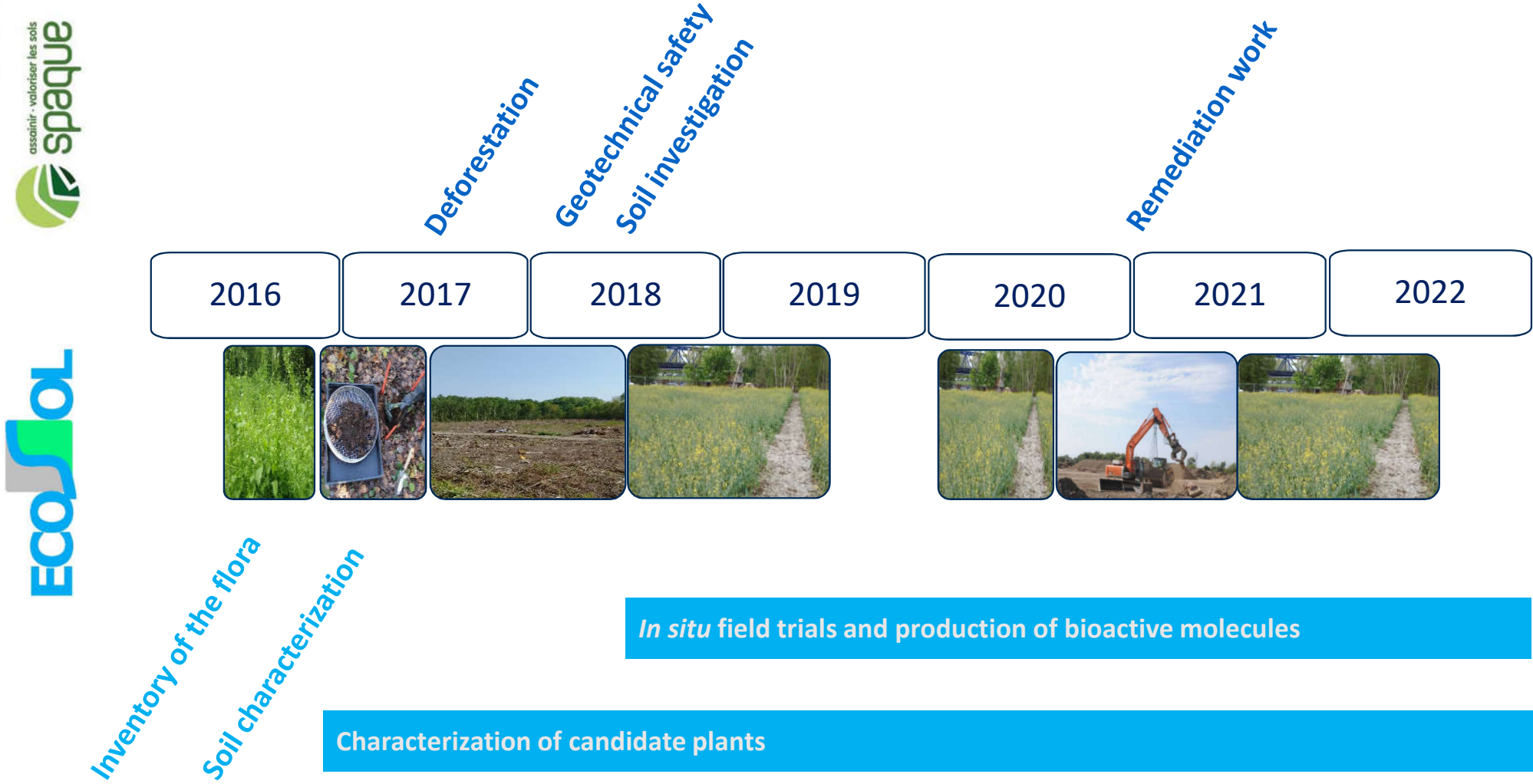
- Crop : edible oil, animal feed, biodiesel, anti-foaming agents, lubricants, cosmetics...
- Bioactive compounds: phytosterols, glucosinolates
- Metal tolerant species

« Produits chimiques d'Auvelais » as pilot brownfied site

(1850-1980)



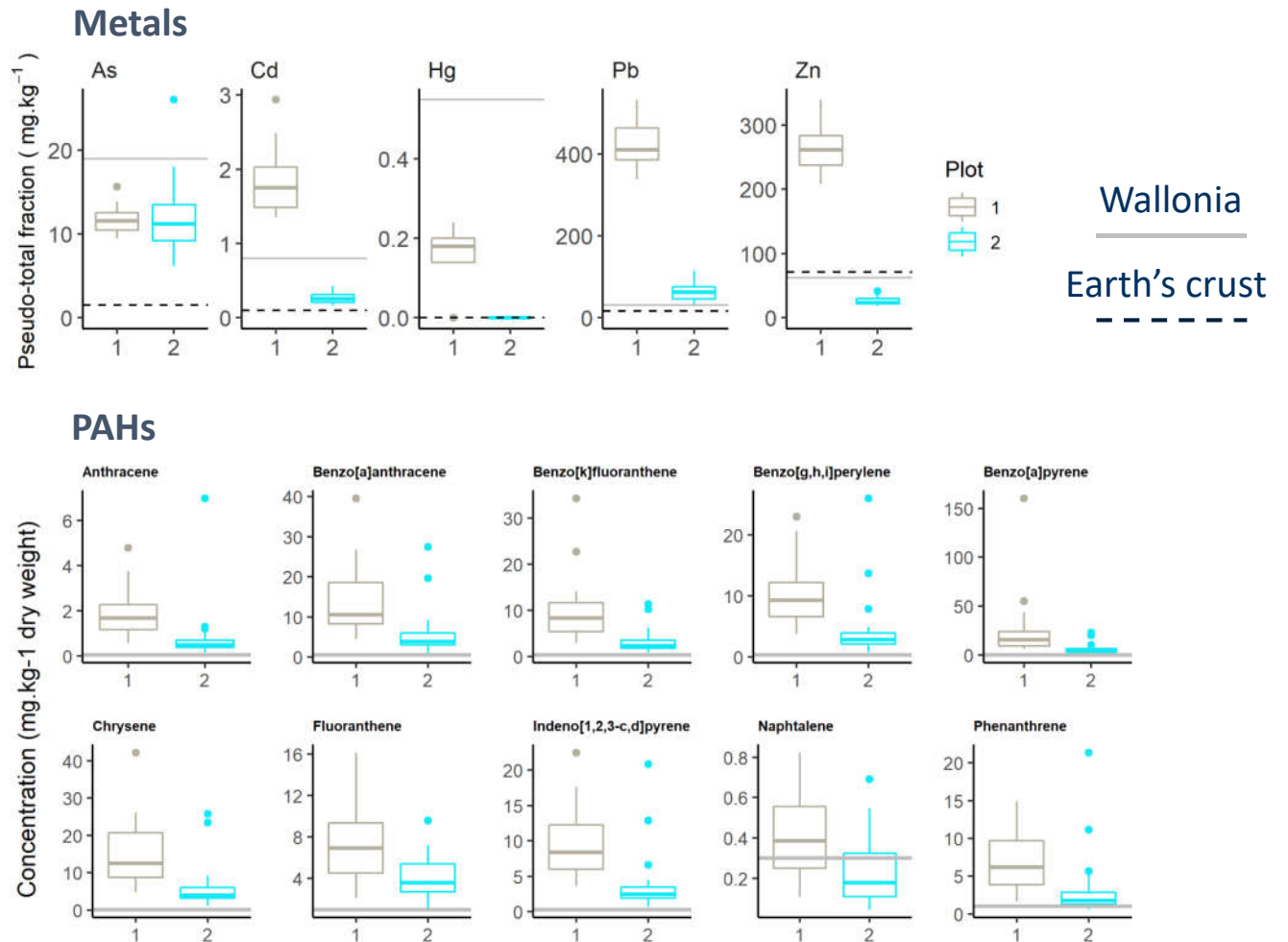
Timeline



Two experimental plots set up in August 2018



Two plots with different levels of soil pollution



> Plot 1 presents higher concentrations of metallic and organic contaminants than plot 2.

Rapeseed development in April 2019

PCA 1 - Road



PCA 2 - River



Rapeseed development in June 2019

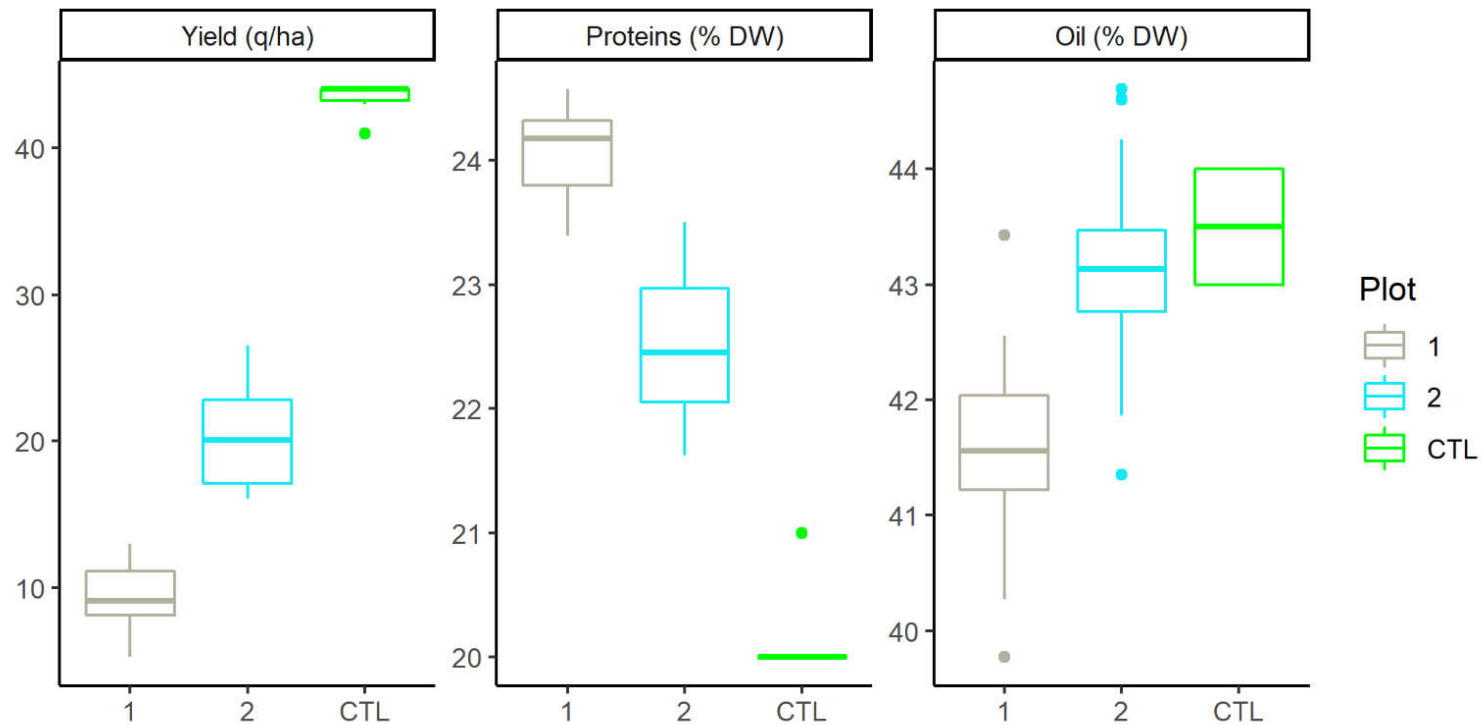
PCA 1 - Road



PCA 2 - River



Characteristics of the seeds harvested in August 2019

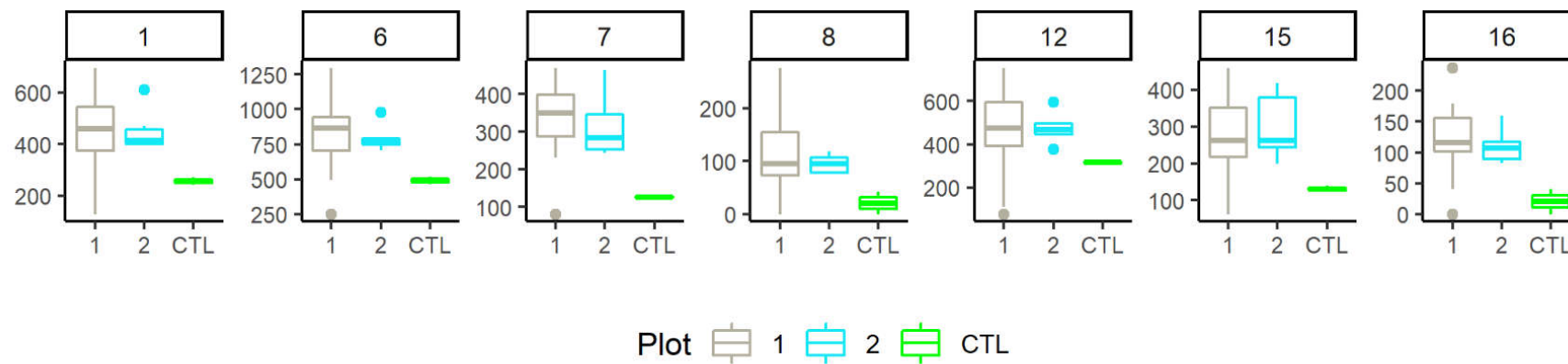


> Yield is impacted by the pollution

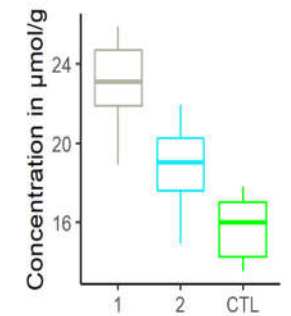
> In Plot 1, seeds present a higher protein content but a lower oil content than in plot 2 and normal soil.

Production of secondary metabolites in *Brassica napus*

Flavonoids in aerial parts

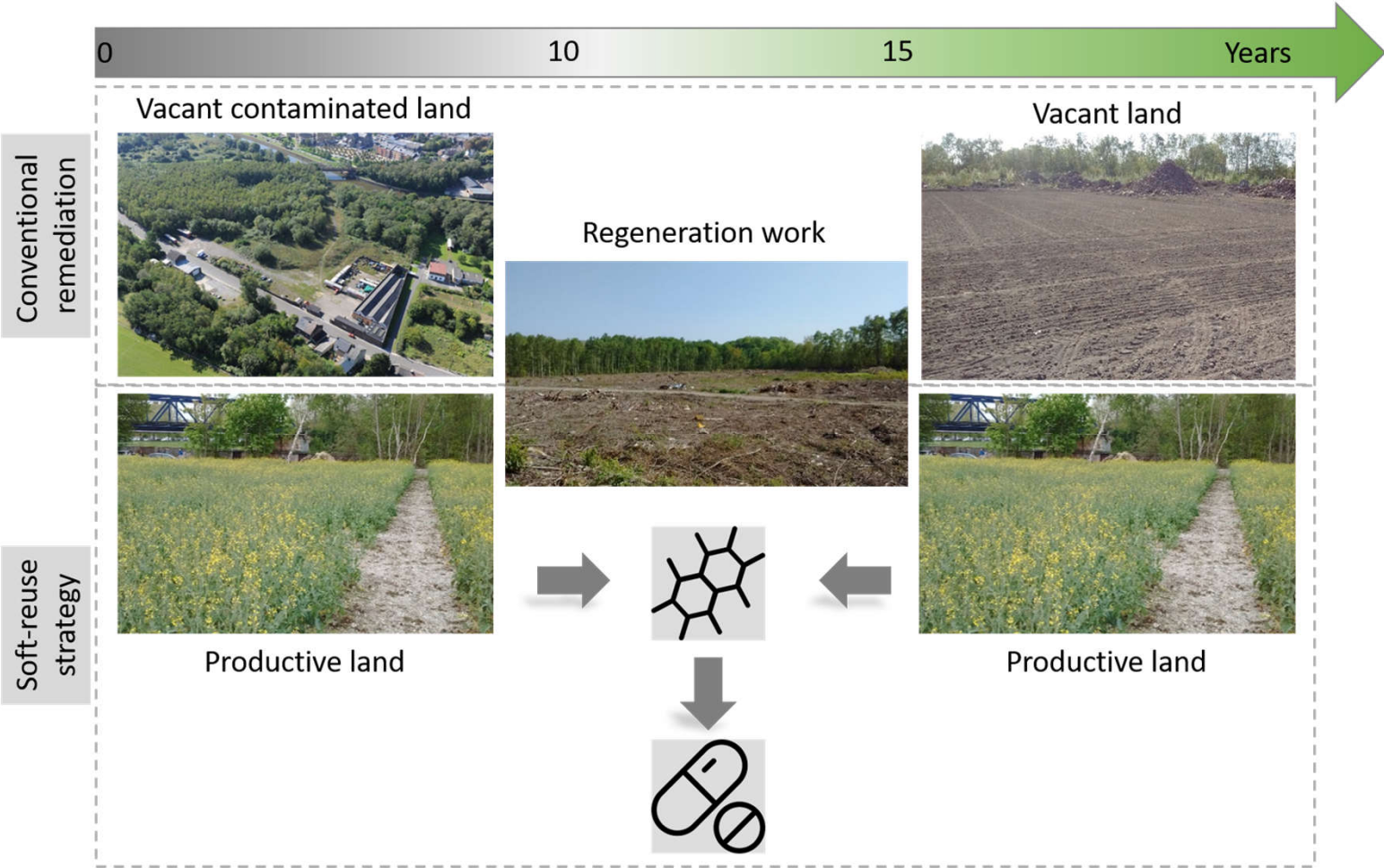


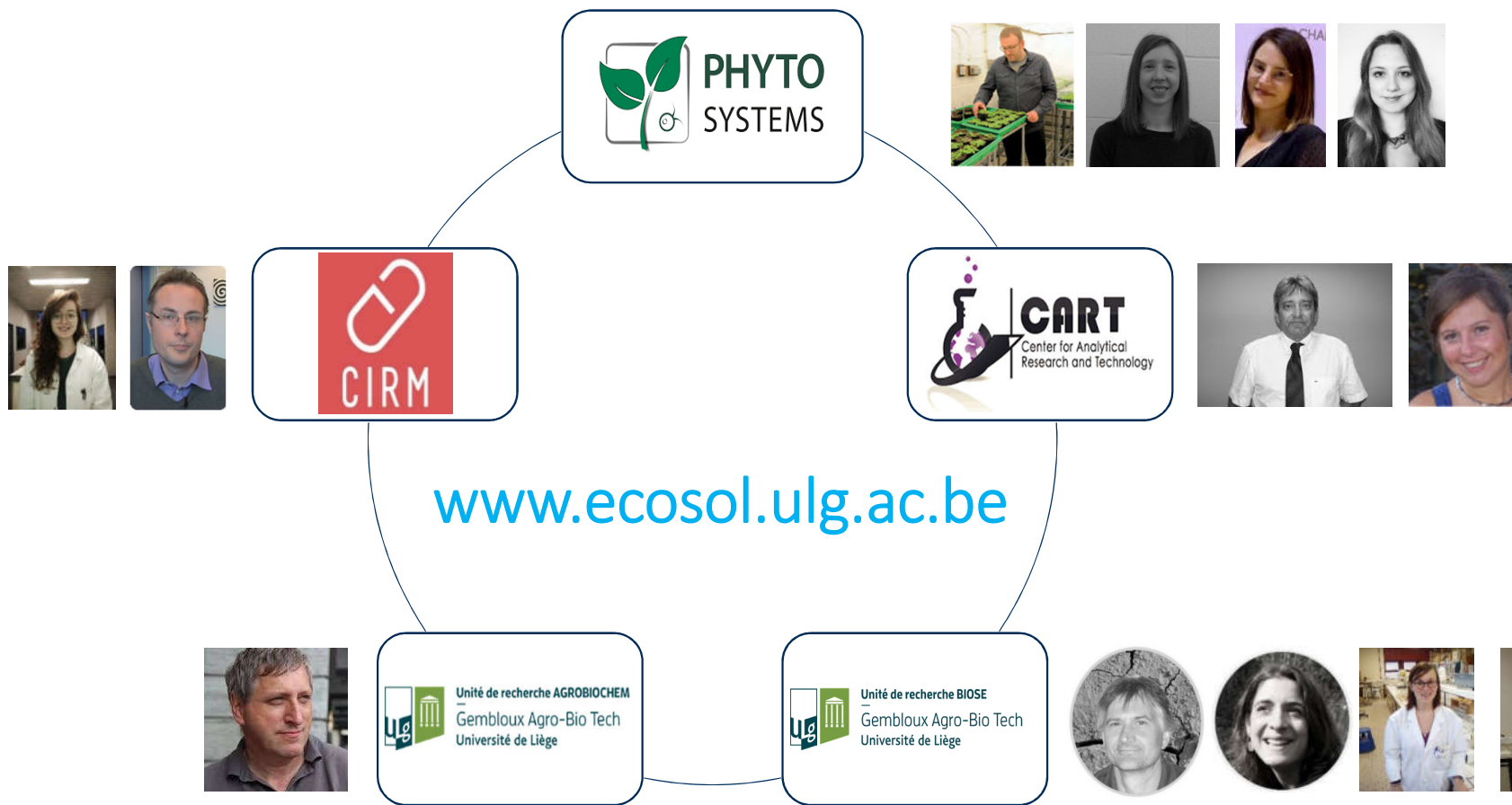
Glucosinolates in seeds



> The pollution increases the production of glucosinolates and 7 flavonoids.

Alternative strategy





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