	soil													grapevine					grapes			
	Soil densité	pH	Water content	Conductivity	Organic carbon	Nitrogen content	Phosphorus content	Potassium content	Microbioan biomass	Microfauna biomass	Soil biological activity	GES emission	Copper ecotoxicity	Photosynthtical activity	Water status / availibilty	Above-ground biomass	Root biomass	Yield (fruit)	TA, pH, Sugar, anthoc.	Skitn and seed	Yeast Availlable Nitrogen	
Schmidt *et al*, 2014 https://doi.org/10.1016/j.agee.2014.04.001	*No significant effect on vine health or grape parameters*																					*Limited input (8T/ha) on soil surface, alkaline soil*
Genesio *et al*, 2015 https://doi.org/10.1016/j.agee.2014.11.021	↓		↑											↑			↑		=	↑		*Four-years study, very significant effects during dry vintages*
Mackie *et al*, 2015 https://doi.org/10.1016/j.agee.2014.12.001									↑		↑		↓a									*a. indirect effect due to increased Cu uptake*
Ferreira *et al*, 2017 EGU2017-1600.pdf (copernicus.org)	↓			↑					↑	↓b	↑							↑	?c			*b. lower earth-worm biodiversty* *c. increased must "quality" reported*
Andrés *et al*, 2019 https://doi.org/10.1016/j.scitotenv.2019.01.101									↓	=d	=											*Limited input (5T/ha) in alkaline soil* *d. Only micro-arthropods have been studied*
Giagnoni *et al*, 2019 https://doi.org/10.1016/j.geoderma.2019.03.011		↑	↑		↑		↑e															*Study 7 years after only one biochar input* *e.increased content but less bio-available*
Karimi *et al*, 2020 https://doi.org/10.1007/s10311-020-01050-5	*No significant effect of biochar*																					*A review of a restricted number of papers, considering superficial input only*
Garcia-Jaramillo *et al*, 2021 https://doi.org/10.1007/s42773-021-00118-x		↑	↑		↑	↑					↑							=	=f			*f. Tanins quantity slighlty desreased*
Baronti *et al*, 2022 https://doi.org/10.1016/j.scitotenv.2022.158225			↑											↑	↑		↓g					*g. over 10 years, ↓ fine roots quantity decreased on the topsoil: adaptation to the increased of water availibility*
Egri *et al*, 2022 https://doi.org/10.3390/agronomy12112730	↓	↑	↑	↑		↑	↑	↑														*Grapevine Pruning-woods-made biochar applied to pepper-bell crop: very significant effects on acidic soils*
Schneider *et al*, 2023 https://doi.org/10.3389/fpls.2023.1253458												=				=		=	=			*Deep burial (60 cm) before planting*
Baronti *et al*, 2024 https://doi.org/10.1038/s41598-024-67766-4			↑						↑		↑				↑		=					*Alternative substrate in grapevine nursery*
Criscuoli *et al*, 2024 https://doi.org/10.1016/j.geodrs.2024.e00847												=↓										*Over one year, altitude vineyard, biochar from coniferous* *Moderated CO_2 ↗; Substantial N_2O ↘; CH_4 =*
Idbella *et al*, 2024 https://doi.org/10.1016/j.apsoil.2023.105217	↓	↑			↑				↑h													*h. Aver 10 years, ↗bacterial and fungalbiomass expected ↘ of fungal pathogens*
Gholamahmadi† *et al*, 2024 https://doi.org/10.1016/j.scitotenv.2023.161860	↓		↑						↑i													*Positive for soil structure (runoff-related erosion decreased)* *i. mould maintained during dry periods*
Raifer *et al*, 2024 https://doi.org/10.23796/LJ/2024.003						=													=		=	*No impact detected by COV or sensorial analysis*
Russi *et al*, 2024 https://doi.org/10.1016/j.apsoil.2024.105550													↓			↑	↑					*Black foot disease control via biochar + endospores B.velensiz S26*